C. P. U. 283

COMMITTEE ON PUBLIC UNDERTAKINGS (1974-75)

(FIFTH LOK SABHA)

SIXTY-SEVENTH REPORT

ON

FERTILIZERS AND CHEMICALS, TRAVANCORE LTD.

(Ministry of Petroleum & Chemicals)
(Department of Chemicals and Fertilizers)

सत्यमेव जयते

LOK SABHA SECRETARIAT
NEW DELHI

April, 1975/Chaitra, 1897 (S)
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TO

Sixty-Seventh Report of the Committee on Public Undertakings (1974-75) on Fertilizers Chemicals, Travancore Ltd.

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119	7.6	3	field	plan
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(1974-75)

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*Elected w.e.f. 28-11-1974 in the vacancy caused by appointment of Shri H. M. Trivedi as Minister.

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*Elected w.e.f. 28-11-1974 in the vacancy caused by appointment of Shri H.M. Trivedi as Minister.

INTRODUCTION

I, the Chairman, Committee on Public Undertaking having been authorised by the Committee to present the Report on their behalf, present this Sixty-seventh Report on the Fertilisers and Chemicals, Travancore, Ltd.

2. This Report of the Committee is based on the comprehensive appraisal of the working of Fertilisers and Chemicals, Tranvancore Ltd. as contained in the Report of the Comptroller and Auditor General of India for the year 1969-70—Central Government (Commerical) Part X—Fertilisers and Chemicals, Travancore Ltd. and paragraph I of the Report of the Comptroller and Auditor General of India for the year 1970-71—Union Government (Commercial)—Part XIII—Individual irregularities and a resume of Company Auditors Report—and also on an examination in depth of the working of the Fertilisers and Chemicals Ltd. upto the year ending 31st March, 1974.

3. The Committee on Public Undertakings took evidence of the representatives of the Fertilisers and Chemicals, Travancore Ltd. on the 16th and 17th October, 1974 and of the Ministry of Petroleum and Chemicals (Department of Chemicals and Fertilisers) on the 9th December, 1974.

4. The Committee on Public Undertakings considered and finalised the Report at their sitting held on the 25th April, 1975.

5. The Committee wish to express their thanks to the Ministry of Petroleum and Chemicals (Department of Chemicals and Fertilisers), the Fertilisers and Chemicals, Travancore Ltd. and the non-official organisations for placing before them the material and information they wanted in connection with the examination of the Fertilisers and Chemicals, Travancore Ltd. They wish to thank in particular the representatives of the Ministry and the Company 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 the eaxmination of the Fertilisers and Chemicals, Travancore Ltd.

NEW DELHI;
April 28, 1975.
Vaisakha 8, 1897 (*S*).

NAWAL KISHORE SHARMA,
Chairman,
Committee on Public Undertakings.

I

INTRODUCTORY

1.1. The Fertilisers and Chemicals, Travancore Ltd. (FACT) was incorporated on 22nd September, 1943 with the Government of the then Travancore State as a substantial share holder. Messrs Seshasayee Brothers (Travancore) Ltd. were appointed as Managing Agents. On 15th August, 1960 the Managing Agency agreement expired in accordance with the Indian Companies Act and the Government of Kerala, the major share holder, took over the responsibility for the Management of the Company through a Board of Directors. In July, 1963, FACT became a Central Government Company, when the Government of India subscribed to the fresh issue of shares for Rs. 3.5 crores, thus acquiring major interest (50.3 per cent) in the Company. Since acquiring the majority shares, the Government of India manage the Company and at present hold 93 per cent of shares.

1.2. The construction of the Factory started at Udyogmandal on the 14th August, 1944. The overall responsibility for construction and commissioning of the plant was entrusted to M/s. Intercontinental Corporation of USA. The Plant went into commercial production in 1st August, 1948. The annual capacity of the Plant at the commencement of the production was approximately 44,500 tonnes of ammonium sulphate. The total investment then was Rs. 353.45 lakhs.

1.3. The Company now comprised five main divisions viz. (i) Udyogmandal Division, (ii) Cochin Division, (iii) FACT Engineering and Design Organisation, (iv) FACT Engineering Works and (v) Marketing Division. In addition to manufacturing, buying and selling chemicals and fertilizers the Company also undertakes works of the following nature:

(i) Designing and Engineering of fertilizers plant and civil works.

(ii) Fabrication and erection of steel structures and repairs and maintenance of boilers.

1.4. The working of the Fertilizers and Chemicals, Travancore Ltd. was examined by the Committee on Public Undertakings in 1968-69 and their recommendations/observations are contained in their 44th Report (Fourth Lok Sabha). Action Taken by the Government on this Report is contained in the 59th Report (Fourth Lok Sabha) of the Committee on Public Undertkaings (1969-70).

II

FERTILIZER INDUSTRY—FACT's CONTRIBUTION

2.1. The actual consumption of nitrogen and phosphatic fertilizers and actual production and the gap between the two has been as follows since 1969-70:—

(Figures in lakh tonnes)

Year	Actual consumption N&P	Indigenous production N&P	Gap between) consumption and production.
1969-70	17·72	9·54	8·18
1970-71	20·20	10·61	9·59
1971-72	23·56	12·39	11·71
1972-73	23·66	13·82	9·84
1973-74	27·83	13·80	14·03
1974-75	39·10 (Estimated)	19·00	20·10
1978-79	70·oc (Estimated)	52·00	18·00

2.2. According to present anticipation the consumption of fertilizers is expected to double during the Fifth Five Year Plan. Though the production is also expected to rise, the gap would still persist.

2.3. "The targets and achievements of capacity for production of fertilizers during the Five Year Plans was as under:—

(Figures in lakhs tonnes)

	Capacity existing at the beginning of the Plan		Capacity envisaged to be installed during the Plan (at the time of the Plan period		Capacity actually installed at the end of the Plan		Shotrfall
	N	P_2O_5	N	P_2O_5	N	P_2O_5	
First Five Year Plan (1951-52 to 1955-56) .	0·16	NA	0·96	0·35	0·85	0·35	
Second Five Year Plan (1956-57 to 1960-61) .	0·85	0·35	3·82	1·20	1·58	0·57	60%
Third Five Year Plan (1961-62 to 1965-66) .	1·58	0·57	10·00	5·00	5·86	2·30	46%
Fourth Five Year Plan (1969-70 to 1973-74) .	10·24	4·21	30·00	12·00	19·39	5·60	40%

2.4. According to the targets laid down in the Fourth Plan, the capacity expected to be installed by the end of the Plan period (1973-74) was 42 lakhs tonnes. This target was, however, scaled down as a result of mid-term appraisal of the Plan to 29.57 lakhs tonnes. Even against this reduced target, the capacity which is likely to be available for operation by the end of the Fourth Plan is of the order of 24.99 lakh tonnes. Thus there would still be a shortfall of 4.58 lakh tonnes compared to the reduced targets set in the mid-term appriasal.

FIFTH PLAN

2.5. During the Fifth Plan, development of fertilizer capacity would be as under:—

(Figures in lakh tonnes)

	Public Sector	Private Sector	Total
(i) Capacity likely to be available at the beginning of 5th Plan	13·30	11·69	24·99
(ii) Capacity of projects under various stages of implementation	23·39	25·45	28·84
(iii) Capacity planned for 5th Plan	22·16	6·55	28·71
(iv) Total capacity expected to be available of the end of 5th Plan	58·85	23·60	82·54

2.6. Between nitgrogen and phosphates, the value added by local manufacturers is more in the case of nitrogen and in this context greater emphasis is being laid on the development of nitrogen capacity on a more urgent basis. Towards, this objective, Government have already decided in principle to set up 5 projects in the public sector at Bhatinda, Panipat, Mathura, Paradeep & Trombay (Expansion). Besides, Government have approved of the expansion of Sriram Chemicals Industry's Plant at Kota, Gujarat State Fertilizer Corporation's Plant at Baroda (Expansion Scheme) and the setting up of a new fertilizer plant at Kakinada. Government have also approved in principle the setting up of a fertilizer plant by IFFCO at Phulpur with a capacity of 2.88 lakh tonnes of nitrogen. Proposals have also been approved for setting up of ammonia facilities at Cochin under the FACT.

2.7. One or two more projects may also be planned towards the end of the 5th Plan. Some of these nitrogenous fertilizers plants are expected to take up the manufacture of phosphates in complex form. Besides, IFFCO and MFL have also plans for manufacture of additional phosphate production. Besides a proposal from Mysore State Industrial Investment and Development Corporation for setting up of phospheric acid and mono-ammonium phosphate plants has also been approved. With the development of these capacities the overall position at the end of the 5th Plan is projected as under:—

(In lakh tonnes)

Nitrogen			P_2O_5		
Public Sector	Private Sector	Total	Public Sector	Private Sector	Total
46·64	18·47	65·11	12·21	5·22	17·43

2.8. Simultaneous efforts are also being made for identifying foreign exchange sources required for the implementation of the projects.

2.9. Since fertilizer is a countinuous process industry, which is very sensitive to power fluctuation, efforts are being made to ensure adequate power supply to fertilizer industry. Capative power plants are being planned in certain cases. Subject to fertilizer programme being implemented as currently envisaged, power supply being normal and labour relations being cordial, Government expect that a level of production of 5.2 million tonnes of nutrients would be achieved by 1978-79. This would leave a gap of 18 lakh tonnes of nitrogen, between demand and availability of nitrogen and phosphatic fertilizer by the end of 5th Plan. The gap between demand and supply is expected to be bridged by about 1980-81."

2.10. So far as the Fertilizers & Chemicals, Travancore Ltd. is concerned it started production of ammonium sulphate in August, 1948. Since then it has made several additions/alterations in its equipments and capacity, which is discussed in the subsequent

chapters of this Report. As on date the Udyogmandal Division has the following daily capacities:—

	tonnes
Ammonia	355
Sulphuric acid	746
Superphosphate	135
Phospheric acid	125
Ammonia sulphate	600
Ammonia phosphate	550
Ammonium chloride	75

2.11. The Cochin Phase-I Plant is designed to produce 600 tonnes of ammonia in a single stream and 1,000 tonnes of urea in two streams of 500 tonnes each per day. The Cochin Phase III Plant, expected to be ready by December, 1975, is supposed to produce 4,85,000 tonnes of NPK granulated fertilizer by 1978-79.

2.12. The Chairman-*cum*-Managing Director informed the Committee during evidence that FACT's contribution to the all India requirement is as follows:—

> "During the period 1969-70 to 1973-74, our contribution to all India requirement has been in the case of nitrogen, about 2 to 2.3 or 2.4 per cent and in the case of P_2O_5—phosphatic fertiliser we started with about 5 per cent and in the year 1973-74, we had contributed about 3.6 per cent. The figures change because of variation in our production and because the total requirement in the country has gone up. With Cochin Phase II Plant going into production, our contribution against the all India requirement is expected to be, by the end of the Fifth Plan, about 5 per cent in the case of nitrogen and 2 per cent in the case of P_2O_5

2.13. On an enquiry from the Committee why there was under-utilisation of capacity of different plants in the country the Secretary of the Ministry of Petroleum and Chemicals stated during evidence that it was true that as against the installed capacity of 19 lakh tonnes of different fertilizer plants in the country, the actual production had been only a little over 50 per cent i.e. 10.6 lakh tonnes taking all projects together. Explaining the constraints in achieving a higher rate of production he stated that

a few of the plants were either very ancient or the technology was obsolete. FACT, Neyveli, Rourkela, Nangal and Sindri, plants were in this category. Nangal plant suffered on account of non-availability of the full requirement of power. The Rourkela Plant was based on coke-oven gas, the source of gas being the steel plant itself. It was stated that as a result of the relatively low utilisation of the steel capacity and the increased consumption of coke-oven gas, the availability of gas for fertilizer production has been much less than what was earlier anticipated and based on which the plant was built. As a result, the plant was able to utilise its capacity only to the extent of 50 per cent of the rated capacity. The third plant under-utilising its capacity was the Neyveli Lignite Plant, based on Lignite feed stock. This plant had been having difficulties in the gasification section. The Udyogmandal plant of FACT was one of the oldest fetilizer plants to be set up in India. Some of its facilities had been modified and additional facilities added in course of time with the result that at present it was conglomeration of a large number of small plants directly or indirectly dependent on one another. As a result, any interruption in any one of them upset the whole sequence and the production tended to be low. This plant had also been facing serious power problems. Sindri was another plant where the production was not as high as one would expect, because of the age of the plant and non-availability of proper grade of gypsum.

2.14. The other category was of two brand new modern projects—Durgapur and Cochin I, which were designed and executed by Indian engineers, who had adopted a technique which had not been tried elsewhere. It was in pursuance of a Government decision taken in 1966 to encourage indigenous designing and erection of fertilizer plants. The Secretary of the Minisrty stated that it was an experiment and the country was learning from it. Several studies had been carried out and modifications were being made. It was expected that with the implementation of these modifications the utilisation factor in these two plants would improve and they were coming up accordingly. The Secretary admitted that the only mistake they had made was that they selected larger parameters with which the Indian engineers were not familiar. But there was no other means of learning the new technology except by asking the engineers to put up the plants according to higher parameters.

2.15. The Secretary stated that whenever a project was set up, certain assumptions were taken into consideration such as

availability of adequate power in a sustained manner, adequate supply of raw materials and fairly satisfactory labour relations. Apart from these the mechanical breakdowns posed a serious problem. The Secretary added that, in their anxiety to have the plant located in their territory, State Governments gave promises for the supply of power at the appropriate time, but as the projects progressed, the things went wrong and the power was not available. In Rourkela it was thought that the plant would get so much of coke oven gas from the steel plant, but as time passed, the Steel Plant could not spare coke oven gas to the extent required by the Fertilizer Plant. In Sindri they needed a particular mix of coal for optimum production, but as time passed it was found that this particular mix was too valuable to be given for fertilizer, as it was required by the Steel Industry. It was stated that the raw material in Nangal was essentially power, which was available but now the position had changed. As against the agreement for the supply of 164 megawatts of power, Nangal was getting only 72 megawatts of power now-a-days.

2.16. The Secretary of the Ministry added that till last year the fertilizer industry was doing good, but during the current year there were series of tragedies e.g. in Gujarat State Fertilizer Co. at Baroda, which was running to 94 per cent capacity, the lining of its urea reactor failed and the plant had to stop for six weeks. Similarly in the Madras Fertilizers which was doing well, they had some trouble with some sensitive equipment and had an accident. Similarly Vizag Plant had trouble and the functioning of Kota Plant came down from 115 per cent to 100 per cent on account of railway strike. The Secretary opined that if a plant worked to above 70 per cent capacity, it was considered good. Among the Public Sector Plants, he would put Trombay, Gorakhpur, Madras Fertilizers and Gujarat State Fertilizers Plants in this category.

2.17. Giving a resume of the coming up of new plants in the Public Sector, the Secretary stated as follows:—

> "Of the five large-sized plants of the Fifth Plan, the first three namely Bhatinda, Panipat and Mathura are supposed to be set up with foreign exchange assistance from Japan. So far as Bhatinda is concerned, action has been completed on our side. Financial arrangements have been tied up. Contracts have been entered into and have become effective. The people concerned,

both on the Japanese side and on our side, are working on the details. I think they are taking steps to procure the equipment etc. They have laid down the target that within 36 months of the date of the contract becoming effective, they will start production. We are trying our very best to see that at least once in India we can keep to a target date. This is all I can say today.

Regarding the second plant, here also as the contractors will be the same for engineering services, we have already in the first contract included the contract for the second plant also of identical size and parameters. The decision whether that plant will be in Panipat or Mathura has not yet been taken. I expect it will be taken very soon. I hope before the end of this month. Once that is done, we will go ahead with tying up finance and also entering into the remaining contracts, and we have time till the end of May, 1975 to finally enter into these contracts, because we have planned it in such a way that instead of bunching all together, one plant will start this year, another next year and the third plant the third year. So, about the second plant also, the moment we decide on the location, we will go ahead and enter into all the contracts and the machinery will be set in motion.

About the third plant, we will think of it next year because it has to start the year after next.

Regarding Trombay, all action has been initiated planning and entering into contract, and we are working on it. We do not anticipate any difficulty, but regarding Paradip, though the project has been approved in Principle, in practice we have not yet got the sanction for it because there are a number of issues involved. There is, first of all, the issue about the scope of the project, how much of what substance it will produce, how etc. Even more important is the question of the finances required for the project, whether it will be available to the Ministry from Government, the Planning Commission and anybody else. So, these two things are holding up a final decision. As soon as these are cleared, we will get the authority to go ahead with it. This is the present position."

2.18. The Committee on Public Undertakings (1973-74) recommended in their Fiftieth Report on Fertiliser Corporation of India Ltd. (Marketing and Distribution) as follows:—

> "The Committee find that the development of capacity for production of fertilizers in the country fell short of the target during Second Five Year Plan by 60 per cent in Third Five Year Plan by 46 per cent and in Fourth Five Year Plan by 40 per cent. The Committee cannot but conclude that such heavy shortfalls in the development of capacities in the core sector of Plan indicate that well coordinated and systematic efforts were not made to achieve the Plan target. The Committee also note that the existing capacity in the public sector is proposed to be raised four fold from 13.30 lakhs to 58.85 lakh tonnes by the end of the Fifth Five Year Plan. Considering the past performance, the Committee cannot too strongly emphasise the need for planning in depth and concrete efforts on the part of all concerned with the fertilizer industry to see that the target laid down is in fact achieved in the interest of making available this essential input for increasing food production."

2.19. In reply Government have stated that continuous efforts are being made to ensure that the production targets are achieved by the concerned units in the industry. This has not yet been considered by the present Committee, as all the replies have not been received.

2.20. The Committee were also informed that the Ministry was proposing to set up a Cell to monitor and evaluate the performance of various units both in the public and private sector. The Committee felt:—

> "That such a step should have been taken long ago at least in the beginning of the Fourth Plan when development of the industry was projected on such an ambitious scale so that problems could be identified and resolved in time. The Committee hope that this Cell to be manned by the best experts with proven administrative skill, will come into existence without further delay and will be given the requisite backing in Government and in the field to press into full production the plants already installed and in achieving four fold increase in

production envisaged in the Fifth Plan. The Committee would like to be informed of the concrete measures taken in that behalf."

2.21. The Committee note that there is gross under-utilisation of capacities of different fertilizer plants in the country. Against the installed capacity of 19 lakh tonnes in all the plants put together, the actual production had been only a little over 50 per cent i.e. 10.6 lakh tonnes. Some of the constraints in achieving a higher rate of production are stated to be non-availablity of adequate power, sufficient quantity of coke-oven gas and proper grade of gypsum and obsolete technology or as in the case of Cochin and Durgapur the Indian engineers had selected larger parameters with which they were not familiar. The Committee would like that each of these causes for the under-utilisation of capacities should be critically analysed with a view to correcting them at the earlier in the interest of achieving the maximum production. The Committee are suprised to find that even in respect of the projects in the Fifth Five Year Plan although action has been initiated in setting up projects, priority in taking up plants, nature of product-mix and tying up with finances are still to be finalised. The Committee expect that a decision on these aspects will be taken without any further delay and the experiences gained so far in the construction and maintenance of the plants already set up will be utilised to ensure that the new projects come up in time and the targets set for them are adhered to. The Committee need hardly stress that, in view of the world wide shortage of fertilizers and the phenomenal increase in the import price of fertilizers, import of fertilizers, would become more and more difficult in the coming years.

III

UDYOGMANDAL DIVISION

A. Expansion of capacities—Stages I & II

3.1. The construction of the factory at Udyogmandal was started in August 1944 and the plant having an annual capacity of about 44,500 tonnes of ammonium sulphate went into commercial production in August, 1948. The Company undertook the expansion of the then existing capacity and the creation of facilities for new products through expansion programmes. The Company took up its first expansion programme for the manufacture of superphosphate. By September, 1950, one additional 75 tonnes sulphuric acid plant and one 150 ton superphosphate plant were commissioned, the annual capacities being 22,250 tons of sulphuric acid and 44,500 tonnes of superphosphate.

3.2. With the advent of the First Five Year Plan and the setting up of a giant fertiliser plant at Sindri with a capacity of 3 lakh tonnes of ammonium sulphate compared to FACT's 44,000 tonnes, the Company thought of further expansion and diversification in order to survive.

3.3. The Company had embarked on a plan to manufacture caustic soda. But because of financial difficulties faced by the Company the State Government formed a new company called. "The Travancore-Cochin Chemicals Ltd." (T.C.C.) with FACT carrying as equity Rs. 25 lakhs which it had spend on this project.

3.4. When the T.C.C. went into production it generated large quantities of hydrochloric acid as by-product. FACT decided to put up an Ammonium Chloride Plant to absorb this by-product. At that time ammonium chloride was not being produced in the country. This plant was commissioned on 4th June, 1955, with an annual capacity of 8,000 tonnes.

3.5. A Committee appointed by the Board of Directors suggested further expansion of the Company in two stages. The first stage of expansion involving an outlay of Rs. 3 crores contemplated the doubling of nitrogen capacity and the introduction of a new compound fertilizer called ammonium phosphate (16:20 grade). An elec-

trolytic hydrogen plant to supply enough hydrogen to make 40 tons of ammonia a day was also set up as part of this programme. This plant which required 21,000 KW of electric power, however, turned out to be a white elephant later and five, out of its 8 cells, were sold to Nangal Fertilizer Factory in November, 1965. The second stage of expansion costing Rs. 2 crore aimed at replacing the unique but uneconomic firewood process with the modern oilgasification process and increasing nitrogen capacity to 30,000 tons per annum. This expansion was completed in December, 1962.

3.6. With the completion of the expansion programme by December, 1962 (in two stages) the following Plants had been established to attain the capacities mentioned against each, on the basis of a stream efficiency of 330 days in a year.

(In tonnes)

Name of the Plant	Daily capacity	Actual capacity
1	2	3
Ammonia	120	39,600
Ammonium Sulphate	300	99,000
Ammonium Phosphate	100	33,000
Ammonium Chloride	25	9,250
Sulphuric Acid	296	97,680
Phosphoric Acid	25	8,250
Superphosphate	135	44,550

B. Third Stage Expansion

(a) *Project Estimates and actual expenditure*

3.7. The Company undertook further expansion of the plants at Udyogmandal in two more stages. The Third stage expansion was sanctioned by Government of India in January, 1962 at a cost of Rs. 850 lakhs, subsequently revised to Rs. 1,039.99 lakhs in June, 1962 and Rs. 1,200 lakhs in September, 1964. The expansion was completed in October, 1966 at a total cost of Rs. 1,307.99 lakhs.

3.8. The following table indicates the details of original estimates, their subsequent revisions and the actual expenditure under different heads:—

(Rupees in lakhs)

Particulars	Original estimates (September, 1961)	First revision (June, 1962)	Second revision (Sept., 1964)	Actual expenditure on completion (Oct. 1966)
Land		45·00	50·00	67·56
Plant and Machinery** .		953·56	831·72	985·90
(Foreign exchange components —FOB Cost) . .		(411·38)	(420·11)	(423·67)
Factory Buildings & Erection		..	270·66	168·07
Office and Residential Building		35·00	40·00	76·50
Hospital and Service Equipment	..	6·43	7·62	9·96
	*850	1039·99	1200·00	1307·99

3.9. The upward revision of the estimates in June, 1962 was attributed to higher cost assessed after the finalisation of most of the orders for the Plant and the estimation of the requirement of Indian fabrication and procurement. The increase of Rs. 160 lakhs in the second revised estimates over the first revised estimates was attributed to increase in (i) the cost of materials—Rs. 36.48 lakhs, (ii) freight and insurance—Rs. 1.39 lakhs, (iii) customs duty—Rs. 24.99 lakhs and (iv) labour cost, new items, sales tax, etc.—Rs. 97.14 lakhs.

3.10. The increase in actual expenditure on completion, by Rs. 107.99 lakhs over the second revised estimates was explained by the Management in July, 1970 as follows:—

	(Rs. in lakhs)	
(i) Non-provision of items like interest, travelling expenses, administrative charges, etc. . . .	198·22	
(ii) Increase in the cost of land due to higher compensation paid and the construction of a broad road from FACT to Edamula bridge near National Highway-47	20·53	
(iii) Construction of additional office accommodation and staff quarters	26·84	
		245·59

*Detailed break up is not available

**(Cost of 'Plant & Machinery under first revised estimate is inclusive of Factory Buildings and Erection' for which separate figures are not available).

Less savings due to :

(iv) Transfer of the cost of spares from the project cost to current assets	30·00	
(v) Abandonment of construction of bulk storage for products and new general store	38·00	
(vi) Decrease in cost of construction of Sulphuric Acid Plant (Rs. 26·07 lakhs), Gypsum Handling Plant (Rs. 19·17 lakhs), Ammonium Phosphate Plant (Rs. 5·48 lakhs) and other items (Rs. 18·73 lakhs); the main reason was the estimation of the cost of civil works as a percentage of the plant cost which was found to be less when designs were finalised	69·45	
(vii) Savings in the cost of hospital and service equipment	0·15	
		137·60
		107·99

3.11. The Company entered into agreements with a number of foreign firms for the supply of plant and equipment and the supervision of erection thereof. According to the agreements with various suppliers of the plant and equipment required under the third stage expansion, performance guarantees in respect of capacities and consumption of raw materials and utilities was to be provided for a continuous period of fourteen days. In case of any defect found in the equipment on account of faulty designs, defective material or workmanship, the equipment was to be replaced free of cost by the suppliers. The capacities during the third stage expansion in different plants was as under:—

(i) Ammonia Plant	140 tonnes per day. (for all Plants including 3rd stage expansion the designed capacity created was 235 tonnes per day).
(ii) Ammonium Phosphate Plant	300 tonnes per day. (for all plants up 3rd stage expansion the total designed capacity was 400 tonnes per day).
(iii) Ammonium Sulphate Plant	300 tonnes per day under Gypsum process (The designed capacities of all Plants upto 3rd stage expansion was 600 tonnes per day).
(iv) Sulphuric Acid Plant	450 tonnes per day. (Total designed capacity upto 3rd stage expansion wa 746 tonnes per day).

3.12. The commissioning of the plants was delayed by about 1½ years due to non-availability of power from the Kerala State Electricity Board. The Committee on Public Undertakings (1968-69) had examined this matter in their 44th Report (Fourth Lok Sabha) *vide* paragraphs 2.3 to 2.19. As a result the trial runs for testing the capa-

cities of the plants and the consumption ratios of raw materials and utilities as provided for in the agreements could not be conducted within the guarantee period.

3.13. The Company could not claim the replacement of defective parts in the following cases as the defects were noticed in the equipment after the expiry of the guarantee period due to delay in commissioning the third stage expansion:

(i) The naptha steam pre-heater coils in the Oil Gasification Plant failed in October, 1966 immediately on the commissioning of the Gas and Ammonia Plants. The failure was attributed by the Sharma Committee to defects in design and sub-standard quality of material used by the suppliers—Messrs Power Gas Corporation of U.K. These were replaced in April, 1968 by the indigenous coils fabricated at a cost of Rs. 2.81 lakhs. The intermittent failure of these coils was estimated to have resulted in the loss of production of ammonia by about 5000 tonnes during 1967-68.

(ii) Due to deficiency in the design and the material used, Dorr clones installed in 1966 for regulating the slurry concentration coming from the Phospharic Acid Plant did not operate right from the start (1966) resulting in improper slurry concentration and irregular supply of gypsum. As the modifications suggested by the suppliers in October, 1968 were found to be expensive, cheaper designs were prepared.

(iii) The elevator supplied by M/s. Dynacraft did not give satisfactory service, which caused serious limitation in production. There upon an order was placed on 18th January, 1966 on M/s. Elecon, who had submitted the next lower quotation. Even this elevator did not give satisfactory performance. Finally to maintain the production, the Company was compelled to divert one of the elevators ordered on M/s. Konel Corporation for the fourth stage Ammonium Phosphate Plant and place a repeat order on Konel Corporation to replace the elevator so diverted for a sum of Rs. 5.5 lakhs. The failures of the elevators were mainly due to the lack of know-how and experience with the equipment supplier.

3.14. During the evidence of the representatives of the Company, the Committee were informed in this regard as follows:

> "The contracts were finalised towards the end of 1961 and the early part of 1962. The plants should have been commissioned by 1965. We were expecting adequate power supply from the Kerala State Electricity Board by 1965. Because of the delay in the implementation of the Sabarigiri Scheme, Kerala State Electricity Board was not in a position to meet our power requirements. The plants should have been commissioned in 1965 and guarantee run proved in 1965. We could not do that. It went up to 1966 end."

The representative further added that:

> "The question is, whether all these plants have operated at rated capacities for a period of 14 days and more, as guaranteed in the original contracts. Now, excepting the Simon Carves Acid Plant, other plants have not operated for 14 days as per guarantees. We could not expect getting liquidated damages from the contractors mainly because FACT could not meet its obligation during the contract period. For want of adequate power supply, none of these plants could be commissioned during the period which the contractual guarantees and validities were in force. Actually, we had accepted the plants. Subsequently, when we operated these plants, we noticed certain lacunae, deficiencies and shortcomings, which we have rectified in the subsequent years. Some of the deficiencies noticed are being taken care of under the debottlenecking programme."

3.15. The Chairman-cum-Managing Director supplemented this information by saying:

> "The assessment today is, we are not sure whether we will be able to get the rated capacity out of the Gypsum process Ammonium Sulphate Plant. We are not sure whether we will be able to get the rated capacity out of the 25 tonnes Phosphoric Acid Plant. This is an old Plant. We are not sure. On the other hand, we feel that we will be able to get the rated capacity out of the two Sulphuric Acid Plants. We have identified some of the plants from which we will not be able to get the rated capacity. This hap-

pens to be only in the case of Gypsum process Ammonium Sulphate plant and some very old plants and this is one of the reasons why we have decided and proposed diversification in respect of some of these plants.

* * * *

The point we are making is that if the power supply was available, we could have first completed and checked up the plants much earlier and the design defects could have been noticed during the guarantee period itself and we could have pinned down the suppliers. That is No. 1. That is non-availability of power. No. 2 because of lapse of time due to non-availability of power we could not enforce our rights with the suppliers for enforcing the guarantee."

3.16. On being asked as to what assistance was given by the Central Government in regard to timely availability of power, the Secretary of the Ministry stated as:

"FACT brought it to the notice of Government and the Government here took prompt action. They consulted the Irrigation and Power Ministry and sought their help. Our Minister also personally wrote a letter to the Governor of Kerala to help. So, when it came to our notice, we took all possible steps at our level promptly to see that they were assisted. I have seen the correspondence between the Managing Director and the Kerala State Electricity Board. The Board had promised in writing to make power available in early 1964, but their promise could not be kept because their projects slipped one after the other. It is only when Subarigiri came into being that they were able to give power. The correspondence is pathetic. The General Manager went to Trivandrum, and in a note addressed to the Chairman of the Electricity Board, he has said: I have these difficulties. Please give me even 5 m.w. of power to enable me to commission the plant so that the foreigners who are here may complete the test and we can get the warranty before the warranty period is over; we will even shut down some of our other plants. But nothing happened."

3.17. On another enquiry whether it was not incumbent on the part of the Company or the Government to have a firm agreement

with the Kerala State Electricity Board for the supply of the required power for the third stage expansion, the Secretary of the Ministry explained as follows:

> "There are letters from the Kerala Government and the Board to say that they will supply power at economic rates etc. Even a formal agreement would have made no difference if they had no power.....Actually, in my opinion, the Managing Director did not insist on a firm, written agreement because at that time FACT was a State enterprise of the Kerala Government, not of the Government of India. We came in only in 1963. Before that we were not in the picture at all.....In 1965 we entered into a written agreement with retrospective effect from 1960."

3.18. The Committee on Public Undertakings (1968-69) had observed in their 44th Report (Fourth Lok Sabha) in connection with the inadequate power supply as follows:—

> "The Committee also feel that the third-stage expansion was ill-timed. FACT depended solely on the indication given by the Kerala State Electricity Board in August, 1961 that they would be able to meet the requirements of power for the third-stage expansion, without binding KSEB through an agreement for supply of required power. But by 1962, the possibility of supply of additional power had become doubtful and the KSEB informed FACT that they would not be in a position to give additional power from July-August, 1964 as desired by it. The supply of additional power even by the end of 1964 was subject to the condition that Sholayar Station was commissioned by that time."

> "The Committee have pointed out other instances also where the projects in the first instance or after expansion could not be commissioned due to lack of power supply. The Committee suggest that no project or expansion of a project should be undertaken in future unless power supply is assured with a guarantee where it is to be supplied by another authority to the project."
>
> (Para 2.19, page 7, of Forty-Fourth Report of CPU).

3.19. In their 59th Report the Committee on Public Undertakings had examined Government's reply in regard to their recommendation made in para 2.18 of 44th Report and observed as follows:

> "The reasons advanced by the Ministry for delay in the execution of the project are hardly convincing. In the Commit-

tee's view it is a typical case of 'red tape' approach. The objective and emphasis should not only be to avoid delay in clearing the Development Programme, but also to ensure that there was no delay in obtaining results from such programme. There was no evidence to show that Government/FACT made any efforts during the period of 3 years to ensure that the power supply which was a pre-requisite was made available in time."

[Page 2-3 of 59th Report of CPU].

3.20. The recommendation made by the Committee in para 2.19 of their 44th Report was accepted by the Government.

3.21. The Committee regret to note that in spite of the assurance given by the Kerala State Electricity Board that adequate power would be made available in time the trial runs for testing the capacities of the plants set up during the third stage expansion and the consumption ratios of raw materials and utilities, as provided in the agreements, could not be conducted due to non-availability of power at the appropriate time within the guarantee period, with the result that besides loss of production, the Undertaking could not claim the cost of replacement of defective parts from the suppliers but had to incur an expenditure of more than Rs. 8 lakhs for replacement of the defective equipments. The Committee further regret to note that in the absence of any formal agreement between KSEB and FACT, the latter was not able to claim any damages from KSEB for non-fulfilment of the assurance. The Committee would like to reiterate their earlier recommendation in Forty-Fourth Report (1968-69—4th Lok Sabha) that "no project or expansion of a project should be undertaken in future unless power supply is assured with a guarantee where it is to be supplied by another authority to the project."

C. Fourth Stage Expansion

3.22. On the completion of the 3rd stage expansion, the Ammonia Plant was expected to have a capacity of producing 260 tonnes of ammonia daily (reduced to 235 tonnes after the sale of 5 Electrolysers in November, 1965 in order to reduce the power requirements from 50,000 K.W. to 32,000 K.W.). Against this, the requirement of ammonia in ammonia consuming plants i.e. Ammonium Sulphate Plant, Ammonium Phosphate Plant and Ammonium Chloride Plant worked out to 271 tonnes. Thus, the daily production of ammonia fell short of its requirement by 36 tonnes. On the other hand, the Phosphoric Acid Plant which was expected to have a daily capacity of 125 tonnes,

had a surplus capacity of 35 tonnes as the requirement of acid in the Ammonium Phosphate Plant was only 90 tonnes per day.

3.23. In order to remove the imbalance in the Ammonia Plant and the Phosphoric Acid Plant and to stabilise the entire production on an economic level, the Company launched the Fourth Stage expansion in April, 1966.

3.24. On the completion of the fourth stage expansion, the pattern of production, as compared to the designed capacity of the third stage expansion, was expected to be as follows (Based on stream efficiency of 330 days):—

(In tonnes)

Product	Designed capacity at the end of III stage expansion		Capacity at the end of IV stage expansion	
	Daily	Annual	Daily	Annual
Ammonia	235	77,550	*340	1,12,200
Ammonium Sulphate	600	1,98,000	600	1,98,000
Ammonium Phosphate	400	1,3,000	550	1,81,500 (20:20Gr)
Sulphuric Acid	746	2,46,180	746	2,46,180
Ammonium Chloride	75	24,750	75	24,750
Phosphoric Acid	125	41,250	125	41,250
Superphosphate	135	44,550	135	44,550

3.25. The Committee were informed during evidence by the representative of FACT that, as far as the imbalance in the capacity of Ammonia Plant on the one hand and the three Ammonia consuming plants on the other was concerned, the imbalance had been removed in the 4th stage expansion by installing additional capacity for manufacture of ammonia.

3.26. The Company had a surplus capacity of about 35 tonnes of P_2O_5 with the completion of the third stage expansion. The Company had originally expected that this quantity of P_2O_5

*Does not include the production of 15 tonnes of ammonia from 3 electrolysers which the Management originally proposed to sell but have now decided to retain.

could be used in the manufacture of detergents. Negotiations in this regard with foreign parties, however, failed and it became known to the Company in early 1966 that it was not possible to go in for the manufacture of detergents. The Company then decided to utilise the surplus capacity of P_2O_5 in the manufacture of ammonium phosphate itself.

3.27. The Committee enquired whether on completion of the 4th stage of expansion, FACT had ensured that in relation to each of the intermediates necessary for the end production of rated capacity, FACT had built in sufficient capacity so that if those plants continued to work as they should, FACT should be able to achieve the rated production. The Chairman-cum-Managing Director replied as follows:

> "At the fourth stage expansion planning the imbalances in all intermediate products were taken into account and proposals were put up to balance them. These proposals contained a proposal for setting up an additional sulphuric acid production facility. But, at the instance of the Government the Board considered a suggestion that with the proposed expansion of the Cominco Binani Zinc, their bye-product sulphuric acid would be available, and the proposal for additional facility for sulphuric acid was therefore dropped. Today that is the deficiency in the fourth stage. The rest of the intermediates are available but, to that extent, we are limited in the utilisation of the plants to full capacity.

3.28. When asked as to why the proposal for additional facility for production of sulphuric acid was dropped, the Company stated:

> "During 1962 M/s. Cominco Binani proposed to put up a Zinc Smelter Plant on the banks of Periyar, opposite to FACT, Kerala Government was interested in this project.
>
> Since the economic viability of a Zinc Smelter Unit is very much dependent on the effective utilisation of the bye-product sulphuric acid available from the smelter, the Director of Industries, Government of Kerala, suggested to FACT to examine utilisation of the bye-product acid from the proposed Zinc smelting unit.
>
> FACT was consuming large quantities of sulphuric acid for production of fertilisers. The bye-product acid from the

Zinc smelter was suitable for FACT's use and FACT agreed to buy the acid from M/s. Cominco Binani."

On the basis of the Board's decision negotiations were done with M/s. Cominco Binani. The terms and conditions of the supply of the acid were finally confirmed through Cominco Binani's letter KGB dated 27th January, 1967 and on 12th February, 1969 a formal agreement was signed.

Later in May, 1970 FACT submitted a proposal to the Board to instal a 300 TPD acid Plant to meet the acid requirement of the Udyogmandal Division. The Board at its sitting held on 24th June, 1970 decided to defer the proposal, pending the expansion programme of M/s. Cominco."

3.29. The Committee note that the construction of the factory at Udyogmandal was started in August, 1944 and the plant having an annual capacity of about 44,500 tonnes of Ammonium Sulphate went into production in August, 1948. The FACT undertook the expansion of existing capacity and creation of facilities of new production in two stages with the result that by December, 1962 plants for manufacture of Ammonia (39600 tonnes), Ammonium Sulphate (99000 tonnes) Ammonium Phosphate (33000 tonnes), Ammonium Chloride (8250 tonnes), Sulphuric Acid (97650 tonnes), Phosphoric Acid (8250 tonnes) and Super Phosphate (44550 tonnes) had been installed. Further expansion of these were undertaken in two more stages. The third stage of expansion was completed at a cost of Rs. 13 crores by October, 1966.

3.30. At the end of III stage expansion, the designed capacity available was Ammonia—77550 tonnes, Ammonium Sulphate 198000 tonnes, Ammonium Phosphate 132000 tonnes, Sulphuric Acid 246180 tonnes, Ammonium Chloride 24750 tonnes, Phospheric Acid 41,250 tonnes and Super Phosphate 44550 tonnes. The Committee note that on the completion of III stage expansion, while the Ammonia Plant was expected to have a capacity of 260 tonnes of Ammonia daily, (subsequently reduced to 235 tonnes) in order to reduce the power requirement it was stated, that the requirement of Ammonia in the Ammonia Consuming Plants was 271 tonnes, thus creating a shortage of 36 tonnes per day. On the other hand there was a surplus capacity in the Phosphoric Acid Plant. The Committee note that in order to remove the imbalances in Ammonia Plant and the Phosphoric Acid Plants and to stabilise the production at an economic level, the IV stage expansion was launched in April, 1966.

3.31. The Committee were informed that while the imbalance in the capacity of Ammonia and the three Ammonia Consuming Plants

had been removed in the IV stage expansion by installation of additional capacity for Ammonia, the FACT decided to use the surplus capacity of 35 tonnes of P_2O_5 in the manufacture of Ammonia Phosphate. The Committee regret to note that the imbalance in production and requirement of intermediate products still persists and there was deficiency of Sulphuric Acid because of which the plants could not be run to capacity. It was stated that when a proprosal for setting up an additional sulphuric acid plant was put up to the Board, the proposal was deferred at the instance of Government on the ground that with the proposed expansion of Cominco Binani Zinc Smelter Plant, their by-product Sulphuric Acid would be available. The Committee were informed that the Kerala Government was interested in the Zinc Smelter Plant to be put up by Cominco Binani. Since the economic viability of the Zinc Smelter Unit depended on effective utilisation of Sulphuric Acid, the Kerala Government suggested to FACT to examine the utilisation of the acid and since that by product acid was suitable to FACT, it was agreed to buy the acid from Cominco Binani. The latter, however, failed to give the assured supply with the result that FACT's programme of production fell short of target. The question of availability, production and purchase of Sulphuric Acid have been dealt with in a subsequent Section of this chapter.

Project Estimates

3.32. A detailed Project Report for the 4th stage expansion was prepared by the Company in April, 1966 and was approved by Government in September, 1966. But these estimates were revised subsequently. The following table indicates the original estimates, revised estimates, and actual expenditure incurred upto 31st March, 1974.

(Rs. in lakhs)

Particulars	Original estimate (Aprl. '66)	First Revision (Nov. '66)	Second Revision (May '69)	Third Revision (18-1-72)	Actual expenditure upto 31-3-1974
Civil work . .	61·20	70·70	70·70	66·20	57·23
Plant and machinery	331·05	428·90	428·90	476·81	427·53
Finance and Management Expenses .	..		76·01	130·00	174·04
Expenditure pending allocation . .	..	..	..	..	13·97
	392·25	499·50	575·61	673·01	672·77

3.33. The increase in expenditure is mainly under the head 'Finance and Management Expenses, which has been attributed to slippage of the commissioning of the plants from October, 1968 to May, 1971. The Management informed Government in October, 1970 that due to delay in commissioning of the expansion scheme, the project estimates were likely to go up to Rs. 637.25 lakhs and that revised estimates were under preparation. The Management again informed Government in November, 1971 that due to delay in the delivery of certain indigenous and imported items, the project had been delayed and consequently its estimated cost was likely to go up to Rs. 673.01 lakhs. The increase of Rs. 97.40 lakhs at the third revision in January, 1972 was attributed to (i) increase in Finance and Management Expenses (Rs. 53.99 lakhs), (ii) increase in Equipment cost and services (Rs. 58.98 lakhs) and (iii) saving of Rs. 15.57 lakhs under custom duty, civil works, etc.

3.34. It was stated by the representative of the Ministry that the project was all the time under review and appropriate sanctions were issued at suitable times. At present the estimated cost was Rs. 673.01 lakhs. Even this, it was stated, was likely to be exceeded by Rs. 5 lakhs and a further revision of the estimate would be necessary.

It was pointed out by the Committee that the Finance and Management expenses as on 31st March, 1973 had already exceeded the provision in the latest estimates by about 34 per cent. The Committee enquired whether the excess was brought to the notice of Parliament. It was stated that in Demand for Grants there were notes given on new items or important items and there a mention was made of the excess.

When it was pointed out that the economics of the working of Udyogmandal units after the completion of the fourth units stage expansion had not been indicated in the Project Report, the Chairman-cum-Managing Director stated during evidence that the economics of the scheme was worked out in 1969 and submitted to Government. These were reviewed in 1972 as corroborated by the Secretary of the Ministry during evidence.

Delay in erection and commissioning

3.35. According to the Project Report, the fourth stage expansion was to be completed and the plants commissioned by October, 1968 but this date was revised to August, 1969 (August 1970 for Ammonia

Plant). The present position regarding completion and commissioning of different units is stated to be as follows:

(i) Ammonia Plants	Commissioned in October, 1971.
(ii) Ammonia Phosphate Plant (160 tonnes per day capacity).	Regular trial runs could not be started before December, 1972 due to labour troubles and strike. According to the management, the performance of the plants is not yet sufficiently proved, to justify capitalisation of expenditure (upto 31st March, 1973). Production upto 31st March, 1973 was only 3,283 tonnes.
(iii) Modification to Tonnex (Tonnage Oxygen) Plant.	The work was finally completed in May, 1973. The increase in production attained was only 800 M^3/hrs. against the envisaged increase of 1000 M^3/hrs.
(iv) Modification to the existing 100 TPD Ammonium Phosphate Plant to produce 20:20 Ammonium Phosphate.	The work was completed in May, 1969 at a cost of Rs. 3·45 lakhs. The plant produced 4308 tonnes of Ammonium Phosphate of 20:20 grade upto June, 1970 after which it is being used for the production of 16:20 grade only. The Management informed in June, 1974 that it was not possible to produce 20:20 grade without improvements to certain equipment.
(v) Modification to the existing 300 TPD Ammonium Phosphate Plant to produce 20:20 grade.	It has been stated by the Management that the entire question of conversion will have to be looked into in the context of the proposed rationalisation/diversification scheme.

3.36. The delay in the commissioning of the plants has been attributed to delay in getting the DGTD clearance, release of foreign exchange and the delivery of equipment by indigenous suppliers. The delay in clearance by D.G.T.D. and release of foreign exchange was commented upon by the Committee on Public Undertakings in paragraph 2-24 to 2-30 of their 44th Report (4th Lok Sabha—1968-69).

3.37. In this connection the representatives of the Company informed the Committee during evidence as follows:

> "When the project was planned and orders were placed, it was considered that some of the equipment had to be imported but the DGTD told us that they would be indigenously available, and so, the import clearance was refused. We placed orders on indigenous suppliers.
>
> We have placed orders for equipment on Testeels, Taylors, Instruments (India) Ltd. and other indigenous suppliers. These supplies should have been received at the end of 1970. Then it took about 4-5 months to erect these equipments and we started trial runs in the month of May, 1971.

The suppliers had difficulties in procuring materials. There was delay in their design organisations and fabrication shop. We could not do much about it. In fact many of the indigenous supplies have slipped all these years from 12 to 15 months."

3.38. To an enquiry of the Committee as to the loss in production due to delay in commissioning the fourth stage expansion from October, 1968 to 1973 and loss in foreign exchange because of imports due to loss of production, the Ministry of Petroleum and Chemicals (Department of Chemicals and Fertilisers) stated that:

The estimated loss due to delay in the completion of the 3rd stage expansion was about Rs. 650 lakhs. The delay in the completion of the IV stage resulted in a loss of production estimated to cost about Rs. 280 lakhs. If the expansion units had gone into production in time imports to the extent of losses indicated could have been avoided.

3.39. The Committee note that the estimates for the Fourth Stage Expansion which were approved by Government in September, 1966 for Rs. 392 lakhs had to undergo three revisions—one in November, 1966 for Rs. 500 lakhs, second in May, 1969 for Rs. 575 lakhs and third in January, 1972 for Rs. 673 lakhs. The Committee, however, find that even after the last revision, the estimate is likely to be exceeded by another Rs. 5 lakhs. The actual expenditure upto 31st March, 1974 is already reported to be Rs. 673 lakhs. The increase has been mainly attributed to increase in finance and management expenses, increase in equipment cost and services. It was stated by the representative of the Ministry that the project was all the time under review and appropriate sanctions were issued at suitable times. The Committee would like Government to critically go into the reasons for the frequent revisions of the estimates and their effect on cost of production and economics of the project and bring these specifically to the notice of the Parliament.

3.40. The Committee note that although Fourth Stage Expansion was to be completed by October, 1968 the date was revised to August, 1969 (August, 1970 for Ammonia Plant). The Committee are informed that the Ammonia Plant was commissioned in October, 1971. The other plants were either not commissioned or the performance was not proved. It has been stated that in the case of 100 T.P.D., Ammonium Phosphate Plant, though modification was undertaken at a cost of Rs. 3.45 lakhs to produce 20:20 Ammonium Phosphate, the plant

produced Ammonium Phosphate of that grade only up to June, 1970 after which it was being used for production of 16:20 grade only and it was not found possible to produce the 20:20 grade without improvements to equipments. The Committee are led to conclude that the expenditure on the modification to the existing 100 T.P.D. Plant to produce the 20:20 grade had largely proved to be infructuous. The Committee would like Government to investigate the matter and fix responsibility for the lapses. The Committee are also informed that the modification to the existing 300 T.P.D. Ammonium Phosphate Plant to produce 20:20 grade is being reconsidered in the context of the proposed rationalisation or diversification scheme. The Committee also find that even after completing the work of modification of the Tonnex Plant, the increase in production attained was only 800 M3/hrs. against the envisaged increase of 1000 M3/hrs. The Committee feel that the FACT was rushed to the Fourth Stage Expansion to set right certain imbalances and carrying out modifications without examining the full implications thereof. The Committee would like the entire scheme of Fourth Stage Expansion to be critically examined with a view to analysing causes for the failure of the different modifications undertaken by FACT. The Committee would like to be informed of the results of the investigation.

D. Production Performance

3.41. The present daily designed capacities of the various plants after the completion of the fourth stage expansion as well as the annual capacities based on a stream efficiency of 330 days are shown below:

Product	Daily designed capacity	Annual designed capacity
Ammonia . .	355	1,17,150
Ammonium Sulphate .	600	1,98,000
Ammonium Phosphate . . .	400	1,32,000*
Ammonium Chloride . .	75	24,750
Sulphuric Acid .	746	2,46,180
Phospheric Acid . .	125	41,250
Super phosphate	135	44,550

*IV stage Expansion capacity not added pending capitalisation.

3.42. It was stated that stream efficiency in a chemical plant was normally assumed to be 330 days. However, in the case of the Udyogmandal Unit of FACT it was noticed that the stream efficiency attained was very low and the overall performance was poor. Government, therefore, appointed in January 1968 a Committee headed by Shri K. C. Sharma to locate the reasons for shortfall in production and suggest remedial measures for improving the output and efficiencies. This Committee in its report submitted in 1968 stated in view of the various constraints limiting production in the Udyogmandal Unit, the unit would not be in a position to attain more than 294 days of stream efficiency. The Committee also suggested certain modifications/improvements/inter-connections with the implementation of which the committee expected that the stream efficiency could be increased from 294 to 317 days.

3.43. Arising out of the recommendation of the Sharma Committee, another technical committee headed by Shri P. G. Menon (of FACT) was appointed in May 1968, to make a detailed study on the low efficiency and shortfall in production and to suggest remedial measures. This Committee submitted its report in August, 1968.

3.44. The Undertaking/Government informed (January 1970) the Committee on Public Undertakings that action had been taken on all the recommendations made by the Study Group (Sharma Committee) as well as of P. G. Menon Committee that most of the recommendations had been implemented.

3.45. The designed, attainable and actual stream efficiency of the different plants during 1970-71 to 1973-74 has been as follows:

Plants	Year	Design	Attainable	Actual	Percentage of actual to attainable stream efficiency
1	2	3	4	5	6
Ammonia . . .	1970-71	330	317	214·0	67·5
	1971-72			194·0	61·2
	1972-73			136·5	43·1
	1973-74			172·0	54·1
Ammonium Chloride .	1970-71	330	317	126·0	39·7
	1971-72			130·7	41·2
	1972-73			110·3	34·8
	1973-74			115·2	36·3

1	2	3	4	5	6
Sulphuric Acid* . .	1970-71	330	330	165·6	50·2
	1971-72			214·5	68·0
	1972-73			157·5	47·7
	1973-74			217·6	65·9
Ammonium Sulphate .	1970-71	330	317	170·2	53·7
	1971-72			216·9	68·4
	1972-73			160·0	50·5
	1973-74			174·2	54·9
Ammonium Phosphate 16:20	1970-71	330	317	145·6	45·9
	1971-72			149.4	47.01
	1972-73			128·0	40·4
	1973-74			163·7	51·6
Ammonium Phosphate 20:20	1970-71	330	317	..	..
	1971-72			..	..
	1972-73			..	..
	1973-74			130.6	41.2
Super Phosphate .	1970-71	330	317	198·3	62·6
	1971-72			108·4	34·2
	1972-73			135·1	42·6
	1973-74			238·4	75·2
Phosphonic Acid* .	1970-71		330	105·9	32·1
	1971-72			107.2	32.5
	1972-73			97·8	26·6
	1973-74			150·0	45·5

3.46. It is seen from the above statement that the actual stream efficiency attained was higher in the case of the Ammonia Plant than in the three Ammonia consuming plants except the Ammonium Sulphate Plant during 1971-72, 1972-73 and 1973-74. The Committee enquired the reasons for the stream efficiency of the ammonia plant being higher than those of the ammonia consuming plants. The Committee wanted to know whether the three ammonia consuming plants viz. Ammonium Sulphate Plant, Ammonium Phosphate Plant and Ammonium Chloride Plant faced any shortage of Ammonia during these three years. If so, the raw materials the non-availability of which were responsible for shortfall in production of these three products during 1970-71 to 1973-74.

3.47. The FACT submitted the following note in reply:—

"The stream efficiency has been worked out by dividing the total production obtained by the rated capacity of each of the plants. The different stream efficiencies obtained for the ammonia plant and the consuming plants are because of the different utilisation of the capacity in each of the

*The attainable efficiency of these plants has been taken at 330 days as the production in these plants is not dependent on the ammonia capacity.

Note :—Please see paragraph 3.55 for percentage of actual production to Budgeted production and to attainable capacity.

plants. The production in the consuming plants *viz.*, ammonium sulphate plant, ammonium phosphate plant and ammonium chloride plant was limited to the availability of intermediates including ammonia. The total ammonia produced was consumed and the possible production was to the extent achieved in the end plants in respect of production capacities in these plants still being available."

3.48. During evidence the Committee pointed out that in the case of Ammonium Sulphate and Superphosphate the percentage of production attained was higher than the percentage of stream efficiency achieved. The representative of FACT explained as follows:

"The production has been taken on the basis of attainable capacity. If it is taken on the basis of installed capacity, the percentage of production will tally with the percentage given on the basis of stream efficiency. Stream efficiency is worked out on the basis of installed capacity, and the daily rated output, whereas here it is taken on the basis of attainable capacity. That is why the percentage seems higher than the stream efficiency..... The Plant cannot be operated more than its daily rated capacity, which is 600 tonnes. For superphosphate we can overload it upto 10 per cent because it is a batch process, but no other plant can be operated more than the rated capacity."

3.49. The Managing Director also added "Another difficulty is that our plants have got just the marginal capacity for over loading. If the production loss occurs on a particular day for 4—6 hours, we are not in a position to make it up by over loading these plants subsequently."

3.50. On being asked whether with the steps that have been taken, it would be possible for FACT to achieve the overall annual production, the Chairman-cum-Managing Director admitted that personally he was doubtful. According to the Sharma Committee the stream efficiency could be raised to 317 days with the implementation of the modifications proposed by that Committee. In fact the Committee on Public Undertakings (1969-70) were informed by the Government in January, 1970 as follows:

"Action has been taken on all the recommendations of the Sharma Committee as well as on those of the technical (internal) Committee suggested by them. Most of the recommendations have been implemented as well."

3.51. When attention of the Chairman-cum-Managing Director was drawn to the reply of Government to Committee on Public Undertakings Report of 1969-70 he stated during evidence:—

> "These recommendations have been implemented. It is a question of personal assessment. The Sharma Committee and Menon Committee seem to have thought that 315/317 would be attainable. My personal assessment is that because of various factors, it is difficult.
>
> We have many plants. If one of them breaks down, even though there is nothing wrong in the other plants and stream efficiency is available it will affect production. That it what we mean by inter-dependence. My judgement is that 315—317 is impossible to achieve.
>
> What is possible to achieve is 290—300 days."

3.52. On an enquiry of the Committee that in view of all the recommendations of the Sharma Committee having been implemented, whether the Government examined as to why only 204 days stream efficiency was being obtained instead of 317 days, the Ministry of Petroleum & Chemicals (Department of Chemicals & Fertilizers) stated in a written note:—

> "Government are aware of the various constraints limiting production in Udyogmandal Unit of FACT and certain corrective measures have been taken viz. debottlenecking programme which *inter-alia* included installation of spare phosphoric acid reactor, reactor installation of gypsum slurry in various sections of the plant to improve efficiency or input requirements, replacement of acid cooler, drying and absorption towers in the old sulphuric acid plant, creation of addtional grinding facilities for rock phosphate, etc.
>
> With these measures there has been some improvement in the working of these plants, but it may be explained that in the context of constraints like power failure, labour and breakdowns in the old ageing plants, it may not be feasible to improve the stream efficiency to the desired level."

3.53. The Committee note that the present daily designed capacities of the various plants were based on stream efficiency of 330 days. In the case of Udyogmandal Unit since the stream efficiency

attained was very low, two Technical Committee examined the reasons for shortfall in production and suggested the remedial measures for improving the output and efficiency. According to the first Committee's Report in April, 1968 the Unit would not be in a position to attain more than 294 days of stream efficiency and with certain modifications the efficiency could be increased to 317 days. The Committee regret to note that none of the plants attained the stream efficiency of 317 days during 1970-71 to 1973-74 and the actual efficiency during this period had been only of the order of 43 to 67 per cent in Ammonia Plant, 34 to 41 per cent in Ammonium Chloride Plant, 47 to 68 per cent in Sulphuric Acid Plant, 50 to 68 per cent in Ammonium Sulphate Plant, 41 to 51 per cent in Ammonium Phosphate Plant, 34 to 75 per cent in Super-phosphate Plant and 26 to 45 per cent in Phosphoric Acid Plant. The Committee were, however, informed by Government in 1970 in reply to their recommendation in the 44th Report (4th Lok Sabha) that action had been taken to implement all the recommendations of the Sharma Committee. The Committee are surprised that in spite of this the stream efficiency of 317 days has not been achieved. The Chairman-cum-Managing Director informed the Committee during evidence that according to his personal assessment it was impossible to attain the stream efficiency of 315/317 days. What was possible, according to him, was a stream efficiency of 290—300 days. The Committee recommend that Government/FACT should examine the reasons for non-achievement of even the stream efficiency of 317 days which was considered possible by the Sharma Committee and take suitable measures to rectify the position.

3.54. The Committee also find that the percentage of actual production to attainable production differs from the percentage of actual stream efficiency to attainable stream efficiency. The Committee are informed that stream efficiency has been worked out with reference to the rated capacity of the Plant while the percentage of actual production has been with reference to attainable capacity. The Committee are of the view that in order to judge the performance of the Unit, there should be a proper co-relation between the stream efficiency and production. The Committee recommend that FACT should examine this matter and arrange to determine the stream efficiency on a realistic basis in order to judge the performance on that basis.

E. Shortfall in Production

3.55. The result of operating on lower level of stream efficiency has been lower production during all these years. The following table indicates the annual attainable capacity on the basis of the stream efficiency of 317 days, budgetted production and actual production during 1970-71 to 1973-74:—

Statement showing the Annual Attainable capacity on the basis of 317 stream days, budgeted production and Actual Production during 1970-71 to 1973-74.

(In M. tonnes)

Product	Annual attainable capacity @317 days	Year	Budgeted Production	Actual Production	Shortfall over budgeted production	Percentage of actual production to	
						Budgeted Production	Attainable capacity
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ammonia	74,495	1970-71	71,000	50,323	20,677	70·87	67·55
	93,515	1971-72	82,400	60,841	21,559	73.83	65·06
	1,12,535	1972-73	80,000	48,479	31,521	60·59	42·07
	1,12,535	1973-74	83,044	61,114	21,930	73·60	54·30
Ammonium Sulphate	1,54,000	1970-71	1,50,400	1,02,059	48,341	67·85	66·27
	1,54,000	1971-72	1,55,000	1,30,127	24,873	83·95	84·49
	1,54,000	1972-73	1,35,000	95,946	39,054	71·07	62·30
	1,54,000	1973-74	1,50,000	1,04,358	45,642	69·60	67·80
Ammonium Phosphate . . .	1,30,000	1970-71	85,000	58,341	26,659	68·63	44·87
	1,30,000	1971-72	1,12,000	59,755	52,245	53·35	45·96
	1,30,000	1972-73	1,27,500	54,504	72,997	42·95	41·92
	1,30,000	1973-74	1,23,000	85,011	37,989	69·11	65·39

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ammonium Chloride . . .	11,000	1970-71	10,000	9,415	585	94·15	85·59
	11,000	1971-72	10,000	9,818	182	98·18	89·25
	11,000	1972-73	10,000	9,269	1,731	82·69	75·17
	11,000	1973-74	10,000	9,384	616	93·80	85·80
Superphosppate	44,550	1970-71	30,000	29,791	209	99·30	66·87
	44,550	1971-72	30,000	16,276	13,724	54·25	36·53
	44,500	1972-73	25,000	20,160	4,831	80·67	45·27
	44,500	1973-74	44,500	35,745	8,755	80·30	80·20
Sulphuric Acid	2,46,180	1970-71	2,00,000	1,25,193	74,807	62·59	50·85
	2,46,180	1971-72	1,95,000	1,61,932	33,068	83·04	65·77
	2,46,180	1972-73	2,00.000	1,18,749	81,251	59·37	48·23
	2,46,180	1973-74	2,00,760	1,64,760	35,978	81·95	66·83
Phosphoric Acid*	41,250	1970-71		13,242	..		32·10
	41,250	1971-72		13,416	..		32·52
	41,250	1972-73	..	12,228	.	..	29·64
	41,250	1973-74	22,400	18,745	3,665	83·70	45·40

*Attainable capacity taken at 330 stream days as these products do not need Ammonia.

3.56. It is seen from the figures mentioned in the above paragraph that the actual production during 1970-71 to 1972-73 fell short of not only the attainable capacity but also the budgetted production in all cases; the budgetted production itself was lower than the attainable capacity during all the years except in the case of Ammonium Sulphate during 1971-72. The actual production during 1972-73 of all products (except Super phosphate) was lower than that of 1971-72, which had recorded improvement over 1970-71. The budgetted production of Ammonium Sulphate during 1971-72 was slightly more than the attainable capacity.

3.57. The shortfall in production over the designed capacity (based on a stream efficiency of 330 days) has been attributed by the Management to the following factors:—

Product	Year	Lack of raw materials	Maintenance	Lack of off-take	Power failure	Others	Unaccounte
	%	%	%	%	%	%	%
Ammonia	1970-71	30·6	12·4	2·2	5·6	17·7	31·5
	1971-72	..	13·4	37·6	1·3	18·6	29·1
	1972-73	0·7	31·8	1·7	4·8	42·4	18·6
	1973-74	1·5	32·4	8·4	10·0	24·9	22·9
Ammonium Sulphate	1970-71	28·8	9·5	..	1·2	38·0	22·5
	1971-72	39·5	14·4	..	1·1	13·2	31·8
	1972-73	28·0	12·3	..	0·7	37·8	21·2
	1973-74	55·8	17·6	..	1·6	22·0	23·0
Amm. Phos. 16 : 20	1970-71	33·7	28·6	..	2·4	15.8	19·5
	1971-72	42·7	24·4	..	0·6	12·4	19·9
	1972-73	15·3	23·6	..	0·9	42·4	17·8
	1973-74	21·4	23·6	..	1·4	32·0	21·6
XX Do. 20 : 20	1973-74	16·4	52·9	..	0·8	11·9	18·0
Amm. Chloride	1970-71	49·2	16·8	..	0·8	15·6	17·6
	1971-72	57·2	11·7	..	0·1	12·9	18·1
	1972-73	58·4	2·0	..	0·4	22·8	16·4
	1973-74	68·7	3·3	..	0·5	9·9	17·6

Super-phosphate	1970-71	55·4	5·4	32·8	1·3	5·1	..
	1971-72	19·6	9·4	42·2	..	28·8	
	1972-73	5·8	6·2	31·8	0·2	56·0	..
	1973-74	41·1	24·4	6·1	0·4	28·0	
Sulphuric Acid	1970-71	..	54·1	18·8	1·9	4·8	20·4
	1971-72	8·4	39·7	3·8	1·0	18·2	8·9
	1972-73	..	24·8	6·7	0·8	48·4	1·3
	1973-74	..	40·9	8·4	1·7	19·2	29·8
Phosphoric Acid	1970-71	24·4	46·0	5·7	0·7	7·2	16·0
	1971-72	22·8	41·8	2·1	0·6	16·5	16.2
	1972-73	3·5	37·5	5·1	0·3	38·1	15·5
	1973-74	3·5	36·4	10·6	1·8	27·7	20·0

Capacity of Composite Ammonia Plant (120 TPD) taken into account from 1-10-1971 on wards.

XX The plant came into production in 1973-74. Yet to be capitalised.

3.58. The lack of raw materials, maintenance, power failure, other reasons and 'unaccounted factors' are mainly responsible for the shortfall in production.

The shortfall under the heading 'other reasons' mostly represented the difference between the actual stream efficiency and daily average production *vis-a-vis* the designed stream efficiency and production.

The shortfall under "unaccounted factors" was the result of calculating the shortfall in production over the stream efficiency of 330 days instead of with reference to the stream efficiency of 294 days as per Sharma Committee Report.

3.59. Explaining the term 'raw material' the representative of the Company stated during evidence that:

> "The term 'raw material' itself, if I may say so, is a misnomer. Actually by 'raw material' we mean raw material for the particular plant or the feed for the particular plant—the intermediary. For some reason, if one of the plants has to be shut down, then the feed for the other plants is affected. Now such things have affected our production to the extent of about 20 to 25 per cent over the year; we get quite a lot of unplanned, unscheduled break downs. It is these two major factors that have caused the production shortfall."

3.60. Subsequently the production loss of various products due to the non-availability of raw materials in intermediaries during the years 1970-71 to 1973-74 was further explained by the Company in a written note. During the years 1972-73 and 1973-74 ammonium production loss was 471 tonnes and 852 tonnes respectively due to limitations in the supply of naptha, Sulphuric acid production was affected to the extent of 7,231 tonnes in 1971-72 and Phosphoric acid production to the extent of 6,498 tonnes in 1970-71 due to short supply of raw material (sulphur and rock phosphate respectively). Again the shortfall in production of ammonium chloride was due to the short supply of hydrogen chloride from Travancore Cochin Chemicals Ltd.

3.62. The shortfall in production of ammonium sulphate, phosphoric acid, ammonium phosphate (both 16—20 & 20-20), ammonium chloride and superphosphate also suffered on account of shortage of intermediaries like ammonia, carbondioxide, sulphuric acid,

gypsum and phosphoric acid during all the years from 1970-71 to 1973-74.

3.62. The Committee note that the lack of raw materials, maintenance "other reasons" and "unaccounted factors" were mainly responsible for shortfall in production over the designed capacity. On account of maintenance problems, shortfall in production was as high as 54.1 per cent in case of sulphuric acid and 46.6 per cent in case of phosphoric acid; in a number of other cases too, the shortfall was considerable on this account. The Committee are distressed to find that 'maintenance problems' in FACT have been responsible for shortfalls of such high magnitude in production of various items. In the opinion of the Committee it should not be beyond the ingenuity of the management of the FACT to attend to the maintenance problems promptly as and when they arise.

3.63. The Committee recommend that there should be a proper schedule of preventive maintenance and repairs and the management should ensure that the maintenance of the plants is done according to the schedule so that there may not be any loss of production on account of inadequate maintenance.

3.64. The inability of FACT to achieve 330 days stream efficiency accounts for shortfall in production over the designed capacity both under the heading 'other reasons' and 'unaccounted factors'. The Committee cannot appreciate the rationable of splitting up shortfall in production due to lower stream efficiency under two different heads, namely, "other reasons" and "unaccounted factors". The Committee would like that the confusing terminology of "other reasons" and "unaccounted factors" may be avoided and the shortfall on account of lower stream efficiency may be indicated under one head so that one can see all the factors inhibiting production in proper perspective.

3.65. The Committee have given their separate recommendations in regard to determination of stream efficiency on a realistic basis and evaluation of performance with reference to such stream efficiency.

Ammonia Plant

3.66. So far as shortfall in production in ammonia consuming plants *i.e.* ammonium sulphate plant, ammonium phosphate plant and ammonium chloride plant is concerned, it is noticed that on completion of the third stage expansion, ammonia plant was producing 235 tonnes daily, whereas the requirement worked out to

271 tonnes daily. Thus the daily production of ammonia fell short of its requirement by 36 tonnes. The trial runs in the Ammonia Plant after the completion of the 4th stage expansion commenced in May, 1971. The daily production capacity of the Ammonia Plant after the completion of the 4th stage expansion will be 355 tonnes per day (including 15 tonnes from the remaining three electrolysers at the rate of 5 tonnes each). Although the 4th stage expansion was designed for 330 stream days in a year, the Management explained in July, 1971 that the conditions inhibiting the production in the older units of this plant would be equally applicable to the new unit set up under the 4th stage expansion scheme. Accordingly by adopting a uniform stream efficiency of 317 days per year, the production of a ammonia is proposed to be distributed to the ammonia consuming plants (which are designed for a stream efficeincy of 330 days) in the following ratio:—

	(tonnes)
(i) Total annual ammonia production	112,535.00
(ii) Supply to:—	
(a) Ammonium Sulphate Plant (600 tonnes per day) @ 0.3 tonne for each tonnt of ammonium sulphate	57,060.50
(b) Ammonium Phosphate Plant (550 tonnes per day) @ 0.27 tonne for each tonne of ammonium phosphate	47,074.50
(c) Ammonium Chloride 50 tonnes per day @ 0.35 tonne for each tonne of ammonium chloride	5,547.50
(d) For direct sale	2,853.00

4.67. The above distribution would enable the Ammonium Chloride Plant to attain a capacity of 64 per cent (24,750 tonnes). Similarly, the Ammonium Sulphate and Phosphate Plants would work for 317 days as against 330 days. On the basis of designed capacities/stream efficiencies of the ammonia consuming plants the

production of ammonia would still fall short of requirements by 7,385 tonnes per annum. The actual shortage that would arise would, however, depend upon the extent of utilisation of design capacity of the ammonia consuming plants. The Ministry stated in March, 1972 that as in actual experience, a better stream efficiency was obtained for the ammonia plants than in the end-product plants, ammonia production would not fall short of the requirements of ammonia consuming plants.

3.68. During the course of evidence, the Chairman-cum-Managing Director informed the Committee that in the 4th stage, the ammonia imbalance had been removed by installing additional capacity for manufacturing of ammonia. He further stated that ammonia was limitation sometime back and not now. It was also added by the representative of FACT that:

> "The old ammonia plant is capable of operating at the rated capacity on a daily basis, except the plant that has been put up in the third stage expansion, which can be operated only for 130 tonnes a day, where the equipments require improvement. The other plants can be operated for rated capacity. The composite ammonia plant is capable of operating at rated capacity. The difficulty in attaining stream efficiency or actual production is power failure. When there is a power failure, the plant is off for two days."

3.69. The Committee note that shortfall in production in Ammonia Consuming Plants on the completion of 3rd stage Expansion was partly due to the lesser production of ammonia. While the requirement of Ammonia for the Ammonia Consuming Plants was 271 tonnes per day, the ammonia plant was capable of producing only 235 tonnes per day. This imbalance was sought to have been removed in the Fourth Stage Expansion by installing additional capacity. The daily production capacity of Ammonia Plant after the Fourth Stage Expansion will be 355 tonnes per day. Although the Fourth Stage Expansion was designed for 330 stream days in a year, the Management explained that conditions inhibiting the production in other units would be equally applicable to the new unit. According a uniform stream efficiency of 317 days have been adopted for all the plants. A distribution pattern was decided upon by the management accordingly to which the production of ammonia would still fall short of requirements by 7385 tonnes per annum. The acual shortage would, however, depend on the extent of utilisation of Ammonia Consuming Plants. The Committee are informed

that with the imbalance having been removed in the Fourth Stage, there will not be any limitation in the supply of ammonia to the Ammonia Consuming Plants. It has, however, been stated that while the old Ammonia Plants are capable of operating at the rated capacity on a daily basis, the plant put up in the Third Stage Expansion could be operated only for 130 tonnes a day where the equipments require improvement. The Committee apprehend that unless the production performance of the plant put up under Third Stage Expansion is improved and, wastage of ammonia is controlled the imbalance claimed to have been removed, might reappear. The Committee recommend that FACT should take suitable measures to improve the efficiency of the Ammonia Consuming Plants as well as the Ammonia Producing Plant.

Ammonium Chloride Plant

3.72. The expansion of the capacity of Ammonium Chloride Plant (which was set up in 1954) from 8,250 tonnes to 24,750 tonnes per annum in 1966 was made at a cost of Rs. 19.67 lakhs under the third stage expansion scheme on the basis of anticipated availability of additional quantity of hydrochloric acid (from 12—15 tonnes to 44—50 tonnes daily) from the Travancore Cochin Chemicals Ltd. It has been stated by Audit that no action was taken to amend the existing agreement which was entered into in 1952, with the Travancore Cochin Chemicals Ltd. (T.C.C.) to ensure the additional supply. The actual supplies of acid by the firm during the years 1970-71 to 1973-74 were far less than not only the total requirements but also the anticipated supplies as shown below. As a result the production of ammonium chloride fell short of the budgetted production as well as the designed capacity:

(Quantity in Tonnes)

Year	Annual requirement of hydrochloric acid (hcl)	Anticipated supply of hcl	Actual Supply of hcl	Ammonium Chloride produced
1970-71	16,731	16,500	6,616	9,415
1971-72	16,731	16,500	6,880	9,818
1972-73	16,731	16,500	5,936	8,369
1973-74	16,731	16,500	6,749	9,[illegible]

3.73. It has been stated that there are also differences between T.C.C. and F.A.C.T. on price of hydrochloric acid to be charged by T.C.C.

In a written note it has been stated by the Company that additional supplies of hydrochloric acid by TCC for the extended plant were not covered by any specific agreement, but were being made on the same terms and conditions as provided for in the agreement pursuant to the basis on which the Industrial Licence was granted to T.C.C. This agreement also included supply of sulphur dioxide (SO2) by FACT to TCC. It has not yet been possible for FACT and TCC to arrive at a mutually agreed price formula.

3.74. During the course of evidence of the representatives of FACT, the Committee were informed in connection with the agreement with TCC and the price to be charged as follows:

"There is an agreement for the ammonia chloride (plant) put up in two stages. The first stage requiring 12—15 tonnes of Hcl and for that there is a regular agreement. The history of the plant is that it was expanded to take care of the further production of Hcl with the expansion of the TCC. At that time Hcl was causing a disposal problem to TCC and between Kerala Government and FACT authorities a decision was taken to expand the plant and an understanding was arrived at that further Hcl has not come to expectation. Therefore, a substantial part of the production capacity in FACT remains idle. At that time disposal of Hcl was a problem of TCC. It was at that time jointly agreed to solve the problem of Hcl's disposal and put up further ammonium chloride production capacity.

There is a slight improvement now coming up. But we expect that we would be able to get full supplies with the completion of the TCC expansion next year. The major hurdle is that the price of Hcl to be chaged by TCC to FACT is posing a serious problem for settlement. In the earlier agreement which was duly executed, a price has been fixed with escalation depending on the price of salt. We have been operating it all along on that basis. Now for many years, discussions have been going on between TCC and FACT about the price. TCC's stand is that the old agreement stands cancelled. Our

stand is "that it is not cancelled". A lot of attempts have been made to find an amicable settlement. Even arbitration has been thought of. Our Board is in favour of arbitration, but TCC at one time decided to go to court. We are still making efforts to find an amicable settlement. About two months ago, the Joint Secretary from P & C Ministry was with us and he talked to the TCC Chairman who is a Special Secretary in Kerala Government. It was mooted that perhaps somebody from the Central Government might act as arbitrator. * * *. They maintain that their cost of production has gone up. We say, it is a by-product with you. But because Hcl has found alternative uses in the market, they want to charge the market price. Our contention is that we cannot afford it. This plant having been set up specifically to get over their problems they should not claim market price."

3.75. The Committee regret to note that though Ammonia Chloride Plant was expanded on the basis of an anticipated availability and supply of hydrochloric acid under the expansion scheme of Travancore Cochin Chemicals Limited, no formal agreement was signed by the FACT with the Travancore Cochin Chemicals Limited for the additional supply of hyprochloric acid by the TCC.

3.76. As against the anticipated supply of 16,500 tonnes of hydrochloric acid per year, the actual supply of acid was only 6,616 tonnes in 1970-71, 6,880 tonnes in 1971-72, 5,936 tonnes in 1972-73 and 6,749 tonnes in 1973-74 respectively. Thus, actual supply of acid by the TCC was far less than the total requirements during the years 1970-71 to 1973-74, with the result there has been a loss of production of ammonium chloride in the FACT. Not only this, the price of hydrochloric acid to be charged by the TTC was stated to be in dispute. The Committee are informed that the expansion of FACT was undertaken to take care of further production of hydrochloric acid plant expansion of TCC and since Hydrochloric acid was causing a disposal problem to TCC, a decision was taken between Kerala Government and the FACT authorities to expand the plant and an understanding was arrived at that further acid produced by TCC would be made available to FACT. Although the production of TCC is now stated to have improved, the price of Hydrochloric acid to be charged by TCC to FACT still remains a serious problem. The Committee are

informed that negotiations for arriving at an amicable solution have so far eluded settlement. The Committee fail to appreciate the reasons which prompted FACT to feel so much concerned about the further production of hydrochloric acid by TCC as to agree to expand its own ammonium chloride plant at a cost of Rs. 19 lakhs even without entering into a firm agreement with TCC for the supply of acid at a reasonable price. The result is that FACT finds itself in quandry and even now no settlement has been arrived at either in regard to the price or an assured supply. The Committee should be informed of the results. The Committee recommend that the Ministry should take up the question of settlement of price with the Government of Kerala and resolve the deadlock so that FACT may be assured of its supply of hydrochloric acid regularly at the agreed price.

Ammonium Sulphate

3.77. The Ammonium Sulphate Plant has a daily designed capacity of 600 tonnes. The ammonium sulphate is produced by two processes, 300 tonnes per day by gypsum process and 300 tonnes per day by direct neutralisation process.

3.78. The Sharma Committee recommended the production of ammonium sulphate by the gypsum process for the reason that one tonne of sulphur can produce more end products if the sulphuric acid made from it is utilised for the production of ammonium phosphate and gypsum, which is a by-product, can be used in the production of ammonium sulphate. A Committee of Directors, however, recommended (August, 1969) the maximum production of ammonium sulphate by the direct neutralisation of the sulphuric acid with ammonia on account of continued operation of the gypsum process plant at low efficiency requiring many improvements and so long as the sulphuric acid was available at reasonable prices.

3.79. The production of ammonium sulphate during 1970-71 to 1973-74 years by direct neutralisation process was more than by gypsum process even though the cost of production in the case of the former was also comparatively more. The following table indicates the production of ammonium sulphate by the two pro-

cesses and the cost of production during 1970-71 to 1973-74:—

	1970-71	1971-72	1972-73	1973-74
		Actual		Budgetted
	A B	A B	A B	A B
1. PRODUCTION				
(Quantity in Tonnes)				
a. Gypsum process	20,093	21,187	22,373	37,421
b. Direct Neutralisation Process] .	81,966	108,940	73,573	66,937
	102,059	130,127	95,946	104.358
	150,400	155,000	135,000	50,000
2. COST OF PRODUCTION (Rs./Tonne)				
a. Gypsum Process . . .	400·85	407·73	477·96	
b. Direct Neutralisation Process .	420·41	432·84	492·78	

3.80. The Ministry have stated (March 1972) that the production of ammonium sulphate by gypsum process was also limited by the availability of Gypsum, which was dependent on Phosphoric Acid Plant; the efficiency of gypsum process Plant was adversely affected, when rock phosphate of different origins was used.

3.81. The difference between the cost of production by the two process gradually narrowed down on account of the following reasons:

(i) The Gypsum consumed under Gypsum process was valued at the rate of Rs. 25 per tonne from 1970-71 onwards against Rs. 20 per tonne upto 1969-70; the increased incidence on this account was Rs. 13.75 Rs. 9.40 and Rs. 7.70 per tonne during 1970-71, 1971-72 and 1972-73 respectively.

(ii) The cost of Carbodioxide consumed under Gypsum Process was not debited till 1969-70 whereas the debit was raised from 1970-71 onwards. This increased the cost of production of Ammonium Sulphate under Gypsum Process by Rs. 25.44 Rs. 27.50 and Rs. 22.93 per tonne during the three years..

(iii) The average price of Sulphur used in direct neutralisation process decreased during 1970-71 to 1972-73 as compared with earlier years vide details given below:—

	Rupees per tonne
1967-68	568
1968-69	584
1969-70	550
1970-71	350
1971-72	308
1972-73	327

3.82. It will be seen that although the difference between the cost of production of Ammonium Sulphate by the two processes has gradually narrowed down, the cost of production by direct neutralisation process still continues to be higher in spite of steep fall in the average price of Sulphur during 1970-71 to 1972-73 which was one of the justifications given by the Ministry in March, 1972 for producing more Ammonium Sulphate by direct neutralisation processes.

3.83. On an enquiry of the Committee as to why ammonium sulphate was being produced by direct neutralisation process, when the cost of production by this process was higher as compared with the gypsum process, the representative of FACT explained that the cost of production by direct neutralisation had always been higher than the gypsum process, the gap between the two being large or narrow according to the price of sulphur being more or less. In reply to a question, the representative explained that in 1947, 50 per cent of ammonium sulphate production was by direct neutralisation and 50 per cent by gypsum process-gypsum being obtained from Ariyalor near Trichi. Gradually the grade of gypsum came down, which resulted in more wear and tear to the equipment and the cost of gypsum went up due to rising transport cost. Meanwhile the Sulphur price remained reasonable and the direct neutralisation method worked out cheaper. In reply to a question regarding procurement of rock phosphate, the Chairman of FACT stated:

"Now for about a year or so, we are getting it from Morocco. As regards use of natural gypsum from Rajasthan or Bihar he added:—We have checked the use of the Rajasthan rock in our plant. In 1969-70, we got about 900 tonnes of rock and we processed it and we sent a report. It was an uneconomical proposition till the rock phosphate prices abroad went up. Secondly the production of Rajasthan rock is so limited that it is not not possible to meet the requirements."

3.84. To an enquiry whether it had been examined that the supply of natural gypsum from Rajasthan was really limited, the Chairman-cum-Managing Director stated that:—

"Being on the Board of FCI, I know that this is an issue which has been agitating the mind of various Ministries like P & C Ministry and Metal & Mines Ministry. It seems the subject is being taken up as to how to maximise the production. The deposits are now not being utilised to the maximum. This is being examined by the different Ministries. At the moment, from our point of view, the Rajasthan rocks is not an attractive proposition in view of the present limited availability and high costs.

x x x x

3.85. We have not specifically taken up this issue (with the Government of Rajasthan). But in the background of various other organisations with which I am associated finding is that the requirements of the surrounding factories are not being met in full, we have not considered it as a practical proposition."

3.86. Asked whether they would examine the proposal now, the Chairman-cum-Managing Director stated that they would take it up.

3.87. It was further explained that on Sulphur price shooting up, FACT designed a process by which they could use their by-product gypsum from phosphoric acid plant. It was stated that the entire requirements could be met from their by-product gypsum provided that phosphric acid plant worked to rated capacity but this, however, did not work satisfactorily till recently. It was added that gypsum was got as a by-product from sulphuric acid plant in which the imported rock phosphate was treated with sulphur. Though the by-product gypsum was there, there still was the question of quality on which they were working. In Cochin, FACT was not going in for

the gypsum process, because of the difficulties and economics of this process."

3.88. The Committee note that ammonium sulphate is produced by two processes-300 tonnes per day by gypsum process and 300 tonnes per day by direct neutralisation process. Although the Sharma Committee recommended production of ammonium sulphate by gypsum process on the ground that 1 tonne of Sulphur can produce more end products if sulphuric acid made out of it is utilised for production of ammonium phosphate and gypsum which is a by-product can be used in the production of ammonium sulphate, the Committee note that a Committee of Directors recommended in August, 1969, the direct neutralisation process because of the continued operation of their comments separately in regard to the performance of sulphuric the gypsum process plant at low efficiency and so long as sulphuric acid was available at reasonable prices. The Committee have given their comments separately in regard to the performance of sulphuric acid plants. The Committee find that the cost of production of ammonium sulphate by the direct neutralisation process during the years 1970-71 to 1973-74 was more than by the gypsum process. While the cost of production by gypsum process was Rs. 400 during 1970-71, Rs. 408 during 1971-72 and Rs. 478 during 1972-73, the cost of direct neutralisation process was Rs. 420 in 1970-71, Rs. 433 in 1971-72 and Rs. 493 in 1972-73. The Committee are informed that the average price of sulphur used in direct neutralisation process decreased from Rs. 350 in 1970-71 per tonne to Rs. 327 per tonne in 1972-73. The Committee find that in spite of the fall in the average price of sulphur during 1970-71 to 1972-73, the cost of production by direct neutralisation process is higher than that by the gypsum process. The Committee are, therefore, not able to appreciate the justification given for taking to neutralisation process on the ground of reasonable price of sulphur/sulphuric acid. The Committee recommend that FACT should consider the economics of the production of ammonium sulphate by the two processes taking into account all the relevant factors and adopt a process which will enable production of ammonium sulphate at an economic price.

3.89. The Committee note that FACT has been importing rock phosphate from Morocco on the plea that the experiment of using rock phosphate from Rajasthan was tried in 1969-70 but not found economical. Moreover the production of rock phosphate in Rajasthan was 'limited'. The Committee understand that the mining of rock phosphate has been taken up in a big way by a State Undertaking under the Rajasthan Government and in fact they are looking out for users for consumption of this important raw material. The Committee feel that when rock phosphate deposits are available

within the country there is no reason to spend precious foreign exchange on its import. The Committee also feel that with the advance in technology it should have been possible to modify, if necessary, the existing plants so as to utilise the indigenous rock phosphate even if marginally inferior rather than expend scarce foreign exchange in imports.

3.90. Since the demand for ammonium sulphate for agricultural production is going up, the Committee would like Government to thoroughly examine the feasibility and economics of achieving higher production in ammonium sulphate either by expansion of the existing units in FACT etc. or by location of new units near the source of rock phosphate which is raw material for this industry. The Committee understand that this matter has been long pending with the various Departments of the Govt. of India and they recommend that a High Powered Committee of technical experts, including representatives of the Planning Commission and the Ministry of Finance may be constituted to go into the matter in all its aspects and give a concrete plan of action within six to nine months. The Committee would like to be informed of the precise action taken in pursuance of the above recommendation.

Sulphuric acid plant

3.91. The Sulphuric Acid Plant consists of four units. The first two units (Monsanto Plants) with a capacity of 68 tonnes each per day were installed in 1947 and 1949; the third unit Chomiebau Plant) with a capacity of 160 tonnes per day and the fourth unit (Simon Carres Plant) having a capacity of 450 tonnes per day were installed in 1960 and 1965 respectively. The annual combined capacity of the four units, on the basis of a stream efficiency of 330 days, works out to 2,46,180 tonnes. The annual production of sulphuric acid during 1970-71 to 1973-74 was however as follows:

Year	Production (in tonnes)
1970-71	1,25,193
1971-72	1,61,932
1972-73	1,18,749
1973-74	1,64,760

3.92. This production could have been achieved by operating the fourth unit alone (except in the year 1971-72 and 1973-74) which has an annual capacity of 1,48,500 tonnes. But all the four units

were run at low load. According to the Management (April, 1972) it was not possible to run the four units at full load as the first three units were in poor shape and the production capacity of the fourth unit had been gradually reduced, since its commissioning, due to excessive pressure drops across the catalyst, there were also other problems which restricted the production of the fourth unit.

3.93. On account of operating the Sulphuric Acid Plant at low load, full requirements of sulphuric acid could not be met out of FACT's own production and substantial quantities had to be purchased from a private sector unit. It has also been stated that non-availability of adequate quantity of Sulphuric acid has arisen because of improvements in the capacity utilisation in the end product plants. In a note after evidence FACT explained the background of the need for buying sulphuric acid from a private sector unit:

> "During 1962 M/s. Cominco Binani proposed to put up a Zinc Smelter Plant on the banks of periyar, opposite to FACT. Kerala Government was interested in this project.
>
> Since the economic viability of a Zinc Smelter unit is very much dependent on the effective utilisation of the bye-product sulphuric acid available from the smelter, the Director of Industries, Government of Kerala, suggested to FACT to examine utilisation of the bye-product acid from the proposed Zinc smelting unit.
>
> FACT was consuming large quantities of sulphuric acid for production of fertilizers. The bys-product acid from the Zinc smelter was suitable for FACT's use and FACT agreed to buy the acid from M/s. Cominco Binani.
>
> On the basis of the Board's decision negotiations were done with M/s. Cominco Binani. The terms and conditions of the supply of the acid were finally confirmed through Cominco Binani's letter KGB dated 27-1-1967 and on 12-2-1969 a formal agreement was signed."

3.94. This agreement was to remain in force till 31st December, 1971, but was automatically extended for a period of five years i.e. till 31-12-1976.

3.95. The quantities of sulphuric acid purchased during the last three years, average price paid and the variable cost of producing

the same in the Company's own plant are given below:

Year	Quantity purchased (tonnes)	Average Purchased price per tonne (Rs.)	Variable cost of production in company's plant per tonne (Rs.)
1970-71	16,936	129·23	129·74
1971-72	16,501	132·48	113·00
1972-73	19,279	144·35	115·86

3.96. The variable cost of production was less than the purchase price of acid in the last two years. The purchase of the above quantities of sulphuric acid has resulted in an avoidable extra expenditure of approximately Rs. 8.70 lakhs during the three years (representing the difference between the average purchase price and the variable cost of production).

3.97. A Committee of Directors recommended (August, 1969) the replacement of the first two units as they "are too old for economic running". In May, 1970 it was estimated that the daily requirement of sulphuric acid at the end of the Fourth stage expansion would be 905 tonnes against the existing capacity of 746 tonnes per day of the Four units. The actual production, however, was of the order of 650 to 670 tonnes per day only. The Managment, therefore, proposed to instal another unit of the capacity of 300 tonnes per day to meet the additional requirements and the replacement of the first two units but the Board of Directors (June, 1970) deferred the proposal in the light of the prospective availability of additional acid from a neighbouring private sector unit.

3.98. The maintenance cost of the first three units *visla-vis* that of the Fourth unit during 1970-71 to 1973-74 is given below:

(Rupees in lakhs)

Year	First 2 units			Third unit			Fourth unit		
	Labour	Material		Labour	Material		Labour	Material	
1	2	3	4	5	6	7	8	9	10
1970-71 . . .	2·99	5·22	8·21	2·39	5·71	8·10	2·08	5·19	7·27

1	2	3	4	5	6	7	8	9	10
1971-72 . . .	2·90	7·19	10·09	2·11	4·66	6·77	3·13	8·17	11·30
1972-73 . . .	3.01	6·84	9·85	1·87	3·18	5·05	2·69	6·28	8·97
1973-74 . . .	..	..	8·86	..	..	8·82			12·03
			37·01			28·74			39·57

3.99. During 1973-74, the fourth unit needed certain major repairs like replacement of 72 number of economiser tubes, turbine for the boiler feed water pump were taken up. 4400 litres catalyst costing about Rs. 90,000 was also charged. In the third unit, the acid cooler pipes, the primary heat exchanger and 42 numbers of boiler tubes were replaced, 3750 litres of catalyst costing Rs. 75,000 was also charged.

3.100. It has been pointed out in the Audit Report that the cost of production of Sulphuric Acid from each of the four units is not available separately. It is, therefore, not possible to ascertain the extra cost incurred in running all the units at low load.

3.101. The Committee were informed during evidence that FACT was not maintaining the cost of production of different plants, but was maintaining control and check on the sulphur consumption in the different plants, which was a variable factor. FACT conducted periodically various tests like sulphur input being cross-checked with sulphuric acid output, conversion efficiency and absorption efficiency, etc. in order to judge the efficiency of the operation.

3.102. In connection with the low utilisation of the four sulphuric acid plants, the Chairman-*cum*-Managing Director informed the Committee during the evidence as follows:—

> "We have an installed capacity of 746 tonnes which includes, as mentioned earlier, four plants. Two plants are small plants of 68 tonnes each; another plant is of 160 tonnes and another of 450 tonnes. The 450 tonnes plant is already working to full capacity; as regards the 160 tonnes plant, we have taken up the modifications in hand and within a month or six weeks we should be able to reach full capacity; as for the other two plants of 68 tonnes each,

we are unable to get the desired capacity. Today, our attainable capacity, out of this 740 tonnes, is of the order of 650 to 670 tonnes and our requirements fall short by about 130 tonnes. Out of this, we can buy from Comminco Binani about 80 tonnes a day which, in fact, is working out to less because they don't produce that much. For the balance, again, we are exploring the possibility of purchasing it from two plants available to us, *viz.* the TTP, a Kerala Government undertaking in Trivandrum and another private sector undertaking, the Travancore Rayons. But today, the raw material is coming in the way and, because of the transport, conversion and the high sulphur costs and the prices of fertilizers being fixed at the end not being variable, we have not been able to utilise the plant effectively. Taking this into account, we have come up with diversification proposals where we do not need sulphuric acid".

3.103. In this connection the Secretary of the Ministry explained the position during evidence as follows:

"So far as I know, it is not a question of their being able to produce sulphuric acid by themselves and deliberately keeping down the production for the sake of the private sector. As regards how this private sector plant came into being, the FACT complex was the hub of industrial activity in that area. And they offered a number of chemical substances which they manufactured to a number of ancillary plants which bought from them, and similarly they also accepted from other plants like the TCC and others some substances which they were making and which the FACT might require. Round about 1966 or so, the Director of Industrials of Kerala and a representative of this private company came to FACT and the Director informed our Managing Director that the Government of Kerala was very much interested in setting up a zinc plant in the State. Now, the only problem was that the zinc plant manufactures as a by-product, a fairly large quantity of sulphuric acid and sulphuric acid in such quantity is a product that everybody cannot use. It was needed by FACT and they were willing to buy it over the years. There was a question of Government of India giving a licence for this private company in setting up this plant in Kerala. Then our Managing Director had said that he would consider it, if the sulphuric acid expected to be produced as a by-pro-

duct was of such a quality that we could use it in our factory. It was found that it could be used. Another consideration was this. The FACT produces sulphuric acid by importing sulphur, by paying foreign exchange. If a plant comes next door which produces sulphuric acid as a by-product, there is no outgo of foreign exchange and FACT buys it and uses it and saves foreign exchange. So, for these reasons they decided to enter into a contract. It was not as if we were deliberately cutting down the capacity.

On being pointed out by the Committee that since FACT capacity to manufacture sulphuric acid, why it was necessary to buy it from a private sector firm, the Secretary explained that in most of these plants, there was a certain installed capacity, but FACT was not able to achieve that in practice because of various reasons. The representative of the Ministry further explained as follows:

"The two plants of 68 tonne capacity per day, set up in 1947, have been producing very badly because of the age. As a result of this, the normal available capacity for sulphuric acid production at Udyog Mandal is about 610 tonnes per day. Against that, the production of sulphuric acid in FACT in 1973-74 is 162,000 tonnes and as olem about 2,000 tonnes. So these two together account for about 500 tonnes a day. Against a capacity of 610 tonnes on average daily production over the year is about 500 tonnes is not too bad a performance. The purchase of sulphuric acid from the Cominco Binani has not resulted due to the non-utilisation of the Sulphuric acid capacity at FACT. The fourth stage FACT expansion which involved fuller utilisation of the phosphoric acid plant which had already existed there, was based on purchase of sulphuric acid from purchase of sulphuric acid from Cominco Binani who was then setting up their zinc smelter. In non-ferrous smelters the feed-stock is sulphide ore of the metal and in roasting this ore for production of metal, sulphuric acid is an inevitable by-product. This by-product has to find some use if the smelter plant is to be set up and operated because this would otherwise be a bad pollution causing element."

The Secretary further added:

"There were three considerations. In the first place, it required additional investment. In the second place, if this plant

had not come up in Kerala, then Kerala Government would have been unhappy about it because it would have gone to some other part of India. The third consideration was that if the by-product sulphuric acid was not used, the plant would have polluted the whole place including us. I would submit that while locating a plant in a particular area we should ensure that there is backward and forward linkage of industries."

3.104. The Committee note that against the installed capacity of 746 tonnes per day or 246,000 tonnes per year of sulphuric acid which included four plants, two small plants of 68 tonnes each (22,440 tonnes per year), another of 160 tonnes (52,800 tonnes per year) and the fourth of 450 tonnes (148,500 tonnes per year) the actual production during 1970-71 to 1973-74 was 125193 tonnes in 1970-71, 1,61,932 tonnes in 1971-72, 1,18,749 tonnes in 1972-73 and 1,64,760 tonnes in 1973-74. The Committee are informed that while the 450 tonnes plant is working in full capacity, 160 tonnes plant has not been operating to full capacity and the other two plants are too old to give the desired capacity, with the result that the ammonia capacity is only 650 tonnes per day or 2,14,500 tonnes per year and the requirements fell short by about 130 tonnes per day.

3.105. The Committee are informed that on account of the low utilisation of plants and as the full requirement was not being met, FACT had to purchase substantial quantities of sulphuric acid from M/s Cominco Binani with whom FACT entered into an agreement in 1967 effective till 31st December, 1971 to supply 30,000 tonnes of Sulphuric acid per year. The agreement is stated to have been automatically extended for a further period of 5 years till 31st December, 1976. The Committee note that against the agreed quantity of 30,000 tonnes, the FACT purchased 16,936 tonnes in 1970-71, 16501 tonnes in 1971-72, 19,279 tonnes in 1972-73 at an average price of Rs. 129 per tonne, Rs. 132/- per tonne and Rs. 144/- per tonne respectively, when the variable cost of production in FACT's own plant worked out to Rs. 129, Rs. 113 and Rs. 115 respectively.

3.106. The Committee feel that it should have been possible for FACT/Government to so provide in the agreement that if FACT's requirements were not met fully by their own plants, then they could buy from M/s Cominco Binani. As FACT had detailed knowledge of the cost of manufacture of sulphuric acid in their own plants, it should have been possible for FACT/Government to ensure that the price paid was not higher than that it would have cost FACT to produce it themselves.

3.107. The Committee are also informed that when the proposal of setting up an additional plant for sulphuric acid, based on the requirements of acid in the IV stage expansion, was placed before the Board in 1970, the proposal was deferred by the Board on the advice of Government in the light of prospective availability of acid from this firm.

3.108. The Committee find that as against the agreed quantity of 30,000 tonnes per year, the firm had been supplying only 16936, 16501 and 19279 tonnes during 1970-71, 1971-72 and 1972-73 respectively. In view of this performance, the Committee are not able to appreciate the decision of the Board in 1970 to defer the setting up of acid plant or the action of the FACT in having extended the agreement automatically for 5 years. The Committee would also like to be informed of the reasons for which the FACT did not insist for the supply of the stipulated quality and in the event of the firm's failure to honour the commitment, why was no action taken against them.

3.109. The Committee feel that Government should set up an Expert Committee including a representative of Ministry of Finance well-versed in costing to go into the question of the relative economics of producing sulphuric acid by modernisation/replacement of the old units in FACT or by purchase from any other unit already working in the area preferably in the public sector, which could supply this vital input on assured basis and on competitive rates to meet fully the production requirements of FACT.

F. Consumption of raw materials

3.110. The designed ratios (with reference to third stage expansion) for the consumption of raw materials, the attainable ratios fixed by the Management in March, 1971 at the time of revising the standard costs and the actual ratios achieved during the years 1970-71 to 1973-74 are indicated below:

Statement showing designed attainable and actual consumption Ratio of raw materials during the years 1970-71 to 1973-74

Product	Raw Material	Designed Ratio	Attainable Ratio	Actual Ratio			
				1970-71	1971-72	1972-73	1973-74
1. Hydrogen	Naphtha	0·382	0·395	0·420	0.394	0·398	0·398
2. Ammonia	Hydrogen	2·138	2·200	2·280	2·288	2·260	2·230
3. Amm. Sulphate :							
a. Direct neutralisation	Ammonia	0·275	0·280	0·296	0·293	0·298	0·296
	S. Acid.	0·765	0·760	0·783	0·778	0·781	0·788
b. Gypsum Process	Ammonia	0·275	0·300	0·338	0·360	0·366	0·363
4. Ammonium Phosphate 16 : 20	Ammonia	0·201	0·215	0·221	0·222	0·231	0·225
	S. Acid	0·420	0·420	0·435	0·429	0·427	0·422
Ammonium Phosphate 20 : 20	Ammonia	..	0·300	0·349	..	0·289	0·297
	S. Acid	..	0·420	0·454	..	0·447	0·436
5. Ammonium Phosphate 16 : 20	Phos. Acid	..	0·217	0·225	0·221	0·225	0·220
6. Ammonium Chloride	Ammonia	0·344	0·350	0·407	0·361	0·350	0·350
	HCl	0·676	0·700	0·703	0·701	0·718	0·720
7. Sulphuric Acid	Sulphur.	0·344	0·350	0·350	0·355	0·356	0·368
8. Sulfurdioxide	Sulphate	0·510	0·510	0·514	0·515	0·515	0·515
9. Phosphoric acid	S. Acid	2·920	3·300	3·480	4·040	3·857	3·600
10. Superphosphate	S. Acid	0·372	0·370	0·389	0·379	0·380	0·380
	Rockphosphate	0·595	0·600	0·612	0·600	0·600	0·600

3.111. The figures in the above table indicate that (i) the attainable ratios for the consumption of raw materials as fixed by the Management in March, 1971 were generally higher (except in few cases) than the designed ratios (ii) In the case of sulphuric acid required for the production of ammonium sulphate (by direct neutralisation process) and super phosphate, the attainable ratios were less than even the designed ratios (iii) The actual ratios of consumption were not only higher than the designed ratios but were also higher than the attainable ratios (except in few cases).

3.112. The value of excess consumption including process losses of intermediate products during the years 1970-71 to 1973-74 has been as follows:—

Year	Total cost of excess consumption	
1970-71	30,53,400	Rs. 22,219,358
1971-72	60,74,131	
1972-73	45,38,810	
1973-74	85,53,044	

The Management stated in March, 1971 that "while the plant is designed to operate at certain ratios, these are achievable only under optimum conditions. Assessing design against actuals may, therefore, present a deceptive picture and lead to wrong conclusions. The deterioration in ammonia can perhaps be directly attributable to power fluctuations which upset all efficiency ratios. Similarly, the quality of rock and sulphur available will affect the ratios for acids."

3.113. While the above reasons may explain the higher consumptions of raw materials as compared with the designed ratios, these do not explain the excess consumption over and above the attainable ratios fixed in March, 1971 after taking into account the performance of the plants.

3.114. Reasons for excess consumption are stated to be as follows:

Naptha:

The excess consumption of naphtha is mainly due to frequent shut down of the plants due to power failures partly. After each shut down, it takes about 8 to 10 hrs. for the Oil Gasification and 36 to 48 hrs. for the Composite Ammonia Plant to come back on line.

Another reason for the excess consumption is due to the venting of the gas. Whenever the ammonia consuming plants are shut down or run on reduced load, ammonia production also has to be curtailed due to refrigeration difficulties. But the load on the Oil Gasification units cannot be reduced beyond 50 per cent and often gas has to be vented.

Sulphur:

The excess consumption is mainly due to the poor performance of the 160 TPD Chemiebau Plant due to design deficiency and the two Monsanto Acid Plants which have outlived their useful lives. Action to improve the performance of the 160 TPD plant is under way and will be completed by end of December, 1974.

Rock Phosphate & Sulphuric Acid:

The excess consumption is due to the poor perofrmance of the Phosphoric Acid slurry filters and pumps. During the year 1970-71, the leaks in the single tank reactor also contributed to the poor efficiency.

Ammonia:

The excess consumption of Ammonia is due to the low production level in the end plant. At higher production rate plant efficiencies are better. During the year 1973-74 Ammonium Sulphate production by the Gypsum process was 15,000 tonnes higher than the previous best. For the gypsum process the Ammonia to Ammonium Sulphate ratio is 0.3 as against 0.275 for the direct neutralisation. Frequent shutdown of the plant also contributed to excess Ammonia consumption.

3.115. It may also to mentioned that similar reasons were given by the Management when the Committee on Public Undertakings (1968-69) discussed the question of higher consumption of raw materials *vide* paras 5.10—5.16 of their 44th Report (4th Lok Sabha-April, 1969). In reply to the Committee's observations, it was claimed by Government in January, 1970 that with the implementation of almost all the recommendations made by the Sharma Committee and the P. G. Menon Committee and by putting into effect various other measures, the actual consumption of raw materials had shown an improvement during the first five months of 1969-70 as compared with the earlier year. The position for the whole year, however, did not support this claim.

3.116. The Committee on Public Undertakings were not convinced with the reply furnished by the Government. They recommended in their Action Taken Report (59th Report of CPU—1969-70) as follows:

> "In their earlier recommendation the Committee desired that constant watch over the consumption ratios of various raw materials should be kept and whenever any major variations were noticed as compared to design ratios, prompt steps should be taken to locate the reasons for higher consumption with a view to taking immediate remedial measures. The Committee feel that the Management should have taken remedial measures long before. They recommend that early steps should be taken to arrive at the design ratios."

3.117. In March, 1972 the Ministry informed Audit that arrangements for analysis of consumption in detail had since been introduced.

On an enquiry of the Committee how control was exercised over consumption, FACT explained in a note as follows:—

> "Right from the beginning i.e. 1947, the monthly production of the Plant Superintendent furnished the variances in consumption compared to design ratios to tonnes of quantity and reasons thereof. After introduction of Standard Cost in 1966, the Finance (Cost) Department reported monthly the variances over standards in terms of quantities and also values and the explanations were being furnished by the Plant. The system was there right from the inception. Presently, weekly variances are also reported by Finance in addition to Monthly Variance Reports. The variances are analysed and every effort is being made to reduce excess consumption."

3.118. The Committee note that the attainable ratios of consumption of raw materials as fixed by the management were generally higher than the designed ratios. In the case of sulphuric acid required for production of ammonium sulphate and super-phosphate, the attainable ratios were within the designed ratios. The Committee note that the actual ratios of consumption during 1970-71 to 1973-74 were not only higher than the designed ratios but were also higher than the attainable ratios except in a few cases. It was stated that while the plant was designed to operate at certain ratios, these ratios were achievable only under optimum conditions. While deterioration in ammonia could be attributed to power fluctuation which

upset the efficiency ratio, the quality of rock and sulphur also affected the ratios for acids. In addition, it was stated that the excess consumption under sulphur was due to the poor performance of the sulphuric acid plants and the excess consumption of rock phosphate and sulphuric acid was attributed to the poor performance of the phosphoric acid, slurry filters and pumps. The excess consumption of ammonia was stated to be due to the low production level in the end plant. Although the Committee on Public Undertakings in their 44th Report of 1969-70 and in their 59th Report on Action Taken thereon recommended that a constant watch over consumption ratios of various raw materials should be kept and whenever any major variations were noticed as compared to designed ratios, prompt steps should be taken to locate the reasons for higher consumption, the Committee find that the value of excess consumption including process losses of intermediate products during the period 1970-71 to 1973-74 increased from Rs. 30 lakhs in 1970-71 to Rs. 85 lakhs in 1973-74. The Committee would like that the reasons for the variations between the actual ratios of consumption and the designed ratios or attainable ratios should be analysed to identify the areas where there had been higher consumption of raw materials so that suitable remedial action could be taken. It is also evident from the discussion relating to findings of special Audit (in paragraph 11.45 of this Report) that the figures of consumption of materials like sulphur and rock phosphate as shown in the Accounts did not have any relevance to the realities of the situation. This had led to substantial unaccounted shortages, which had to be written off subsequently without ascertaining the reasons for shortage. The Committee therefore reiterate their earlier recommendation and would like FACT to maintain constant watch over the consumption ratios of various raw materials and to take prompt remedial measures as soon as major variations are noticed as compared to the designed ratios. The Committee hope that at least now serious note will be taken of their recommendations in this and earlier reports and concrete steps will be taken by the management to save the FACT of the continuing losses on this account.

3·119. Besides the excess consumption of raw materials, there were losses in the use of hydrogen and ammonia gases as shown below:—

Year	Production	Consumption	Wastage	% of 4 to 2	Factory Cost Rs.	Loss (Rs./lakhs)
HYDROGEN						
1970-71	128346 Mm^3	115475 Mm^3	12871 Mm^3	10·000	141·03	18·15
1971-72	114227 „	100903 „	13324 „	11·700	186·45	24·84
1972-73	97764 „	85293 „	12371 „	12·600	194·05	24·01
1973-74	100178 „	85590 „	14588 „	14·500	208·99	30·49
AMMONIA						
1970-71	50323 T	49545 T	778 T	1·550	581·23	4·82
1971-72	60841 „	59633 „	1208 „	1·990	698·75	8·44
1972-73	48479 „	47200 „	1279 „	2·640	780·00	9·98
1973-74	61114 „	59892 „	1222 „	2·000	832·42	10·17

The wastage of hydrogen has always been due to losses during start up and during the periods of power interruptions when the hydrogen plant works with self generated power. The installation of proper instruments has contributed to reduce the losses of Ammonia.

3.120. The percentage of wastage in case of hydrogen during these years has gradually increased.

3.121. The percentage of wastage of ammonia during 1970-71 to 1973-74 was much less than that in the years 1967-68 to 1969-70 (5.9 per cent, 6.9 per cent and 4.9 per cent), which it has been stated to have resulted from the installation of recording instruments.

3.122. It is stated that wastage of hydrogen is due to (i) the quantity that is vented till the plant is stabilised after each start-up usually it takes 6 to 8 hours (ii) the relation between ammonia production and consumption by end-plants, since whenever ammonia consumption by the plants is restricted ammonia production is also restricted due to refrigeration limitations and (iii) in 1973-74 due to failure of one of the higher pressure air compressors which made it necessary to run the Electrolytic plant merely for the sake of oxygen and hydrogen generated there had to be vented.

3.123. Apart from this during September/October, 1973 the Oil Gasification Plant had as many as 24 shut downs and venting of hydrogen was unavoidable before the plant could be restarted and stabilised. Subsequently during March, 1974 due to labour problems in the ammonia consuming plants production of ammonia had to be restricted necessitating venting of hydrogen from Oil Gasification Plant.

3.124. In regard to ammonia, a 2 per cent wastage is considered normal in the industry FACT's wastage is more or less steady at 2 per cent.

3.125. The Committee note that besides excess consumption of raw materials there had been losses due to wastage of hydrogen and ammonia. In the case of hydrogen, the percentage of wastage over the production had increased from 10 per cent in 1970-71 to 14.5 per cent in 1973-74 and the corresponding loss increased from Rs. 18 lakhs in 1970-71 to Rs. 30 lakhs in 1973-74. In the case of ammonia, the percentage of wastage over production increased from 1.5 per cent in 1970-71 to 2.6 per cent in 1972-73 and decreased to 2 per cent in 1973-74 and the corresponding loss increased from Rs. 4.5 lakhs in 1970-71 to 9.98 lakhs in 1972-73 and Rs. 10 lakhs in 1973-74. The Committee would like Government to examine as how far the increase in loss in terms of value is justifiable when the wastage has come down from 2.6 per cent in 1972-73 to 2.0 per cent in 1973-74. The Committee are informed that the percentage of wastage of ammonia has come down because of installation of recording instru-

ments and control of the consumption on ammonia. It has also been stated that a two per cent wastage was considered normal in the industry. The Committee would like that FACT should keep continuous watch over the consumption and ensure that the percentage of loss on account of wastage is within the prescribed norms. It was stated that the wastage of hyrogen was due to the quantity vented till the plant is stabilised after each start-up and restrictions due to refrigeration limitations.

In 1973-74, the wastage was attributed to the failure of one of the high-presure air compressors and also shut-downs in the oil gasification plant. The Committee would also like that the reasons for the increase in the wastage and consequential loss thereof should be critically gone into so that suitable remedial measures are taken to avoid such wastages.

G. **Lack of control over production and consumption of steam**

3.126. During the year 1969-70, the Company produced a quantity of 3,24,422 tonnes of steam in the boiler house (1,73,101 tonnes) and sulphuric acid plant (1,51,321 tonnes). The total consumption of steam as accounted for in the cost records of the Company, however, comes to 2,17,286 tonnes only leaving a quantity of 1,07,136 tonnes unaccounted for. If the wastage is taken at 10 per cent of the total production, the quantity not accounted for works out to 74,694 tonnes *i.e.* 23 per cent of the total production, valued at Rs. 12.08 lakhs (at the cost of fuel oil required to produce the steam).

3.127. The Management stated in March, 1971 that a number of steam consuming points have not been accounted for and due to lack of instrumentation, off-take of steam by some plants like hydrated calcium silicate and sodium silico fluoride could not be taken into account.

3.128. The Ministry, however stated in March, 1972 that the procedure for the compilation of production and consumption of steam has been changed from 1971-72 and that the feasibility of installation of instruments to get more accurate figures was under examination.

3.129. According to Audit the instruments for getting more accurate figures of consumption of steam in the consuming plants had not been installed till March, 1974. The method of assessing the production of steam and its allocation to different departments was changed from 1971-72. Till 1970-71 the production of steam in Sulphuric Acid Plant was assumed to be 1.2 tonnes for every tonne of Sulphuric Acid. Out of this, 0.2 tonne of steam was presumed to

have been consumed in the Sulphuric Acid Plant itself and the balance was treated to have been transferred to the other consuming plants. From 1971-72 a quantity of 0.8 tonnes of steam was assumed to have been transferred to other consuming plants for each tonne of Sulphuric Acid produced.

3.130. Similarly, upto 1970-71 the cost of steam was charged to different plants on the basis of the ratio adopted for standard costs. From 1971-72 onwards the ratio of consumption of steam during the year was based on the consumption reported during the months of November, 1971 to March, 1972. In this way the entire quantity of steam generated during 1971-72 and 1972-73 was accounted for in the cost records.

3.131. The FACT informed in a written note that meters had been provided at the following plants for recording accurately the steam consumption:

1. Meter to record the export of steam from sulphuric acid plant
2. Old Ammonium Sulphate Plant
3. New Ammonium Sulphate Plant
4. Phosphoric acid and Ammonium Phosphat Plants
5. Ammonium Chloride Plant
6. O.G. Plants including turbo-alternators and Tonnex Plant.

3.132. Besides the major points of consumption there were a few unmetered points where steam was consumed in small quantities. These were cafetaria, Rubber lining sections, Fine Chemicals, Causticizing Plant, Old Ammonia and BOE Plants. Since consumption at each of the above points was less than 500 kg/ht. it was felt that it was not worthwhile to instal separate meters for the above mentioned plants.

3.133. During the evidence of the representatives of FACT, the Chairman-*cum*-Managing Director informed the Committee as follows:

> "When the overall consumption of steam was reported to be high, the concept of control came to isolate and determine which particular section is using more steam. These instruments were installed to measure and compare the norms. Today we are in a position to say exactly where we have improved and where we have not improved.

3.134. The quantities of steam produced, consumed in the plant and quantities vented during the last five years is given below:—

Year	Steam produced	Steam consumed in the plant	Qty. of steam vented+pipe line losses
	MT	MT	MT
1. 1973-74	92964·0 (a) 194807·0 (b)		
	277771·0	236221.0	41550·0
2. 1972-73	89034·0 (b) 112812·0 (b)		
	201846·0	163332·0	38514·0
3. 1971-72	93292·0 (a) 192087·0 (b)		
	285379·0	248644·0	3673 5·0
4. 1970-71	145427.0 (a) 148394 (b)		
	293824·0	248821·0	445000·0
1969-70	173101·0 (a) 151321·0		
	324422·0	217286·0	107136·0

NOTE:—(a) Steam produced in Boiler Plant

(b) Steam produced in Waste Heat Recovery Boilers.

3.135. About 35 tonnes of steam per hour is generated in the Waste Heat Recovery Boilers of the Sulphuric Acid Plants. Of this 15 tonnes are used in the Ammonium Sulphate plant (gypsum process).

3.136. Whenever this Section is not working either due to want of good quality gypsum, carbondioxide, ammonia or due to equip-

ment breakdowns in the sections 15 tonnes of steam has to be vented or sulphuric acid production stopped.

The quantity of steam shown as vented is not the steam produced in the boilers, but is the steam produced in the waste heat recovery boilers of the acid plants.

The steam produced in the boilers is used in the Texaco Oil Gasification plants and in the ejectors of the emergency power generating sets.

3.137. The Committee regret to note that during the year 1969-70, out of total quantity of 3,24,000 tonnes of steam produced, only 2,17,000 tonnes were accounted for. Even allowing for a 10 per cent wastage in production, the Committee find that 23 per cent of the total production valued at Rs. 12 lakhs was not accounted for. This was stated to be due to lack of instrumentation in some of the plants. The Committee note that though the procedure for accounting of steam had been changed from 1971-72, no instruments for recording of consumption of steam were installed till March, 1974. The procedure for allocation of steam to different plants was not uniform from year to year. While up to 1970-71, for every tonne of sulphuric acid produced 1.2 tonnes of steam was assured to have been produced. Out of this, 0.2 tonne was presumed to have been cansumed in the Sulphuric Acid Plant itself and the balance one tonne was treated to have been transferred to other Consuming Plants. From 1971-72 a quantity of 0.8 tonne of steam was assumed to have been transferred to the Steam Consuming Plant for each tonne of Sulphuric Acid produced. The Committee are informed that meters have since been provided in several plants for recording accurately steam consumption. The Committee regret to observe that due to the absence of meters, the allocation of steam consumption has not been uniform. The Committee therefore, recommend that new meters have been installed, figures of the consumption of steam should be on the basis of meter readings and allocation of cost done accurately. The Committee also recommend that FACT should fix standard norms for consumption of steam and judge consumption of steam with reference to prescribed norms.

H. Power Fluctuations

3.138. It has been stated that one of the reasons for under-utilisation of the plants and consequent shortfall in production is shortage of power/interruption in power supply. The third stage expansion of

FACT was linked up in regard to its power supply with the Sabarigiri project of the Kerala State Electricity Board. The completion of this Sabarigiri project was much behind schedule. Even after its commissioning, there were frequent power interruption and voltage dips which affected the smooth working worging of the different plants of FACT.

3.139. A statement showing details of power failures and voltage dips for the last three years is given below:

Year	110 KV supply			66 KV supply		
	Power failure	Voltage dips	Total	Power failure	Voltage dips	Total
1971-72 . .	8	63	71	8	57	65
1972-73 .	11	98	109	20	101	121
1974-75 .	12	99	111	26	84	110

3.140. FACT had constituted in 1968 a Study Team consisting of representatives of Kerala State Electricity Board, Indian Institute of Technology, Bangalore and FACT to study the problem of power fluctuations. It was stated that as a result of the implementation of most of the recommendations made by this Study Team there was some improvement in power supply position in that only less than 20 per cent of the dips adversely affected the critical plants. It was also stated that such of those recommendations as were under the scope of FACT have only been implemented. The KSEB was also reported to have implemented all the recommendations, excepting the one involving foreign exchange expenditure as the expenditure on the implementation of this recommendation according to KESB, would not be commensurate with the results.

3.141. To an enquiry of the Committee about the present position with regard to power interruptions/fluctuations, FACT stated:

> "There has not been any appreciable improvements in the power interruptions/fluctuations. However, the Kerala State Electricity Board feel that with the Idikki power station commencing power supply, the position will improve considerably."

3.142. The question of power failure was discussed by the Committee with the representatives of the Ministry of Petroleum and Chemicals during their evidence who stated that during 1974, FACT had eleven failures, including one which was very long, when engineers went on strike, resulting in 46 voltage dips. It was stated that when the voltage dipped by more than 10 per cent, the plant automatically tripped to save the instruments and the equipment. Each tripping could mean 2-4 days loss of production. He also informed the Committee that at present the thinking was that in large production units they should have captive power plants so that the vital installations would continue uninterrupted. It was pointed out that the Cochin Division had its own captive power plant.

3.143. In regard to the Udyogmandal Division of FACT having its own plant, the FACT stated in a written note that during 1972 FACT conducted a feasibility study on establishing a captive power plant of 20 MW capacity for meeting the power requirements of ammonia plants at Udyogmandal. Because of transport and handling difficulties and lack of adequate storage space for stacking coal, a coal based power plant was found not feasible. The alternative, based on fuel oil was found feasible but not attractive economically because of the following reasons:

"1. The turbine has to be a condensing type, as our process steam requirement is fully met by steam generated in the heat recovery boilers of the Sulphuric acid plant and no steam from external sources is required normally. The entire cost of steam required for the power plant will have to be allocated to power generated.

2. On the above basis and assuming an investment of Rs. 500 lakhs and an opera-cost of Rs. 53,000 per day on the basis of Rs. 275/- tonne of fuel oil the cost of power generation worked out to 19.25 paise per KWH as against 4.5 paise per KWH we pay to KSEB.

3. The additional annual cost on power in case FACT go in for a captive power unit worked out to Rs. 190 lakhs.

4. The annual loss, due to shortfall in production resulting from power interruption/voltage dips was only around Rs. 150 lakhs."

3.144. In the light of the above findings the proposal for installing a power generating unit was not pursued.

3.145. With the ruling price of fuel oil at Rs. 1,800 tonnes the annual additional cost of operating a captive power unit would be around Rs. 500 lakhs.

3.146. However, the position would be different if a back pressure turbine could be installed and the pass out steam utilised in the process.

3.147. In the Udyogmandal diversification proposal FACT had recommended the establishment of a 400 T. Soda Ash plant which required about 40-50 tonnes of steam for the process. The steam would have to be generated in a auxillary boiler. If the steam required for the process can be generated at sufficiently high pressure and passed out through a back pressure turbine, about 5 MW of power can be generated at reasonably low cost, say about 6-8 paise/KW. 5 KW of power was sufficient for meeting the power requirement of the 120 TPD Composite Ammonia Plant.

3.148. This aspect would be taken into account while considering the diversification proposal.

To another enquiry of the Committee as to the reaction of the Government with regard to the failure of power supply and whether it was due to genuine difficulties of the Kerala State Electricity Board, the Ministry informed in a written note as follows:—

> "FACT draw its power requirement from the Kerala State Electricity Board. The generation being entirely hydel, the availability of power is naturally dependent on the monsoon in Kerala. Failure of the monsoon has from time to time resulted in lower generation of power and inadequate supply to the fertilizer unit, as also power interruptions and voltage dips. An expert study, was, therefore, carried out by the Indian Institute of Science, Bangalore in 1968, to identify the reasons for the interupptions/power dips and also recommend measures necessary to enable the plant to withstand fluctuations/dips. The recommendations of the study have been largely implemented and are being implemented.

3.150. In regard to Cochin I fertilizer plant, however, a captive capacity of 13.9 MW has been provided to cater to the requirements of the critical equipment and enable it to withstand any shocks and disturbances in the power supply system.

3.151. It is expected that with the setting up of additional generation capacity in Kerala and with improvements to the distribution system of KSEB, the power supply to the fertilizer plants would become more steady reliable."

3.152. The Committee note that due to frequent power fluctuations the production performance of FACT has been seriously affected and the annual loss on this account was stated to be to the extent of Rs. 150 lakhs. The Committee also note that the proposal of having a separate captive plant for Udyogmandal Division has not been pursued as it was not found attractive economically. The Committee were informed that a study team consisting of representatives of KSEB, Bangalore Institute and FACT studied the problem as far back as 1968, and as a result of implementation of most of the recommendations of this group there was some improvement and only less than 20 per cent of the dips adversely affected the plant. It was reported that KSEB implemented all the recommendations excepting the one involving foreign exchange as according to them the expenditure on the implementation of this was not commensurate with the results. The KSEB also felt that with the Iddikki power station commencing power supply the position would improve considerably. The Committee would like Government to take up the question with the Kerala State Government so that when the Iddikki power station is commissioned, FACT is assured of adequate and steady power supply or its plants in the interest of higher production of the much needed fertilizers.

I. Diversification Scheme

3.153. In a note submitted to the Committee, the Management of FACT stated that the present operation of Udyogmandal complex of FACT was not economically viable due to heavy overheads, high maintenance cost and low stream efficiency, characterstic of a large number of small and old plants, operations of which were interdependent. In order to ensure economic viability, production of industrial chemicals that could carry higher costs of intermediates and still run profitably were proposed to be introduced and old and inefficient plants closed down. Therefore, for improvement of Udyogmandal unit and rehabilitation of workers rendered redundant by closing down old plants, a diversification proposal in the form of a formulation report was submitted to the Ministry of Petroleum & Chemicals, in July, 1973, which envisaged the following proposals:

(a) Methanol

This envisages revamping one of the existing 80 Tpd Texaco Gasification units and ammonia synthesis loop to suit production of 75 TPD of methanol. The proposal envisages a methanol purification plant. The detailed report submitted in April 1974 covered methanol production using naphtha and heavy petroleum faction as feed-stock.

The proposal improves the economics of Udyogmandal complex in two ways—

(a) further utilisation of the gasification and ammonia facilities.

(b) by producing a petrochemical item which brings better returns when compared to fertilizers.

The investment involved for revamping as well as installation of methanol purification facilities is Rs. 348 lakhs for the proposal using heavy petroleum fraction as feed-stock. The foreign exchange required will be Rs. 78.5 lakhs. Margin towards working capital will be Rs. 32 lakhs. As given in the feasibility report of April, 1971 the annual net profit of Udyogmandal grew up by Rs. 563 lakhs in the case of heavy petroleum feed-stock and in other cases the improvement in profit is Rs. 350 lakhs with an investment' of Rs. 250 lakhs. The country will save foreign exchange to the tune of Rs. 118.12 lakhs per annum on import of Methanol.*

(2) Formaldehyde

A brief report was submitted for approval in December, 1973 envisaging production of 20,000 tonnes per annum of 37 per cent formaldehyde. The total investment including working capital margin is Rs. 166 lakhs.

This will be considered once formal approval for the Methanol Project is received.

(3) Soda ash/Ammonium Chloride

FACT was holding a letter of intent for a 100 TPD Caustic Soda plant and Kerala Government was holding letter for intent for a soda ash/ammonium chloride plant for which they required ammonia carbodioxide gas from FACT. As Kerala Government was interested to expand state-owned caustic soda industry, it was proposed that FACT take up the soda ash/ammonium chloride industry, instead of caustic soda, as the principal materials for the former i.e.

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*At the time of factual verification the Ministry of Petroleum & Chemicals indicated as follows:—

"Government have since approved the scheme and had made a provision of Rs. 15 lakhs in the Revised Estimate for 1974-75 for meeting the expenditure on this scheme during the year."

ammonia and carbondioxide gas have to come from FACT and this is more in line with the operations of FACT. A 400 TPD soda ash/ammonium chloride plant will also permit FACT to fix large quantity of Nitrogen as straight nitrogenous fertilizer (Amm. chloride) without necessity to import sulphur as required for manufacture of ammonium sulphate. For the soda ash plant the existing infrastructural facilities and labour force of FACT's Udyogmandal unit could be made use of effectively. Further, as the soda ash plant will require large quantities of steam at low pressure, it would be possible to generate this steam at higher pressure and use it initially to generate power by means of an extraction type turbine and use the passout steam at low pressure in the soda ash plant. This would enable FACT to run the critical equipment in its composite ammonia plant on steady power supply and thereby improve the stream efficiency substantially. The project cost would be Rs. 2297 lakhs including Rs. 404 lakhs required in foreign exchange.

(4) Sodium Tripolyphosphate

3.154. It would be possible to produce about 10,000 TPD of detergent grade sodium tripolyphosphate by using the phosphoric acid that could be released with taking up soda ash production. This will be a very profitable item; but detailed study has not been conducted as decision on soda ash project is awaited.

The Table below summarises the investment required as well as additional profits obtainable by implementation of the schemes. The profit amounts given in the table are before taxes:—

Project	Total Investment Rs. lakhs	Additional profits before tax obtainable Rs. lakhs
1. Methanol . .	348	563·74
2. Formaldehyde . . .	166	78·09
3. Soda ash/amm. chloride . .	2297	218·00
	2811	859·83

3.155. It was stated that the Design and Engineering Division (FEDO) of FACT was familiar with the processes and technologies involved in the proposed schemes besides having a thorough knowledge of the existing plant and equipment and could execute any modification required easily. In cases where special know-how was required, it would be secured by FEDO.

3.156. Explaining the nationale for diversification the Ministry of Petroleum and Chemicals stated in a note:—

"At present, the biggest problem of Udyogmandal unit is the multiple plants (about 20 Nos.) of different vintages with varying capacities and employing different process routes. All these plants inter-linked on the raw materials, utilities and product sides with the result that the overall capacity utilisation depends to a great extent on the company's ability to operate all the various plants simultaneously so that there is no constraint either in the raw material supply or in the intermediate product off take. As a result, the Company's production performance has been at a relatively low level of capacity utilisation during the past 7 to 8 years even though during this period, two expansion programmes have been completed. FACT's capacity utilisation mainly depends on the smooth operation of the consumping plants viz. sulphuric acid, phosphoric acid, ammonium phosphate, ammonium sulphate and ammonium chloride plants. The problem has become especially serious because of the poor performance of the acid plants. The total sulphuric acid capacity of 746 tpd is available in 4 plants, three of which are from 14 to 27 years old. Similarly the original phosphoric acid/ ammonium phosphate and ammonium chloride plants are nearly 14 years old and involve major down time. Further, Udyogmandal's capacity is also dependent upon the availability of about 33,000 TPA of sulphuric acid and 20,000 TPA of hcl gas from the neighbouring companies (Cominco Binani Zinc and TCC) and there have been serious limitations in their availability. All these problems contributed to the low capacity utilisation of Udyogmandal. It is in this context that the scheme for Methanol (as also the production of other items) was proposed by the Company towards improving the economics of the Udyogmandal Unit.

2. In early 1974, FACT came up with a proposal to modify once of their existing ammonia plants (80 tpd) for produc-

ing methanol. According to the Company, there will be a surplus of about 27,000 tpa of ammonia even if all their acid and salt plants operated at achievable capacities. FACT also pointed out that they have anyhow to cut down their ammonia production for want of off-take from the downstream plants. The company also pointed out that by reducing the ammonia capacity they would not really be curtailing their present fertilizer production but would be able to improve their financial position very considerably. FACT's proposal was examined in this Ministry and they were advised to prepare a Feasibility Report for methanol on the basis of naphtha and fuel oil as feed stocks. The company was also informed that Government would like to take advantage of the present project to changeover from naphtha to fuel oil as the feedstock. FACT subsequently submitted a Feasibility Report for their methanol scheme on the above basis.

3. The present demand for methanol is about 45,000 tpa. The Task Force on Petrochemicals had estimated the methanol requirements by 1978-79 at 80,000—90,000 tpa. The above estimate however, did not include the requirements by the fertilizer sector during the Fifth Plan period. The fertilizer sector will use methanol in the 'RECTISOL' process being adopted for all the three coal/fuel oil based plants (nearly 12 plants) currently under implementation. Apart from the initial charge, methanol will also be required for make-up RECTISOL process is one of the very economical and proven processes available today for the removal of all sulphur compounds and carbon dioxide from the crude synthesis gas obtained from the gasification of coal/fuel oil.

3.157. The year-wise methanol supply/demand position during the entire Fifth Plan period will be as follows:—

	1974-75	1975-76	1976-77	1977-78	1978-79
		(in '000—tonnes)			
1. Demand	47	56	68	83	105—110
2. Supply	35	35	35	35	62
3. Net Deficit	12	21	35	48	43—48

The above analysis indicates that methanol will be in short supply throughout the Fifth Plan period, an independent

analysis by the Planning Commission has also confirmed the above position.

The FACT's revised proposal envisages the manufacture of 80 tpd (30,000 tpa) of methanol by converting their existing ammonia plant at an estimated cost of Rs. 364 lakhs, with a foreign exchange component of Rs. 68.70 lakhs. The scheme envisages that the facilities would be converted to production of methanol on an expenditious basis and would if necessary, operate initially with naphtha as the feedstock till the necessary changes are implemented for operation on fuel oil. It is expected that the changeover based on naphtha could be implemented in about 18—22 months while the changeover to the fuel oil would require another six months. After the plants are commissioned on naphtha and later changed over to fuel oil, no part of the new investment would become infructuous."

3.158. With regard to economics of the Methanol Project the Ministry stated as follows:—

"Based on a fuel price of Rs. 708 per tonne and selling price of Rs. 3,750 per tonne of methanol, the project would give an internal rate of return of about 60 per cent. The economics would be attractive even during the initial period of operation with naphtha as the feedstock. With naphtha at Rs. 1,754 per tonne the project would give an initial rate of return of about 50 per cent. The methanol scheme would therefore be an attractive scheme and would improve the economic viability of Udyogmandal unit.

There will be no reduction in the production of fertilizers even after the implementation of the methanol scheme in as much as this scheme envisages the utilisation of ammonia capacity that would otherwise remain unutilized.

This project can be implemented within 22 months with naphtha as feedstock; switching over to fuel/oil may take another six to twelve months more."

3.159. During evidence the Committee pointed out that the four stages of expansion were directed towards obtaining a material balance for the planned production and enquired about the economic justification for jumping from different stages of expansion to a

diversification programme, the Chairman-cum-Managing Director replied as follows:—

> "The rationale and philosophy behind diversification and the need for it arises out of many factors. The conditions which were visualised in the fourth stage when it was planned in 1969 have changed considerably since then. The economics of manufacture of fertilisers has changed due to technological changes. For instance, 350 tonnes single unit or two unit plants were generally in vogue in 1969. But today 900 or 1500 single units are being thought of. So, somewhere this imbalance or adverse factors had to be rectified. With regard to the national importance of the products we have chosen, we have taken into account what the overall economy needs. A detailed investigation has been done not only by us but by the Ministry of Petroleum and Planning Commission whether the products we have chosen fit into the national requirements of import substitution, etc.
>
> What we have thought of is that if we have to retain the manufacture of fertilisers only, perhaps all these plants will have to be written off. In the changed circumstances, it is uneconomic to manufacture fertilisers in small plants. We have 19-20 plants to integrate and coordinate. It is not advisable and also the margin of economics does not permit it. These small plants are still capable of manufacturing other products and we want to utilise them as possible as we could for other products."

3.160. Asked whether in view of the diversification scheme, the four stages of expansion were not infructuous, the Chairman-*cum*-Managing Director stated:

> "No, Sir. At a particular point of time they have served the purpose and whatever remains now we are thinking of their best utilisation."

3.161. The Chairman-*cum*-Managing Director further stated in this connection as follows:—

> "The economics have been examined. The investment, cost of production, profitability—all that has been examined in the detailed proposal submitted to Government. As for sanction, this is still being examined by the various Government agencies. We have had a series of discussions

with P&C Ministry and Planning Commission. With regard to methanol it has gone to the licensing Committee. A decision has been taken to issue an industrial licence. We have not received it yet. I understand the matter is ripe.....with regard to others, the examination is so far at the level of the P&C Ministry and the Planning Commission. That is the stage now."

3.162. The Committee note that in view of the present uneconomic working of FACT due to very low level of production in some of the old plants, heavy over-heads, high maintenance cost and low stream efficiency, a scheme for diversification of production at an estimated cost of Rs. 2811 lakhs (including a foreign exchange element of Rs. 482.5 lakhs) has been formulated in order to improve the profitability of the FACT.

3.163. The Committee further note that this diversification proposal has been mooted after four stages of expansion each one of which especially the last two, had been planned and implemented to make the FACT correct the imbalance in the demand and supply of various intermediate products so as to make the Udyogmandal unit economically viable, but none of which seem to have achieved the desired results.

3.164. The Committee were informed that the need for diversification also arose because the conditions which were visualised in the fourth stage expansion when it was planned in 1969, had changed considerably since then and the economics of manufacture of fertilizers had also changed due to technological changes.

3.165. The Committee feel doubtful whether the expansion schemes have been correctly formulated at all after analysing all the deficiencies and taking into consideration the condition of the plants and their capacity for production.

3.166. The Committee are informed that the Udyogmandal unit's "production performance has been at a relatively low level of capacity utilisation during the past 7 to 8 years even though during this period two expansion programmes have been completed", because of the inter-dependence of as many as 20 plants of different vintages with varying capacities and different process routes, all of which have to operate simultaneously to avoid constraints of raw material supply but their efficient working simultaneously is the biggest problem before the unit. The Committee are not sure whether addition of some more plants under the diversification proposal to the chain of 20 inter-dependent plants will be able to improve the situation

and in the context of the past history of this unit the diversification scheme will not meet the same fate as the earlier schemes.

3.167. The Committee are informed that according to the feasibility report prepared in April, 1971 the diversification proposal to produce Methanol involved an expenditure of Rs. 348 lakhs (including foreign exchange element of Rs. 78.5 lakhs) and the overall profit of the Udyogmandal Unit was expected to improve by Rs. 563 lakhs in the case of heavy petroleum feed stock and in other case the improvement in profit is expected to be Rs. 350 lakhs with an investment of Rs. 250 lakhs.

3.168. The Committee are not sure whether the results of the feasibility study conducted in April, 1971 will still hold good in view of escalation in cost of labour, feed stock, etc. The Committee would, therefore, like that the Government should before going ahead with the scheme have a second look at the economics of the project including its effect on the over-all profitability of the Udyogmandal Division after making sure about the availability of raw materials and the demand for the product in the country at this stage. The Committee also recommend that the full details of the scheme along with the economics thereof may be brought to the notice of Parliament.

3.169. The Committee thus find that the FACT has been taking up schemes for expansion in succession with a view to correcting the imbalance and in spite of this, utilisation of the plants had been low and the imbalances still persist. Before consolidating the position and taking into account all the expansion schemes, the FACT is now going in for diversification. The Committee would like that there should be no further expansion scheme till the production in the present set up stabilises.

3.170. The Committee recommend that Government should consider appointing an Expert Committee to critically go into the causes of the failure of the Udyogmandal unit even after the different stages of expansion, and also examine the various aspects of diversification schemes including the economics thereof and the effect of the diversification on the over-all profitability of the Unit. The Committee would like to be informed the action taken in pursuance of the recommendation within three months of the Report.

IV

CRYOLITE PLANT

4.1. Cryolite is required in significant quantities for the manufacture of aluminium metal. Most of the indigenous demand is at present being met by imports. It has been stated that the Government of India had directed that all the phosphatic fertilizer plants should take steps to create facilities for recovery of flourine values. The Board of Directors of FACT approved on 22nd July, 1968 a feasibility report for producing cryolite, subject to the project being taken up when resources improved and funds could be spared for executing the project. As the working of FACT showed a profit for 1968-69, the project was taken up, with the Government giving their approval in principle to the scheme for producing cryolite of 1650 tonnes per annum in the Udyogmandal Unit. The Plant was set up essentially as a commercially viable pilot plant to perfect a process developed by FACT Research & Development Division for recovering fluorine from the phosphatic fertilizers in the form of synthetic cryolite.

4.2. The erection of the plant was completed in September, 1971. First batch of synthetic cryolite was produced in February, 1972, so far, around 115 tonnes of cryolite have been produced on an intermittent basis during the trial operations.

4.3. Giving further details of the cryolite Plant the Chairman-*cum*-Managing Director informed the Committee during evidence that the concept of development of this process was discussed with the Government of India and their general approval obtained. This was really a pilot plant, which was completed in 1971 at a cost of Rs. 32 lakhs. It went into production in 1972.

4.4. The FACT had taken up this process as a research programme and had developed it in their Research and Development Division. The idea was to recover the fluorine from the phospheric Acid and to convert it into cryolite which is a very valuable chemical so that we could save foreign exchange. In regard to the demand for the product, the Chairman-*cum*-Managing Director stated that no specific study about the demand of this product in the country was made by the Undertaking, though generally the market was there.

4.5. The Committee were informed that the quantity of cryolite imported during 1969-70 to 1971-72 was as follows:—

1969-70	1970-71	1971-72
		(in tonnes)
5563	2502	3459

4.6. The projections of demand for this product are stated to be as follows:—

1973-74	1974-75	1975-76	1980-81
			(in tonnes)
12,000	15,000	20,000	22,000

4.7. It was admitted by the Chairman-*cum*-Managing Director that when the project was taken up, at that point of time, there was no firm and fixed specification available to them. A representative of the Company stated that Indian Standards Institution had not till then finalised the specifications for cryolite. The specifications had to be mutually agreed between the supplier and the purchaser. It was stated that some studies were made and on the basis of that it was found that whatever FACT was hoping to produce from this project would be acceptable to the trade. Samples were produced and shown to aluminium companies, who suggested further improvements in specifications. The job of making improvements was reported to be in hand at the moment.

4.8. It was stated that the cryolite produced in the laboratory was good and acceptable to the aluminium industry, but on actual production on slightly bigger scale the silica content in cryolite was found to be more than what was acceptable to the industry. FACT had tried to reduce the content of silica and had in fact made some improvement. FACT had given the improved product to an aluminium firm for trial run and they were awaiting their report before taking up its production on a regular basis.

4.9. In reply to another question, the Chairman-*cum*-Managing Director added that the concept that they should have had the support and backing of research laboratories was a very good concept but since a fair amount of success was achieved at laboratory

scale, FACT went alone in developing this process and did not seek the support of research laboratories. A team of the National Chemical Laboratory had examined the process and samples. The Government and the Director General, Technical Development were consulted in advance. It was stated that the project had a dual purpose—one was to develop this product indigenously for aluminium industry and the other was to get rid of the effluents flowing from the phosphoric Acid Plant.

4.10. The Secretary of the Ministry informed the Committee during evidence in this regard as follows:—

> "Originally, Government did not examine; but next year, they did examine it and came to the conclusion that even at 60 per cent capacity, the return would be 10.4 per cent on the capital. But there was a more compelling reason with the Government as this was the first effort, a major indigenous effort towards recovery and conversion of fluoride (which is a major pollutant) into cryolite which was very much required in aluminium production. Today, we are importing it. Three things persuaded us to start this, namely, this will substitute imported cryolite which is a good thing.
>
> All that now remains to be done is that the quality of the product has to be improved in consultation with aluminium manufacturers to make it acceptable to them. That will take time. My idea is that they will be able to stabilise the quality before long; I cannot say how long."

4.11. To an enquiry of the Committee whether the plant could not have been set up on a smaller scale, the Secretary admitted that "instead of a bigger plant, it should have been a smaller one."

4.12. The Committee note that in order to perfect a process developed by the R&D Division for recovering flourine from phosphate fertilizers in the form of synthetic cryolite, which is a very valuable chemical required for aluminium industry, the FACT after taking the approval of Government in principle, set up a plant at a cost of Rs. 32 lakhs for producing 1650 tonnes of cryolite per annum.

4.13. It was reported that cryolite was being imported and this would be a substitute for the imported cryolite. The Chairman-cum-Managing Director informed the Committee during evidence that the development of this process was discussed with the Government of India and their 'general' approval obtained. It has been

admitted by the Chairman-cum-Managing Director that no specific study about the demand for the product in the country was made. It was assumed that generally the market was there. It was also admitted by the Chairman-cum-Managing Director that when the project was taken up, there was no firm and fixed specification available for the product and whatever FACT was hoping to produce would be acceptable to the Industry. The Committee are surprised that such a 'general' approval was given by Government without any survey of the demand for the product or an examination of the economics of the project.

4.14. The Committee are informed that, on actual production on a bigger scale, the silica content was found to be more than what was acceptable to the industry and therefore FACT made some improvements to reduce the silica content and had given the improved product to an aluminium firm for trial the results of which were awaited. The Committee are also informed that since a fair amount of success was achieved at laboratory scale, FACT did not seek the support of research laboratories. The Secretary of the Ministry admitted during evidence that "what still remains to be done is that the quality of the product should be improved in consultation with aluminium manufacturers". He also admitted that "instead of a bigger plant, it should have been a smaller plant." The Committee do not appreciate the undue haste with which the FACT went about setting up the plant on such a big scale and started production of cryolite without making a demand survey of the product and without finalising the specification of the product to suit the needs of Aluminium Industry.

4.15. The Committee recommend that Government should investigate into the matter and fix responsibility for this unnecessary capital investment and recurring expenditure thereon to which the FACT has been put. The Committee recommend that at least now the FACT should in consultation with Public Sector enterprises like the Bharat Aluminium Company settle the specifications for this product and the requirements for Aluminium Industry before going in for large scale production.

4.16. The Committee also recommend that research institutes like National Metallurgical Laboratory of the CSIR may also be consulted in order to perfect the process for product improvement.

V

DRY ICE PLANT

On the basis of a general demand study for dry ice said to have been made in 1963 by an Officer on Special Duty (A Government of India Officer on deputation with Fertilizers and Chemicals, Travancore Limited) and after investigation regarding the scope and economic feasibility an industrial licence for the same was obtained in June, 1964. Tenders were floated for the supply of a plant for manufacture of dry ice for utilising the by-product carbon-dioxide recoverable from the oil gasification plant at the end of III stage expansion. After technical and financial evaluation of the tenders, Board's approval was obtained for placing the orders on M/s. Borsig of West Germany. Sanction for taking up the scheme for manufacture of Dry Ice was accorded by the Board of Directors at its meeting held on 28th November, 1964. It was envisaged that the entire production would be sold to the fishing industry at Cochin and nearabout.

5.2. Accordingly, a dry ice plant to produce 6 tonne per day of dry-ice by using the by-product carbon dioxide was set up in May, 1969 at a cost of Rs. 8.15 lakhs. The plant and the engineering services were provided by the West German firm for an amount of Rs. 4.69 lakhs. The Plant has not, however, gone into commercial production so far.

5.3. The quantity of CO_2 which was proposed to be used in the production of dry ice is now being vented but is not ascertainable from the records.

5.4. The Management stated (February, 1971) that the production of dry ice could not be commenced as Government levied an excise duty of Rs. 1000 per tonne.

5.5. The matter regarding the exemption of dry ice from the excise duty was taken up by the Company with Government in May, 1970 who intimated in January, 1972 that it was not possible to accede to the request.

5.6. Owing to problems in obtaining exemption from the heavy excise duty, the local market did not materialise. Negotiations

were subsequently made for sale in Bombay market, but, although negotiations were completed, they could not be brought into force on account of transport difficulties. It was stated by FACT that excise duty was taken into account while working out the cost of production.

5.7. To an enquiry of the Committee as to why the original expectation that dry ice would be utilised locally did not materialise, the Chairman-*cum*-Managing Director informed the Committee during evidence as follows:—

> "From the files I find that the purpose of setting up the dry ice plant was that the dry ice would be used for fishing locally; there is a big fishing industry.
>
> But subsequent experiments showed that the dry ice used for the industry would call for a method whereby the dry ice does not come in contact with the fish. There is a characteristic in the use of dry ice whereby the fish starts crumbling. The method technically feasible was to have containers for dry ice and to put the fish in them. The detailed study made subsequently to the setting up of the plant showed that this would not be economic. That is why the local market was lost.
>
> Another expectation that the ice would be sent to Bombay market has not entirely failed. The crucial point is, to what extent the wastage or evaporation losses or the loss in transit would call for levy of excise duty. The present decision of the Excise Department is that 20 to 25 per cent of the losses could be exempted from levy of excise when the losses are checked up at destination. We are now in the process, of sending some consignments for ten to fifteen days to see whether the losses are taken over by the excise people and whether the losses noticed or found in actual practice would be exempted. If they are exempted, the dry ice plant would start functioning. If the excise problem is satisfactorily solved, the plant will operate. If not, this plant will have to be disposed of."

He further added that:—

> "The 30 to 40 per cent loss could be absorbed in the cost of production if excise is not leviable. At the moment the decision is to go upto 25 per cent and the Collector feels if the wastage in transit could be reasonably established

then he will reconsider it. If we fail to convince the Collector then we have to come to the conclusion that the plant will have to be sold."

5.8. To a question whether the expenditure on the plant was not a waste, the Chairman-*cum*-Managing Director admitted as follows: —

"It is a waste; we have not been able to use it."

5.9. Asked whether this matter was investigated, it was stated that the matter was being considered by the Board. To a further query whether it was a fact that the Management had not been able to locate a copy of the Report submitted by the O.S.D. on the basis of which the decision was taken to set up the plant, the Chairman-*cum*-Managing Director stated—

"It is true that we have not been able to locate a copy of the Report."

5.10. In regard to capitalisation of the Plant it was stated that it was a normal practice to capitalise a plant, when its rated capacity and guaranteed consumptions were proved.

5.11. In this regard, the Secretary of the Ministry informed the Committee during evidence as follows:—

"In my opinion, this is a good project. It has gone wrong because of one vital omission, namely, they did not have a thorough market study; they did not find out who would buy it and where it would be sold. If this thing had been done, then this state of affairs would not have arisen. Because this was a waste product which was being converted into a useful product.

I looked into it. I wanted to see what market study they had undertaken. I was told that they had some preliminary survey. But nobody was able to lay his hands on the document."

5.12. The Committee regret to note that in its anxiety to utilise the surplus carbon-dioxide recoverable from the oil gasification plant at the end of III stage expansion, the FACT set up a dry ice plant in May, 1969 at a cost of Rs. 8.15 lakhs, to produce 6 tonnes per day of dry ice without a proper demand survey and without taking into account the full effect of excise duty on the price structure of the product. It was envisaged that the dry ice would be used by the local fishing industry. The Committee were informed

that due to the excise duty leviable on dry ice being high and due to the fact that the use of dry ice by fishing industry called for a new method involving additional expenditure, whereby the dry ice would not come into direct contact with fish, the price of the dry ice did not prove to be economical to the fishing industry. The result of all this has been that the plant could not go into commercial production till now. The Committee are surprised to find that "the Management is not able to locate a copy of the report" submitted by an officer of the Corporation on the basis of which this project was taken up. It has been admitted by the Chairman-cum-Managing Director of the Undertaking that the entire expenditure on the project "is a waste". The Secretary of the Ministry has also admitted that the project has gone wrong because of one vital omission viz. absence of a thorough market study. The Committee would like the entire matter to be thoroughly investigated with a view to fixing specific responsibility for the lapses and taking deterrent action. The Committee would like to be informed of the precise action taken in pursuance of it.

5.13. The Committee were informed that the FACT is now exploring the possibilities of marketing the dry ice in Bombay, which again is running into difficulties due to the transport problems. The Committee would like Government/FACT to come to an early conclusion as to whether this plant can at all be operated economically and if found otherwise, take an early decision to dispose of the plant in the best interest of the Undertaking. The Committee would like to be informed of the action taken in pursuance of this recommendation within three months.

VI

COCHIN DIVISION

A. Cochin Fertiliser Project Phase I

6.1. In keeping with its policy of entrusting the Company with the planning and construction of a few fertilizer plants during the Fourth Five Year Plan period, Government approved in July, 1965 the setting up, by the Company, of a new fertiliser factory at Cochin. The factory is designed to produce 2 lakh tonnes of ammonia per annum to be converted into 3.3 lakh tonnes of urea. The Project is being constructed jointly by the FEDO Division of the Company and the Planning and Design Organisation of the Fertilizer Corporation of India Ltd.

6.2. The Cochin Plant consists of (i) Hydrofining (ii) Reforming (iii) Conversion purification (iv) Ammonia Synthesis refrigeration and storage (v) Urea and (vi) off-sites and facilities. Of these, the first three units were designed and engineered by FEDO/FACT on the basis of technical collaboration agreement with a U.K. firm—M/s. Devy Power Gas Ltd. The fourth and the fifth units were designed and engineered by the Planning and Design Organisation of the Fertilizer Corporation of India Ltd. in collaboration with an Italian firm—M/s. Technimont. This arrangement was made in pursuance of the recommendations of the Swaminathan Committee (working Group on Advance Planning for fertilizers—April, 1968). It has been stated that this was for the first time that a single stream centrifugal compressor operation type of ammonia plant had been set up.

Project Estimates and the Actual Expenditure

6.3. The original estimates, the revised estimates, the actual expenditure incurred in the project upto 31st March, 1974 and the anticipated further expenditure are indicated in the following table:—

COCHIN DIVISION PHASE I

(Rs. in lakhs)

Date of preparation of Estimate Assumed dated of production	Original Estimate Aug. '66	Revised Estimates Jan. '68 Oct. '69	Aug. '71 Jan. '72	Feb. '72 Jan. '72	Now anticipated taking 1-8-74 as dated of commercial production.
PARTICULARS					
Land . . .	125·00	125·00	129·02	230·89	233·38
Plant and Machinery	1943·00	2471·00	2443·69	2454·12	2566·32
(Foreign Exchange Components)	(1380·00)	(1385·20)	(1440·21)	(1475·75)	(1702·86)
Factory Buildings & Erection . .	343·00	350·30	381·70	439·75	613·65
Office & Residential Buildings . .	109·00	120·00	186·40	171·43	169·37
Services & Facilities . . .	1302·00	1293·70	2059·19	2410·81	2787·08
Foreign Exchange components	(340·00)	(93·10)	(70·68)	(60·30)	(71·64)
Working Capital	150·00	200·00	300·00	300·00	300·00
Foreign Exchange			(151·00)	(151·00)	(151·00)
Components .					
Deferred Expenditure Income Tax on Foreign Technician . .			200·00	293·00	630·20
Differential duty on Naphtha used for trial runs without producing urea . . .					300·00
	3972·00	4560·00	5700·00	6300·00	7600·00

Note : 31527·28 Tonnes of urea produced till 31-3-74 for which credit for the value has not been taken into account. Excise duty paid has not been included as exependiture.

(Rs. in lakhs)

	Actual expenditure upto					Anticipated further expenditure to complete project
	31-3-70	31-3-71	31-3-72	31-3-73	31-3-74	
PARTICULARS						
Land . . .	120·21	120·31	125·28	145·85	171·20	62·18
Plant and Machinery	2116·45	2303·35	2368·41	2405·40	2420·54	145·78
(Foreign Exchange Components)	(1590·05)	(1268·70)	(1310·60)	(1349·75)	(1349·75)	
Factory Buildings & Erection . .	249·41	237·10	373·30	429·97	478·35	135·30
Office & Residential Buildings . .	227·51	150·06	156·92	160·52	161·11	8·26 (—)
Services & Facilities	1241·29	1449·39	1882·56	2434·39	3030·91 (—)	243·83
Foreign Exchange Components	(39·10)	(42·81)	(43·26)	(60·30)	(59·28)	
Working capital		159·48	253·99	237·94	258·70	41·30
Foreign exchange Components			(136·99)	(141·69)	(141·69)	
Deferred Expenditure Income Tax on Foreign Technician			5·95	50·80	47·79	582·41
Differential Duty on Naphtha used for trial runs without producing urea						300·00
	3954·87	4419·69	5166·41	5864·87	6568·60	1031·40

6.4. The increase in revised estimates of January, 1968 over the original estimates was on account of the following reasons:—

(i) The original estimates were based on the Japanese quotations whereas the orders were finally placed on Italian suppliers against the Italian credit.

(ii) Revision of the process scheme originally adopted.

(iii) Increase in the cost of equipment, and

(iv) Increase in the cost of land and township on account of provision for extra amentities and facilities.

6.5. None of the estimates has been sanctioned by Government so far (March, 1972) and were stated to be under examination. However, Government had paid an amount of Rs. 1,051 lakhs towards equity capital and Rs. 2,045 lakhs as loan up to 31st March, 1970 for this project.

6.6. In this connection FACT stated in written note as follows:—

"The project estimates have to be revised consequent to the delay in commissioning of the plants and the Board of Directors and Government were apprised of the position from time to time. The revised project estimate of Rs. 6300 lakhs was also approved by the Board and submitted to Government.

As the date fixed for commissioning as per the estimate of Rs. 6300 lakhs had slipped, a review was undertaken to ascertain the estimated additional cost that would be incurred to bring the plants on commercial production. It is now expected that the commercial production will start from early August, 1974 and that the revised cost would go up to Rs. 7600 lakhs.

Government have already instructed us that approval for the revised project cost need be taken only after the plant has been commissioned. Board has also taken note of this. Hence the revised project cost would be placed before the Board and the Government after the commissioning of the plant for the purpose of regularisation."

6.7. Explaining the increase in the project estimates of Cochin Phase I, the Chairman-*cum*-Managing Director stated during that the original estimate in 1966 of Rs. 3,972 lakhs was a very rough estimate for the feasibility report and the estimate under the Detailed Project Report was Rs. 4,560 lakhs in 1968. In 1971 the estimate was revised upwards to Rs. 5,700 lakhs and in February, 1972 the estimated cost was worked out to be Rs. 6,300 lakhs and in August,

1974 to Rs. 7,600 lakhs. He stated that the increase was due to levy of excise duty amounting to Rs. 300 lakhs (which FACT had challenged) on naphtha used during commissioning, additional liability of income tax of foreign technicians amounting to Rs. 600 lakhs because of their longer stay than the exempted period and the balance of increase due to increase in costs of equipment and loss due to delay in commissioning. He added that when DPR was prepared, detailed specifications of equipment on an estimated basis and the quotations for the equipment were not available. Though the DPR was a reliable estimate, it was not an exact estimate because only after the DPR was prepared and approved, the design and engineering was done. It was further stated that the latest estimates had been submitted to Government for approval, who had then wanted to have the exact figures upto the point of putting the plant on commercial production. The question as to when the plant should be deemed to go into commercial production was under the consideration of the Board.

6.8. The Plant started production in April, 1973, although it has not yet gone into commercial production.

6.9. In a written note the Ministry of Petroleum and Chemicals stated that the first revised project estimates of Rs. 45.60 crores were submitted to the Government for approval in June, 1968. The second revised cost estimates showing a total capital outlay of Rs. 57 crores were submitted by FACT in December, 1971 and the third revised cost estimates indicating a total capital outlay of Rs. 63 crores were received from FACT in December, 1972. This estimate was on the basis that the plant would be commissioned by January, 1973. The Company, however, informed the Government in January, 1973 that it would approach the Government for approval of the estimates after the plant had been commissioned and final estimates were prepared and approved by its board. The Ministry stated that they were awaiting final cost estimates from the Company as it was necessary for Government to know final cost estimates before approval could be accorded. Although the revised estimates had not been formally sanctioned, the revised cost estimates were taken note of by the Government while examining the budget proposals. The Ministry added in their note that the excess over the original estimates was mainly due to the delay in the commissioning and commencement of production involving additional expenditure in the form of management charges, interest charges and charges on account of continued employment of foreign technicians etc.

6.10. Asked to elaborate the term difference in commissioning of the plant "and the plant going into commercial production", the Chairman-*cum*-Managing Director stated:—

"We do distinguish between the commissioning of a plant to a particular level and its going into commercial production, for balance-sheet and other purposes. As mentioned, this is going to be taken up by the Board within the next few weeks and at that point we can give firm information to the Government.

The criteria to be used are yet to be decided by the Board. If the criteria used are that the plant should reach the rated capacity, then the date of cemmercial production would be different, and if the criteria used is the time taken in commissioning the plant and the stage of production we have reached, it would be different. This is the decision which the Board is to take."

6.11. Asked about the practice followed in this regard by other fertilizer plants, the witness added:—

"To my mind, there are two alternatives and, in my experience of fertilizer plants, both have been used. In Trombay, the criterion used and accepted was that the date when the plant reaches the rated capacity and proves the guarantees will be the date of commercial production. But for the Gorakhpur Plant they gave six to eight months after production because there was some damage to the equipment which the suppliers were to make good, and they proved the guarantee only six to eight months after commencing production. The general principle, also, is that even after the plant goes on line or is commissioned, there is a certain limit set before a plant is put into commercial production. There is no hard and fast formula and the Board has to exercise its judgment on this. A decision is going to be taken by the Board shortly."

6.12. The Committee note that the original estimates of the Cochin Phase I for Rs. 39.72 crores which were prepared and submitted to Government in August, 1966 were revised thrice in January, 1968, August, 1971 and February, 1972 for Rs. 45 crores, 57 crores and Rs. 63 crores respectively, the final revised estimates indicating an increase of 60 per cent over the original estimate. The last revision was done on the basis that the plant would go into production by January, 1973. The Committee regret that none of the estimates was approved by Government so far. It is surprising that the FACT instead of getting the approval of revised estimates informed the Government in January, 1973 that it would approach Government for approval of the revised estimates after commissioning

of the plant. It is equally surprising that the Ministry also allowed the FACT to proceed with incurring expenditure without the sanction of estimates and awaited the final cost estimates. The Committee are informed that the estimates of Rs. 63 crores worked out in February, 1972 were submitted to Government in December, 1972 but as the date fixed for commissioning had slipped, a review was undertaken by FACT to ascertain estimated additional cost that would be incurred to bring the plants on commercial production. On the assumption that the commercial production shall start by August, 1974, the estimated cost is now expected to be about Rs. 76 crores. The Committee are informed that instead of examining the revised estimates Government had paid an amount of Rs. 10.5 crores towards equity capital and Rs. 20.45 crores as loan up to 31st March, 1970 for this project.

6.13. The Committee note that there has now been an increase of 84 per cent over the original cost estimates which have been athributed by the company to various reasons. The increase over the original estimates was stated to be on account of revision of the process scheme originally adopted, change from Japanese quotation for supplies to Italian supplies besides increase in cost of equipment, land and township and delay in commissioning. The Committee are distressed to note that Government in spite of increase on several accounts did not go into economics of the revision but only stated that they took into consideration the revised estimates for their budget proposals. They are surprised that even at this stage there is no finality of the cost of project as still a date for commercial production has to be decided although the Revised Estimate was based on the assumption that commercial production would start by August, 1974. The Committee feel that the entire procedure displays laxity of financial control both on the part of FACT and the Ministry with the result that the expenditure on the project has increased considerably. The Committee need hardly stress that the revised estimates should not be assumed to be a mere completion report of the project but it is an instrument of financial control. The Committee recommend that Government should without further delay, examine critically the reasons for the abnormal increases in the cost estimates and the economics of the project before approving the revised estimates. In this connection, the Committee would like to invite attention of Government to their recommendation in paragraph 2.20 of their 39th Report (5th Lok Sabha) on Pyrites, Phosphates and Chemicals Ltd. requiring that wherever there is a material deviation from the original estimates, the matter should be brought to the notice of Parliament. The Committee expect that Ministry should before long bring to the notice

of the Parliament the detailed reasons for the increase in estimates, their effect on the cost of production and the economics of the project.

6.14. The Committee also note that there are no hard and fast criteria to determine when a fertilizer plant should be deemed to go into commercial production and the question is decided by the Board. In the case of Trombay Plant, the date when the plant reached the rated capacity and proved the guarantees, was the date of commercial production; but in the case of Gorakhpur plant, six to eight months were allowed after the commencement of production to enable the suppliers to make good some defects and prove guarantees and then the plant was put into commercial production. In the opinion of the Committee such information should have been available in the DPR. The Committee feel that the date of putting a plant on commercial production is a very significant date and a uniform set of criteria should be followed by all the undertakings in fixing this date which should not be left entirely to the discretion of the Board of Management. They recommend that Government may lay down guidelines, if necessary, sector-wise, for the benefit of the Boards to help them determine the dates for putting their plants on commercial production on a uniform basis.

B. **Loss in production due to delay in commissioning**

6.15. The Project Report based on the Japanese plant and equipment had estimated a time gap of nearly 2 years and 3 months between the anticipated date of the signing of contracts for equipment (March, 1967) and the date of commissioning (June, 1969). At that time the contemplation was to finance the project out of free foreign exchange. Later, Government of India decided that due to non-availability of free foreign exchange, negotiations should be made with France, Italy and other countries. Consequent on the availability of Italian credit for the procurement of plant and equipment, the last contract was signed in February, 1968 only and the plant was scheduled for commissioning in October, 1969. But there was delay in the supply of plant and equipment by the foreign as well as indigenous suppliers.

6.16. The civil construction work of the project was started in December, 1967, mechanical work in 1968, electrical erection in February, 1969 and instrumentation jobs by end of 1969. The mechanical construction could be completed only by June, 1971. Subsequent pressure testing of the syngas plant revealed severe leaks in the Reform Gas mains and this was rectified by December, 1971. However, because several problems, design-wise and fabrication-wise, were experienced in several imported and proprietory equip-

ments in the synthesis gas plant, which required design improvements, modifications/engineering changes, etc. this section could be commissioned and syngas to specification could be produced only by 24th October, 1972. Trial runs of ammonia synthesis and Urea plants also brought out deficiencies and problems in various equipments. The first lot of ammonia was produced on 21st April, 1973 and the first prills of urea were produced on 27th April, 1973.

6.17. The Committee understand that the collaborators had pointed out (in October, 1968) that "a plant using centrifugal compressors would certainly achieve a greater efficiency and that it could therefore produce cheaper ammonia, but that, since such a plant was more complex, the commissioning and operational difficulties would be of a higher order."

6.18. The Committee pointed out to the Ministry of Petroleum and Chemicals that though the Cochin Phase I Plant was ready for commissioning in middle of May, 1971, the plant was not free from defects and enquired as to why a defective Plant was accepted and the lacuna in achieving the higher rate of efficiency. The Ministry replied in a written note as follows:—

"It is not correct to say that defective plant was accepted by FACT. Even before the equipment was despatched to India by the foreign suppliers, necessary inspection was carried at their works by competent agencies like Lloyds. The defects in the imported equipments came to be known only during the start up operation. These equipment were supplied mainly by reputed firms like M/s. SII. Lentjes. THERMOMECHANICA Nuove Pignone etc. In many cases the equipment suppliers, both indigenous and foreign were fabricating the items of equipment for the first time for the duties and in the sizes required. For the first time indigenous consultancy units like FEDO and P&D of FCI were utilised for detailed engineering, construction and commissioning supervision for a project of this magnitude. A major effort towards the indigenisation of the equipment was also made in this project. In this situation it is not necessary to consider the question of fixing responsibility. However, in terms of the contracts with the equipment suppliers, replacements for the defective equipment have been obtained inspite of the fact that the warranties in certain cases had expired.

The main problems encountered in the successful operation of the plant at the near rated capacity were defects in the synthesis gas section, specially in the secondary reformers, R.G. boiler, the waste heat recovery system

and the condensers in the ammonia synthesis section. Action is being taken to rectify the defects to enable the plant to stabilise at higher rate of capacity."

6.19. The Committee were informed during evidence that though the guarantee period of collaborators for the hydrofining reforming and conversion/purification in the ammonia plant had expired, the collaborators had agreed to help FACT in solving the problems faced by them. As regards defective equipment, it was stated that out of an expenditure of Rs. 4.1 lakhs incurred by FACT on modifications in the equipment, the suppliers had agreed to bear Rs. 3 lakhs and better equipment worth Rs. 35 lakhs was being supplied by the suppliers in replacement of the defective equipment free of cost. The amount expended on modifications in urea plant was Rs. 2.7 lakhs and the supplier (Monte Contini) had agreed to bear the entire expenditure.

The Chairman-cum-Managing Director informed that loss in production due to defective equipment was not the responsibility of the suppliers of the plants.

6.20. It was stated that the reasons for delay in construction and commissioning was chiefly delay in finalising the contract with foreign suppliers of equipment and delay in supply of equipment by indigenous suppliers. Among the indigenous suppliers the main bottleneck was the delay in the supply and erection of boilers and pressure vessels by M/s. A.C.C. Vickers and Babcock Ltd. Durgapur. The boilers were scheduled to be supplier, erected and commissioned by July, 1969. The erection work was however got done by the Company by another contractor at the cost of the suppliers and the boilers were commissioned in October, 1971. The supply of pressure vessels was completed in April, 1971 against the stipulated date of January, 1969.

6.21. Asked whether there was any claim for liquidated damages, the FACT stated in a written note as follows:—

"We had claimed liquidated damages under clause 6 of the contract which reads as under:

"If the commissioning of the Steam Generating Unit is delayed due to late delivery of any piece of equipment beyond the stipulated date. M/s. AVB will be liable to pay by way of liquidated damages to FACT, at the rate of half per cent of the value of this contract price per each unit per week of delay subject to a maximum of 5 per cent of each unit so delayed."

6.22. M/s. AVB contended that they were not liable to pay liquidated damages because of force majeure conditions prevailing. The relevant clause reads as under:

> "Both FACT and AVB shall not be considered in default in the performance of their obligations under this agreement if and so long as such performance is prevented or delayed because of strike, war, hostilities, revolution, civil commotion, epidemics; accidents; fire, wind, flood or because of any law, order, proclamation, regulation or ordinance of any Government or of any sub-division thereof or because of any act of God or for any other cause similar or dissimilar now existing or in the future beyond the reasonable control of the party affected."
>
> Further AVB claimed payment of interest for delay in payments to them. Some of these payments have been held up pending settlement of our claim for liquidated damages. Also AVB claimed additional fee for extended stay of personnel here on account of delay in taking the guarantee test run of the boiler after the erection was completed.
>
> Legal opinion obtained advices that considering the application of the force majeure clause in the agreement we may withdraw our claim for liquidated damages provided AVB withdraw their claim for interest.
>
> In negotiation with AVB liquidated damages for delay in supply of pressure vessels were recovered, and additional testing fee claimed by AVB was considered. Details of the claims made by us and by AVB and the final settlement arrived at which were ratified by the Board of Directors."

6.23. In regard to levy of penalty on indigenous and foreign suppliers of equipment for delay in supply of equipment it was stated during evidence that a penalty of Rs. 63,000 was imposed on M/s. AVB, Durgapur and of Rs. 88,000 on the Italian firm for delayed supply of certain equipments. The amounts of penalties were worked out in accordance with the provisions of the agreements.

6.24. Referring to the penalty of Rs. 63,000 imposed on M/s. AVB, Durgapur, the Committee pointed out during evidence that

> "The Ministry have stated (March, 1972) that the penalty leviable on M/s. AVB Durgapur for delay in supply works

out to Rs. 6,54,519.30 against which an amount of Rs. 7,42,254.11 has been withheld from their bills. The question of the levy of penalty is under the consideration of the Company."

6.25. In reply the representative of the FACT stated as follows:—

"The reference there is to the penalty on the boilers which, on a subsequent examination, was found to be not leviable, because of the reasons given by the firm and also because we did not incur any loss on account of the delay in commissioning the boilers."

6.26. In regard to the loss of production due to delay in commissioning of the plant. The following statement indicates the difference between the actual production and the budget estimates and revised estimates in quantity and value for the year 1973-74 and 1974-75 (upto 31st October, 1974).

	1973-74			1974-75 (Upto 31-10-74)		
	B. E.	R. E.	Actuals	B. E.	R. E.	Actuals
1. Production (tonnes)	1,65,000	600,00	31,527	93,750	39,800	39,754
2. Value (Ex-factory price Rs/lakhs)	1266·00	460·00	242·00	1034·00	441·00	440·00

(The figures have been worked out on the basis of ex-factory prices of urea, 1973-74 Rs. 767/MT & 1974-75 Rs. 1106/MT).

6.27. In this connection the Ministry of Petroleum and Chemicals informed the Committee as follows in a note submitted after evidence:

"There was nearly a delay of two years in the mechanical completion of the plant and a delay of nearly a year in the commissioning of the plant even after making allowance for a period of about six months that may be usually required for a plant to go into commercial production. Assuming that a plant operates at 50 per cent of capacity in the first year of operation, 70 per cent in the second year of operation and 80 per cent in the third year of operation the loss in production on account of the delays would be 1,65,000 tonnes of urea in the first year of operation and 2,31,000 tonnes in the second year of notional operation and 2,64,000 tonnes in the third year of notional operation.

The project even at the present revised cost of about Rs. 74 crores is expected to break even at a level of production of about 71 per cent. The project on account of certain equipment defect and failures is presently operating at a capacity of about 50 to 60 per cent on an average and measures to step up the production are under way."

6.28. It was admitted during evidence by the Chairman-cum-Managing Director that there was a loss in production to the tune of about Rs. 10 crores in 1973-74 compared to the estimation of 50 per cent rate of production under the normal criteria, on account of delay in commissioning the plant. The loss in terms of value of output to capital would be of the order of roughly Rs. 40 to 42 crores a year on the basis of full rated capacity. It was estimated that according to current estimates, the plant would reach the break-even points at a evel of 80 per cent production. He also admitted that extra capital cost had to be incurred due to delay in the commissioning of the plant and the increase in the price of various components.

6.29. On an enquiry of the Committee whether FACT had undertaken a review of the design of the Cochin Phase I Plant with a view to making the Plant produce at least 80 per cent capacity, the Chairman-cum-Managing Director informed that the biggest bottleneck was on the wasteheat recovery system. The plant was operating at 70 per cent efficiency at present and it was expected to achieve 80 per cent without further modifications. They had also made an assessment and review of the working of the plant to get it work at 100 per cent. The matter was stated to be under examination.

6.30. On an enquiry whether the plant was now working trouble free, whether all the defects had been rectified and analysed, the FACT in a written reply as follows:—

"The plants are currently operating at 70 per cent of the daily rated capacity. The defects noticed in the plant have been analysed and the plant is capable for going upto a load of 80 per cent. The main constraints in going upto the rated capacity are:—

1. Insufficient superheat temperature of steam to the turbine and

2. Insufficient cooling in the ammonia synthesis loop.

Regarding the insufficient superheat temperature, the responsibility has been fixed on the suppliers of the equipment.

M/s. S.I.I. and they have agreed to supply all equipments necessary to rectify this defect free of cost. Insufficient cooling in the ammonia synthesis loop has been taken with M/s. FCI our process guaranters and their collaborators M/s. Tecnimont."

6.31. While discussing the overall performance of the different fertiliser units in the country, the Secretary of the Ministry of Petroleum and Chemicals (Department of Chemicals and Fertilizers) informed the Committee during evidence with regard to the Cochin Plan as follows:—

"The plants at Durgapur and Cochin were part of a separate scheme. In 1966 Government took a decision that it was high time that we in our country, our own engineers and our own technical people who were in the fertiliser industry, mostly in the P&D Division of FCI and the FEDO of FACT, should set up fertilizer plants instead of going to foreign contractors and paying them enormous amounts of money in foreign exchange for setting up a plant, and erecting it and commissioning it and then handing it over to us. As a result these two plants were set up. Now, Sir, you could ask if we were not sure of position why should we start doing it. My submission to this is that somebody has to start for the first time somewhere and these two plants were the first fruit of our indigenous activity in the field of fertilizers in designing the equipment and erecting the plant according to our own engineers' ideas. We had also laid down that the maximum amount of equipment that can be fabricated in Indian factories should be manufactured here itself and only the rest should be imported. As a result of this, against the total expenditure of Rs. 63.0 crores, only Rs. 14.0 crores worth of foreign exchange was utilised for this project.

Now, you have asked a question about the new plants which are not properly working. I would submit that this was an experiment and we are learning by it. Our R&D and our Indian technology which were in their infancy in 1966 were applied in these two plants.

It was the first step of the infant and unfortunately it happened that at the first step, the child fell down. We will help it to stand up and face the future. We will give F.C.I. and FEDO all help and assistance. Before, 1966, ammonia

plants used to have what is called the reciprocating compressor and ammonia production was in two streams; in 1966 we decided that we should adopt the centrifugal compressor which enables large volume of ammonia production in a single steam. This plant was likely to give ammonia at much cheaper cost than the earlier ones; it was designed for 600 tonnes ammonia per day. This new technology was just coming into operation in other parts of the world. So, we started on this and we are learning, and we have had to pay a heavy price for this because there is no way of learning except by doing. We put up the plant according to certain higher parameters as against the lower parameters with which we had been familiar. The only mistake we made was that we selected certain parameters with which no one was familiar.

So long as they are willing to learn, there is no question of failure. So far as this project is concerned, I will not say that FEDO has failed. In one day the Cochin Plan produced urea of about 850 tonnes. They are coming up. The plant can work upto 85 per cent of its capacity."

6.32. The Committee note that the original project report based on Japanese plant and equipment estimated a period of 27 months between the anticipated date of signing the contract and the date of commissioning (June, 1969). At that time the contemplation was to finance the project out of free foreign exchange. Later, Government of India decided that due to non-availability of free foreign exchange, negotiations should be made with France, Italy and other countries. Consequent on the availability of Italian credit, the last contract was signed in February, 1968 and the period was reduced to 20 months and the plant was scheduled for commissioning in October, 1969. The Committee regret that because of the delay in the supply of plant and equipment by the foreign as well as indigenous suppliers and because of certain defects in the synthetic and the reform gas plants, which had to be rectified, the Ammonia and Urea Plants could be commissioned only in April, 1973. The Committee note that the collaborators had pointed out in October, 1968 that the plant using centrifugal compressors could achieve greater efficiency and produce cheaper ammonia, but cautioned that since such a plant was more complex, the commissioning and, operational difficulties would be of much higher order. The Secretary of the Ministry has admitted during evidence that "this new technology was just coming into operation in other parts of the world. So we started on this and we have to pay a heavy price for this. We put up the plant according

to certain higher parameters as against the lower parameters with which we had been familiar. The only mistake we made was that we selected certain parameters with which no one was familiar", which eventually led to all the troubles in the plant and delayed the commissioning .The Committee are surprised that the FACT should have accepted the Plant without verifying whether a plant of this dimension had been in actual operation elsewhere and more so when no one in India was familiar with parameter of the technology of this Plant. While the Committee are not averse to the use of forward technology in setting up of the projects, they would like that Government should satisfy themselves fully that such a technology has been successfully put up in operation elsewhere so that no experiment is done at the cost of the country.

The Committee are informed that among the indigenous suppliers, the main bottleneck was the delay in the supply and erection of boilers and pressure vessels by M/s. A. Vickers and Babcock Ltd., Durgapur. Though the boilers were scheduled to be supplied, erected and commissioned by July, 1969, the erection work was got done by FACT at the cost of the suppliers through another contractor and the boilers commissioned only in October, 1971. The FACT's claim for liquidated damages was also not accepted by M/s. A. Vickers and Babcock Ltd. and the legal opinion was also not in favour of pressing the claim. The Committee understand that the penalty leviable on M/s. A. Vickers and Babcock Ltd., for delay in supply worked out to Rs. 6.5 lakhs against which an amount of Rs 7.4 lakhs had been withheld from the bills and the question of levy of penalty is still under consideration of Company. The Committee would like to be informed of the results.

The Committee regret to note that on account of the delay in commissioning of the Plant, there had been a loss of production to the extent of 1.65 lakh tonnes of Urea in the first year of operation, 2.31 lakh tonnes in the second year of operation and 2.64 lakh tonnes in the third year of operation on the basis that the plant would be working on 50 per cent capacity in the first year of operation and 70 per cent capacity in the second year of operation and 80 per cent capacity in the third year of operation. It has been admitted during evidence that the loss in production was to the extent of Rs. 10 crores in 1973-74. It has been stated that the project is presently operating on a capacity of 50 to 60 per cent on an average and the measures to step up production are on way. The Committee are informed that even now the biggest bottleneck is on the waste heat recovery system and after a review of the design of the plant has been undertaken the defects had been indentified and the plant is now capable of going up to a load of 80 per cent without modification.

The main constraints in achieving 100 per cent rated capacity are however stated to be insufficient superhead temperature of steam to the turbine and insufficient cooling in the ammonia synthesis loop. While in the case of the former item, responsibility has been fixed on the suppliers and they have agreed to supply all equipments necessary for rectifying the defects free of cost, in the latter case the matter has been taken up with the Fertilizer Corporation of India, who are the process guaranters and with their collaborators. The Committee need hardly stress that FACT has already lost a valuable time in commissioning the plant and achieving the rated capacity. The Committee recommend that the FACT should lose no further time in rectifying the defects noticed in the plant and achieving the rated capacity.

C. Ambalamedu House

6.33. Against a lump sum provision of Rs. 100 lakhs in the project estimates of Cochin Fertilizer Phase-I for the construction of staff quarters, technicians hostel, market, etc. in the township, the Company constructed one hostel and another building (Ambalamedu House) for accommodating the foreign technicians and engineers respectively who were to come under the Agreements with the foreign suppliers. The hostel was constructed at a cost of Rs. 4.62 lakhs and was furnished at a cost of Rs. 1.11 lakhs.

6.34. The Ambalamedu House built at a cost of Rs. 14.20 lakhs (approx.) was ready for occupation in November, 1970 after it had been furnished at a cost of Rs. 1.40 lakhs (approx). There are 48 rooms and 2 VIP suites in it.

6.35. The maximum number of foreign engineers accommodated in the House on any day was 20. Considering the number of foreign engineers actually accommodated in the House, the accommodation provided was found to be in excess of the actual requirements.

6.36. In order to utilise the available accommodation, the Company is now permitting outsiders also to say in the House. The catering arrangements have been entrusted to a contractor from January, 1971.

6.37. The Ministry stated in March, 1972 that the Ambalamedu House would be utilised by the Company for accommodating the foreign technicians connected with the Cochin Phase II Project and efforts to utilise it as a hotel to meet the tourist requirements were also being explored. No engineering connected with Cochin Phase II is, however, reported to be staying in the Ambalamedu House at present.

6.38. It was stated by FACT that as per contractual obligations, FACT had to provide for senior engineers first class hotel accommodation of international standards or equivalent. The accommodation provided in the Technicians' Hostel was not equivalent to first class hotel accommodation.

6.39. The Committee enquired whether all the foreign technicians and engineers, who came over to Cochin under the agreement were actually accommodated in Ambalamedu House or whether any of them was accommodated outside. The FACT informed that because of delay in commissioning the Plant, the stay of foreign technicians and engineers was extended beyond original expectation. If the stay of foreign technicians and engineers extended beyond six months, they had to be provided family accommodation. Therefore family accommodation, which was not available in Ambalamedu House, had to be provided to some twenty families and a house was also rented for the Chief Engineer of the Italian firm. A total expenditure of Rs. 30,763.00 was incurred on hire charges for accommodating foreign technicians in hired buildings during the period from 1-10-1968 to 13-11-1972.

6.40. The occupancy ratio of the Ambalamedu House has been as follows:—

Year	Sponsored by FACT		Total Man-room days	Sponsored by Licensee	Grand Total Man-room days occupied	Total Man-room days available	Percentage of occupancy with reference to available accommodation.
	Man room days			Man-room days			
	Foreign Technicians	Others		Tourists etc.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971	4952	389	5341	852	6193	17520	35·35
1972	3891	416	4307	731	5038	17568	28·68
1973	1530	263	1793	507	2300	17520	13·13
1974 (upto 31-8-1974)*	207	35	242	358	600	11664	5

6.41. The catering arrangements have been leased out to a contractor, which it has been stated, is not unusual.

6.42. It has been stated by the F.A.C.T. that the Ambalamedu House has been to some extent used to meet the requirements of tourist traffic. The tourists, however, came at the initiative of the caterer. The FACT are now exploring the possibility of entering into some arrangement with Department of Tourism, with a view to utilising the Ambalamedu House fully. The Director General of Tourism assured FACT in August that this offer would be kept in mind while formulating the Fifth Five Year Plan. The Kerala Tourism Development Corporation has also evinced interest in the building.

6.43. The Ministry of Petroleum and Chemicals justified the construction of Ambalamedu House and making a profitable use of the House as follows:—

> "The construction of the Ambalamedu House was taken up with a view to accommodating the senior foreign technicians/engineers who were to come under the agreements with foreign suppliers of plant, machinery and know-how. It was necessary to build the House since the project area is 25 miles from town with no suitable hotel accommodation nearby. It is felt that a hotel or guest house in a project area cannot be evaluated in terms of occupancy alone.
>
> Although the discussions were held with the Department of Tourism in August, 1972 on the possibility of utilising the Ambalamedu House, no concrete scheme for such utilisation has emerged. The management is exploring the possibility of utilising suitably the accommodation in the Ambalamedu House."

6.44. The Committee note that the FACT constructed one hostel and another building (Ambalamedu House) for accommodating foreign technicians and engineers, who were to come under agreements with foreign suppliers at a cost of Rs. 4.62 lakhs and Rs. 14.2 lakhs respectively and these were furnished at a cost of Rs. 1.11 lakhs and Rs 1.4 lakhs respectively. The Committee regret to note that the maximum number of foreign engineers accommodated in the Ambalamedu House was only 20 and the occupancy ratio was decreasing from 35 per cent in 1971 to as now as 5 per cent in 1974 (upto August, 1974). The Committee are informed that according to the contractual obligation FACT had to provide for senior engineers first class hotel accommodation of international standards or equivalent and if the stay extended beyond six months of the original expected period, they had to be provided family accommodation. The FACT had to incur an expenditure Rs. 30,763 on hire charges of

buildings taken on rent for the period October, 1968 to November, 1972. In the opinion of the Committee accommodation provided in the Ambalamedu House was excessive in view of the low level of occupancy, The FACT could have restricted the scale and type of accommodation to the actual number of foreign technicians and engineers expected to come under the agreement. The Committee recommend that Government should investigate the reasons for creating such large accommodation in excess of the requirements at a cost of over Rs. 15 lakhs and fix responsibility for the lapses. The Committee would like to be informed of the action taken.

6.45. The Committee are informed that the FACT are exploring the possibility of accommodating the foreign technicians under Cochin Phase II and also for utilising it as a hotel to meet the tourist requirements. The FACT is also stated to be entering into some arrangement with the Department of Tourism. The Kerala State Tourism Development Corporation is also stated to have evinced some interest. Since it is reported that no engineer connected with Cochin Phase II is staying in Ambalamedu House at present, the Committee recommend that FACT should intensify its efforts with the Department of Tourism/Kerala State Tourism Development Corporation and take suitable measures so that the Ambalamedu House could be put to more profitable use.

D. Cochin Fertilizer Project—Phase II

6.46. This is an IDA (International Development Association) aided project from which a loan of $20 million had been received by the Government of India from the IDA.

6.47. As per the project report submitted in 1970, the total cost of the project including a plant for producing Ammonium Sulphate and Bag Making Plant was Rs. 45,864 crores. The Government however, approved the project excluding Ammonium Sulphate and bag making plant at a cost of Rs. 35.716 crores. The Project was taken up during 1971-72. The cost was reassessed in October, 1972 and revised to Rs. 45 crores. The Revised Estimates were stated to have been prepared based on detailed specification which were not available at the time of making the original estimate.

6.48. The project was based on imported ammonia for which an agreement had been entered into with Messrs Norsk Hydro of Qater.

6.49. The Project envisaged the manufacture of 4,85,000 tonnes of NPK Granulated Fertiliser and 3,300 tonnes of Cryolite per year. The Cryolite Plant was, however, expected to be taken up only after the unit set up in Udyogmandal went into regular production.

6.50. Though as per the original schedule, all the plants were expected to be ready for commissioning by September, 1974, they were now expected to be ready for commissioning as under:

Sulphuric Acid Plant—2nd half of 1975.

Phospheric Acid Plant—June 1975.

HPK Plant—July 1975.

The reasons for the delay are stated to be mainly:

(1) Because of the larger sizes of equipment, the number of parties available were few. The response to international tendering as per procedures laid down by IDA, was not good. There was delay of 3-4 months in ordering equipments. Extension of time had to be given and in some cases items had to be retendered.

(2) Considerably delay happened in civil works due to labour troubles, heavy monsoons, late receipt of drawings from suppliers and consequently delay in award of the contracts etc. Further the layout of the NPK plant had to be completely reworked since the space originally envisaged by Davy Power Gas, USA was insufficient.

The plants are expected to reach production as under:—

1975-76	—1,62,000 Tonnes
1976-77	3,41,000 Tonnes
1977-78	—4,22,000 Tonnes
1978-79	—4,85,000 Tonnes (Rated production).

6.51. The following table indicates the broad break-up of project cost, actual expenditure incurred upto 31st March, 1974 and the anticipated further expenditure for completion of the project:—

(Rs./lakhs)

Particulars	Project cost octr. 1972	Actuals up-to 31-3-1974*	Anticipated further expenditure to complete the project.
1. Civil works	452·39	181·93	360·46
2. Plant and equipments	2757·53	1077·40	1680·13
3. Township	55·00	..	55·00
4. Land	12·00	..	12·00
5. Preliminary expenses	10·50	10·45	0·05
6. Pre-operation and management expenses	188·78	52·41	136·37
7. Financing charges	225·00	..	225·00
8. Working capital margin	480·00	..	480·00
9. Contingencies	228·800	..	228·800
Total (1 to 9)	4500·00	1322·19	3177·81

*Provisional and subject to finalisation and audit.

6.52. On an enquiry whether the revised estimates had been approved by the Government, the Ministry of Petroleum and Chemicals stated in a written note as follows:

"The revised project cost estimates for Cochin Phase-II, indicating a total capital outlay of Rs. 45 crores with a foreign exchange components Rs. 1042.39 lakhs including a provision of Rs. 50 lakhs as contingencies were received by the Government from the Company in February, 1973. Government had not yet approved this revised estimates because it was considered that the estimates would have further to be revised, particularly taking into account the recent escalations in equipment and construction costs.

As compared to the sanctioned cost of Rs. 3571.60 lakhs, the increase in the revised cost estimates submitted to Government in February, 1973 was about Rs. 9.29 crores. The main increases in the revised cost estimates were in res-

pect of phosphoric acid plant (Rs. 60.99 lakhs), NPK Plant (280.92 lakhs) services and facilities (Rs. 176.58 lakhs) Working capital margin (Rs. 68.40 lakhs) and contingencies (Rs. 219 lakhs). The revised cost estimates were prepared after getting more reliable data from the collaborators and others. Further, the original scheme included provision for the production of ammonium sulphate and also the setting up of bag making plant, which were not approved by the Government and which also called for revision of the original estimates".

6.53. To another enquiry as to why the ammonium sulphate and bag making facilities were not approved, the Ministry replied that Government did not agree to include the ammonium sulphate plant, as originally proposed by the Company, for the following reasons:—

(i) The by-product gypsum ammonium sulphate plant Udyogmandal had not been able to produce on a steady basis, even at 70 to 80 per cent of its capacity (in fact it was hardly 40—45 per cent) and;

(ii) Till Cochin Phase-I went into operation and operated steadily, it would be difficult to predict continued availability of carbon-dioxide for sulphate.

6.54. As regards the bag making plant, it was felt that this should be set up as an ancillary industry. Such ancillary activities were not generally taken up by large undertakings but best taken up by small scale industries."

6.55. The Committee note that Government approved the project report of Cochin Phase-II excluding Ammonium sulphate and Bag making plant at a cost of Rs. 35 crores in 1970. The cost was reassessed in October, 1972 and the project cost revised to Rs. 45 crores. It was stated that the revised estimates were prepared after getting more reliable data from the collaborators. The Committee regret to note that though the revised project cost estimates were submitted to Government in February, 1973 they have not so far been approved on the ground that the estimates would have further to be revised in view of the recent escalation in equipment and construction costs. The Committee have already recommended in paragraph 6.13 that cost estimates should be prepared after taking into account all the foreseeable items of expenditure and the outlay should be indicated as accurately as possible. The Committee see no reason why the revised estimates should not have been considered making provision

for escalation in cost of equipment and construction as far as could be reasonably known instead of delaying the sanction and thus defeating the purpose of sanction of an estimate. The Committee recommend that Government should critically examine the reasons for excesses and also their effect on the economics of the project before sanctioning the revised estimates and bring the detailed reasons for the increase in estimates and their effect on cost of production and the economics of the project before Parliament.

6.56. The Committee note that Cochin Phase-II was originally expected to be commissioned in September, 1974 but due to certain reasons it is not likely to be commissioned before 1975. The Committee also find that the plan are expected to reach a production level of 1,62,000 tonnes by 1975-76, 3,41,000 tonnes by 1976-77, 4,22,000 tonnes in 1977-78 and 4,85,000 tonnes in 1978-79. The Committee would like that the Government/FACT should ensure that the capacity utilisation as planned is adhered to. The Committee also recommend that in view of the delay in commissioning of the plant, the Government/FACT should take immediate steps to get the period of guarantee extended suitably. The Committee feel that unless steps are taken right from now to deal with the factors contributing to delay in the execution of the project, the story of Cochin Phase-I might be repeated in this case also leading escalation of cost estimates and heavy loss in production. The Committee, therefore, recommended that Government/FACT should monitor the progress of this project concurrently and ensure that the revised schedules of completion by July, 1975 are adhered to.

6.57. As already stated the project is based on imported ammonia for which an agreement has been signed with M/s. Norsk-Hydro of Norway.

6.58. Originally the offers for the supply of liquid ammonia were being handled by the Fertilizer Corporation of India. In April, 1972, Petroleum & Chemicals Ministry authorised the Chairman and Managing Director, FACT to directly negotiate with M/s. Norks-Hydro.

6.59. Negotiations were carried out from June, 1972 and in September a revised draft was received from Norsk-Hydro Acceptance was given to Norsk-Hydro on 19-10-1972 by Talex. This was acknowledged by their cable of 20-10-1972.

6.60. Norsk-Hydro had suggested that the contract be formally signed in Oslo on 18-11-1972. The Management of FACT stated that various dates were considered but were not found suitable due to

exigencies of work. With the end of the strike at Udyogmandal there was a lot of rush of work to get the working of the factory back to normal. Finally a date convenient to both parties was fixed at 12th February, 1973. In January, 1973 Norsk-Hydro intimated that the terms settled earlier had not been accepted by their Board of Directors. A revised offer dated 8-3-1973 was given by them. This offer was examined by the Board of Directors of FACT on 22-3-1973 and they decided not to accept the offer and this was conveyed to the Ministry. The Ministry of Petroleum & Chemicals examined this and decided to accept the offer in the overall, national interest. Based on this the Board of Directors authorised the Chairman and Managing Director of FACT to conclude the contract and the contract was concluded which was approved by the Government and Board.

6.61. On being asked to explain the delay in the signing of contract and the effect of the delay on the price to be paid for the imported ammonia, the Chairman-cum-Managing Director of FACT stated as follows:—

"The settlement for $41 C&F Cochin, the first settlement that has been referred to, in the terms is settled initially, and confirmed by them, that it is legally binding. It is not the case that there was anything to be done in the way of legal commitment. It was supposed to be done in November and was offered ultimately to be done in February. But that did not change the position at all. In the settlement made there was a provision that the settlement is subject to the Government of India's approval and also subject to the approval of the Board of Directors of the respective companies, that is, FACT as well as Norse-Hydro of Norway. This provision was included at a time when FACT was not directly negotiating for this import. We took over the negotiations from the FCI, who had been assigned the responsibility of negotiating for import of ammonia from all the gulf areas, Iran, Kuwait and Qatar. We understand that it was the requirement that it should be forwarded to the Government because all foreign agreements are subject to the approval of the Government of India. When we were ready to complete the formalities in the sense of signing the contract, at that point of time we were told that Norse-Hydro was not willing to go ahead with the settlement because its Board could not approve the settlement. I repeat that the earlier settlement had a provision that it is subject to the approval of the respective boards. Then the Norse-Hydro team came

here, the representatives of FACT and the Ministry met them and we put it squarely to them as to whether it would have made any difference if we had signed the agreement in November and they said that it would not have made any difference. So, it is not the case that if FACT had accepted the offer earlier, or if we had gone to Oslo and had signed the agreement in November, for imported ammonia the position would have been different. In the changed circumstances the prices of petroleum products are subject to violent fluctuations and consequently changes in prices of ammonia. Subsequently, we have entered into a contract in 1973 at a very firm price which is accepted by them. Even then we have today received a letter that they will not be able to supply at that price.

xx xx xx xx xx

6.62. It would not have made any difference if I had gone there in November. There were valid reasons for my not going there at that time. At Udyogmandal I had a lot of problems to attend to. But suppose I had gone and signed a contract, it would have contained a provision that it is subject to approval by the respective boards. It would not have made any difference. Secondly, we now have a contract with them which has got the approval of both the boards. Yet, they are unable to supply them. They have written to us that as against $41 FOB port of despatch. They want something like $450. It is the world situation where in relaton to petroleum and products emanating from it the people are saying that they are not bound by the contract."

6.63. The Committee also note that the project is based on imported ammonia for which an agreement had been signed with M/s. Norsk-Hydro of Norway. The Committee were informed that offers for supply of liquid ammonia were originally handled by the Fertilizer Corporation of India from where they were transferred and Chairman and Managing Director of FACT was authorised in April, 1972 to directly negotiate with the foreign firm. Accordingly, negotiations were carried out from June, 1972 and acceptance was given to the foreign firm in October, 1972. When the foreign firm suggested that the contract be formally signed in November, 1972, this could not be adhered to due to certain difficulties in the working of the Udyogmandal Unit and therefore a date convenient to both parties was fixed in February, 1973. The Committee find that in January, 1973 the foreign firm intimated that the terms settled earlier had not been accepted by their Board of Directors and a revised offer was given by them in March, 1973. This revised offer was not, however,

acceptable to the Board of Directors of the FACT but later they had to accept the rates in the over-all national interest on the advice of the Ministry and the contract was concluded. It was stated that the earlier settlement with the foreign firm had a provision that it was subject to the approval of the respective Board and therefore even if FACT had accepted the offer in November, 1972, it would not have made any difference. The Committee however find that even after the finalisation of the contract, the foreign firm (M/s. Norks Hydro of Norway) was unable to supply ammonia at the agreed rates and had asked for an escalated price and stated that they were not bound by the contract because of the world situation in petroleum and petroleum products. The Committee feel that in view of the escalation in prices of ammonia the cost of production and the economics of the project would be adversely affected. The Committee recommend that Government should make use of the good offices of the IDA to pursuade the foreign firm to supply ammonia at the already agreed price and also ensure timely and assured supply of ammonia in future.

VII

FACT ENGINEERING AND DESIGN ORGANISATION (FEDO)

7.1. The FACT Engineering and Design Organisation was set up in 1964, Having regard to the experience of the Company and the planning and designing organisation already built up by it for the expansion programme as also the capacity of the similary organisation in the Fertilizer Corporation of India Limited, the Government of India decided in September, 1963 that the Company should plan, design and construct at least three complete fertiliser plants before the end of the Fourth Five Year Plan (1966—71), within the regions covered by the States of Kerala, Mysore, Andhra Pradesh and Tamil Nadu and the Union Territories of Goa and Pondicherry. It was also the intention of the Government that the allocation of further fertiliser units to the Company would be considered if it had further capacity. In pursuance of this decision, the Engineering and design Organisation was gradually developed and became a full fledged division in 1966.

7.2. In order to acquire process know-how, FEDO entered into collaboration arrangements with M/s. Power Gas Corporation Limited. U.K. in April, 1966 for the Steam Reforming Process and with M/s. Engineering and Industrial Corporation, Belgium in February, 1968 for the designing and construction of Phosphoric Acid Plants.

7.3. The field of activity and areas of specification were determined based on guidelines given in the report of the working group on advance planning for fertilizer Plants (Swaminathan Committee Report). The report had stressed the necessity for FEDO and Planning & Development Division of Fertilizer Corporation of India to work as complementary units of each other without any overlapping in areas of specification.

7.4. Of the four fertilizer projects (Cochin, Madras, Mangalore and Tuticorin) for which the project reports have been prepared by the FEDO, only the construction and management of the Cochin Project was entrusted by Government to the Company in July, 1965. The FEDO has, however, undertaken the planning, designing

and construction of the following major works also, either through negotiations or against invitation of open tenders:—

Name of the work	Value of work (Rs. in lakhs)	Date of taking up the work	Name of the undertakin for which the work was taken up.
Steam Reforming Synthesis Gas Plant	236·47	August, 1966	Fertilizer Corpn. of Ind Ltd. Durgapur Un
Phosphoric Acid Plant. . .	140·00	August, 1968	Fertilizer Corpn. of India Limited Sindri Unit.
Hydrogen Plant. . . .	62·85	February, 1969	Hindustan Organic and Chemicals Limited, Rasayani.
Phosphoric Acid Storage.	3·45	March, 1968	Madras Engineerings Fertilisers Ltd.
Sulphuric Acid Plant.. . .	102·53	June, 1969	Travancore Titanium Products Limited Trivandrum.
Chemical Plants .	27·57	March, 1969	M/s. Catalysts and Chemicals, Edeyar.
Chemical Plants . .	1·40	March, 1969	Periyar Chemicals of Cochin, Edayar.

7.5. In addition, it has undertaken the engineering and designing of the Company's fourth stage expansion and has also secured small contracts in and around Kerala for the various types of design and engineering work.

7.6. Besides FEDO and P & D Division of F.C.I., Engineers (India) Ltd. is another public undertaking, which has come in the begining of the Fifth Five Year field for setting up fertiliser plants.

7.7. The jobs quoted for by FEDO can be classified into three categories:—

(i) Techno-economic feasibility studies and project reports.

(ii) Consultancy services.

(iii) Turn-key contract for design, supply, erection and commissioning.

7.8. During 1970-71 to 1971—73, the FEDO undertook the following major works:—

Name of the work	Value Fees (Rs. in lakhs) Chargeable	Date of order	Name of the undertaking for which work was taken up
	Rs.		
1. Consultancy services for storage facility for L. P. Gas	1,07,000	27-8-70	Madras Fertilizers Ltd. Madras.
2. Consultancy Service for Phosphoric Acid Storage facility at Madras	1,00,000	19-11-71	Do.
3. Market Survey for Fertilizers in Northern India . .	80,000	14-7-70	Hindustan Livers Ltd.
4. Feasibility Study for Sodium Hydro-Sulphite Project in Rajasthan	50,000	10-1-71	Chemical Manufacturing Co., Delhi.
5. Fertilizer Project at Khetri Turnkey Project	1200·00	..	1-3-71 Hindustan Copper Ltd. Khetri.
6. Techno-Economic Feasibility Study for selected districts of Kerala	4,00,000	27-4-71	Govt. of Kerala
7. Cochin ; Phase II Fertiizer Project Turnkey Project.	4500·00	18-6-71	FACT Ltd. (own nit.)
8. Feasibility Study for Tapioca processing unit at Malappuram	2,00,000	3-6-71	Govt. of Kerala.
9. IInd Cooling Tower	1·65	15-12-71	Hindustan Insecticides Ltd.
10. Techno- Economic Feasibility study for Districts of Tamil Nadu .	3,00,000	14-9-72	Govt. of Tamil Nadu.
11. Feasibility study for IFFCO Expansion Project at Kandla .	2,00,000	28-10-72	IFFCO, New Delhi.
12. Feasibility Study for a formic acid Plant at Edayar .	50,000	17-7-73	Kerala Acids & Chemicals Ltd.
13. Civil Works for Trichur Municipality ..	3,90,000	9-10-73	Trichur Municipal Council.
14. Preparation of Fertilizer Master Plan for Tanzania .	1,00,000	Oct., 1973	National Industrial Development Corporation, New Delhi.

7.9. The sanctioned and existing strength of FEDO as on 1-4-1974 was as follows:—

Sanctioned Strength			Existing Strength		
Technical	Non-Technical	Total	Technical	Non-Technical	Total
393 . .	35	428	238	22	260

7.10. Based on the audited accounts of 1972-73, teh annual establishment cost in respect of FEDO was Rs. 60.86 lakhs. Of this, Rs. 41.84 lakhs represented salaries, provident fund and bonus.

7.11. The working results of FEDO during the last four years upto 1973-74 are as follows:—

(Rs. lakhs)

	1970-71	1971-72	1972-73	1973-74*
Income from Engineering Services				
Outside Jobs . . .	75·65	70·41	37·53	37·58
Own Project at Cost .	27·99	31·91	29·75	30·09
Miscellaneous .	0·08	0·13	0·28	0·20
	103·72	201·45	67·56	67·87
Expenditure after adjusting work-in-progress . . .	102·22	112·49	66·71	67·79
Profit . .	1·50(—)	10·04	0·85	0·08

*Provisional

7.12. The main reason for the loss in 1971-72 was stated to be due to write off of pre-tender and enquiry expenditure on jobs not materialising. This also included Rs. 1.82 lakhs being bonus relating to prior years (1966-67 and 1967-68).

7.13. On an enquiry of the Committee whether orders received during the period 1970-71 to 1972-73 were sufficient to keep the organisation busy and how far the organisation was having adequate load of work, the representative of FACT stated during evidence:—

"Orders were sufficient, the organisation was sufficiently busy during this period.

We are coming to a low level of utilization and we have got a few orders recently. We expect to get some fresh orders also, probably we can get going in the next year. For the future, it will depend on whether we could get more orders."

7.14. The *modus operandi* for obtaining orders was stated to be by submission of quotations on competitive basis in tendering and competing with others or by directly approaching the party concerned.

7.15. To another enquiry of the Committee whether due to existence of Engineers (India) Ltd, FEDO was not having enough work and if so, whether it would be a good proposition to amalgamate the two organisations, the Chairman-cum-Managing Director replied:—

"Personally, I think that having two or three organisations working independently would be a better proposition than amalgamation. FEDO was set up with some kind of understanding to equip itself for putting up fertilizer plants. Because of non-expansion of FACT there is not sufficient work for FEDO. This is a problem we are taking up so that FEDO could get more work.....It is not due to lack of efforts FEDO was set up specifically for fertilizer projects. But the new fertilizer projects which are coming up in the public sector are being done either by the FCI or the new company that has been set up. FEDO could not have done anything to obtain these projects."

He further added:—

"We are specialists in the fertilizer field. We are diversifying into the design and engineering of other industries and plants. Government is looking into this issue of providing steady work to keep FEDO going. There is no intention of winding up FEDO."

7.16. The Committee enquired whether in the opinion of the Government, the present load of work justified the present size and cost of establishment of FEDO, the Ministry of Petroleum & Chemicals stated in a written note as follows:—

"The following projects are currently under execution by FEDO:—

		Project cost
		Rs.
(1)	Fertiliser Project for Hindustan Copper Limited. . .	12 crores
(2)	Cochin Phase-II Expansion	45 crores
(3)	Feasibility Study for 25 TPD Caustic soda Plant for Hindustan Insecticides Limited.	20,000 /
(4)	Acid mixing system for Cordite Factory at Arubankad . .	132 lakhs
(5)	Pollution Control for Sulphuric Plant for FCI, Trombay . . .	110 lakhs

The FEDO has in addition some jobs in the Udyogmandal unit and Cochin Phase I, FEDO, along with other undertakings like National Industrial Development Corporation and Engineering Projects (India) Ltd. quotes for projects within and outside the country. The feasibility of taking up design and engineering work for chemical industries other than fertilizer industry such as caustic soda, soda ash, etc. is also being examined.

FACT is considering a diversification programme in its Udyogmandal Division, involving the setting up of Methanol plant and possibly soda ash and ammonium chloride plants. There is also a proposal for further expansion of Cochin called Cochin Phase III. The implementation of these projects would give adequate work load to FEDO.

The question of effecting economies in FEDO, will be reviewed by FACT taking all factors into account."

7.17. To another enquiry of the Committee whether Government had examined the reasons as to why that none of the new fertilizer projects under public sector during the coming year had been allotted for designing and engineering to FEDO and the steps taken to keep the FEDO going as a viable unit, the Ministry of Petroleum and Chemicals stated in a written note as follows:—

"Five new fertiliser projects in the public sector have been approved in principle for being taken up for implementation in the 5th Plan period. Of these, the projects at Bhatinda, Panipat and Mathura are being implemented or are to be implemented by the National Fertilizers Li-

mited. Engineers India Limited are the prime contractors for these projects, who will execute them in collaboration with the Japanese in terms of the understanding reached with the Japanese Authorities while negotiating the Japanese credit assistance for these projects. The other two projects are at Paradeep and Trombay which will be implemented by the Fertilizer Corporation of India Limited who have got their own planning and Development Division.

In regard to sulphuric and phosphoric acid fields, while all possible assistance is given by the Ministry to enable FEDO to secure an adequate volume of work, it will be recognised that FEDO/FACT would have to compete with other organisations in getting the contracts. Government do not consider it desirable to issue any directive in this regard."

7.18. To a query of the Committee whether it would not be desirable for FEDO and Engineers India Ltd. to specialise in different feedstocks, the Ministry of Petroleum and Chemicals stated in a written note:—

"When the Engineering and Development Organisation of FACT was originally conceived, it was contemplated that this organisation would specialise on the design, engineering construction and erection of ammonia plants based on naphtha as feedstocks as also the plants for the production of items like sulphuric acid, phosphoric acid and phosphate whereas the Planning & Development Division of FCI would concentrate their efforts in the field of other feedstock, ammonia synthesis, and the manufacture of urea, etc. However, subsequent developments taking into consideration the refining capacity being planned in the country indicated that there would not be enough naphtha for basing additional fertilizer capacity. As a result, other feedstocks like fuel oil/heavy stock and coal are being increasingly adopted. While the majority of the plants being set up in the Vth Plan are expected to be based on heavy stock as feedstock there could be a shift towards the use of coal in the subsequent plan periods. Also in the field of phosphates, the FCI, with their experience at Trombay in the manufacture of nitrophosphate have preferred to take up the design and engineering of such phosphate plants using the P&D wing of the Corporation.

7.19. Fertilizers capacity is being developed in the country both to bridge the gap between demand and supply and to cater to the

inereasing requirements. Arising out of this, a number of plants are being set up simultaneously and it would be difficult for any single organisation to take up the responsibility of building even specific plants of all the fertilizer projects coming up within the country. The geographical location of the engineering companies can also favour concentration of their efforts around the region in which they are situated. Besides, the fertilizer plants in the country are being set up with credit assistance from different countries which calls for utilising to the maximum extent the services and equipment available from the credit giving country, As a result, it often becomes necessary to adopt different processes in the projects for the same process plants.

Arising out of the points brought out earlier, there would be limitations in the different design and engineering organisations developing well defined areas of specialisations with different feedstocks. However, in view of the large fertilizer programme undertaken in the country, all efforts are required to ensure that the facilities available with the different design and engineering organisation are to utilise best advantage and at the same time get the benefit of alternative technologies."

7.20. The Committee note that the FACT Engineering and Design Organisation (FEDO) was formed in 1964 as per decision of the Government of India taken in September, 1963 to construct at least three complete fertilizer plants before the end of Fourth Five Year Plan (1966—71). In pursuance of this decision the organisation was gradually developed and it became a full fledged division of FACT in 1966. But of the four fertilizer projects (Cochin, Madras, Mangalore and Tuticorin), for which the project reports were prepared by FEDO, only the construction and management of the Cochin Project was entrusted by the Government to the Undertaking in July, 1965, though it had undertaken planning, designing and construction of various other works since then by its own efforts. The Committee note that the income of FEDO from engineering services has gone down from Rs. 103.64 lakhs in 1970-71 to Rs. 67.67 lakhs in 1973-74, and the profits of the organisation have also gradually decreased from Rs. 1.50 lakhs in 1970-71 to a bare Rs. 8,000 in 1973-74. As admitted by the Chairman-cum-Managing Director, though in the beginning FEDO had enough work-load, but of late FEDO "was coming to a low level of utilisation. We have got a few orders recently. We expect to get some fresh orders also. Probably we can get going in the next year. For the future it will depend on whether we could get more orders."

7.21. The Committee are informed that five projects estimated to cost about Rs. 60 crores are currently being done by the FEDO. In addition, some jobs including diversification programmes are also being undertaken by the FEDO. The FEDO is also considering the feasibility of taking up design and engineering work for chemical industries other than fertilizer industry. It has been stated that FACT is considering the question of effecting economies in FEDO taking all the factors into account. The Committee find that in addition to FEDO, the planning and development division of the Fertilizer Corporation of India, and the Engineers India Limited are also engaged in design and engineering work for chemical and fertilizer industries. The Committee note that when the FEDO was originally conceived, it was contemplated that this organisation would specialise in the design, engineering, construction and erection of ammonia plants based on naphtha as feed stock, as also, the plants for production of items like sulphuric acid, phosphoric acid and phosphate whereas the Planning and Development Division of the FCI would concentrate their efforts in the field of other feed stock, ammonia synthesis, manufacture of urea, etc. Although fertilizer capacity in the country is being developed to bridge the gap between demand and supply and to cover the increased requirements and a number of plants are being set up based on different feed stock, according to Government there would be limitations in the different design and engineering organisations developing well defined areas of specialisations with different feed stocks. However, it has been agreed by the Ministry that all efforts are required to ensure that facilities available with the different design and engineering organisations are utilised to best advantage and at the same time get the benefit of alternative technologies. The Committee, therefore recommend that Government/FACT should examine the economies of continuing this organisation with reference to the utility of the organisation and the volume of work to be handled by it and take a decision soon.

7.22. The Committee feel that FEDO should have been built up from a sound nucleus organisation and allowed to expand only after most careful assessment of the work-load from time to time in order to obviate overstaffing and frustration creeping over the staff.

The Committee find that there are number of consultancy, design and engineering organisations in the field. The Committee feel that now there is need for Government to examine in depth and decide the scope and area of consultancy of the different design and engineering organisations. The Committee recommend that a high-

powered Expert Committee should be set up to review the role, scope and area for consultancy, design and engineering in the fertilizer industry in public sector so that the existing expertise and the resources are utilised to the best advantage of the country The Committee would like to be informed of the report and the action taken thereon within six months.

VIII

DISTRIBUTION AND MARKETING

A. **Selling Prices**

8.1. In 1957 the Government of India issued an order called the "Fertilizer (Control) Order, 1957," which *inter alia* stipulated that the Central Government might with a view to regulating equitable distribution of fertilizers and making fertilizers available at fair prices, by notification in the Official Gazette fix the maximum price or rates at which any fertilizer might be sold by a manufacturer or a dealer. Having regard to the local conditions in an area and other relevant circumstances, the Central Government might fix different prices for different areas and for different classes of consumers. No manufacturer or dealer could sell any fertilizer at a price exceeding the maximum price fixed under the order.

8.2. With a view to ensure equitable distribution of available supplies of fertilizers, the entire indigenous production alongwith the imported fertilizers was being handled prior to October, 1966 by the Central Fertilizer Pool. From 1.10.1966, the indigenous manufacturers were allowed to sell 30 per cent of their production in the areas of their choice and at the prices to be determined by them. This was increased to 50 per cent from 1-10-1967 and 100 per cent from 1-10-1968. Under the Fertilizer Control Order, 1957 the Ministry of Agriculture continued to notify the maximum price of the four nitrogenous fertilizers, namely Ammonium Sulphate Ammonium Sulphate Nitrate, Urea and Calcium Ammonium Nitrate, on the same lines as was done prior to October, 1966. On 11-3-1968 the Ministry of Food and Agriculture clarified to the Fertilizers & Chemicals Travancore Limited that although the producers had been allowed to sell a part of their production in the areas of their choice and at prices to be determined by them, the prices so fixed by them should not exceed the maximum prices notified by them till the price control order was withdrawn. On 19-3-1968, the Ministry of Petroleum and Chemicals asked the Company as well as the Fertilizer Corporation of India that so long as Pool issue prices continued to be fixed by the Department of Agriculture, the public sector units should fix their F.O.R. destination prices so as not to be in excess of the Pool prices.

8.3. On 24-10-1970 the Ministry of Food and Agriculture issued another clarification that the prices of four nitrogenous fertilizers were statutorily controlled irrespective of the fact whether these were handled by the Central Fertilizer Pool or marketed by the domestic producers. It was further stated that the sale of any of these fertilizers at a price exceeding the maximum price notified by the Government of India was an offence punishable under the Essential Commodities Act, 1955. It was, however, observed that the prices fixed by the Company for Ammonium Sulphate for being charged from the consumers were more than the maximum prices fixed by the Government of India. The Company brought its prices in line with the prices fixed by Government only from 9th June, 1971 in Tamil Nadu, Andhra Pradesh and Karnataka and from March, 1972 in Kerala.

8.4. It has been stated that the cost of production of ammonium sulphate, for various reasons, was high at FACT.

8.5. A statement showing the prices fixed by the Company for Ammonium Sulphate in Tamil Nadu, Andhra Pradesh and Karnataka and also the Maximum ceiling prices fixed by the Ministry of Agriculture from 1-10-1966 is given below:—

Statement showing Comparative Prices of Ammonium Sulphate
(Rs. /Tonnes in 100 Kg. Bags)

Date of Effect	TAMIL NADU		ANDHRA		KARNATAKA	
	Consumer selling Price	Statutory ceiling Price	Consumer Selling Price	Statutory ceiling Price	Consumer Selling Price	Statutory Ceiling Price
1	2	3	4	5	6	7
1-10-66	405	405	Not available	405	405	405
1-3-67	465	405	405**	405	465	405
5-4-67	550	405			550	492
1-9-67	585* (3·5)%	492			8-8-67 585* (2%)	492
3-5-68	520* (3·5%)	492	519* (3·36%)	492	512* 2%	492
17-5-68	520* (3·5%)	502	519* (3·36%)	502	512* (2%)	502
1-6-68	520* (3·5%)	502	610*	502	512* 2%))	502
6-9-68	59* (3·5%)	502	610* (3·36%)	502	585* (2%)	502
20-11-68	559* (3·5%)	502	558* (3·36%)	502	551* (2%)	502
4-3-69	558* (3·5%)	539	558* (3·36%)	539	551* (2%)	539

13-3-69	613* (3·5%)	539	612* (3·36%)	539	604* (2%)	539
12-9-69	613* (3·5%)	529	612* (3·36%)	529	604	529
13-5-70	595	529	600	529	600	529
9-6-71	529	529	529	529	529	529

* Inclusive of Sales Tax **F.O.R. Alwaye.

Note : Fgues inbackets represent percent ; es tax.

8.6. During the course of evidence of the representatives of FACT, the Committee asked why the selling price of ammonium sulphate in Tamil Nadu, Karnataka and Andhra Pradesh was fixed by FACT higher than the price statutorily fixed by the Government. The Chairman-*cum*-Managing Director explained:—

> "At a particular point of time the management felt that the freedom of fixing the price also was given to the Company. After two or three years, when we were finally told that this was a wrong practice we corrected it.
>
> The correspondence with the Government appeared to show that, according to certain notifications issued by the Government, in the matter of marketing by the manufacturers, it was interpreted by the Management that at a particular point of time it had freedom to fix the price also. This is what the record shows.

8.7. In this connection, the Secretary of the Ministry of Petroleum and Chemicals informed the Committee during evidence as follows:—

> "There was some confusion about price in the minds of people in charge at FACT. The Government had of course, at a particular time, fixed under the Statue, the highest selling price for certain items, as also the minimum selling price. Later, Government took a policy decision at the highest level, that in order to speed up the investment in the fertilizer industry and to achieve the production-target of the 4th Plan, the indigenous production units should have freedom of action in regard to fixation of prices of fertilizers and their distribution. Accordingly, they had decided that a certain portion of the product manufactured by each indigenous producer can be sold by him at any place of his choice, at any price fixed by him. It clearly means that this price may have no relation to the price fixed by the Government in regard to others. It was the general policy. This idea was also in the minds of the FACT authorities. It was reinforced by a circular from the Ministry of Agriculture who is really responsible for distribution. I am quoting from their circular to FACT at other manufacturers dated the 20th September, 1966:—
>
> > "I am directed to say that Government have under consideration the question of liberalization of the existing control on fertilizers produced by indigenous factories, in order to permit the manufacturers to play their part in marketing the produce. In accordance with

their new policy of distribution of fertilizers, the Government of India have now decided that with effect from 1.10.1966, the factories below will be free to market 30 per cent of their production in the areas of their choice and at prices to be determined by them."

"Because of this decision, it appeared that the Government were releasing a certain portion for free sale. After a little while ,the situation was corrected and we told the FACT that irrespective of this, they should obey the law and that they should not sell above the legal price. This is the gist of the matter. At present, they are selling at the legal price."

8.8. The Secretary of the Ministry agreed that FACT contravened the provisions of the law in as much as that, apart from the 30 per cent, which was allowed by the Government to be sold at a price to be fixed by the particular factory, the rest was to be sold at the price fixed by the Government.

8.9. In a note, the Management of the FACT stated that the Ministry of Food & Agriculture in its letter dated 24.10.1970 clarified that the prices of four nitrogenous fertilizers were statutorily controlled and that the sale of any of these fertilizers at a higher price was a punishable offence under the Essential Commodities Act. The company represented to the Ministry with copy to the Ministry of Petroleum and Chemicals on 26-11-1970 that, for the reasons stated in that letter, it was not fair to fix the maximum selling prices in the manner done by the Government and that the matter should reexamined. The Ministry of Food and Agriculture/Ministry of Petroleum and Chemicals is reported to have stated in reply that as the prices were statutorily fixed after taking into account all the relevant factors and were applicable to all the producers, it was not possible to make an execption in favour of FACT.

8.10. The Committee are shocked to find that for over 4 year the FACT had been selling the ammonium sulphate at prices higher than the ceiling fixed under the Fertilizer Control Order. When the ceiling price ranged between Rs. 405 to Rs. 539 per tonne the consumer selling prices varied from Rs. 405 to Rs. 613 per tonne. The Committee are informed that it was on account of misinterpretation of a letter issued on 20th September, 1966 by the Ministry of Agriculture which stated that "in accordance with their new policy of distribution of fertilizers, the Government of India have now decided that w.e.f. 1st October, 1966, the factories will be free to market 30 per cent of their production in the areas of their choice and at prices to be determined by them." The percentage was increased to 50 per cent from

1st October, 1967 to 100 per cent from 1st October, 1968. The Committee are surprised that even when it was clarified by the Ministry of Agriculture on 11th March, 1968 and by the Ministry of Petroleum and Chemicals on the 19th March, 1968 that so long as the pool prices continued to be fixed by the Department of Agriculture, the public sector units should fix their F.O.R. destination prices so as not to exceed the pool prices, FACT continued to sell at the higher prices in Tamil Nadu, Andhra Pradesh and Karnataka and make profits at the expense of the farmers. The Secretary of the Ministry admitted that there was some confusion about the price in the minds of the people in charge of FACT. The Committee regret to note that it took more than 2 years for the Ministry to get the mistakes rectified and even this was done only after the FACT made a representation to the Ministry of Food and Agriculture with a copy to the Ministry of Petroleum and Chemicals and the Ministry of Food and Agriculture issued a clarification in November, 1970 that the sale of any of the four nitrogenous fertilizers at a higher price was a punishable offence under the Essential Commodities Act. The Committee recommend that Government should learn a lesson from this experience and evolve a suitable machinery to ascertain the prices fixed by the different indigenous producers so as to have a check that producers do not charge in excess of the prices fixed by the Ministry of Agriculture under the Fertilizer Control Order.

B. Marketing Organisation

8.11. The Companys products are mostly sold in the States of Kerala, Tamil Nadu, Mysore and Andhra Pradesh. Till 1959, it had only a small sales department; the sales in the State of Kerala were organised through depots mostly owned by private agents while in other States, the sales were entirely arranged through agents. When the third stage expansion programme was taken up in 1963, the sales department was converted into a marketing division to look after the sales of not only the Company's own products but also the products entrusted for distribution by the Government of Kerala. It was also decided to market the pesticides of other manufacturers and agricultural implements as part of a comprehensive sales-service organisation for the convenience of the agricultural community.

8.12. The marketing organisation consists of two departments *viz.* chemicals department and fertilizers department. The chemicals department deals with the marketing of chemical products like Anhydrous Ammonia, Sulphur dioxide, Ammonium Chloride, Sulphuric Acid, Sodium Fluoride, etc. The major task of the market-

ing division is the sale of fertiliser which is arranged through the area manager in-charge of each State and regional managers in-charge of each district or group of districts. Bulk sales to the fertilizer mixing units, industrial consumers and plantations are made from the head office.

8.13. The number of dealers in each State is decided on the basis of the quantity of fertilizers to be distributed in each State and the intensity of marketing operation in each State. Similarly the number of these storage points are decided on the basis of the quantity of fertilizers to be handled in each State and the field storage requirements in each State depending on seasonal demand and the need for convenient and timely supply to the dealers.

8.14. One of the tasks entrusted to the marketing organisation is the popularisation of the use of different types of fertilizers produced by the Company. For the purpose the Company maintains soild testing laboratories and demonstration plots etc.

8.15. The following table indicates the total expenditure incurred on marketing organisation *vis-a-vis* the margin provided for in the selling prices and the excess expenditure during 1970-71 to 1972-73:—

Audit Memos P. 64 (Rupees in lakhs)

	1970-71	1971-72	1972-73
Total marketing* expenditure	366·62	461·33	268·59
Less expenditure on chemicals which are sold ex- factory	9·20	8·87	9·01
Net expenditure*	357·42	452·46	259·58
Expenditure to be incurred as per margin (fertilizers)	315·69	302·60	239·60
	41·73	149·86	19·98
Less Commission from the Government of Kerala for the distribution of pool fertilizers . . .	3·76	0·71	3·28
Net excess expenditure	37·97	149·15	16·70

8.16. While reviewing the performance of the marketing organisation of Company in paras 4.1 to 4.19 of their 44th Report (4th Lok Sabha—April, 1969) the Committee on Public Undertakings ex-

*Excludes an estimated amount of Rs. 92·27 lakhs in 1970-71 Rs. 95.82 lakhs in 1971-72 and Rs. 39·88 lakhs in 1972-73 on account of commission in respect of areas other than Kerala on the sale of products other than mixtures.

pressed the view that the expenditure on the marketing organisation was on the high side and had increased at a faster rate than the increase in quantum of sales would justify. They, therefore, stressed the need for a critical study of the marketing organisation and the expenditure thereon. In their reply (November, 1969), the Government stated that the Committee of Directors which went into the working of the marketing organisation, procedures, costs, etc., felt that "the expenditure actually incurred by FACT in their marketing operations cannot be considered excessive." It was further stated that the percentage of the marketing expenditure to sales value had come down from 12.37 in 1967-68 to 9.3 in 1968-69 and with the increased production during 1969-70 it was expected to work out to 8.7 of the sales value.

8.17. It will, however, be seen that the percentage of the marketing expenditure to the sale value of fertilizers during 1968-69 was more than what was intimated to the Committee on Public Undertakings and that it had not come down during 1969-70 to the expected level.

8.18. On an enquiry of the Committee as to what was basis on which it was intimated to the Committee on Public Undertakings that the percentage of marketing expenditure to sale value during 1968-69 was 9.3, when the percentage actually was 10.59, the FACT stated in a written note:—

> "While it is correct that the Committee of Directors' Report includes a statement that the marketing expenditure during 1968-69 had come down to 9.3 per cent, we have not been able to locate the basis on which this figure was worked out."

8.19. The details of marketing expenditure, the quantity of fertilizers sold, the marketing expenditure per tonne of fertilizers sold and the percentage of xpenditure to sale value during 1970-71 to 1972-73 are given below:—

	1970-71	1971-72	1972-73
Total marketing expenditure (excluding that on chemicals wing and the commission received from the Government of Kerala)—Rs. in lakhs. . . .	353·66	451·75	256·30
Quantity of fertilizers sold (tonnes) . . .	4,28,949	4,59,352	2,99,920
Marketing expenditure per tonne (Rs.) . .	82·44	98·34	85·43
Sale Value of fertilizers (Rs. in lakhs) . . .	3,033·47	3,254·19	2,154·16
Percentage of marketing expenditure to sale value .	11·56	13·88	11·89

8.20. On an enquiry of the Committee whether in view of the observations made by the Committee on Public Undertakings in their 44th Report (1969) regarding the high expenditure of the marketing organisation of the Company, whether any review was done particularly when there was no sign of improvement, the FACT stated in a written note as follows:—

"The expenditure on the marketing organisation has been constantly under review (1) to "rationalise" products distribution in order to reduce freight, to keep godown space to the minimum, (2) to reduce field offices where warranted, (3) to keep down expenditure on publicity, (4) to rationalise commission and transport rebate, in order to keep down marketing expenditure. We have also considerably reduced the credit period extended to our dealers with a view to cut down our expenditure towards interest charges. We were earlier extending credit upto 120 days to our dealers and to our major customers. With the changed market conditions, we have reduced the credit period to thirty days wherever required like co-operative institutions. We were also persuading our dealers to buy products other than Ammonium Sulphate and urea which is on cash and carry basis as far as possible since they could sell our products immediately on purchase under the present market conditions. It is relevant to mention here that with the present organisational set up we expect to be able to meet the anticipated increase in workload consequent to the expansion plans of the organisation—*viz.* Cochin Division Phase I and Cochin Division Phase II—being completed with only marginal increase in expenditure. When full production is reached in CD I & CD II the incidence of fixed marketing expenditure is expected to come down considerably."

8.21. The Ministry of Petroleum and Chemicals supplemented this note with the following information:—

"The expenditure per tonne incurred by FACT over the last five year has shown, an increase from Rs. 103.82 in 1969-70 to Rs. 124.4 in 1973-74. The main reasons for the increase are on account of the increase in the cost of establishment and travel, interest charges and fall in the turnover. While the establishment itself has not grown appreciably since 1969-70 and not increased at all since the middle of 1971, the cost on the establishment has grown on account of the increase in pay and allowances.

* * * The company has also reduced the credit period extended to its dealers with a view to cutting down its marketing expenditure. Company has also introduced the system of sales budget and marketing expenditure budget broken down to the level of regions and the marketing efforts made by the various field offices are watched on the basis of these budgets. It is expected that with the commissioning of Cochin I, incidence of fixed marketing expenditure will come down.

It may be mentioned that the marketing expenditure incurred by FCI and FACT are not strictly comparable inasmuch as FACT does the whole sale function itself while FCI sells fertilizers ex-factory to whole sale dealers|co-operatives. FACT have as many as 128 storage-*cum*-retail depots for the storage of fertilizers. FACT was also initially distributing pool fertilizers allotted to the Government of Kerala on behalf of the Government of Kerala. In addition, FACT have 14 mixing centres and the expenditure of mixing centres also forms part of the marketing expenditure."

8.22. Asked whether such a large marketing organisation was necessary specially in the present context of demand exceeding the supply, the Ministry stated in a written note:—

"It will be recognised that every fertilizer producer has to develop a suitable marketing organisation keeping in view the problems of marketing in particular areas within his economic zone, the nature and quantities of the products involved, soil conditions, promotional aspects, etc. Such an organisation helps *inter alia* in maintaining the much needed nexus with the farmer in the field and his specific fertilizer needs. The organisation would have also to be suitably structured so as to be in a position to cope effectively and in time with the various problems, as they arise.

The FACT has been reviewing the size of the marketing organisation and marketing practices from time to time with a view to rationalise the marketing expenditure and effect economies."

8.23. On the Committee pointing out during evidence that the marketing expenditure of FACT was on the high side, the Chairman-*cum*-Managing Director admitted as follows:—

"With regard to expenditure being high, it is so because the organisation has been built up for a larger sale. It is also unfortunate that the market expansion was taken up rather prematurely."

8.24. In regard to controlling and minimising the expenditure, the Chairman-*cum*-Managing Director stated:—

"In case of fixed expenditure—that is on staff etc.—we cannot do very much, but even there, we have stopped recruitment, etc. Where we can do it, we are doing so. Whatever controllable items there are, we are controlling them and keeping the expenditure as low as possible. Increased turn over is the only solution. The bulk of the expenditure is on establishment; the rest of the expenditure is fairly controlled and we have a tight budget for each area and we do try to control it to the extent we can."

8.25. The Committee regret to note that the FACT has not been able to fully recover the expenditure incurred by it on the marketing organisation from the margin provided therefor in the selling prices, and all over the years it has been spending more than the margin. The net excess expenditure rose steeply from Rs. 38 lakhs in 1970-71 to Rs. 149 lakhs in 1971-72 and then came down sharply to Rs. 16 lakhs in 1972-73. Even on an earlier occasion, the Committee on Public Undertakings (1968-69) in their 44th Report (4th Lok Sabha) had recommended that "there was a need for critical study of the marketing organisation and the expenditure incurred on it." Government in their reply in November, 1969 stated that the Committee of Directors felt the expenditure actually incurred by FACT in their market operations cannot be considered excessive and the percentage of marketing expenditure had come down from 12.37 in 1967-68 to 9.3 in 1968-69 and with increased production in 1969-70 it was expected to be 8.7. The Committee, however, find that the actual percentage during 1968-69 was 10.59. The Committee fail to understand as to how it was then intimated by Government that the percentage was only 9.3, while the actual was different. It is surprising that the FACT has not been able to locate the basis on which the figure was worked out.

8.26. The Committee regret to note that inspite of their earlier recommendation in the 44th Report (4th Lok Sabha) the percentage of marketing expenditure to sale value, instead of coming down, has gone up from 11.65 in 1970-71, 13.88 in 1971-72 and 11.89 in 1972-73 and this is because, as admitted by the Chairman-cum-Managing Director, "the organisation has been built up for a larger sale.

It is also unfortunate that the market expansion was taken up rather prematurely." The Committee see no justification for such a premature expansion when the production was far behind the target and the demand for fertilizer was in excess of supply. The Committee find that in the case of the Fertilizer Corporation of India Ltd., the cost of marketing as a percentage of turn over is 3 per cent, exclusive of distributor's margin and freight. If these were also to be included, the cost of distribution may work out to about 15 per cent of the turn-over value. The Committee are informed that the FACT has introduced a system of sales budget and marketing expenditure budget, broken down to the level of regions and the marketing efforts made by various field officers was watched on the basis of these budgets. It was also stated that within the commissioning of Cochin Phase I, the incidence of fixed marketing expenditure was expected to come down. The Committee feel that unless there is an increased turn-over due to higher production, the expenses on marketing will prove to be burden-some to the FACT. The Committee, therefore, recommend that Government/FACT should immediately undertake a critical analysis of the market expenses with a view to identifying the areas where economies could be effected so that expenses on marketing are kept to the minimum and in any case within the marginal provided for in the selling price. The Committee also recommend that it should be the endeavour of the marketing organisation of the FACT to continuously review their system of distribution with a view to seeing that farmers, particularly marginal and small farmers get fertilizers and the agricultural inputs at the right time and in adequate quantities at fair prices.

C. Mixing Centres

8.27. The operations of marketing Division also include the running of a number of mixing centres which prepare several types of fertilizer mixtures. Mixing operations were undertaking in 1960 and as on 31st March, 1974, the Undertaking had 14 centres, 6 each in Kerala and Tamil Nadu and two in Karnataka. The scheme for supply of mixed fertilisers based on local needs was undertaken mainly to promote balanced fertilizers to suit various crops and agro-climatic conditions. The targets and actual quantities of mix-

tures prepared at different centres during 1970-71 to 1972-73 are given below:—

(Figures in tonnes)

Mixing Centres	1970-71		1971-72		1972-73	
	Targets	Actual production	Tragets	Actual production	Tragets	Actual production
1. *Kerala*						
Udyogmandal . .	25,000	13,329	25,000	10,792	10,000	9,260
Palghat . . .	8,000	7,130	8,000	7,287	6,200	6,585
Chingavanam	12,500	17,035	13,000	16,481	15,000	12,890
Calicut . . .	8,550	10,130	9,000	8,590	8,210	7,391
Allepy . . .	6,000	7,502	8,000	5,950	7,000	7,388
Kazhakkottam	..	823	7,000	4,202	8,000	4,776
2. *Tamil Nadu*						
Coimbatore . .	6,000	9,429	6,000	7,942	7,000	4,392
Salem* . . .	4,000	..	4,000	2,745	2,500	943
Trichy . . .	5,000	10,536	5,000	5,763	6,500	1,907
Vellore . .	5,000	5,294	5,000	3,952	5,000	1,642
Tinnevely . .	7,000	7,405	7,000	5,830	7,500	2,417
Madhurai . .	2,400	4,968	6,000	8,231	7,000	5,299
Cuddalrore . .	600	1,090	7,000	4,526	4,500	1,318
3. *Karanataka*						
Mangalore* . .	5,500	3,408	5,500	3,392	4,500	2,756
Hospet . . .	4,000	2,747	4,000	2,384	2,000	658
Bangalore* . .	..	133	..	..	..	
Hassan . .	..	..	..	..	..	
Mysore* . .	5,500	3,043	5,500	3,330	2,250	884
	1,05,000	1,04,002	1,25,000	1,01,402	1,03,160	70,577

8.28. FACT has stated that in the case of some of mixing centres it was noted that the demand for mixtures from the area served by such centres was not sufficient to keep the operation of the centre

*Since closed.

economically viable. Therefore, FACT closed one centre in Tamil Nadu and three centres in Karnataka. The other mixing centres are stated to be currently operating satisfactorily.

> "The targets for mixture production for Mixing Centres are fixed on the basis of 'projected' demand for mixtures in the Area supplied by each Mixing Centre. However, actual production of mixtures in each Mixing Centre is limited to ready effective demand for mixtures registered by dealers of the Area from time to time because of the demand for mixtures being subject to vagaries of monsoon. Availability of ingredients is also a limitation in the production. This situation arises for reasons mainly attributable to transport bottlenecks railway movement restriction etc. in respect of movement of raw materials to the mixing centres."

8.29. On an enquiry of the Committee that the actual quantities of mixture prepared at different mixing centres showned a declining trend, the FACT explained in a written note as follows:—

> "A declining trend in the demand for mixtures was noticed in some of the areas. Based on this we had rationalised mixture production in these areas by reducing the number of centres operated and by extending the area served by the rest of the centres. We do not propose to operate new mixing centres in any of these areas where such a declining trend in demand for mixtures is noticed."

8.30. It has been stated that the undertaking is not working out the profit/loss made/incurred by the different mixing centres. The Ministry stated in March, 1972 that steps to evaluate the performance of each of the mixing centres were on hand of the Management, but the FACT stated as follows in a written note.

> "The working results of each Mixing Centres are not worked out annually because the pricing of mixtures is done in such a manner as to cover the full cost of raw materials, mixing and bagging charges, transport and handling charges, dealer margin, provision for wastage and marketing overhead etc., apart from a clear provision of 6½ percent profit margin. The cost of raw materials forms about 80 percent of the cost of the finished product and cost of mixing would be less than 5 percent and other marketing overheads alone will account for 15 percent. Any variation in the cost of any of these factors involved

is immediately taken care of by the revision of prices for the mixtures. Therefore, the desirability of opening new Mixing Centres or retaining old centres is assessed on the basis of demand for mixtures in the areas served by each Mixing Centre."

8.31. In regard to the economies on the mixing centres, the Chairman-*cum*-Managing Director stated during evidence:—

"If we use our ingredients for the mixtures, we generally got a slightly better price for ourselves. About economies, the wages are completely out of control and productivity is low. In the matter of retrenchment of labour or finding other work for them, there will be difficulty; it will be difficult to reduce it or even close this."

8.32. On the pointing out by the Committee that modern practice in the world is to manufacture mixed fertilizers in integrated plants, instead of manufacturing N.P. and K. nutrients separately and then mixing them in a certain proportion, the Secretary of the Ministry informed the Committee during evidence as follows:—

"The modern practice to manufacture mixed fertilizer in integrated plants, I expect, is correct and that is what is being followed in FACT and what will be followed in Cochin. But I submit that there is also a case for mixing plants to exist in a country of our size with varied climate and soil conditions. The large integrated plants which make things less expensive depend on imported articles. It meant they can be set up only in ports like Cochin, Bombay, Vizag, Madras. Now, I do not think, it is a feasible proposition, to meet the entire needs only from these plants. There may be a case also for mixing plants to look after the local demand. But this matter is being studied by the Ministry of Agriculture and after the results are known, we will act accordingly."

8.33. The Committee note that the targets for the preparation of bixtures in the different mixing centres were not achieved during 1970-71 to 1972-73, except in a few cases. Not only have the targets been not achieved, but the actual quantities of mixtures prepared at different centres also show a declining trend which has been attributed to lack of demand. Consequently, four centres had to be closed down during the last three years. The Committee are informed that the targets are based on projected demand for the mixtures in the area and actual production was limited to the ready effective demand

for mixtures registered by the dealers of the area from time to time. The Committee do not see any justification for keeping a target which is not related to the actual demand for the mixtures and why the FACT should not have ascertained the demands first from the dealers and then fixed the targets.

8.34. While the Committee see no justification for keeping a target unrelated to the demand, they would like FACT to examine critically the reasons for the declining trend in the demand and whether is was due to the ineffectiveness or any imbalence in the mixture. The Committee recommend that the assistance of agricultural research institutes may be obtained in order to assess the suitability of the mixtures with reference to soil conditions particularly, when the modern trend in agriculture is more towards the use of mixed fertilisers.

8.35. The Committee are surprised to note that a declining trend having set in the preparation of mixtures, the FACT has not taken any steps to evaluate the performance of each Centre in order to work out the profit or loss incurred by each Centre separately. In the absence of the working results, the Committee are not able to appreciate the manner in which the financial viability of each Unit is being assessed at present.

8.36. The Committee recommend that the operations of the Mixing Centres should be kept under continuous review and the number of mixing centres should be regulated with reference to the demand for the type of fertilizers and the financial viability of operations of each Centre.

D. Sale of Oxygen

8.37. On 22nd May, 1963 the Company entered into a long term contract for 30 years with Shri D. N. Khandke later substituted by M/s. Southern Gas Limited for the sale of oxygen @ Rs. 10 per 1000 c.ft. for the first 24 million c.ft. and Rs. 8 per 1000 c.ft. for the next slab between 24 and 60 million c.f.t. The agreement, *inter alia*, provides that irrespective of the actual off-take, the party will be billed for a minimum quantity of 56,630 cubic metres per month.

8.38. The actual off-take by the party from the commencement of the supply up to 31st March, 1970 was substantially lower than the minimum quantity; the value of shortfall works out to Rs. 5.60 lakhs. The party has not paid the amount so far (March, 1972) on the ground that the Company was not able to supply the gua-

ranteed quantity of oxygen at the stipulated purity. The matter was stated to be under discussion with the party.

8.39. Asked about the justification for entering into a long term contract, it was stated that:—

> "No formal notice inviting tenders was issued, but FACT entered into correspondence with the firms in the line including Indian Oxygen Limited who had quoted lowest and also Shri D. N. Khandke, promotors of Southern Gas. The price ultimately fixed was the price originally indicated by the party when we entered into correspondence with them.
>
> The Kerala Government who had the controlling interest at that time were mainly instrumental in the Board taking a decision to enter into an agreement for supply of Oxygen with the Promoters of Southern Gas Limited. The Board in deference to the views expressed by the Kerala Government rejected the offer of Indian Oxygen even though they had offered a higher price, for the reason that Indian Oxygen were not interested in setting up the project at Alwaye for compressing Oxygen, production of acetylene and electrodes."

8.40. In regard to the quantities lifted by the Southern Gas Limited FACT stated in a written reply that M/s. Southern Gas Ltd. has not been lifting the minimum quantity upto 1973-74. The FACT had been claiming the minimum guarantee charges in respect of the shortfall as indicated below:—

Year	Annual min. quantity as per contract	Annual quantity drawn	Shortfall
1970-71	679560	482892	1,96,668
1971-72	679560	346959	3,32,591
1972-73	679560	115611	5,63,949
1973-74	679560	294317	3,85,243
	2718240	1239789	14,78,451

8.41. The Southern Gas Ltd. contended that FACT failed to supply Oxygen and that for such periods when FACT failed to supply no minimum guarantee was payable. During 1972-73, there were strikes for about 60 days in FACT and for a longer period in Southern Gas Ltd. The periods were not concurrent. It was stated that the point raised by M/s. Southern Gas Ltd. was being examined in consultation with FACT's attorneys and it was expected that a settlement would be reached by making due allowances for the period during which either party was not able to fulfil its obligation for supplying/drawing oxygen due to strike and force majoure conditions. If mutual agreement not reached, it would be settled by arbitration.

8.42. In regard to the realisation of Rs. 5.60 lakhs FACT stated that the amounts billed were being disputed by the party on the grounds of purity of the oxygen supplied and interruptions in supplies. There was some substance in the party's claims. The problem with regard to the purity of oxygen pertain to supplies before November 1967 after which oxygen of the required purity was being supplied. The interruptions in supplies were on account of power failures, voltage dips, strikes, shut-downs for maintenance of the plants etc. The quantum of adjustments to be made in the amounts billed was in discussions. The discussions held recently narrowed down the difference and it was expected that an amicable settlement with the party would be arrived at shortly.

8.43. Asked whether FACT was in a position to supply the contractual quantity, it was stated though FACT had adequate capacity to supply 300 CM per hour of oxygen there were limitations during the period prior to June 1973, since oxygen was needed for use in the Texaco partial oxidation plant. Hence FACT was able to improve the Air Fractionation Unit and had been able to earmark upto 300 CM/hour against which M/s. Southern Gas had limitations to draw beyond 200 CM/hour and not more than 16 hourse in a day of 25 days in a month. The drawal of oxygen by M|s. Southern Gas Ltd., shows some improvement from June, 1973 onwards.

8.44. Asked whether FACT's supply was not of the required grade, it was stated FACT was not in a position to maintain the purity till November, 1967. Since November, 1967 there has been no dispute with regard to the purity of oxygen supplied.

8.45. The Committee note that the agreement entered into by FACT with M/s. Southern Gas Limited for sale of oxygen provided that irrespective of the actual off-take, the party would be billed for a minimum quantity of 56,630 c.m. per month. The actual off-take by the party from the commencement of supply to 31st March, 1970 was substantially lower than the minimum quantity and the value of the shortfall was Rs. 5.6 lakhs. Even after 31st March, 1970, every year there had been shortfalls and from 1970-71 to 1973-74 the quantity of shortfall was 14.78 lakhs c.m. valued at Rs. 5.4 lakhs. When the FACT billed for the amount, according to the agreement, the party had not so far paid the amount on the ground of (a) poor quality of the products (b) force majoures conditions, (c) failure of the FACT to supply the minimum quantity. The Southern Gas Limited contended that since FACT failed to supply oxygen and therefore, for such periods of failure no minmum guarantee was payable. It was also admitted by FACT that though the quality of gas suffered before November, 1967 FACT was able to maintain the purity thereafter. There were limitations in the supply prior to June, 1973 as FACT was requiring the oxygen for its own plants. The Committee are informed that the question was being examined in consultation with the FACT's attorneys and it was expected that a settlement would be reached by making due allowance for the period during which either party was not able to fulfil its obligations. If mutual agreements was not reached, it was stated that the matter would be settled by arbitration. The Committee would like to be informed about the settlement. The Committee however, see no justification for FACT entering into long term contract for 30 years at a stretch without even an escalation clause and with terms and conditions which FACT could not enfroce especially when other parties were able to offer better prices. The Committee are not sure whether financial implications of such a long-term commitment had been examined in depth keeping in view the utilisation of the capacity of the FACT plants and the cost of production. The Committee recommend that this matter should be thoroughly examined from all aspects and the Committee informed of the results.

IX

STAFF

9.1. The sanctioned force for the Udyogamandal Division was fixed by the Management in April, 1965. After completion of the third stage expansion the Management conducted a work study in 1965 (the Project Report did not indicate the staff requirement) to ascertain the staff requirement in all the departments and the standard for was worked out on the basis of full utilisation of the capacity. The staff strength fixed by the Management, that was based on the work study and discussions with unions and the actual staff employed as on 31st March, 1970 to 31st March, 1974 are given below:—

Category of staff	Sanctioned force fixed by M.D. (April, 1965)	Standard force fixed by work study and discussions with unions (Oct. 68)	Actual strength as on 31-3-70	31-3-71	31-3-72	31-3-73	31-3-74.
(i) Superivisory: Technical	316	276	276	269	274	264	312
Non Technical	79	63	67	60	61	60	67
(ii) Clerical	420	354	354	351	349	342	306
(iii) Skilled	1,321	1,509	1,509	1,537	1,523	1,536	1,664
(iv) Semi-skilled and unskilled	1,063	1,178	1,179	1,383	1,466	1,497	1,263
TOTAL	†3,199	3,380	3,385	3,600	3,673	3,699	3,552
Daily rated labour			210				..
Temporary employees on consolidated monthly rate	..	..	..	126	..	..	..
	..	..	3,595	3,726	..	..	..

†At the time of factual verification FACT intimated that the sanctioned strength of Udyogamandal Division is 3709.

9.2. The 210 daily rated labourers as on 31st March, 1970 were stated to have been gradually absorbed as semi-skilled/unskilled labourers..

9.3. A Committee of Directors examined the staff position in August, 1969; one of the reasons mentioned to justify the existing staff was the difficulty in retrenching the unskilled workers engaged for handling the fire wood, when the first plant was installed, even though the process had been changed. The number of unskilled workers rendered surplus due to change in the process and the number since absorbed has not, however, been assessed by the Management.

9.4. The Ministry however informed Audit in March, 1972 that the surplus manpower as subsequently determined was 50 supervisors and 85 skilled personnel (including ear-drivers and typists) in addition to 210 daily rated labourers.

9.5. After the 2nd and 3rd stage expansions, the actual requirement of personnel was again assessed based on work-study. Though FACT fixed the strength on this basis, the Unions demanded more men pointing out an anomalies and inadequacies (according to unions). The matter was discussed with the unions and an agreement was signed on 2nd October, 1968 fixing the number of men required. The strength fixed by conciliation agreement was more than that fixed by work-study.

9.6. On an enquiry of the Committee as to how long this surplus staff is being carried over, the FACT submitted the following details of the men determined and settled through negotiations at different periods:—

Period	Filled Strength	Reqts. as per W. Study	Surplus
1965	2572	2005	567
(after IInd Stage Expn.)			
1966	3375 (Permanent 2733, Temporary 106, Muster Roll 536)	2839 (including Estimates for III stage)	486
III Stage expansion			
1968-69	3550 (Permanetnt 3354 Temporary 196	3230 (as per 2-10-68 agreement)	330
		2894 (W.S.)	656
1974 (IV Stage Expn.)	3441	3043	398

9.7. It has been stated that at the present rate of wages etc. the additional expenditure due to surplus staff is of the order of Rs. 72.4 lakhs per year and the increase in cost of production due to surplus labour is about two per cent. There is no loss of production due to surplus staff.

9.8. In the latest agreement dated 26th September, 1973 with the Unions in Udyogmandal Division, FACT has included the following clauses for increasing productivity:—

> "The Unions agree on the following with regard to increasing productivity:—
>
> (a) Personnel strength in all the departments will be fixed by the Management on the basis of work-study conducted by Industrial Engineering Department.
>
> (b) Work standards|personnel strength already established by work study will be maintained unless changed as provided under sub-clauses (c), (d), (e) and (f) of this clause and clause 13 mentioned below.
>
> * * * * *
>
> The Management agrees that before taking action on the implementation of clause (12) they will consult the Unions and try to get their concurrence and that the Unions shall have the right to raise Industrial Disputes on the issues on which their concurrence is not secured."

9.9 It has been stated that surplus found in various categories are being transferred to Cochin Division according to requirements there.

9.10. When the Committee enquired during evidence whether any study had been made in pursuance of clause (a) of the agreement dated 26th September, 1973 (mentioned in foregoing paragraph), the Chairman-cum-Managing Director stated:—

> "We have completed the study of the udyogmandal and we have not yet attempted to make the adjustments because we had considered it as an impractical step to make adjustments through retrenchment, we are trying to find out some adjustments to the maximum extent by deploying people to Cochin Phase-II. But there are certain people who obviously will not be useable or cannot be employed in Cochin Phase II. We have taken up this matter and we shall try to resolve this issue."

9.11. To an enquiry of the Committee, as to why the staff requirements were not indicated in the Project Report for the Third stage expansion, the Chairman-cum-Managing Director informed the Committee during evidence as follows:—

> "It has not been reported in the project report but it is not the case that we have not considered what the staff re-

quirements would be. The application for industrial licence did indicate the staff requirements and it was determined. It might not have been mentioned in the Project report.....My understanding is that the financial costs of the staff was taken but the number of staff requirement was not defined in the project report.

The staff requirements had been estimated, though not specifically mentioned in the project report. Subsequently when we put the staff in position, there was resistence from the Union, there were discussions and negotiations and that had to be changed. But it is not that there were no estimates of the staff requirements."

9.12. The Ministry of Petroleum & Chemicals stated in this regard as follows in a written note—

"Normally staff requirements are mentioned in the project report although in the case of Udyogmandal III Expansion, this seems to have been omitted. Additional requirement of staff on account of projects is also sanctioned only after proposals have been scrutinised in detail by the Board of Directors, taking into account the financial implications thereof."

9.13. On another enquiry whether omission of mention of the staff strength in the project report had led to over staffing, the Chairman-cum-Managing Director stated:—

"No. Because, the facts are that a certain number of staff was sanctioned by the management for this particular project when the plant were put up. These was resistance from the unions and the matter went to conciliation. In that conciliation there was an agreement in which even what the management considered reasonable had to be increased."

It was not a labour tribunal or arbitration. Regarding the third stage expansion the workers raised a dispute about the number of posts. During my tenure also we have a similar dispute regarding the fourth stage. We considered a particular number of people adequate for a certain plant. The labour contested that. In the fourth stage they refused to start the plant and the dispute was referred to adjudication. In the Udyogmandal the Unions insist on talking to them before the staff strength is fixed, a point which we are not able to get away from."

9.14. The Committee enquired from the Ministry, when this fact of surplus staff came to their notice and what action was taken by them, the Ministry stated in a written note as follows:—

"Government have been aware of the existence of surplus staff in FACT organisation and the need to find a solution. There were, however, certain difficulties in regard to the reduction in staff strength on account of the opposition from the Labour Unions. In fact, the staff strength in the company had to be fixed by Concilliation Agreement with the Labour Unions and was therefore at levels higher than those suggested by Works Study.

However, according to the agreement entered into with the workers of the Udyogmandal Division on 26-9-1973, the personnel strength of the Departments Will be fixed by the management on the basis of the Works Study Conducted by the Industrial Engineering Department. The surpluses found in the various categories would be transferred to other Divisions in Cochin-I and Cochin-II as required. The Company has also not resorted to any recruitment, except where absolutely necessary, since the middle of 1971. The company has also introduced a voluntary retirement scheme to release the surplus labourers.

In this note no reference has been made to the addition to the surplus labour which was effected at the time of introduction of Central Industrial Security Force at the instance of Government and the employment of 40 persons in Cochin I Bagging plant after the strike in May, 1974. No reference has also been made to the fact that FACT has not been able to get rid of surplus teachers. As in the above cases, the surplus labour had to be accepted due primarily to opposition from the labour unions, the general reply as given above should be adequate."

9.15. An analysis of the overtime payments during the years 1970-71 to 1973-74 is given below:—

	1970-71	1971-72	1972-73	1973-74
			(as in Lakhs)	
Production Departments . . .	4·11	7·18	5·30	9·79
Maintenance Department . . .	7·91	8·74	7·80	14·46
Others Departments	10·18	8.03	9·31	12·10
TOTAL :	22·20	23·95	22·41	36·35

9.16. The FACT has explained the payment of overtime as follows:—

"The total overtime paid during 1972-73 amounted to only Rs. 22.41 lakhs, compared to the amount of Rs. 23.95 lakhs paid during 1971-72. In fact, because of the prolonged strike during 72/73, the overtime hours fell sharply. The overtime payment was less in 72/73 than the previous year, though the overtime hours as a percentage has increased from 11 to 11.1 per cent of the regular hours. Another reason for the increase in the total amount is due to the higher D.A. payable by the Company consequent upon the increase in the cost of living index.

The surplus people are in certain departments like Marine Transportation, Garage, Security personnel etc. Such surplus personnel cannot be utilised by the Production Departments or Maintenance Departments where considerable overtime is necessitated due to absence on account of leave or sickness etc. Whenever employees in the Production Departments and Maintenance departments attached to the plants avail leave, the company is compelled to engage the men in the previous shift. This is because, according to the standard practice, the number of men to be present at each point at the plant have been mutually agreed between the Management and the Trade Union. It will not be incorrect to say that the employees are availing the benefit of overtime citing the practice introduced for the safety of the plant."

9.17. The Committee note that as against the sanctioned strength of 3199 fixed by the Managing Director in April, 1965 and the strength of 3380 finalised on the basis of works study and discussion with unions in October, 1968, the actual strength was as 3385 on 31st March, 1970. This increased to 3699 on 31st March, 1973 but came down to 3552 on 31st March, 1974. The increase was quite marked in the semi-skilled and unskilled category where the strength on 31st March, 1973 was 1497 as against 1178 fixed as a result of works study. The Committee of Directors which examined the staff position in August, 1969 justified the excess on the ground of difficulty in retrenching the surplus staff due to change in the process. The Committee are surprised to find that FACT was carrying a surplus even from 1965 when the surplus was 567 and

*At the time of factual verification FACT intimated that the sanctioned strength of Udyomandal Division is 3709.

after IInd Stage expansion it was 486 and IIIrd stage 330 and after IVth stage—398. The additional expenditure due to the surplus staff was reported to be of the order of Rs. 72 lakhs per year and the increase in the cost of production was about 2 per cent. The Committee are informed that though the Government were aware of the surplus staff and the need to find a solution, there were difficulties in reduction in strength on account of the opposition from the unions. The Committee are not able to appreciate the logic in this argument and they do not see any justification for recruitment of staff in excess when they found that even as early as 1965 the surplus was as huge as 567. They feel that the situation should have been tackled even at that stage and staff recruitment should have been only with reference to the actual requirements. The Committee are surprised that the Project Report of the III stage Expansion did not indicate the staff strength, although it has been admitted by the Ministry that it was the normal procedure to show the strength in the project report. The Committee fail to understand as to why this omission was not noticed and rectified before the approval to the IIIrd stage expansion was given. The Committee are informed that in September, 1973 a settlement was arrived at for increasing the productivity according to which the personnel strength in all the departments would be fixed by the Management on the basis of works study conducted by Industrial Engineering Department. It was stated that the attempts are being made to adjust the staff to the maximum exent by deployment in Cochin Phase II. But according to the Management there would still be certain people who obviously would not be fitted in. Management would be considering this matter and resolving the problem.

9.18. The Committee have been pointing out in several of the reports that one of the maladies in public undertakings is recruitment of staff in the initial stages in excess of requirements thus creating problems at the stage of operations. The Committee expect that at least now Government/Undertaking should learn a lesson and ensure that there is no recruitment of the staff at any level unless the surpluses are absorbed and proper norms are fixed for the Cochin Phase II and the future projects. The Committee need hardly stress that the indications given in the DPR about the staff strength should always be taken as the maximum and the FACT should ensure that these limits are not exceeded at any time without a full and detailed assessment by the Board.

9.19. The Committee find that on the one hand, the FACT is carrying a large surplus involving an additional expenditure of

72 lakhs per year, on the other hand, the overtime bill of the Corporation has been mounting from Rs. 8.7 lakhs in 1967-68 to Rs. 36 lakhs in 1973-74. The Committee are informed that surplus are in certain departments like Marine, Transportation, Garage, Security etc. and could not be utilised by the Production or Maintenance Departments where the incidence of overtime is high. The Committee recommend that Government/Corporation should critically go into the reasons for abnormal increase in overtime and fix suitable productivity norms so that the expenses on overtime are obviated. The Committee also suggest that special care should be taken to see that non-technical and supporting staff should be multifunctional capable of handling a variety of jobs and this will enable the problems of the type now felt by FACT being easily tackled. The Committee also recommend that there should be a system of inbuilt incentives in wages with a view to increasing the productivity.

X

FINANCIAL MATTERS

A. Capital Structure

10.1. The position as on 31st March, 1971, 1972, 1973 and 1974 was as follows:—

	As on			
	31-3-71	31-3-72	31-3-73	31-3-74
(i) Authorised Capital (Rs. in crores)	50·00	50·00	75·00	75·00
(ii) Paid up Capital (Rs. in lakhs) . . .	*2263·98	@3023·59	£4998·54	V6066·98
Contributed by : — (Rs. in lakhs)				
Govt. of India . . .	1918·00	2677·61	4652·97	5721·00
Govt. of Kerala	217·50	217·50	217·50	217·50
Govt. of Tamil Nadu . . .	25·69	25·69	25·69	25·69
Govt. of Andhra Pradesh . .	14·76	14·76	14·76	14·76
Govt. of Karnatka . . .	0·55	0·55	0·55	0·55
Private Parties . . .	87·48	87·48	87·48	87·48
	2263·98	3023·59	4998·95	6066·98

10.2. The debt-equity ratio (including deferred credit and Government of India non-Project loans) is as follow:—

2·26 : 1 as on 31-3-1971

1·89 : 1 Do. 31-3-1972

1·17 : 1 Do. 31-3-1973

0·92 : 1 Do. 31-3-1974

NOTES :—1. *Includes Rs. 517·00 lakhs representing amount received from Govt. of India pending allotment of Equity shares.

2. @Includes Rs. 534·61 lakhs representing amount received from Govt. of India pending allotment of Equity shares.

3. £Includes Rs. 1,373 lakhs representing loan converted into Equity Capital

4. V Includes Rs. 484·47 lakhs representing amounts received from Govt. of India pending allotment of equity shares.

10.3. It has been noticed that Government loans have been converted into equity shares to bring down the debt-equity ratio.

10.4. The Project wise position in respect of equity and loans is given below:—

Project	1-4-72 (after effecting conversion			31-3-73			31-3-74		
	Equity	Loan	(Ratio - when equity is taken as 1	Equity	Loan	(Ratio When equity is taken as)	Equity	Loan	(Ratio when equity is taken as 1)
UDL	1036	1036	1	1041	2625	2·52	1041	2415	2·32
CDI	2545	2545	1	2743	2913	1·06	3065	2787	0·94
CDII	290	..	..	674	..	..	1420	..	..

NOTE : (1) Working Capital and short -torm loans repayable within two years excluded.
(2) In the case of Cochin Phase II, as it was in the initial stages, the first releases were made in equity.

It may be seen from the above that the debt equity ratio in the case of Udyogmandal project has been again in favourable by the end of 1973-74 and this was due to the medium term loan of Rs. 1691.14 lakhs received by the Company in 1972-73.

10.5. The Company was not able to repay the instalments of loans and interest falling due in 1969-70 and 1970-71. Hence on the basis of the representation of the Company, the Government by their letter No. 1|54|69|Ferts. III of 31-5-1971, allowed further rescheduling of the dues including the repayments falling due in 1971-72 over a period of five years, starting from 1972-73. Accordingly the position of repayments of Government loan and interest falling due (including the portion as per rescheduling) and that paid in the various years of period under review is as shown below:—

(Rs. in lakhs)

	Loan		Interest	
	Due	Outstanding	Due	Outstanging
31-3-72	910·55*	..	459·36*	..
31-3-73	627·03	..	285·06	..
31-3-74	1015·25	516·05	409·39	168·58

*The dues fallen due upto 71-72 reseheduled dfor the next five years.

10.6. The repayments that had fallen due in 1972-73 were fully paid by the Company. However, in 1973-74 only a part of the dues of the year could be paid as the credit squeeze imposed by the Reserve Bank of India in early November, 1973 restricted the Company's cash credit facility (both the normal and the clean cash credit against Government guarantee) available from State Bank of India.

It was, however, stated that in case Government finally decided to charge penal interest, the total penal interest would be as follows:—

	Rs.
(a) On loan instalments	32960
(b) on interest payments	13437
	46397

B. Working Results

10.7. The working results of the Company for the last four years are analysed below:

(Rs. in lakhs)

Description	1970-71	1971-72	1972-73	1973-74
Income :				
Sales and services	3173·88	3426·98	2327·04	2681·63
Other Income	22·64	23·73	27·67	35·72
TOTAL (A)	3196·52	3450·71	2354·71	2717·35
Expenditure :				
Materials	2098·89	2131·77	1142·09	1185·63
Labour	201·49	236·14	233·75	326·36
Manufacturing overheads (excluding depreciation)	341·85	375·36	341·47	315·58
Direct cost of production	2642·23	2743·27	1717·30	1827·57
Less : Difference in opening and closing stock of finished products	46·60	(—)52·09	(—)138·53	(+) 25·87

Manufacturing cost of goods and services sold . . .	2595·63	2795·36	1885·85	1853·44
Administration & Other overheads.	374·98	409·28	311·00	459·47
Interest on borrowings . .	167·07	211·98	132·91	198·22
Depreciation	151·06	172·18	160·65	172·78
Excise duty	100·27	114·93	136·59	229·60
Total cost of goods & Services Sold (B) . . .	3389·81	3703·73	2597·00	2913·51
Net Profit/Loss (A-B) . . .	(—)193·29	(—)253·02	(—)242·29	(—)196·16
Profit/Loss of FEEDO contracts .	(+) 2·93	(—)15·64	(+) 2·62	(+) 3·66
Prior period expenditure/income .	(+) 0·98	(—)113·75	(—) 9·15	(—) 4·13
Development Rebate Reserve withdrawn	..	..	(+)16·36	..
Profit/loss as per accounts . .	(—)189·37	(—)382·41	(—)232·46	(—)196·63

10.8. If the profit/loss made on purchases resold is excluded, the working results would be as under:—

Year	Profit/Loss
1970-71	(—)158·98
1971-72	(—)299·99
1972-73	(—)228·72
1973-74	(—)178·92

10.9. The main reasons for the losses in the above years are stated to be due to the following:—

1970-71

Ammonia production was adversely affected on account of power interruptions, maintenance work, major ovehaul of electrolysis and failure of certain sections of Gas Plants. Consequently the production of All Ammonia based products has been affected. In addition to this, there was shortage of rock phosphate during the major part of the year and this had completely upset the production of Ammonium Phosphate and Ammonium Sulphate. In the case of Ammonium Chloride, production

was also affected due to restriction in HCL gas supply from Travancore Cochin Chemicals.

1971-72

There was heavy shortfall in production in the first half of the year because of maintenance problems and failures of some critical equipments. There were 70 and 67 power interruptions respectively in the 66 KV and 110 KV systems in the year. These had resulted in substantial loss in production as also heavier expenditure on maintenance plants.

1972-73

Because of the general strike in the Company from 3rd May, 1972 to July, 1972 the plant and machinery had to be shut down and heavy maintenance was required. It took considerable time to get the Plants to operate at the normal levels of production. Further the loss of production on account of voltage drops and interruptions in power supply continued in 1972-73 also.

1973-74

A major set back to the production programme of the year was the explosion of one of the high pressure compressors in Tonnox Plant occurred in early November, 1973. Even though remedial action was initiated for replacing the damaged parts through imports, the entire work of replacement could not be completed during the year due to non receipt of the whole lot. This resulted in reduced production of Ammonia and consequently all the ammonia based end products suffered. There was also labour trouble in stacking sections and production had to be curtailed. In addition to these, there were power interruptions which contributed to the fall in production.

10.10. During evidence the Committee pointed out that the company had been incurring huge losses on its manufacturing activities. Although the position improved in 1970-71, the loss was the highest in 1971-72 when the production was also the highest, except in one or two products. The loss came down in 1972-73 and there was also a fall in production. The Committee desired to know the reasons for this trend. The representative of FACT explained the position as follows:—

".....if you make certain corrections in each year's accounts which also include expenditure relating to the past years, if you make corrections for that, which exercise we have done, the position is clarified. For example, higher loss despite better production in 1971-72 as compared to 1970-71 is for the following reasons: There is an item pertaining to previous years amounting 113.71 lakhs included in this year's accounts. Similar another item, bad and doubtful debts, of Rs. 43 lakhs is included. It relates to previous years, not to the particular year. These will add upto 156 lakhs.

There has been increase in wages and salaries in subsequent years to the extent of Rs. 35 lakhs. If you make corrections for all these the position becomes clear.

We find the trend is there; when production is less, there is less loss. Actually speaking, the loss in 1972-73 was lower also due to another reason. We had taken several economy measures and a certain rationalisation of the distribution/and marketing function. This alone is quite substantial. The tentative figure is around Rs. 50 lakhs. This is for 1972-73. So if you make a correction for all these things, there is a meaning full trend."

10.11. The actual working results during 1970-71 to 1972-73 are compared below with these indicated in the Budget Estimates:—

Year	(Project as per Budget Estimates	Actual profit (+) loss(—) based on accounts before charging depreciation
	(Rs. in lakhs)	(Rs. in lakhs)
1970-71	352·49	(—) 37·52
1971-72	425·80	(—)210·23
1972-73	153·82	(—) 71·83

The actual working results as per accounts differed widely from expectations made at the time of preparing the budget estimates.

10.12. The main reasons for actual results at the end of the year varying from budgetted levels has been stated to be due to the shortfall in production from levels anticipated. Apart from

the fact that power interruptions etc., could not be forecast, the resultant shocks to plant, increasing maintenance time and damage to plant cannot be assessed. Further, fixed element in cost was extremely high and these could not be controlled or varied with the level of production. This resulted in adverse position.

10.13. Over the last couple of years, in preparing the budgets, detailed calculation of attainable production and detailed statement for items of expenditure are being prepared. In spite of these, the gap between the budgetted production and actual production has been big, but only for reasons beyond our control.

10.14. Most, if not all the factors responsible for these variations could not be anticipated at the time of preparation of the annual budgets. Variations are regularly reviewed, and wherever possible, remedial action is initiated.

10.15. The Committee regret to note that FACT has been incurring huge losses on its manufacturing activities and the cumulative loss on 31-3-1974 is over Rs. 11 crores. The loss has increased from Rs. 1.8 crores in 1970-71 to Rs. 3.8 crores in 1971-72 and it came down to Rs. 2.3 crores in 1972-73 and Rs. 1.8 crores in 1973-74. The main reasons for the losses have been attributed to low utilisation of capacity and consequential loss in production, maintenance problems, failure of some critical equipments besides power shortage and labour troubles. The Committee are informed that the loss in 1972-73 came down because of certain economy measures and with certain rationalisation of the distribution and marketing function. The Committee are constrained to observe that in spite of the Four Expansion Schemes which FACT had implemented, there had been gross under-utilisation of capacity, excess consumption of raw materials, losses on account of stores, surplus in manpower and the manufacturing and marketing expenses were very much on the high side. The Committee, therefore, feel that unless some concrete and concerted efforts are made to improve the performance and reduce costs, rationalise the man-power and control consumption of materials, it will be difficult for FACT to come out of the red. The Committee would like to be informed of the measures initiated in this regard.

C. Costing system and analysis of costs

Costing system

10.16. The Company follows the system of standard costs which were fixed in 1966 on the basis of the designed capacities of the

plants and the ratios for consumption of raw materials as also a stream efficiency of 330 days in a year. The standard costs were revised only in March, 1971, after taking into account the attainable stream efficiency of 317 days for Ammonia Plant and the attainable consumption ratios for raw materials, although the attainable stream efficiency had been indicated by the Sharma Committee in April, 1968. During the intervening period, particularly after April, 1968, the standard costs did not fully serve as the correct basis for judging the efficiency of operations.

10.17. To an enquiry of the Committee as to why the standard costs were not revised soon after the submission of Sharma Committee Report in April, 1968 which indicated the attainable stream efficiency of 317 days for ammonia and ammonia consuming plants instead of designed efficiency of 330 days, the FACT stated in a written note as follows:—

> "The Sharma Committee Report dealt only with the issue of attainable stream efficiency and came to the conclusion that stream efficiency of 317 days for ammonia and ammonia consuming plants instead of a design efficiency of 330 days would be adequate and qualified the same by saying that the stream efficiency of 317 days could be achieved after making certain improvements and modifications. We have standardised the norms of consumption on the basis of what is attainable with due regard to the design ratios. This exercise was undertaken in October 1966 and reviewed again in early 1971, which is now being adopted for measuring the efficiency of our operation.
>
> The generally accepted stream days for chemical industry is 330 days. As such factors limiting the stream efficiency was not adopted for out of the standard costs since variations attributable to each of the limiting factors could be worked out from the standard costs worked in 1966.
>
> Proposal was submitted in 1969 for standard costs and revision were accepted by the Board in March 1971. The revised standard costs adopted in March, 1971 took into account the lower stream efficiency of 317 days and also attainable realistic norms of consumption ratios."

10.18. The Committee pointed out that although the new ammonia unit under the fourth stage expansion scheme was commissioned in

October 1971, the standard costs for the composite expanded ammonia plant had not been fixed and enquired how the standard costs fixed in March, 1971 could be taken as basis for reviewing the actual cost of production in the expanded plant.

10.19. The FACT stated in a written note as follows:

> "After the commissioning of the new composite ammonia plant under the fourth stage expansion in October, 1971 the standard norms of consumption showed an upward trend since production of ammonia by stream: reforming process will consume more naphtha than in the case of partial oxidation. In order to analyse the variance due to consumption, standard ratios have been taken at a figure almost equivalent to the design ratio for purposes of evaluating actual performance. Since 1972-73, (budgetted costs) based on the budgetted volume of production and norms of efficiency are prepared as per 1971 standard costs. The actual cost of production compared with the budgetted costs for evaluating monthly performances."

Analysis of costs

10.20. The following table indicates the costs of production of different products during the years 1967-68 to 1970-71 as a percentage of standard costs fixed in 1966:—

Percentage of actual costs to standard costs fixed in 1966

Product	1967-68	1968-69	1969-70	1970-71
Ammonia	172·2	144·3	181·4	183·32
Ammonium Sulphate (Direct neutralisation process) . . .	187·8	160·1	184·4	166·96
Ammonium Sulphate (Gypsum process)	180·4	146·3	179·1	212·81
Ammonium Phosphate . .	171·4	165·2	192·6	184·46
Ammonium Chloride . . .	211·0	204·6	213·6	207·83
Superphosphate . . .	126·0	141·0	146·5	156·22
Sulphuric Acid	162·4	180·8	180·0	123·9

NOTE : The distribution loss included in the actual cost of ammonia has been excluded as the standard costs did not provide for the same.

10.21. The actual costs were always higher than the standard costs. The actual costs during 1968-69 were less than those in 1967-68

except in respect of superphosphate and sulphuric acid. The costs, however, went up again in 1969-70 (except for sulphuric acid) and were generally higher than even those in 1967-68.

10.22. The standard costs were revised in March, 1971. These revised costs were in all cases higher than the original standard costs. The actual cost of production of different products during 1971-72 and 1972-73 as percentage of the revised standard costs is indicated below:—

Product	Actual cost as percentage of revised standard cost		
	1971-72	1972-73	1973-74
1	2	3	4
1. Ammonia	159·37	161·53	166·8
2. Ammonium Sulphate			
(A) Direct neutralisation process .	129·30	147·21	163·0
(B) Gypsum process	121·61	142·55	151·7
3. Ammonium phosphate (16:20) .	128·41	136·17	156·4
4. Ammonium Chloride . . .	146·09	152·29	166·00
5. Super-phosphate	99·59	95·56	124·00
6. Sulphuric Acid	86·66	100·50	115·00

10.23. The actual costs of all the products except Superphosphate and Sulphuric Acid were higher than even the revised standard costs. The fall in the cost of production of Superphosphate and Sulphuric Acid was mainly due to the downward trend in the prices of Sulphur and Rock-phosphate as shown below:—

	Cost per tonne assumed in the revised standard costs	Actual average cost per tonne	
	Rs.	1971-72	1972-73
		Rs.	Rs.
Sulphur	350·00	308·21	327·61
Rock-phosphate	250·00	193·77	177·24

10.24. In spite of the standard costs having been revised in the year 1971, there has been huge variations between the actual fixed

and variable costs over the standard cost fixed (in 1971) during the periods 1971-72, 1972-73 and 1973-74, which is evident from the following figures:

S.No.	Products	1971-72		1972-73		1973-74	
		Rs. in lakhs	Rs. per tonne	Rs. in lakhs	Rs. per tonne	Rs. in lakhs	Rs. per tonne
1	2	3		4		5	
1	Ammonia variance in fixed costs	22·81	51·61	16·70	44·19	26·94	70·22
	in variable costs	94·71	214·32	87·63	231·92	175·26	456·87
		117·52	265·93	104·33	276·11	202·20	527·09
2	Ammonium Sulphate (i) Direct neutralisation variance in fixed cost	1·93	1·77	12·22	16·01	16·49	24·64
	variable cost	104·93	96·32	104·05	141·42	129·96	194·16
		106·89	98·09	116·27	158·03	146·45	218·90
	(i) Gypsum process variance in fixed cost	0·38	1·77	1·48	6·61	9·22	24·64
	variable cost	14·97	70·67	28·20	126·06	58·62	156·66
		15·35	72·44	29·68	132·67	67·84	181·30
3	Ammonium Phosphate variance in fixed cost.	18·49	30·95	15·85	30·94	18·20	27·82
	variable cost	77·22	129·23	88·58	172·95	180·40	275·78
		95·71	160·8	104·43	203·89	189·60	303·60
4	Ammonium Chloride variance in fixed cost	5·45	55·51	3·73	45·13	7·21	76·86
	variable cost	13·97	142·25	14·82	179·24	20·59	219·42
		19·42	197·76	18·55	224·37	27·80	296·42
5	Super phosphate variance in fixed cost	1·11	6·82	(—)0·30	(—)1·50	(—)1·97	(—)5·52
	variable cost	(—)1·31	(—)8·04	(—)2·36	(—)11·63	(—)24·73	69·24
		(—)0·20	(—)1·22	(—)2·66	(—)13·13	22·18	63·72
6	Sulphuric Acid variance in fixed cost	(—)11·92	(—)7·36	(+)12·18	(+)10·26	(—)9·15	(—)5·56
	variable cost	(—)16·79	(—)10·37	(—)9·05	(—)7.62	38·51	23·53
	on account of credit for steam	(—)2·96	(—)1·83	(—)2·27	(—)1·91	5·91	3·59
		(—)31·67	(—)19·56	(+)0·86	(+)0·73	35·57	21.56

10.25. The reasons for the huge variations in the differences between the actual fixed costs and variable costs and the standard costs in 1971-72, 1972-73 and 1973-74 over those in 1970-71 are stated to be:—

"A. Variable costs:

The increase in the variable costs are due to the following:

(a) Increase in the price of raw materials, viz. Naphtha, Rock Phosphate, Sulphur, Furnace Oil, Packing materials, Jute bags and Liners, Caustic Soda etc.

(b) Increase in the cost of intermediate products, viz. Ammonia, Sulphuric Acid and Phosphoric Acid due to the higher prices of raw materials, packing materials, operating supplies etc.

Fixed Cost:

(a) Lower volume of production (as a percentage of the capacity) compared to 100 per cent capacity production for 317 stream days assumed in the standard cost fixed in 1971.

(b) Further, the fixed costs have also gone up due to increase in the price of stores and spares, increase in the wages and D.A. payable on the basis of higher cost of living index etc."

10.26. The variable cost have gone up due to increase in the price of raw material and operating supplies as shown in the following table:

Raw materials costs (Rs. per tonne)

	1971 Standard cost	Actuals 1973-74
Naptha	95	228
Sulphur	350	384
Rock	250	320

10.27. The total variance in the valuable cost per tonne of different products during 1971-72 and 1972-73 as mentioned above are analysed

below into usage variance and price variance:—

Production	1971-72			(Rupees per tonne) 1972-73		
	Total in variable cost	Usage variance	Price variance	Total variance invariable costs	Usage variance	Price variance
1	2	3	4	5	6	7
Ammonia . .	214·32	15·15	199·17	231·92	11·23	220·69
Ammonium Sulphate (i) Direct neutralisation process.	96·32	9·22	87·10	141·42	11·85	129·57
(ii) Gypsum process .	70·67	32·70	37·97	126·06	36·40	89·66
Ammonium-phosphate . .	129·23	11·29	117·94	172·95	20·40	152·55
Ammonium Chloride .	142·25	4·18	138·07	79·24	1·49	177·75
Super-phosphate .	(—)8·04	0·12	—)8·16	(—)11·63	1·75	(—)13·38
Sulphuric Acid. .	(—)10·37	2·83	(—)13·20	(—)7·62	2·13	(—) 9·75

10.28. On the Committee pointing out that the Company was not having the system of analysing the reasons for excess consumption of raw materials over the designed/attainable ratios and in the absence of such a system what purpose did the analysis of variance in variable cost into usage variance and price variance serve the FACT replied in a written note as follows:—

"Every month a variance report is prepared on the basis of information received from the Production Departments and is circulated to plant superintendents inviting their comments for the variance. Their comments are received by the respective Dy. General Managers. The Dy. General Managers in turn in their weekly and monthly reports to Chairman and Managing Director bring prominently to his notice any matters of significance which warrant his attention. This practice is in vogue since 1966.

By installing matters and instrument in the case of ammonia, steam, rock phosphate, etc., it has been possible to control consumption to a certain extent. Major problems, like higher consumptions of Sulphur in the old plants, are

being solved by the several items of work taken up under the Debottlenecking Programme. Improvements to 160 TPD Chemiebau Acid plant is well under progress and is expected to be completed during the current year. Till 1972, there was considerable loss of phosphoric acid due to leaks in the reaction tanks for which a new tank has been installed and commissioned in May, 1972. This has enabled the company to avoid losses by way of leaks of phosphoric acid. While action has thus been taken to control adverse usage variances, it will be appreciated that the company is operating 25 years old plant, which would normally be scrapped in too frequent shutdown consequent to voltage drop and power failure. The company has been taking up this question with the State Electricity Board and also with independent authorities like Indian Institute of Science."

10.29. In para 3.33 of their 44th Report (4th Lok Sabha—April, 1969) the Committee on Public Undertakings suggested that it would be useful for a public undertaking to have the comparative figures from other undertakings in the same industry about the various aspects of their working like consumption of raw materials, cost of production, overhead expenses, marketing expenditure, etc. in order to make a comparative study and to take proper remedial measures in cases where deficiencies were noticed. While noting the above suggestion, Government informed in January, 1970 that the Fertilizer Corporation of India Limited and the FACT had been advised suitably.

10.30. The Management informed in March, 1972 that necessary data with regard to the operation of the various units in the fertilizer field including those of the F.C.I. Ltd., had since been collected and was being studied.

10.31. The cost of production of ammonium sulphate in the Sindri Unit of Fertilizer Corporation of India Limited, as collected in Audit, is compared below with that of the Company:—

(Rs. per tonne)

Year	Company's cost of production as percentage of Sindri's cost.
1967-68	135·6
1963-69	120·4

10.32. The Data for inter-firm comparison were collected in September/October, 1971. The data collected were primarily for the purpose of furnishing an inter-firm comparison to the Kerala Government for concessional rate in power tariff. The results of the study show the following:

(i) The capital output ratio is favourable assuming 330 stream days. Unfortunately, this company has not been able to achieve full stream days due to frequent power interruptions, inter-dependence of 22 small plants.

(ii) Modern single stream plants at Madras, Baroda, Vizhakapattanam, etc., operate only 4-5 process plants with larger capacity, better stream efficiency of 330 days a year, where the electricity grid is supported by firm thermal power.

(iii) Udyogmandal unit produces phosphatic fertilizers for which the material cost will be about 40 per cent representing cost of sulphur and rock as against Urea produced by large capacity single stream plants for which the material cost will be only 10 to 15 per cent of prices prevailing in 1971.

(iv) Udyogmandal unit employs a larger number of workmen compared to other plants (excepting Sindri) and the percentage of labour cost at Sindri and Udyogmandal are higher than the other plants.

10.33. It has been stated that no system has as yet been introduced in FACT to regularly exchange cost data etc. from other units in the public sector.

10.34. To an enquiry of the Committee as to how the cost of production of different products of the Company during 1969-70 to 1973-74 compare with the cost of production of similar products by Fertilizer Corporation of India Units and the reasons for difference in such costs. The FACT stated in a written note as follows:—

"The only product which is in common with FCI produced at FACT is Ammonium Sulphate. We got information relating to the total cost of Production of Ammonium Sulphate manufactured by the Sindri Unit of the FCI during the years 1969-70 to 1972-73 (4 years). We, however, did not get a break down of the cost of production into its constituent elements of cost. Their process is also different

from the process followed at FACT. The table below indicates our cost of production *vis-a-vis* Sindri Fertilizers' for the 4 years for which we had obtained information from them.

Cost per tonne

Year	Acid Process.	Gypsum Process.	Weighted average cost of production of Amm. Sulphate at FACT.	Cost of production of Amm Sulphate at Sindri.
	Rs.	Rs.	Rs.	Rs.
1969-70 .	464·26	337·36	437·10	455·09
1970-71	420·41	430·85	416·56	500·89
1971-72 .	432·84	407·73	428·75	605·63
1972-73 . .	492·78	477·96	489·33	752·01
1973-74	553·55	516·55	540·29	N.A.

As will be seen from the Table, the cost of production of Ammonia Sulphate of FACT, Alwaye was *lower* than the cost of production of the product at the Sindri Unit. *Prima facie,* the reasons for the lower cost of production at FACT seems mainly attributable to factors such as (1) lower cost of gypsum which is a by-product and priced at the rate at which it is available at pit-heads near Trichinopoly whereas Gypsum is transported over long distance by the Sindri Unit and the delivered cost of Gypsum for them must be far higher; (2) we are using naphtha as feedstock as against coal by Sindri Unit and Naphtha as a feedstock is a cheaper raw material than coal; and (3) the supply of power to FACT is from hydro-electric sources at much cheaper rates compared to the high cost of generation of power including the generation of power purchased from the D.V.G. grid by the Sindri Unit. During 1967-68 and 1968-69, the international Sulphur prices went up to phenomenal levels. As against the cost of Rs. 350/- per tonne of Sulphur used during 1966-67, the cost per tonne of Sulphur during 1967-68 and 1968-69 worked out to Rs. 563/- and Rs. 584/- respectively. The incidence per tonne of Ammonium Sulphate on this account alone would be of the order of Rs. 63/- and Rs. 100/- in the respective years. If an allowance is made for this, it would be apparent that our cost of production happened to be much higher during those years mainly due to reasons beyond our control. At Sindri, their production is 100 per cent through Gypsum

process, whereas in FACT, during those relevant periods, the production through Gypsum process was hardly 20 per cent. Since 80 per cent of our production was accounted for by the Acid process, our average cost of Ammonium Sulphate was higher. There is one other reason which is attributable to the higher cost of production of Ammonium Sulphate during these relevant years, viz., the low level of utilisation of capacity. We hardly utilised 40 per cent of our capacity in 1967-68 and 50 per cent in 1968-69. At Sindri, their utilisation was respectively 68 per cent and 75 per cent for 1967-68 and 1968-69. Consequent to the better utilisation in 1968-69, the increase in cost at FACT compared to Sindri Unit has fallen from 135.6 per cent to 120.4 per cent."

10.35. The Committee note that FACT is following the system of standard costs which were fixed in 1966 on the basis of designed capacities of the plants and the ratios of the consumption of raw materials as also stream efficiency of 330 days in a year. The Committee note that the standard costs were revised only in March, 1971 after taking into account the attainable stream efficiency of 317 days although the attainable stream efficiency was indicated by the Sharma Committee as early as April, 1968. The result was the standard cost during the intervening period between 1968 to 1971 did not serve as the correct basis for judging the efficiency of operations.

10.36. It was clarified that the revision of standard costs was made not only with reference to stream efficiency indicated by the Sharma Committee but also after standardising the norms of consumption ratios.

10.37. The Committee note that the actual cost of production of different products except superphosphate and Sulphuric Acid were higher than the revised standards costs and the actual costs ranged from 121 per cent to 167 per cent of the revised standard costs during 1971-72 to 1973-74.

10.38. An analysis of the variations in costs during the period 1971-72 to 1973-74 indicates that there had been huge variations between the actual fixed and variable costs over the revised standard costs while the increase in the variable cost were attributed to increase in price of raw materials packing materials and increase in the cost of intermediate products, the increase in the fixed cost were mainly due to lower volume of production. The Committee find that though the increase in variable cost has been mostly attributed to increase in the cost of raw materials, there have been variances due to usage also thus indicating excessive consumption.

10.39. The Committee are informed that every month a variance report is prepared on the basis of information received from production Departments and circulated to Plants for action. The Committee recommend that the Management should introduce a system of analysis of the variance reports with a view to identifying the causes for such variances and taking suitable remedial measures in time.

10.40. The Committee find that in spite of the recommendation in paragraph 3.33 of their 44th Report (4th Lok Sabha) that it would be useful for a Public Undertaking to have comperative figures from other undertakings in the same industry on various aspects of their working, so far no system has been introduced to have a regular exchange of information. The Committee recommend that the Bureau of Public Enterprises should devise ways and means of introducing such a system for the benefit of the Public Undertakings.

D. Internal Audit

10.41. The internal audit section functions under the control of the Finance Manager who scrutinises the internal audit reports and submits the same to the Managing Director. These reports are, however, not submitted to the Board of Directors.

10.42. The Internal Audit at present conducted does not cover items like cost accounts of the Udyogmandal Division and the basic records maintained therefor in the various plants.

10.43. The Company auditors in their report to the Board of Directors on the accounts for 1969-70 stated that the existing system of internal check and internal audit was not adequate.

10.44. In January, 1969, the Board of Directors approved the strengthening of the internal audit section so as to cover the audit of all divisions. The full strength as estimated has, however, not been positioned so far.

10.45. The Ministry stated (March, 1972) that the organisation required including the staff strength and the functions of the internal audit group and those of other groups is under review. "This matter has taken some time because of the change in the Managing Director of the Company."

10.46. In March, 1973, the Board of Directors considered a proposal for the re-organisation of Internal Audit and approved the creation of a post of Chief Internal Auditor. The incumbent was appointed in Jan., 1974. Proposals regarding staff strength and the internal

Audit Manual prepared by the Chief Internal Auditor in March, 1974 are still awaiting approval.

10.47. The inadequacy of Internal Audit Department was again pointed out by the Company Auditors in their supplementary Report on the accounts for 1972-73 (submitted in March, 1974). Following observations were made by them:—

> "There is no proper Internal Audit Department in the Company. The small Internal Inspection team which functions under the Finance Manager is not able to cover any area of accounting properly.....We reiterate our observation in last year's report that in an Organisation of the size we are of the view that there should be a proper Internal Audit Department which should function independently and report directly to the top Management."

10.48. To an enquiry of the Committee as to why there was delay in establishing a proper Internal Audit Department after its strengthening had been approved in January, 1969 and by what time the Department was expected to be strengthened the FACT stated in a written note as follows:—

> "In 1969 consequential to the re-organisation of FACT into units and Head Office, the structure and scope of Internal Audit also had to undergo a change. For this purpose the Board in January, 1969 approved certain proposals mainly sanctioning staff who will in addition to routine items and special investigations ordered by the Managing Director, also handle items of work like cheque payments, bank reconciliation and audit of contracts entered into by the working units, with a view to see how far the accounting units are fulfilling the functions as also to pinpoint the bottlenecks in the compilation of accounts etc. This restructuring of Internal Audit wing was a subject matter of discussion with the Statutory and Government Audit, and in our discussions with the Audit Board, it was agreed that a comprehensive Internal Audit wing covering not merely the financial aspects but also the administrative audit will be set up. The matter was discussed in a meeting of the Board held on 22nd October, 1971, when it was decided that the internal audit section be further strengthened and that arrangements for internal audit in some other public sector undertakings be examined. The Board

in its meeting held on 22nd March, 1973, based on the report regarding the study on the arrangements for internal audit in other public undertakings, decided that a comprehensive audit programme including management audit in addition to financial and proprietory audit be introduced. In the same meeting it was also decided that the detailed scope of the work to be done by the internal audit section be fixed after the Chief Internal Auditor is in position, for which a post in the scale of Rs. 1600—2255 was created. It was possible to post the Chief Internal Auditor only in January, 1974 after a number of attempts were made to find a suitable incumbent. The proposals submitted by him are under consideration.

Some of the important internal audit functions are being performed though a comprehensive system which is yet to be adopted. There has been delay because of changes in the Finance Manager of the Company. Since, 1971 there have been fairly rapid changes in the Finance Managers and there have been same periods where make-shift arrangements have had to be made. There have also been difficulties in finding a suitable incumbent for the post of Chief Internal Auditor, as mentioned above. It will be seen that in reality there has not been any delay in establishing a proper Internal Audit Department. We were only trying to review the work and functions of the Department from time to time and have been taking appropriate steps to make it an effective management tool.

The draft Internal Audit manual is to be approved by the Board and staff for Internal Audit is expected to be in position by end of March, 1975."

10.49. The Committee regret to note that though the Board of Directors approved the strengthening of internal audit section as early as January, 1969, the reorganisation of the Internal Audit and the post of Chief Internal Auditor were approved only in March, 1973, after over 4 years. The Chief Internal Auditor was appointed about one year thereafter. The proposals regarding staff strength and internal audit manual prepared in March, 1974 are still awaiting approval. The Committee also note that the Company auditors have in their Report for accounts for 1972-73 remarked that—

"There is no proper Internal Audit Department in the Company.....we are of the view that there should be a proper Internal Audit Department which should function independently and report directly to the top Management."

10.50. The Committee are informed that the reorganisation proposals were made after a study of the arrangements existing in other public sector undertakings. The Board decided that in addition to Financial and Proprietory audit, a comprehensive audit programme including management audit should be introduced. It is stated that the draft internal audit manual is expected to be approved and staff would be in position by end of March, 1975. The Committee are not happy at the inordinate delay in strengthening up the internal audit wing and finalising the Internal Audit Manual. The Committee recommend that the company should lose no time in strengthening the Internal Audit Wing to evaluate a comprehensive audit including management audit being conducted in time and the results reported to management so that they can serve as an effective tool of management. The Committee need hardly stress that the reports of internal audit should receive serious consideration at all levels.

E. Sundry Debtors

10.51. The volume of Book Debts and the Sales during 1970-71, 1971-72 and 1972-73 is given below:—

(Rs. in lakhs)

As on	Total Book Debts		Sales (including services rendered)	Percentage of debtors to Sales
	Considered good	Considered doubtful		
31-3-71	581·33	4·29	3,172·64	18
31-3-72	395·78	46·29	3,426·98	13
31-3-73	300·78	50·28	2,322·35	15

10.52. From the Annual Accounts for the year 1972-73, it is seen that debts outstanding for over six months as on 31-3-1973 amount to Rs. 217.91 lakhs, out of which Rs. 50.28 lakhs is provided for as "doubtful debts"—nearly 25 per cent.

10.53. The Committee note that the volume of book-debts had come down from Rs. 581 lakhs on 31-3-1971 to Rs. 300 lakhs on 31-3-1973 & in terms of turn-over from 18 per cent to 15 per cent. The Committee, however, find that the total amount on 31-3-1973 includes Rs. 217 lakhs outstanding for over six months and out of this Rs. 50.28 lakhs is considered as doubtful debts (25 per cent of the total debts). In the opinion of the Committee this provision of nearly 25 per cent is on the high side FACT should take concerted measures to realise the amounts post-haste.

XI

A. Inventory Control

11.1. The table below indicates the comparative position of inventory and its distribution at the close of 1970-71, 1971-72 and 1973-74:—

(Rupees in lakhs)

	1970-71	1971-72	1972-73	1973-74
(*i*) Raw materials (excluding raw materials in transit).—				
(*a*) Own production . . .	305·89	164·73	61·03	86·00
(*b*) Imported . . .	201·98	86·02	81·13	144·00
(*ii*) Purchased material (Imported) .	336·68	40·36	27·92	42·00
(*iii*) Other Stores—				
(*a*) General stores . . .	157·82	167·19	163·36	128·00
(*b*) Packing materials . .	23·20	18·26	19·52	22·00
(*c*) Stores with Plants . .	20·28	20·37	24·17	23·00
(*d*) Stores with Cochin Div. . .	34·03	55·14	88·97	95·00
(*iv*) Spares . . .	108·27	143·67	167·46	185·00
(*v*) Finished Goods . . .	341·12	289·03	177·99	160·00
	1529·27	984·77	811·55	885·00

11.2. The stock of raw materials (sulphur and rock phosphate) held in relation to production requirements in terms of months was as follows:—

1967-68	5·3 months
1968-69	4·0 months
1969-70	2·7 months
1970-71	6·8 months
1971-72 .	3·1 months
1972-73	3·7 months
1973-74	2·6 months

11.3. The Ministry stated in June, 1972 that the enquiry made by the Committee of Directors revealed shortages of stock of sulphur and rock phosphate valued at Rs. 113.53 lakhs during 1969-70 and 1970-71 out of which shortages of Rs. 46.04 lakhs were written off and that the Government have handed over the case to the Central Bureau of Investigation for enquiry.

11.4. Purchased materials (Urea and Muriate of Potash) are mainly intended for re-sale and represented the sale in terms of months as follows:—

1967-68	8·5 months
1968-69	3·4 months
1969-70	3·5 months
1970-71	3·0 months
1971-72	0·5 months
1972-73	2·0 months
1973-74	3·0 months

11.5. It has been stated by FACT in a written note that whereas the sale of purchased (seeding programme) materials amounted to Rs. 1185 lakhs and Rs. 1045 lakhs in 1970-71 and 1971-72, the figures for 1972-73 and 1973-74 were only Rs. 82 lakhs and Rs. 69 lakhs respectively. This explain the variations in the above figures showing number of months of consumption/sales.

11.6. The number of months' consumption of spares held at the end of 1970-71 to 1973-74 is as follows:—

1967-68	126·1 months
1968-69	89·3 months
1969-70	74·5 months
1970-71	42·8 months
1971-72	55·0 months
1972-73	88·6 months
1973-74	71·0 months

117. The break up of spares indicating the value of items received with the plant and machinery and those purchased later on, is not

awailable with the FACT. FACT has stated that as part of the management reporting system they have not thought it necessary to do so. However, spares worth Rs. 35.29 lakhs are considered as insurance/critical items.

11.8. It is noticed that the stock of raw materials both produced in the factory as well as imported, imported materials, stores and spares and finished goods as at the end of 1970-71 was comparatively much higher than that of the previous year. The FACT explained the position in a written as follows:—

(i) **Raw Materials** (own production in the factory)

This includes Di-Ammonium Phosphate purchased from Kerala State Government, which should have been classified under imported raw materials. Since the 1969-70 Report has included all items other than Urea and Muriate of Potash, the same basis has been adopted. The stock of Di-Ammonium Phosphate included under this head in 1970-71 has contributed to the increase.

(ii) **Raw Materials** (Imported).

Imported materials, i.e., Rock Phosphate and Sulphur are supplied by STC/MMTC. The supply of these items are dependent on the availability of materials in international market, availability of shipping vessels etc. As such, many times STC/MMTC are unable to adhere to delivery schedules and at times shipments are bunched. The stock was high at the end of 1970-71 since more ships were made available during that period.

(iii) **Purchased Materials** (imported).

Under this, 1969-70 Report included only Urea and Muriate of Potash. The stock of Urea for seeding programme for Cochin Division Phase—I was very high at Rs. 303.49 lakhs in 1970-71, compared

to less than Rs. 6 lakhs in earlier and subsequent periods.

(iv) *Stores & Spares*

(Rupees in lakhs)

	1969-70	1970-71
General Stores	123·85	116·co
Spares	107·96	1c8·co

From the above, it can be seen that there is no increase in General Stores and Spares during 1970-71.

(v) *Finished goods*

The stock of finished goods in 1970-71 has not exceeded the average of the past 3 years. Subsequently, it has shown a downward trend reflecting the higher demand, short supply and control for quicker deliveries.

11.9 The inventory of spares held had a certain relation to the number of plants in operation and over a period of time, there had been additions to plant facilities and also additional plants due to diversification, modernisation, etc. The FACT has submitted that it would be appropriate if the stock of spares held at the end of a period is related as a percentage on the original cost of plant and machinery in use. The table below indicates the value of spares held at the end of the respective accounting years as a percentage of the original cost of plant and machinery:

Year	Original historical value of plant and machinery	Value of spares	Value of spares as % of original plant cost
	(Rs. in lakhs)	(Rs. in lakhs)	
1967-68	1,697	92·06	5·4
1968-69	1,714	108·08	6·3
1969-70	1,720	108·96	6·3
1970-71	1,735	108·00	6·2
1971-72	2,167	144·00	6·6
1972-73	2,182	163·00	7·5
1973-74	2.324	185·00	7·9

11.10. Whereas the investment on plant acquired in earlier years remains constant, the value of spares bought out in recent years has been subject to price hike. This explains the reasons for the apparent upward trend in the absolute value of spares.

11.11. The Ministry stated in March, 1972 that the Company had "undertaken a review of stores/spares to identify surplus obsolete

items. So far, about Rs 28 lakhs worth of materials have been identified and these are being circulated to Plants before disposal action is taken." Asked whether this review had been completed, the FACT stated in a written note as follows:—

"A Review Committee was appointed by Managing Director vide MD/IC/443/70 dated 7-5-1970, and they have completed their work by 30-9-70. The value of obsolete and surplus items as assessed by the Committee was Rs 20.83 lakhs. During 1973-74, a list of obsolete and surplus items were circulated among the consuming plants and they had suggested deletion of 199 items from that list, since those items could be utilised for maintenance. The value of obsolete the surplus materials kept at present for disposal is Rs. 12.34 lakhs. In 1973-74, an Inventory Control Committee has been appointed to study ways and means for controlling inventory. The Committee is at present engaged in reviewing 'A' value items (i.e. items whose 'cost' value is over Rs 10,000) to fix minimum and maximum levels and to locate surplus stock. The list of disposable surplus items has also been circulated to Cochin Division in February, 1974. It is also proposed to circulate the list of other fertiliser units before advertising for sale as scrap.

11.12. The analysis of the stock of major items of finished goods (own products) during 1970-71 to 1973-74 is given below:

	1970-71		1971-72		1972-73		1973-74	
	Stock at the end of the year (tonnes)	No. of months sales	Stock at the end of the year (tonnes)	No. of months sales	Stock at the end of the year (tonnes)	No. of months sales	Stock at the end of the year (tonnes)	No. of months sales
Ammonium Sulphate	10,020	1·2	11,904	9·4	7517	1·0	5982	0·9
Ammonium Phosphate 16 : 20	18,538	4·8	12,033	2·2	4613	0·9	5436	1·2
20 : 20	54	0·4	15	5·3	2719	*	888	0·5
Ammonium Chloride	2,471	3·6	3,693	5·2	2516	3·2	361	0·4
Superphosphate	9,289	7·1	6,011	5·4	6748	5·5	4803	2·2
Mixtures	12,898	1·4	9,107	1·0	3147	0·5	1131	0.2

*Only a negligible quantity was sold during the last months.

11.13. It has been stated that the closing stock of superphosphate was equivalent to 5.4 months' sale in 1969-70 in spite of restricted production during 1968-69 (28,338 tonnes) and 1969-70 (29,654 tonnes) due to fall in demand consequent on availability of imported Diammonium Phosphate at a lower nutrient cost. In spite of this there was comparatively a high stock of superphosphate during 1970-71 to 1973-74. The FACT explained this trend as follows:

> "The reasons for the comparatively high stock of Superphosphate was the declining trend in demand for superposphate as a low analysis and single nutrient phosphatic fertiliser in comparison to high analysis NP and NPK complex fertilisers in the market. Since we were selling NP complex as Ammonium Phosphate 16 : 20 and 20 : 20 and NPK both in the form of complex fertilisers and mixtures, the demand for superphosphate from our dealers during the period under reference was limited. Even the limited demand was available only by linking sale of straight nitrogen with superphosphate.
>
> It may also be added that the closing stock of superphosphate includes quantities which are produced, but could not be despatched before the curing time is over. Technically these stocks are not in a saleable condition, but have always been shown as closing stocks as a matter of convention and past practice. The curing time is about a fortnight and about 2,500 tonnes of production will always be in the pipeline in the curing stage and this is inevitable. If and allowance is made for this factor, it will be apparent that the stocks we hold are not high."

11.14. The following are the deficiencies in the system of inventory control:—

(i) Out of 31,149 items of stores as on 31st March,* 1970, minimum limits of stock have been fixed only for 14,500 items; the maximum limits in respect of these are yet to be fixed.

11.15. On an enquiry of the Committee as to what was the position in regard to fixing the minimum limits of stocks for

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*At the time of factual verification FACT intimated that presently minimum levels have been fixed for 2500 items approximately.

31,149 items of stores as at the end of 1970-71, 1971-72, 1972-73 and 1973-74 and whether the maximum limits of the items of stores had since been fixed, the FACT replied:—

"In November, 1973 an Inventory Control Committee was formed to fix maximum and minimum levels for all the stores items. Formerly the maximum and minimum levels had been fixed by departments and this Committee is to review and fix maximum and minimum levels for all stores. This Committee has just finalised the work relating to identification of surplus and obsolete stores at present in stock and the other work is yet to be taken up. It may be incidentally added that the work of identification of surplus and obsolete stores is a continuous work and is being done concurrently with the other exercise.

(ii) The position in respect of physical verification of stores and spares during the years (1967-68 to 1973-74) is indicated below:—

Year	Total No. of items	No. of items physically verified	Percentage of No. of items verified to total items
1967-68	29,988	497	1·66
1968-69	30,596	1,312	4·29
1969-70	31,149	736	2·36
1970-71	25,954	5,215	20·93
1971-72	25,972	8,544	32·89
1972-73	27,831	8,229	29·82
1973-74	..	13,368	..

11.16. Value-wise details of verified items in any year are not available. The discrepancies noticed as a result of physical verification during 1968-69 and 1969-70 had not been adjusted upto the close of accounts for 1970-71. The discrepancies noticed as a result of physical verification during 1970-71 to 1972-73 have also not been adjusted.

11.17. The Committee enquired the reasons for which all the items of stores could not be verified at least in a year and whether there were any items which had not been verified at all during the last three years, the FACT stated in a written note as follows:—

"Though value of items verified are not available, the value of discrepancies noticed on physical verification from 1968-69 to 1973-74 were duly reported to the Management. The same is furnished below:—

Year	No. of items verified	No. of items	Value Rs.	No. of items	Value Rs.	No. of items	Value Rs.
1968-69	1318	295	13,151·17	349	6,728·33	+54	—6,422·84
1969-70	736	74	11,328·19	62	11,221·14	—12	—107·04
1970-71 1971-72	5215 8544	169	41,535·81	256	75,216·38	+87	+33,680·57
1972-73	8229	1517	12,01,780·71	470	2,25,385·31	—1047	—976,395·40
1973-74	16268	2391	13,12,225·23	797	9,35,198·03	—1594	—377,027·20*

*Provisional.

11.18. One full round of verification of all the items has been completed and the net shortage noticed during 1973-74 is Rs. 3.77 lakhs (provisional). The reasons for the shortage/excess are being assessed.

11.19. We are carrying an inventory of about 25,000 items and it is difficult to complete the physical verification of all the items in one year. However, every effort is being made to verify at least the high value items once in a year. The intention is to have one full round during the course of two years.

11.20. The physical verification of all the items excluding obsolete/surplus items kept separately have been completed during the one round of verification from 1972-73 till the end of July, 1974.

11.21. Adjustments for discrepancies from 1968-69 to 1971-72 were not made due to the following reasons:—

(i) The discrepancies noticed during 1968-69 and 1969-70 were negligible and were well within the Stores Reserve balance given in sub-para (iv) below.

(ii) The difference noticed during 1970-71 and 1971-72 shows an excess of Rs. 0.33 lakh.

(iii) It was considered that only after the completion of one round of verification the real shortage/excess could be ascertained, since the Stores were shifted to a new building.

(iv) The Reserve available in the books was sufficient to cover the difference upto 1971-72 and a provision to cover the balance amount had been made during 1972-73. Suitable provision to cover shortage/excess noticed during 1973-74 will be made during the closing of 1973-74 Accounts. The Stores Reserve available in the books of the Company from 1968-69 to 1973-74 is given below:—

	Reserve (Rs. in lakhs)
1968-69	2·65
1969-70	7·05
1970-71	9·31
1971-72	12·56
1972-73	13·97
1973-74 (Provisional)	16·05

Though the number of items verified during 1968-69 & 1969-70 were not satisfactory, in subsequent years, there has been substantial increase in the number of items physically checked. The balance in Stores Reserve Account was considered adequate to cover any discrepancies that might be noticed. It may be noted that the stores value shown after deducting the said reserve had ensured the accuracy."

Slow moving stores

11.22. As a result of the review made by a Departmental Committee (May, 1970), 8,700 items of stores and spares valued at Rs. 30.75 lakhs (machinery stores—Rs. 13.54 lakhs and general stores—Rs. 17.21 lakhs) were reported to have not moved for five years or more. These were out of 30,596 items of stores and spares valuing Rs. 336.67 lakhs (machinery stores—Rs. 108.08 lakhs and general stores—Rs. 228.59 lakhs) at the end of March, 1969.

11.23. Out of the above slow moving stores, stores valued at Rs. 21.34 lakhs (machinery stores—Rs. 8.41 lakhs and general stores—Rs. 12.93 lakhs) were declared obsolete by the same Committee. The Company has since assessed stores valuing Rs. 0.80 lakh as usable and has sold 330 items of general stores valued at Rs. 1.96 lakhs at a loss of Rs. 1.74 lakhs, leaving obsolete stores worth Rs. 18.58 lakhs still on hand.

11.24. As regards other slow moving stores (Rs. 9.41 lakhs), another Departmental Committee has been appointed (September, 1970) to review the position, its report is still awaited.

11.25. It is stated that the Committee could not make any progress to review the slow moving items pending classification of the insurance items. No time limit was fixed for completion of work by the said Committee. The insurance items have since been listed in 1973 and the present Departmental Committee is reviewing slow-moving and non-moving items, a good portion of which includes insurance items.

11.26. An analysis made by the Machine Accounts Section of the Company of non-moving items of stores and spares as on 31-3-1973, revealed the following position:—

	Spares		General Stores	
	No. of items	Value Rs.	No. of items	Value Rs.
Between 1 to 2 years . . .	866	41,06,976	1744	23,82,293
Between 2 to 3 years . . .	367	9,65,295	1022	9,22,005
Between 3 to 4 years . . .	250	6,29,229	777	7,28,638
Between 4 to 5 years .	417	13,52,954	954	6,82,357
Between 5 to 6 years .	623	8,68,723	895	5,24,346
Between 6 to 7 years	358	3,44,152	735	5,30,188
Between 7 to 8 years .	1194	9,26,060	721	2,09,474
Between 8 to 9 years	729	2,83,833	414	1,66,183
Between 9 to 10 years .	270	3,53,747	268	83,594
Between 10 to 11 years . .	189	1,62,420	285	96,123
Between 11 to 12 years	1238	23,79,842	2644	11,54,509

11.27. To an enquiry of the Committee whether the Management has accepted this position and if so, what action was taken or was proposed to be taken to reduce the burden of these non-moving items, the FACT stated in a written note as follows:—

"The analysis made by the Machine Accounts Section of the Company on non-moving items has assumed that items for which last date of movement are not given belong to categories of items which have not moved for 9 years or more. This assumption was found to be not correct.

The Inventory Control Committee appointed in 1973 is now taking up the work of fixing the minimum/maximum levels for high value items.

A special team consisting of technical staff under Superintendent, Company Standardisation appointed in 1972 have completed in 1973 one round of physical verification of all stores and spares.

Recently we have added under the Expansion Scheme quite a few plants and the value of spares has also correspondingly increased. Every time one item of spare is consumed we have got to immediately order replacement. The replacement cost tends to be high. Even though we may be replacing item for item in quantitative terms, the purchase value of these items tends to be high due to inflation in the level of prices."

11.28. None of the obsolete items has been disposed off till March, 1974. Two items have been disposed off in 1974-75. The list of obsolete/surplus items have been circulated to the Cochin Phase-II project authorities.

11.29. The Committee note that the inventory of stores has shown a decrease from Rs. 15.29 crores as at the end of 1970-71 to Rs. 8.85 crores on 31st March, 1974. The value of spares included in the inventory however showed an increasing trend from Rs. 108 lakhs representing 42.8 months consumption as on 31-3-1971 to Rs. 165 lakhs on 31-3-1974 representing 71 months consumption. Even with reference to cost of machinery, the precentage of spares has indicated an increase from 6.2 per cent to 7.9 per cent. The Committee are informed that the records are not maintained to indicate the spares received with plant and machinery as distinct from those purchased later. Although the management has not considered it necessary to do so, the Committee feel that in

the interest of regulating purchases of spares such a seggregation is essential. The Committee hope that action would be taken to seggregate the spares accordingly.

11.30. The Committee regret to note that out of 31,149 items on stock on 31-3-1970, minimum limits have been fixed only in respect of *14,500 items. The Committee are informed that an Inventory Control Committee was formed to fix the maximum and minimum levels for all store items. This Committee has just finalised the work relating to identification of obsolete and surplus stores and the other work is yet to be taken up.

11.31. The Committee understand that a Review Committee appointed by the Chairman-cum-Managing Director identified value of obsolete and surplus stores on 30th September, 1970 as 20.83 lakhs. The value of such surplus and obsolete items has been reduced to Rs. 12.34 lakhs. The Committee are informed that the Inventory Control Committee are reviewing 'A' Value items to fix the maximum and minimum limits and also to locate the surplus. The Committee recommend that the Inventory Control Committee should finalise its work soon and management should fix the maximum and minimum limits for all the stores without delay. The management should take action to circulate the list of surplus stores to all the public undertakings including fertilizer producing units with a view to disposing the surplus items.

11.32. The Committee also note that the percentage of items physically verified to the total number of items in store was 20.93 per cent on 31-3-1971, 32 per cent on 31-3-1972 and 29.82 per cent on 31-3-1973. The Committee regret to note that the value of items verified in any year is not available. The Committee are surprised that the discrepancies noticed as a result of verification have also been not adjusted in accounts from 1968-69 to 1972-73. The Committee however note that in respect of 8,229 items verified during 1972-73 and 17.268 items verified during 1973-74 there had been shortages to the extent of 1,047 items of value Rs. 9.76 lakhs in 1972-73 and 154 items valuing Rs. 3.77 lakhs in 1973-74 respectively. The Committee are informed that the Management is assessing the reason for the shortages. The Committee would like the management to investigate into the reasons for the shortages and fix responsibility therefor. The Committee would like to be informed of the results.

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*At the time of factual verification FACT intimated that presently minimum levels have been fixed for 2500 items approximately.

11.33. The Committee also find that in regard to raw materials, sulphur and rock phosphate, the inquiry made by a Committee of Directors revealed shortages of stock of sulphur and rock phosphate valued Rs. 113.53 lakhs during 1969-70 and 1970-71 out of which shortages of value Rs. 46 lakhs were written off, and that the Government handed over the case to the Central Bureau of Investigation for inquiry. The Committee would like to be informed of the findings of the inquiry and the action taken by the management in pursuance thereof.

11.34. The Committee note that as a result of review by a departmental committee in May, 1970, 8,700 items of stores and spares valued at Rs. 30.75 lakhs out of 30,596 items of stores and spares of value of Rs. 336 lakhs were reported to have not moved for 5 years or more. Out of these slow moving stores, it has been reported that stores valued at Rs. 21.34 lakhs were declared obsolete by the same Committee. Even after the sale of some stores at a loss of Rs. 1.74 lakhs, there are still obsolete stores worth Rs. 18.58 lakhs. In regard to stores other than machinery stores and general stores another departmental committee is reported to be going into the question and its report is awaited. It is unfortunate that no time limit has been fixed for completion of the work by this Committee. The Committee recommend that the Departmental Committee should be required to complete its work soon, identify items of surplus and obsolete stores other than machinery stores and general stores so that management can take action for disposal of such stores by diverting them usefully to other public undertakings.

11.35. From the foregoing, the Committee are led to conclude that the maintenance of stores accounts and the inventory control in FACT has not been quite satisfactory. It is surprising that even the elementary requirements of fixation of maximum and minimum limit of stores for purposes of control has not been taken care of. No action has been taken in respect of results of physical verification and there had been accumulation of obsolete and surplus stores resulting in blocking up of capital. It is only in 1973 that the management has thought of the Inventory Committee to revamp the whole system. The special audit conducted in regard to stores has also revealed a number of irregularities. These have been dealt with in a separate section. The Committee recommend that Government/FACT should critically examine the reasons for this state of affairs and take into account the results of investigation by special audit and the suggestions given by them so that the entire store system can before long be put in proper order.

B. Special Audit Report

11.36. On the request of the Ministry of Petroleum and Chemicals, a special audit (covering the period from 1-4-1967 to 31-3-1972) of high value items of stores and raw materials (including sulphur and rock phosphate) was conducted in 1973 with the assistance of two Technical officers nominated by the Ministry.

The result of the special audit are summarised below:—

(A) *Payment for raw materials received*

11.37. Sulphur and rockphosphate constituted the two most important raw materials required by the Company. The value of consumption of rockphosphate and sulphur during the five years ending March, 1972 was Rs. 1970.03 lakhs representing about 40 per cent of the total manufacturing expenses. Both the raw materials were imported. They were received at Cochin by the Shipping Officer of the Company who arranged for a draft survey, got the cargo unloaded through contractors and despatched the materials in boats to the factory site. On completion of the unloading operations, the Shipping Office prepared a report indicating the boats in which the materials were despatched to the factory and the approximate quantity carried in each boat. No weighment of the raw materials carried by the boats to the factory was done and the quantity indicated in the bills of lading was shown as fully received.

Payments to the suppliers were made on the basis of the weights indicated in the bills of lading. The weights shown in the bills of lading and the weights as determined at Cochin by draft survey were not reconciled. Though the Company accepted the weight shown in the bills of lading, the rebate of Rs. 6,70,758 secured by the Minerals and Metals Trading Corporation of India Limited, through whom the materials were imported, during July, 1967 to March, 1972 from the foreign supplier (Rs. 4,69,884 for acceptance of the bill of lading weight and Rs. 2,00,874 for extra moisture content) was not obtained by the Company.

Materials Receipt Reports for receipt of sulphur and rockphosphate shipments were issued after considerable delay, ranging even up to one year. Postings of receipts in the ledger were also not made in chronological order. The Company did not, therefore, have reliable up-to-date figures of stock of the raw materials at any time.

(B) *Issue of raw materials*

11.38. Sulphur and rockphosphate fed into the plants were not weighed. Theoretical consumption ratios were adopted from time

to time including in some cases, extra quantities to cover handling and other losses. Extra quantities were added in rockphosphate bags despatched from Cochin Harbour direct to the mixing centres to cover handling losses. This quantity was not, however, charged in the accounts. The stock of Udyogmandal had, therefore, been overstated in the accounts to this extent. The quantity not reflected in the accounts during the period January, 1971 to March, 1973 was of the order of 300 tonnes.

11.39. (C) *Storage of Raw Materials*

(i) Rockphosphate was reported to have been washed down the river due to the collapse of a retaining wall. No steps were taken to ascertain the quantity lost although remarks were made from time to time that rockphosphate was being washed down the river.

(ii) Whenever there were disputes in regard to the quantity supplied to or received from other fertilizer manufactureres, ad hoc settlements were made.

(iii) In view of the deficiencies mentioned above, book balances were not always complete and reliable.

(iv) On many occasions sulphur was kept in the open in heaps. Similarly when the stock was large, rockphosphate was also stored in the open in heaps, large quantities of gypsum were dumped in various parts of the township.

(v) Monthly surveys were being made to determine, on volumetric basis, the actual stock, Surveys were made even on occasions when incoming raw materials were being unloaded and got mixed with existing heaps, from which raw materials were also being drawn for consumption simultaneously. Varying density factors were adopted from time to time in deriving, from the volume, the quantity of raw materials. The methods of survey were not thus free from defects. The measurement books containing measurements in respect of the surveys conducted up to 5th January, 1971 were not made available to Audit as they were not traceable. The loss of the measurement books has not been investigated. Errors in calculation were noticed in the measurements recorded after 5th January, 1971. The measurements were also mostly recorded in pencil in the books and there were many unattested corrections and overwritings.

(iv) Even though monthly surveys of sulphur and rockphosphate indicated wide discrepancies between the survey figures and the book balances, the differences were ignored. These differences were widely known and even though notes were exchanged amongst

various authorities of the Company, no action was taken to reconcile the discrepancies.

(vii) The Company has gone on maintaing that the survey figures were not dependable and accurate estimates could be made only when the stocks came to a low level. Even when the stocks came to a low figure, the entire shortage was not investigated and written off. For the purpose of annual accounts, the Management certified that the book figures represented the actuals even though they knew that the differences were too large (exceeding 19.94 per cent in March 1968 and 38 per cent in March 1969) to be ignored. When Audit pointed out in April 1969 the wide variations between book balances and monthly survey balances and the absence of a regular system of verification of the stock of sulphur and rockphosphate and suggested remedial measures, the Company noted the comment and promised to do the needful. However, instead of adjusting the book figures to the physical stock, as ascertained by survey, part adjustments were made in the accounts for 1969-70 and 1970-71 vey, part adjustments were made in the accounts for 1969-70 and 1970-71 and the survey report figures were inflated to agree with the book inflated figures were furnished to the Statutory Auditors. By this process, the write off was deferred and spread over a number of years partly in the form of consumption of the subsequent years.

(viii) The computed shortages (at the average issue rates) arising in different years on the basis of book balances reconstructed by Audit and survey figures of different years are indicated below:

(Figures in rupees)

Year	Shortage (—)/ Excess (+) of rock-phosphate	Shortage (—)/ Excess (+) of sulphur	Total
1967-68	(—)13,77,791	(—)1,03,47,088	(—)1,17,24,879
1968-69	(—)11,71,282	(+)22,75,819	(+)11,04,587
1969-70	(+)9,835	(—)2,45,211	(—)2,35,376
1970-71	(—)23,34,316	(—)9,51,380	(—)32,85,696
1971-72	(+)3,92,817	(—)1,20,301	(+)2,72,516
	(—)44,80,687	(—)93,88,161	(—)1,38,68,848

(ix) As against the above, the value of shortages written off in the accounts in the three years ending 1971-72 were as follows:—

Year	Rockphosphate stock written off Rs.	Sulphur stock written off Rs.	Total
1969-70 . .	12,06,070	8,52,227	20,58,297
1970-71 . .	17,80,919	7,55,809	25,36,728
1971-72 . .	21,61,332	43,61,308	65,22,640
Total value of shortages written off .	51,48,321	59,69,344	1,11,17,665

It would appear from the above that as against Rs. 1,38,68,848 being the value of shortages arising in the relevent years, the amount written off up to the end of 1971-72 was Rs. 1,11,17,665. Thus while the full quantity found short was written off, a sum of Rs. 27,51,183 was written off less in the value account (in view of falling prices) of the relevent years by deferring the written off; the difference was charged to the accounts as value of consumption of the years following.

(x) Even allowing for inefficiency and the age of the plants, the following consumption ratios were considered as realistic by the Technical Officers associated with the Audit:—

Sulphur to Shilphuric Acid .	3·05
Rockphosphate to Phosphoric Acid (with a recovery of 85%) .	3·676

On the basis of these ratios the sulphur and rockphosphate that should have been consumed from 1st April, 1967 to 31st March, 1972 and that charged to the accounts including writes off are compared below:

	Quantity charged to the accounts as consumed including write off (M.T.)	Quantity that should have been consumed (M.T.)	Difference (M.T.)	Value (Rs. in lakhs)
Sulphur . . .	2,48,719	2,32,728	15,991	43·25
Rockphosphate	2,60,440	2,42,676	17,764	37·83

The difference might have been occasioned by various factors like:

(1) Pilferage/loss of raw materials;

(2) Loss in the process of manufacture;

(3) Accountal of less finished products than actual production leading to loss/pilferage of the finished products.

In view of the defective maintenance of records relating to receipts and issues, the defective system of physical stock taking, absence of management control and failure to take action at the appropriate time when the discrepancies were noticed, it was not possible to determine how the shortages actually arose.

(xi) Considerable quantities of gypsum, a by-product of the Phosphoric Acid Plant and raw material for the manufacture of Ammonium Sulphate, were dumped around the factory area and the township. For several years it was shown in the books at a certain value even though it was not in fact available. Eventually the value of Rs. 6,11,540 was written off in March, 1970.

(xii) There was no periodical review of the consumption of raw materials and efficiencies by test runs as the efficiencies were assumed all along at ad hoc figures. The dimunition in stock as revealed by monthly surveys was also not taken note of. There was no effective system of internal check on raw materials and efficiencies in their usage and on finished products.

11.40. (D) *Purchase of Raw Materials*

(i) There was no proper system for assessing raw material requirements and for planning purchases so as to optimise the inventory holdings with the objective of avoiding high inventory and stock-outs at the same time. It has been stated by the Management on more than one occasion that the stocks of sulphur and rockphosphate as determined by physical survey were taken into account only for purchase planning and not for adjusting the account figures as the survey figures were unrealiable except when the stocks were low. It was, however, noticed that the Management had, in fact, not acted on the basis of survey figures for the purpose of stock planning. Ad hoc procedures appeared to have been followed on different occasions, e.g. book figures were adopted on some occasions and independent estimates on others. Absence of proper control resulted in excessive stocks and near stock-outs from time to time. Book stock of sulphur reached an all time high in April 1968 (about 54,000

M. tons when the normal stock limit was about 18,000 M. tons only) following massive purchases. By the middle of 1971, the stocks reached low levels and by the end of the year, the stock was alarmingly low (1,200 M. tons).

(ii) During the 7 month period upto December, 1967 the Company placed orders for purchase of 1,14,000 M. tons of sulphur on various firms.

(a) One of the purchase orders was placed on a Bombay firm for 10,000 M. ton at Rs. 580 per M. ton CIF Cochin on the basis of a telephonic offer followed by a telegram dated 24th May, 1967. In July, 1967 the firm asked for an increase in price on account of increase in freight rate arising from the closure of the Suez Canal. The Company agreed to increase the price by Rs. 20 per M. ton and amended the order to read as Rs. 600 per M. ton CIF, without scrutinising the reasons justifying the increase. While the initial price was related to U.S. $77 per M. ton CIF, the higher price was related to U.S. $80 per M. ton CIF. It was, however, noticed from the invoice issued by the American suppliers on the Bombay firm that the latter were charged only at the original price of $77 per M. ton C&F Cochin for a quantity of 11,823.668 M. tons. The Company thus paid about Rs. 2.36 lakhs over and above the quoted price without any justification.

(b) Four orders were placed on another firm during September to December, 1967. The firm was paid a commission of Rs. 10 per M. ton against the usual commission of Rs. 7 paid to another established firm resulting in payment of additional commission of Rs. 1,40,161. The supply against one of the orders which was due for shipment in December, 1967 was shifted without adequate justification, at the instance of the Company to February, 1968 for which it had to pay (as escalation) $1.25 per M. ton resulting in increased price of Rs. 1,21,270.

11.41. (E) *Stores and tools and Plants*

The important points noticed in the course of checking of stores accounts are indicated below:—

(i) For none of the stores items maximum limits had been fixed;

(ii) Stores ledgers were in arrears; postings were made only once a quarter;

(iii) 6,000 bin cards were maintained for stores and spares which were no longer in stock with the company;

(iv) Out of 25,400 items, stock balances in respect of 4,000 items were shown without indicating their values;

(v) Though there was a system of perpetual stock verification, only a small number of the total items was covered in any one year. The total shortages and excess noticed during 1968-69 to 1971-72, amounted to Rs. 64,989 and Rs. 92,796 respectively while the value of shortages and excesses noticed in 1972-73 were Rs. 10,89,744 and Rs. 2,23,034 respectively. Shortages and excesses noticed even during the limited verification are stated to be still under investigation and no adjustments have so far been made.

(vi) The position of non-moving stores as on 31st March, 1972 was as follows:—

Description	Total Value	Value of non-moving stores
	Rs.	Rs.
Machinery spares	1,49,96,118	67,23,340
General spares	2,73,52,484	50,95,662

Non-moving stores constituted 28 per cent of the total value of stores.

(vii) A Committee constituted to review the surplus and obsolete items of stores and spares reported in September, 1970 that the company was having 1,350 items valued at Rs. 7.89 lakhs which were obsolete and 381 items valued at Rs. 12.94 lakhs which were surplus to requirements. No action has been taken on the Committee's report so far. There was no systematic procedure in vogue for review of the stores items from time to time for the purpose of locating surplus and obsolete stores;

(viii) ABC analysis of the stores items was not done regularly;

(ix) The Internal Audit Cell of the Company had not conducted audit of the records of the Stores Department;

(x) No reconciliation of the bin card balances was being made with the stores ledger balances;

(xi) The accounts of tools and plant were not properly reconciled. Over 2000 items of tools had not been returned to the tool crib even though they should have been returned at the end of the shift. Physical verification of tools was not conducted up to 1971-72;

(xii) The accounts of ammonia cylinders were not maintained satisfactorily. One thousand cylinders purchased in 1968 were not taken in the accounts. The Company has not yet reconciled the cylinder accounts and the number of cylinders not accounted for by customers has not yet been determined.

11.42. (F) *Finished Products*

Physical verification of finishe dstocks in the custody of central depots, buffer godowns and mixing centres was conducted by a centralised stock taking and vigilance wing. The verification reports of the depots, centres etc. were forwarded to the Depot Officer/ Officer-in-charge of mixing centres and the Regional Managers concerned as soon as the verification was completed. It was, however, observed that the verification reports were not pursued centrally with the result that the shortages had not been regularised. The value of shortages of finished products awaiting investigation and regularisation as on 31st March, 1972 was Rs. 23,80,777.

The Ministry intimated in March, 1974 that the whole matter was investigated by the CBI and based on their report, departmental action had been initiated against some of the officers of the Company. CBI report in so far as it pertained to the involvement of the then Managing Director and the Finance Manager was also under consideration in consultation with the Chief Vigilance Commission.

On the request of the Committee, the FACT submitted the following statement on various points raised in the special audit report covering stock verification, review on surplus and obsolete items, verification of loose tools and the gypsum in township, reconciliation on ammonia cylinders accounts etc.

RECOMMENDATIONS GIVEN BY SPECIAL AUDIT AND STATUS OF IMPLEMENTATION OF THE SAME

Recommendations/observations of Special Audit	Status of Implementation
1. *Receipt of raw materials* :	
(*a*) *Measurement of Quantity received* :	
Boats should be marked with lines for various weights. Existing lines of maximum weight marked by port could also be made use of.	Proposals were not found practicable. Feasibility of introducing a form of draft survey taking the difference in heights of boat above water, before and after unloading was studied and found that accurate results are not obtainable. However, the matter is being pursued. Various methods including electronic weightment with the help of equipment by rail weight Inc. were examined and found not practicable.
(*b*) Bulk storage at the Dock and transport by road should be considered.	The implications were examined and the proposal is found to be un-economic as it involves double handling and entails an extra of Rs. 28 per tonne.
(*c*) *Payment for raw materials* :	
Payment should be made after comparing bill of lading weight with draft survey weight at Cochin port.	Bill of lading is supported by weightment/survey certificate given at the port of embarkation and is more accurate. Procedure has been laid down for comparison of the weights by the shipping officer/purchase officer to be reported and examined by the Finance Wing and Divisional Manager who record whether the difference is acceptable.
(*d*) Delays in preparation of R/Rs should be avoided.	Remedial intstructions have been issued and the position has improved.
(*e*) Rebate received by MMTC for suppliers should be passed on by MMTC to FACT.	Freight rebate is being given by MMTC after 1-4-1972.
2. *Storage of raw materials* :	
(*a*) A wall should be erected in rock phosphate storage dividing it into one with an opening in the rear, so that in-coming shipments could be stored separately and previous stock exhausted before drawing material from new consignment.	The proposal is not feasible due to practical difficulties.
(*b*) Raw materials should not be stored in the open.	They are now stored in covered godowns.

Recommendations/observations of Special Audit	Status of implementation
3. *Issue/consumption of raw materials* :	
(a) *Measurement of rock phosphate* :	
(a) The 3 bins for feeding rock phosphate should be used successively so that rock phosphate being charded could be measured.	(a) Rock is weighed and fed into plants. All the 3 bins are in use. Huge consignments cannot be received in the 3 bins, each of which holds 800 tonnes only. However, trials are being made using two bins alternatively.
(b) *Measurement of Sulphur* :	
Bins or hoppers of 20/25 tonnes capacity should be installed so that the quantity charged could be ascertained.	(b) Practical difficulties owing to various limitations induding the system of storage, lack of space or facilities for measurement etc. stand in the way.
(c) *Consumption ratios* :	
Careful trials runs should be conducted for each plant feeding accurately weighed quantities under controlled conditions at least once in 3 months so that achievable consumption ratios could be determined.	(c) Trial runs were conducted using accurately weighed quantities of sulp ur. But due to practical difficulties in h assessing the levels of molten sulphur in the sulphur melter pit, the results obtained were not accurate.
Consumption ratio of 0·35 for sulphur to sulphuric acid and 3·676 rock phosphate to phosphoric acid are recommended.	The ratio of 0·35 will be realistic only for the Simon-Carves plant but not for the other acid plants. The ratio of 3·676 for rock phosptate to phosphoric acid is practicable.
4. *Pu rchase of raw marerials* :	
There should be better planning of procurement so that there is no over stocking or insufficiency of stock.	Purchases are now being planned and intimated to MMTC in advance and purchases are staggered so that stock-piling does not occur as for as possible. However, due to procuremeut difficulties MMTC has expressed their helplessness.
5. *Physical survey of raw materials* :	
Determination of volume of raw materials heaps should be made more accurately by theodolite measurement. The contents of the heap should be carefully charted on graph paper and the volume should be arrived at therefrom. The grid for the purpose of taking measurement should have smaller intervals (say 5 meters) in both directions. More readings (not less than 10) should be taken for determining density. The container should also be consolidated by tapping. Survey should be taken by a Committee of 3 or 4 officers belonging to different departments. Measurement books with machine-printed pages should be kept. A prescribed percentage of the measurements should be counter checked by Supdt. (Civil Maintenance). Arithmetical accuracy of the calculations should be checked by the Finance Dept.	Theodolite measurements are not practicable because of the huge bulk of sulphur and rock dumped in storage which is of irregular shape. The other recommendations have been implemented.

Recommendations/Observations of Special Audit	Status of Implementation
6. *Finished Products* :	
Further improvements by way of test checks and surprise inspection should be considered.	Surprise inspections are being made. Random checks are also being made by Marketing and by Traffic separately. Every outgoing lorry is weighed. Two CIST are posted at the loading point. Quarterly surveys of loose superphosphates lying in storage have been arranged from April 1974.
The 3 tanks for storage of phosphoric acid should be used successively so that the quantity produced could be ascertained easily.	As the quantity of phosphric acid not being ascertained and average strength of acid had to be adopted owing to varying strengths obtained from time to time, the recommendation regarding the 3 tanks did not appear to be necessary.
7. Loss of sulphur during start-up should be correctly worked out.	Procedure has been laid down for calculating the losses correctly.
8. *Stores and Spares* :	
Control over stores and spares requires improvement. Maximum and minimum limits for stock should be fixed. Non-moving items constitute 28% which is very high. Perpectual verification should cover more items. Shortages and excesses should be adjusted. Internal Audit should audit Stores Account. Indents of stores should be properly controlled.	Maximum limits of stores have been fixed Cardox cards are opened for all material and cards containing nil balance for more than 3 years are removed. Provision for shortage on estimated basis has been made in 1972-73 accounts. complete cycle of stock inventory has since been done. Steps have been taken to make a complete review of the obsolete and surplus items ABC analysis is now done regularly on the computer.
Stores and spares of the same description should be stored at one place.	This is being done.
9. *Loose Tools* :	
Accounts of loose tools must be reconciled. Many items have not been returned. Physical verification should be conducted.	Adjustments for 72-73 have already been made, and adjustments for 73-74 will be made. As the Maintenance crew and staff working in all the 3 shifts is very large the daily return of all tools is not practicable. Physical verification of tools has been completed in 1973-74.
10. *Ammonia Cylinders* :	
Accounts of Ammonia cylinders should be properly maintained.	This is being done.

11.43. The Ministry informed the Committee in a written note after the evidence that every effort was being made by the management to rectify the defects/lapses pointed out by Audit. Government would also ensure that the recommendations made by the special Audit were suitably implemented the latest position of the CBI case was as follows:

"The CBI submitted its report to Government on 30th July, 1973 in regard to involvement of the then Managing Director and Finance Manager in the alleged irregular transactions. In the opinion of the CBI the allegations against these officers stand proved; they have been accordingly recommended regular Departmental action against them. Consultation with the Central Vigilan e Commission (CVC) under the rules is necessary before any action is taken against the officers. The Comments of Government on the investigation report of CBI were sent to the CVC on 31-10-73 and the Commission's advice is awaited."

11.44. In reply to a question as to what investigations had been made to locate the reasons for shortages and to fix responsibility, the Ministry stated when serious shortages in sulphur and rock phosphate came to the notice to the Board of Directors of FACT in early 1972, the Board constituted a Committee of Directors to enquire into the matter. On the basis of this Committee's report, the Board desired that an enquiry should be conducted into these shortages and requested Government to arrange for a Spe ial Audit. Government accordingly requested Comptroller and Auditor General, to have a special Audit conducted and also referred the matter to the CBI for investigation. On the basis of CBI's recommendations, a departmental enquiry was instituted against some of the officers. The Enquiry Officers report, has just been received and is presently under the consideration of the F.A.C.T. management.

11.45. The Committee note that on the request of Ministry of Petroleum & Chemicals, a special audit (covering the period from 1st April, 1967 to 31st March, 1972) of high value items of stores and raw materials including sulphur and rockphosphate was conducted by associating technical members from the Ministry. The special audit has brought to light the following deficiencies in the stores procedures and accounts:—

(1) No weighment of the raw materials carried by the boats to the factory was done and the quantity indicated in the bills of lading was shown as fully received. Payments to suppliers were made on the basis of the weights indicated in the bills of lading. Weights shown in the bills of lading and the weights originally determined on arrival were not reconciled.

(2) Materials Receipt Reports for receipt of sulphur and rock phosphate shipments were issued after considerable delay ranging even upto one year.

(3) Entries in stores ledgers have not been made in chronological order.

(4) Theoretical consumption ratios were adopted from time to time including in some cases extra quantities to cover handling and other losses. This quantity was not however charged in the accounts. The stock at Udyogmandal had therefore been over stated in the accounts to this extent.

(5) Rock phosphate was reported to have been washed down river due to collapse of retaining wall. No steps were taken to ascertain the quantity lost although remarks were made from time to time that rock phosphate was being washed down the river.

(6) The methods of survey adopted for measurement of sulphur were not free from defects. The measurement books containing the measurements in respect of surveys conducted up to 5th January, 1971 were not traceable and the loss of measurement books has not been investigated. On many occasions sulphur and rock phosphate were kept in open heaps and large quantities of gypsum were dumped in various parts of the township. For several years it was shown in the books although it was not physically available. Eventually a value of Rs. 6.12 lakhs was written off in accounts of March, 1970.

(7) Discrepancies noticed between survey figures and book balances were not reconciled. The management went on certifying the book figures inspite of these being widely different from the actuals for purpose of annual accounts. It has been reported that the survey report figures were made to agree with the book figures.

(8) As against shortage of Rs. 1.38 crores rupees both in regard to rock phosphate and sulphur during the period 1967-68 to 1971-72, the value of stores written off in the accounts for 1969-70 to 1971-72 was Rs. 1.11 crores only although the quantity of shortage had been written off in full.

(9) The quantities charged to accounts as consumed are higher than those calculated on the basis of reasonable consumption ratios for consumption of sulphur and rock phosphate, resulting in a loss of Rs. 43.25 lakhs in sulphur and Rs. 37.83 lakhs in rock phosphate. The difference might have been due to factors like pilferage/loss of raw materials,

loss in process manufacture, accountal of less finished products than actual production.

(10) There was no effective system of internal check on raw materials and efficiencies in their usage and on finished products.

(11) There was no proper system of assessing the raw material requirements and for planning purchases which resulted in excessive stocks.

(12) In regard to stores and tools and plant (a) for none of the items maximum limits were fixed, (b) Stores ledgers were in arrears, (c) bincards for about 6,000 spares and stores were continued to be maintained though the stores were not physically available. Balances in respect of 4,000 items were shown without values.

(13) In spite of a system of perpetual stock verification, only a small number of the total items was covered in any one year. The value of shortages in 1972-73 was of the order of Rs. 10.89 lakhs and excess Rs. 2.23 lakhs. The shortages and excesses noticed are still stated to be under investigation and no adjustments have been made.

(14) Non-Moving stores which constituted 28 per cent of total value of stores accounted for more than Rs. 118 lakhs as on 31-3-1972. There was no systematic procedure in vogue for review of store items from time to time for purpose of locating surplus and obsolete stores.

(15) No reconciliation of bincard balances with ledger balances was done.

(16) Accounts of tools and plant were not properly reconciled.

(17) Physical verification reports were not pursued centrally with the result that shortages had not been regularised. The value of such shortages as on 31-3-72 was Rs. 23.80 lakhs.

The Committee note that the whole matter was investigated by the CBI and based on their report departmental action had been initiated against some of the officers of the company. In so far as they pertain to the Managing Director and Finance Manager, the matter is stated to be under the consideration of the Central Vigilance Commission.

11.46. The Committee are infromed that the management is taking action on the observations/suggestions of special audit. The Com-

mittee recommend that the management should finalise action on all the points and furnish a report of compliance. The Committee also recommend that the FACT should streamline the procedures of purchase and store accounting, adopt modern methods of inventory control and take suitable measures to ensure that the defects pointed out do not recur. The Committee also emphasise the need for scientific assessment and proper accountal of sulphur and rock phosphate which are obtain through imports after expending huge foreign exchange. Since these materials are received in boats, there should be regular pre-shipment and after-shipment surveys to ensure that the quantities loaded are actually received. The Committee would like that the FACT should consider the matter and take suitable precaution to see that no portion of the rock phosphate is washed away due to lack of adequate storage facilities.

The Committee are distressed to note that the management went on certifying the book balances for purpose of annual accounts in spite of the wide differences between the actuals and the book figures without investigating into the shortages. They would like that this should be specially investigated and the responsibility for this lapse fixed.

11.47. The Committee desire that the internal audit should also as a part of their work conduct a regular check of the store accounts and the working of systems and procedures, bring the defects and deficiencies to the notice of top management for remedical action. The Committee recommend that Government should keep a careful watch on the implementation of the suggestions given in the special audit report and ensure that such irregularities do not recur. The Committee also recommend that for purposes of uniformity in the procedure for accounting of sulphur and rock phosphate which are the main raw materials in the manufacture of fertilizer, Government should consider issuing suitable instructions in the matter and review from time to time the implementation of these instructions. The Committee would like that the Central Vigilance Commission would expedite the matter. The Committee would also like FACT/ Ministry to communicate the results of investigations and the action taken in this and all other matters enquired into by CBI.

XII

FACT ENGINEERING WORKS (FEW)

In order to provide fabrication and erection services to the various wings of the Company and to outsiders the Company took up, on commercial basis, the steel fabrication and erection work in 1965-66. A boiler repairing and testing unit was also set up during 1968-69. These items of work formed part of the Udyogmandal Division up to 1968-69 and a separate division, FACT Engineering Works, has been set up in 1969-70.

12.2. The table below indicates the capacity developed in FEW and its utilisation with percentage:

Year	Capacity in tonnes		Percentage
	Developed Tonnes	Utilised Tonnes	
1967-68	700	500	71
1968-69	900	800	88
1969-70	1200	1100	92
1970-71	1200	863	72
1971-72	1200	1036	86
1972-73	1200	1061	88
1973-74 (provisional)	1200	1125	94

12.3. It will be seen from the table that the utilisation is more than 80 per cent and for a jobing shop as the FACT Engineering Works, this could not be considered as under-utilisation of capacity. The capacity indicated is in terms of the total business of FEW including the output in the plant and the value of orders executed in FEW own works and jobs executed through sub contractors would not conform to any definite pattern for a variety of reasons such as technical and economic advantages in executing jobs at locations through sub contractors rather than in our own works etc.

12.4. The working results of the Division indicated a profit of Rs. 1.43 lakhs during 1970-71 and Rs. 1.77 lakhs during 1972-73. It incurred a loss of Rs. 5.60 lakhs during 1971-72 which was mainly due to increase in expenditure on material, labour and overheads

in respect of major outside works completed during the year and also the work-in-progress as on that date vide details given below:—

(a) Fabrication and erection of tanks & vessels-M/s Travancore Titanium Products Ltd.

12.5. The work was awarded to FEW in August, 1969 for Rs 15.96 lakhs on the basis of estimates prepared in January, 1969 and was to be completed by June, 1970. Out of 600 Tonnes of Steel required, 100 tonnes could be procured at estimated rate, another 100 tonnes at reimbursed prices and the balance at higher rates. Further the progress of the work had to be kept slow on account of delay in putting up the structures by another contractor thereby entailing heavy overhead expenditure on site office. The delayed completion also resulted in increase in labour cost, material cost etc. The work was ultimately completed at a cost of Rs. 19.13 lakhs, thus resulting in a loss of Rs. 3.17 lakhs.

12.6. The above work was secured by competitive tender and further negotiations.

12.7. Asked why suitable safeguards were not provided for in the contract to enable the Company to recover such increased in expenditure from the customer, the FACT stated that:—

> "Under the normal circumstances, suitable safeguard to hedge against increases in costs is to demand a suitable escalation clause. In February 1969 when FEW was negotiating with Power Gas Corporation to secure this contract, order for steel plates had been placed on Hindustan Steel and this could have been one of the considerations that may have weighed with the Management for not insisting upon the inclusion of such a clause. The supplies from Hindustan Steel did not materialise even after a lapse of two years and we had to get this material on loan from the Fertiliser Corporation of India to execute the order and replace it with imports."

12.8. As regards the delays, it was stated that the supplies did not materialise from Hindustan Steel for quite some time and that the delays in supplies by Hindustan Steel was a factor, which was not anticipated. Since the experience had been that whatever items were intended on HSL, FACT got that more or less regularly.

12.9. Claims were prepared in the intermediate stages and Rs. 1.50 lakhs was paid extra by TTP due to certain reasons.

12.10. Asked about action taken against the contractor for the delay in putting up the structure on account of which there was increase in overheads, it was stated that FACT could not take any action against the contractor since the contractor in question was engaged directly by PCC and he was not under FACT control.

(b) Fabrication and supply of Converter-Travancore Titanium products Ltd.

12.11. The work was awarded to FEW for Rs. 86,381 on the basis of estimates prepared in 1969. The foundation for the converter was ready only in March, 1971 and the work could be commenced by the Company in the later part of 1971 on account of labour trouble at site. It was completed at a cost of Rs. 1,88,337. In the absence of escalation clause in the contract, the increase in material cost, labour cost, etc. could not be recovered from the customer.

12.12. Explaining the reasons why escalation clause was not provided, FACT stated in a note that—

> "FEDO had quoted Rs. 162.73 lakhs for 300 tonnes per day Sulphuric Acid Plant to be supplied on turn-key basis to M/s. Travancore Titanium Products Ltd. It will be obvious that they had to reduce the contract figure to Rs. 101.20 lakhs from an earlier quotation of Rs. 162.73 lakhs, in order to secure this order against stiff competition from M/s. Simon Carves and Krebs, whose quotations were lower. If we had insisted on any escalation clause, we may not have got the order/about which we were very keen for reasons mentioned in the Note to the Board referred to above."

12.13. The Committee regret to note that as against the contractual amount of Rs. 15.96 lakhs for the work of fabrication and erection of tanks and vessels undertaken by FEW on behalf of M/s. T. T. Products Ltd., FEW completed the work at a cost of Rs. 19.13 lakhs resulting in a loss of Rs. 3.17 lakhs. The Committee are informed that the loss was due to the delayed completion of the work which entailed increase in cost of labour material which in turn was due to delay in putting up the structures by another sub-contractor of the T.T.C. The Committee regret that in the absence of an escalation or any other suitable clause in the contract (to protect the interest of FEW against such delays) and to enable recovery of such increase in costs from the customer, the FEW could not recover the excess over contract amount from the party. Moreover, the sub-contractor because of whom the main work got delayed was not under FEW but under the party for whom the work was undertaken.

12.14. Yet another case where the FEW had to incur a loss of about one lakh, was in the contract with M/s. T.T. Products for fabrication and supply of converter. In this case while the contracted amount was only Rs. 86,381 the actual cost was Rs. 1,88,837.

12.15. The Committee feel that FEW should on the basis of experience in these works, learn a lesson and private suitable safety clauses in the agreements with parties to protect the interests of FEW against such loses.

CONCLUSION

The Committee note that the Fertilizers and Chemicals, Travancore Ltd. was incorporated on the 22nd September, 1943 with the Government of the then Travancore State as a substantial share holder. It was only in July, 1963 that FACT became a Central Government Company, when Government of India acquired major interest in the Company. Since acquiring the majority share, the Government of India manage the Company and at present hold 93 per cent of shares.

13.2. The construction of the factory started at Udyogmandal on 14th August, 1944 and the plant went into commercial production in August, 1948. Since then several additions/alterations in its equipment and plants have been made.

13.3. The Committee note that during the period 1969-70 to 1973-74 FACT's contribution to all India requirement of fertilizers has been in the case of nitrogen, about 2.4 per cent and in the case of P_2O_5 phosphate fertiliser, FACT started with about 5 per cent and in the year 1973-74 FACT contributed about 3.6 per cent. When the Cochin Phase II Plant goes into production FACT's contribution against the all India requirement is expected to be by the end of the Fifth Five Year Plan, about 5 per cent in the case of nitrogen and 8 per cent in the case of P_2O_5.

13.4. The Committee find that FACT has expended through four different stages of expansion and it developed or was expected to develop the undermentioned capacities at the end of each stage.

(in tonnes and @ 330 days of stream efficiency)

Name of the Plant	Ist and end stages completed Dec. 1962		Designed capacity as at the end of III stage expansion		Capacity at the end of the Ist stage expansion	
	Daily Capacity	Annual Capacity	Daily	Annual	Daily	Annual
Ammonia .	120	39,600	235	77,550	340	1,12,200
Ammonium Sulphate	300	99,000	600	1,98,000	600	1,98,000
Ammonium Phosphate	100	33,000	400	1,32,000	500	1,81,500
Ammonium Chloride	25	8,250	75	34,750	75	24,750
Sulphuric Acid .	296	97,680	746	2,46,180	746	2,46,180
Phosphoric Acid .	25	8,250	125	41,250	125	41,250
Superphosphate .	135	44,550	135	44,550	135	44,550

13.5. The Committee find on completion of the third stage expansion there were imbalances in the Ammonia Plant and the Phosphoric Acid Plant. In order to remove the imbalances and to stabilise the entire production on an economic level, the Company launched the Fourth Stage Expansion in April, 1966. Though the imbalance in Ammonia Plant has been removed, the imbalance in production and requirement of intermediate products still persists and there is deficiency of sulphuric acid. Many of the plants set up in the Fourth Stage have either not been commissioned or the performance was not proved.

13.6. Since the designed stream efficiency of 330 days for the Udyogmandal Plant was not achieved, a Technical Committee which examined this question opined that the Unit would not be in a position to attain more than 294 days of stream efficiency and with certain modifications the efficiency could be increased to 317 days. Although recommendations of this Committee had it is stated, been implemented, none of the Plants have been able to achieve this reduced stream efficiency.

13.7. The percentage of actual production during 1970-71 to 1973-74 to the attainable capacity (@317 days stream efficiency as against designed efficiency of 330 days) was of the order of 42.07 to 67.55 per cent in Ammonia, 62.30 to 84.49 per cent in Ammonia Sulphate, 41.92 to 65.39 per cent in Ammonia Phosphate, 75.17 to 89.25 per cent in Ammonia Chloride, 45.27 to 80.20 per cent in Superphosphate, 48.23 to 66.83 per cent in Sulphuric Acid and 29.64 to 45.40 per cent phosphoric acid. The result of operating on lower level of stream efficiency has been lower production during all these years.

13.8. Due to frequent power fluctuations the production performance has been seriously affected and the annual loss on this account was stated to be to the extent of Rs. 150 lakhs.

13.9. The attainable ratios of consumption of raw materials as fixed by the management were generally higher than the designed ratios. In the case of sulphuric acid required for production of ammonium sulphate and superphosphate the attainable ratios were within the designed ratios. The actual ratios of consumption during 1970-71 to 1973-74 were not only higher than the designed ratios but were also higher than the attainable ratios except in a few cases. The value of excess consumption including process losses of intermediate products during 1970-71 to 1973-74 increased from Rs. 30 lakhs in 1970-71 to Rs. 85 lakhs in 1973-74.

Besides excess consumption of raw materials there had been losses due to wastage of hydrogen and ammonia. In the case of hydrogen the percentage of wastage over production increased from 10 per cent in 1970-71 to 14.5 per cent in 1973-74 and the corresponding loss increased from Rs. 18 lakhs in 1970-71 to Rs. 30 lakhs in 1973-74. In the case of ammonia the percentage of wastage over production increased from 1.5 per cent in 1970-71 to 2 per cent in 1973-74 and corresponding loss increased from Rs. 4.5 lakhs in 1970-71 to Rs. 10 lakhs in 1973-74.

13.10. The Cryolite Plant, which was set up at a cost of Rs. 32 lakhs in September, 1971 for producing 1650 tonnes of cryolite per annum, has not been producing cryolite suitable to the requirements of aluminium industry. There is need for product improvement.

13.11. The FACT set up a dry ice plant in May, 1969 at a cost of Rs. 8.15 lakhs to produce 6 tonnes per day of dry ice without a proper demand survey and without taking into account the full effect of excise duty on the price structure of the product. The Plant could not go into commercial production till now.

13.12. The Committee note that in order to ensure economic viability, production of industrial chemicals that could carry higher costs of intermediates and still run profitably was proposed to be introduced and old and inefficient plants close down. Methanol was one such product under this diversification scheme.

13.13. The Committee note that FACT has its own Engineering and Design organisation, set up in 1964. The Government of India decided in September, 1963 that the Company should plan, design and construct at least three complete fertilizer plants before the end of the Fourth Five Year Plan. The Committee find though the orders were sufficient to keep the organisation busy, they were coming to a low level of utilisation.

13.14. The Committee note that the marketing organisation of FACT was built up for a larger sale and that its expansion was taken up rather prematurely with the result the percentage of marketing expenditure to sale value increased from 11.65 in 1970-71 to 11.89 in

13.15. The FACT are carrying surplus staff since 1965 when the surplus was 567 and after II stage expansion it was 486 and III stage 330 and after IV stage 398. The additional expenditure due to surplus staff was reported to be Rs. 72 lakhs per year and the increase in cost of production was about 2 per cent.
1972-73.

13.16. The Special Audit Report has brought to light a number of deficiencies in stores procedures and accounts, besides the following:—

(i) As against the shortage of rock phosphate and sulphur worth Rs. 1.38 crores during 1967-68 to 1971-72 the value of stores written off in the accounts for 1969-70 to 1971-72 was Rs. 1.11 crores, although the quantity of shortage had been written off in full.

(ii) The quantities charged to accounts as consumed were higher than those calculated on the basis of reasonable consumption ratios for consumption of sulphur and rock phosphate resulting in a loss of Rs. 43.25 lakhs in sulphur and Rs. 37.83 lakhs in rock phosphate. The difference might have been due to factors like pilferage/loss of raw materials, loss in process manufacture, accountal of loss finished products than actual production.

(iii) There was no proper system of assessing the raw material requirements and for planning purchases which resulted in excessive stock.

(iv) In regard to stores and tools and plant (a) for none of the items maximum limits were fixed, (b) stores ledgers were in arrears, (c) bincards for about 6,000 spares and stores were continued to be maintained though the stores were not physically available. Balances in respect of 4,000 to items were shown without values.

(v) In spite of a system of perpetual stock verification, only a small number of the total items was covered in any one year. The value of shortages in 1972-73 was of the order of Rs. 10.89 lakhs and excess Rs. 2.23 lakhs. The shortages and excesses noticed are still stated to be under investigation and no adjustments have been made.

(vi) Non-moving stores which constituted 28 per cent of total value of stores accounted for more than Rs. 118 lakhs as on 31st March, 1972. There was no systematic procedure in vogue for review of store items from time to time for purpose of locating surplus and obsolete stores.

(vii) Physical verification reports were not pursued centrally with the result that shortages had not been regularised. The value of such shortages as on 31st March, 1972 was 23.80 lakhs.

13.17. The FACT has been incurring huge losses on its manufacturing activities and the cumulative loss on 31st March, 1974 is over Rs. 11 crores.

13.18. The Committee strongly emphasise the need for a determined effort being made by the Fertilizers and Chemicals Travancore Ltd. to overcome the inhibitions of low utilisation of capacity and consequential loss in production, maintenance problems, failure of critical equipment, power shortage, labour troubles and surplus staff. The best service that FACT can render at the present juncture is to maximise production, develop fertilizer-mix suitable to requirements of the farmers.

NEW DELHI;
April 28, 1975.

Vaisakha 8, 1897 (*S*).

NAWAL KISHORE SHARMA
Chairman,
Committee on Public Undertakings.

APPENDIX

Summary and conclusions/recommendations of the Committee on Public Undertakings contained in the Report.

S.No.	Reference to para No.	Summary of conclusion/ recommendation
(1)	(2)	(3)
1	2.21	The Committee note that there is gross under-utilisation of capacities of different fertilizer plants in the country. Against the installed capacity of 19 lakh tonnes in all the plants put together, the actual production had been only a little over 50 per cent i.e. 10.6 lakh tonnes. Some of the constraints in achieving a higher rate of production are stated to be non-availability of adequate power, sufficient quantity of coke-oven gas and proper grade of gypsum and obsolete technology or as in the case of Cochin and Durgapur the Indian engineers had selected larger parameters with which they were not familiar. The Committee would like that each of these causes for the under-utilisation of capacities should be critically analysed with a view to correcting them at the earliest in the interest of achieving the maximum production. The Committee are surprised to find that even in respect of the projects in the Fifth Five Year Plan although action has been initiated in setting up projects, priority in taking up plants, nature of product-mix and tying up with finances are still to be finalised. The Committee expect that a decision on these aspects will be taken without any further delay and the experiences gained so far in the construction and maintenance of the plants already set up will be utilised to ensure that the new projects come up in time and the

(1)	(2)	(3)
		targets set for them are adhered to. The Committee need hardly stress that, in view of the world wide shortage of fertilizers and the phenomenal increase in the import price of fertilizers, import of fertilizers, would become more and more difficult in the coming years.
2	3.21	The Committee regret to note that in spite of the assurance given by the Kerala State Electricity Board that adequate power would be made available in time the trial runs for testing the capacities of the plants set up during the third stage expansion and the consumption ratios of raw materials and utilities, as provided in the agreements, could not be conducted due to non-availability of power at the appropriate time within the guarantee period, with the result that besides loss of production, the Undertaking could not claim the cost of replacement of defective ports from the suppliers but had to incur an expenditure of more than Rs. 8 lakhs for replacement of the defective equipments. The Committee further regret to note that in the absence of any formal agreement between KSEB and FACT, the latter was not able to claim any damages from KSEB for non-fulfilment of the assurance. The Committee would like to reiterate their earlier recommendation in Forty-Fourth Report (1968-69—4th Lok Sabha) that "no project or expansion of a project should be undertaken in future unless power supply is assured with a guarantee where it is to be supplied by another authority to the project."
3	3.29 to 3.31	The Committee note that the construction of the factory at Ddyogmandal was started in August, 1944 and the plant having an annual capacity of about 44,500 tonnes of Ammonium sulphate went into production in August, 1948. The FACT undertook the expansion of existing capacity and creation of facilities of new production in two stages with the result that by Decem-

(1)	(2)	(3)

ber, 1962 plants for manufacture of Ammonia (39600 tonnes), Ammonium Sulphate (99000 tonnes) Ammonium Phosphate (33000 tonnes), Ammonium Chloride (8250 tonnes), Sulphuric Acid (97650 tonnes), Phosphoric Acid (8250 tonnes) and Super Phosphate (44550 tonnes) had been installed. Further expansion of these were undertaken in two more stages. The third stage of expansion was completed at a cost of Rs. 13 crores by October, 1966.

At the end of III stage expansion, the designed capacity available was Ammonia—77550 tonnes, Ammonium Sulphate 198000 tonnes, Ammonium Phosphate 132000 tonnes, sulphuric acid 246180 tonnes, Ammonium Chloride 24750 tonnes, Phosphoric Acid 41,250 tonnes and Superphosphate 44550 tonnes. The Committee note that on the completion of III stage expansion, while the ammonia plant was expected to have a capacity of 260 tonnes of ammonia daily, (subsequently reduced to 235 tonnes) in order to reduce the power requirement it was stated that the requirement of Ammonia in the ammonia consuming plants was 271 tonnes, thus creating a shortage of 36 tonnes per day. On the other hand there was a surplus capacity in the Phosphoric acid plant. The Committee note that in order to remove the imbalances in Ammonia Plant and the phosphoric acid plants and to stablise the production at an economic level, the IV stage expansion was launched in April, 1966.

The Committee were informed that while the imbalance in the capacity of Ammonia and the three ammonia consuming plants had been removed in the IV stage expansion by installation of additional capacity for ammonia, the FACT decided to use the surplus capacity of 35 tonnes of P_2O_5 in the manufacture of ammonia phosphate. The Committee regret to note that the imbalance in production and requirement of in-

(1)	(2)	(3)
		termediate products still persists and there was deficiency of sulphuric acid because of which the plants could not be run to capacity. It was stated that when a proposal for setting up an additional sulphuric acid plant was put up to the Board, the proposal was deferred at the instance of Government on the ground that with the proposed expansion of Cominco Binani Zinc Smelter Plant, their by-product sulphuric acid would be available. The Committee were informed that the Kerala Government was interested in the Zinc Smelter Plant to be put up by Cominco Binani. Since the economic viability of the Zinc Smelter Unit depended on effective utilisation of sulphuric acid, the Kerala Government suggested to FACT to examine the utilisation of the acid and since that by-product acid was suitable to FACT, it was agreed to buy the acid from Cominco Binani. The latter, however, failed to give the assured supply with the result that FACT's programme of production fell short of target. The question of availability, production and pruchase of sulphuric acid have been dealt with in a subsequent Section of this chapter.
4	3.39 and 3.40	The Committee note that the estimates for the Fourth Stage Expansion which was approved by Government in September, 1966 for Rs. 392 lakhs had to undergo three revisions—one in November, 1966 for Rs. 500 lakhs, second in May, 1969 for Rs. 575 lakhs and third in January, 1972 for Rs. 673 lakhs. The Committee, however, find that even after the last revision, the estimate is likely to be exceeded by another Rs. 5 lakhs. The actual expenditure upto 31st March, 1974 is already reported to be Rs. 673 lakhs. The increase has been mainly attributed to increase in finance and management expenses, increase in equipment cost and services. It was stated by the representative of the Ministry that the project was all the time under review and appro-

(1)	(2)	(3)
		prite sanctions were issued at suitable times. The Committee would like Government to critically go into the reasons for the frequent revisions of the estimates and their effect on cost of production and economics of the project and bring these specifically to the notice of the Parliament.
		The Committe note that although Fourth Stage Expansion was to be completed by October, 1968 the date was revised to August, 1969 (August, 1970 for Ammonia Plant). The Committee are informed that the Ammonia Plant was commissioned in October, 1971. The other plants were either not commissioned or the performance was not proved. It has been stated that in the case of 100 T.P.D., Ammonium Phosphate Plant, though modification was undertaken at a cost of Rs. 3.45 lakhs to produce 20:20 Ammonium Phosphate, the plant produced ammonium phosphate of that grade only up to June, 1970 after which it was being used for production of 16:20 grade only and it was not found possible to produce the 20:20 grade without improvements to equipments. The Committee are led to conclude that the expenditure on the modification to the existing 100 T.P.D. Plant to produce the 20:20 grade had largely proved to be infructuous. The Committee would like Government to investigate the matter and fix responsibility for the lapses. The Committee are also informed that the modification to the existing 300 T.P.D. Ammonium Phosphate Plant to produce 20:20 grade is being reconsidered in the context of the proposed rationalisation or diversification scheme. The Committee also find that even after completing the work of modification of the Tonnex Plant, the increase in production attained was only 800 M^3/hrs. against the envisaged increase of 1000 M^3/hrs. The Committee feel that the FACT was rushed to the Fourth Stage Expansion to set right certain imbalances and carrying out modifications

(1)	(2)	(3)
		without examining the full implications thereof. The Committee wolud like the entire scheme of Fourth Stage Expansion to be critically examined with a view to analysing causes for the failure of the different modifications undertaken by FACT. The Committee would like to be informed of the results of the investigation.
5	3.53 and 3.54	The Committee note that the present daily designed capacities of the various plants were based on stream efficiency of 330 days. In the case of Udyogmandal Unit since the stream efficiency attained was very low, two Technical Committees examined the reasons for shortfall in production and suggested the remedial measures for improving the output and efficiency. According to the first Committee's Report in April, 1968 the Unit would not be in a position to attain more than 294 days of stream efficiency and with certain modifications the efficiency could be increased to 317 days. The Committee regret to note that none of the plants attained the stream efficiency of 317 days during 1970-71 to 1973-74 and the actual efficiency during this period had been only of the order of 43 to 67 per cent in Ammonia Plant, 34 to 41 per cent in Ammonium Chloride Plant, 47 to 68 per cent in Sulphuric Acid Plant, 50 to 69 per cent in Ammonium Sulphate Plant, 41 to 51 per cent in Ammonium Phosphate Plant, 34 to 75 per cent in Super-phosphate Plant and 26 to 45 per cent in Phosphoric Acid Plant. The Committee were, however, informed by Government in 1970 in reply to their recommendation in the 44th Report (4th Lok Sabha) that action had been taken to implement all the recommendations of the Sharma Committee. The Committee are surprised that in spite of this the stream efficiency of 317 days has not been achieved. The

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		Chairman-cum-Managing Director informed the Committee during evidence that according to his personal assessment it was impossible to attain the stream Efficiency of 315/317 days. What was possible, according to him, was a stream efficiency of 290—300 days. The Committee recommend that Government/FACT should examine the reasons for non-achievement of even the stream efficiency of 317 days which was considered possible by the Sharma Committee and take suitable measures to rectify the position.
		The Committee also find that the percentage of actual production to attainable production differs from the percentage of actual stream efficiency to attainable stream efficiency. The Committee are informed that stream efficiency has been worked out with reference to the rated capacity of the Plant while the percentage of actual production has been with reference to attainable capacity. The Committee are of the view that in order to judge the performance of the Unit, there should be a proper co-relation between the stream efficiency and production. The Committee recommend that FACT should examine this matter and arrange to determine the stream efficiency on a realistic basis in order to judge the performance on that basis.
6	3.62 to 3.65	The Committee note that the lack of raw materials, maintenance "other reasons" and "unaccounted factors" were mainly responsible for shortfall in production over the designed capacity. On account of maintenance problems shortfall in production was as high as 54.1 per cent in case of sulphuric acid and 46.6 per cent in case of phosphoric acid; in a number of other cases too, the shortfall was considerable on this

(1)	(2)	(3)
		account. The Committee are distressed to find that 'maintenance problems' in FACT have been responsible for shortfalls of such high magnitude in production of various items. In the opinion of the Committee it should not be beyond the ingenuity of the management of the FACT to attend to the maintenance problems promptly as and when they arise. The Committee recommend that there should be a proper schedule of preventive maintenance and repairs and the management should ensure that the maintenance of the plants is done according to the schedule so that there may not be any loss of production on account of inadequate maintenance. The inability of FACT to achieve 330 days stream efficiency accounts for shortfall in production over the designed capacity both under the heading 'other reasons' and 'unaccounted factors'. The Committee cannot appreciate the rationale of splitting up shortfall in production due to lower stream efficiency under two different heads, namely, "other reasons" and "unaccounted factors". The Committee would like that the confusing terminology of "other reasons" and "accounted factors" may be avoided and the shortfall on account of lower stream efficiency may be indicated under one head so that one can see all the factors inhibiting production in proper perspective. The Committee have given their separate recommendations in regard to determination of stream efficiency on a realistic basis and evaluation of performance with reference to such stream efficiency.
7	3.69	The Committee note that shortfall in production in Ammonia Consuming Plants on the

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completion of third Stage Expansion was partly due to the lesser production of ammonia. While the requirement of Ammonia for the Ammonia Consuming Plants was 271 tonnes per day, the ammonia plant was capable of producing only 235 tonnes per day. This imbalance was sought to have been removed in the Fourth Stage Expansion by installing additional capacity. The daily production capacity of Ammonia Plant after the Fourth Stage Expansion will be 355 tonnes per day. Although the Fourth Stage Expansion was designed for 330 stream days in a year, the Management explained that conditions inhibiting the production in other units would be equally applicable to the new unit. Accordingly a uniform stream efficiency of 317 days have been adopted for all the plants. A distribution pattern was decided upon by the management according to which the production of ammonia would still fall short of requirements by 7385 tonnes per annum. The actual shortage would, however, depend on the extent of utilisation of Ammonia Consuming Plants. The Committee are informed that with the imbalance having been removed in the Fourth Stage, there will not be any limitation in the supply of ammonia to the Ammonia Consuming Plants. It has, however, been stated that while the old Ammonia Plants are capable of operating at the rated capacity on a daily basis, the plant put up in the Third Stage Expansion could be operated only for 130 tonnes a day where the equipments require improvement. The Committee apprehend that unless the production performance of the plant put up under Third Stage Expansion is improved and wastage of ammonia is controlled the imbalance claimed to have been removed, might reappear. The Committee recommend that FACT should take suitable measures to improve the efficiency of the

(1)	(2)	(3)
		Ammonia Consuming Plants as well as the Ammonia Producing Plant.
8	3.75 and 3.76	The Committee regret to note that though Ammonia Chloride Plant was expanded on the basis of an anticipated availability and supply of hydrochloric acid under the expansion scheme of Travancore Cochin Chemicals Limited, no formal agreement was signed by the FACT with the Travancore Chemicals Limited for the additional supply of hydrochloric acid by the T.C.C. As against the anticipated supply of 16,500 tonnes of hydrochloric acid per year, the actual supply of acid was only 6,616 tonnes in 1970-71, 6880 tonnes in 1971-72, 5936 tonnes in 1972-73 and 6749 tonnes in 1973-74 respectively. Thus, actual supply of acid by the TCC was far less than the total requirements during the years 1970-71 to 1973-74, with the result there has been a loss of production of ammonium chloride in the FACT. Not only this, the price of hydrochloric acid to be charged by the TCC was stated to be in dispute. The Committee are informed that the expansion of FACT was undertaken to take care of further production of hydro chloric acid plant expansion of TCC and since Hydrochloric acid was causing a disposal problem to TCC, a decision was taken between Kerala Government and the FACT authorities to expand the plant and an understanding was arrived at that further acid produced by TCC would be made available to FACT. Although the production of TCC is now stated to have improved, the price of Hydrochloric acid to be charged by TCC to FACT still remains a serious problem. The Committee are informed that negotiations for arriving at an amicable solution have so far eluded settlement. The Committee fail to appreciate the reasons which prompted

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		FACT to feel so much concerned about the further production of hydrochloric acid by TCC as to agree to expand its own ammonium chloride plant at a cost of Rs. 19 lakhs even without entering into a firm agreement with TCC for the supply of acid at a reasonable price. The result is that FACT funds itself in quandry and even now no settlement has been arrived at either in regard to the price or an assured supply. The Committee should be informed of the results. The Committee recommend that the Ministry should take up the question of settlement of price with the Government of Kerala and resolve the deadlock so that FACT may be assured of its supply of hydrochloric acid regularly at the agreed price.
9	3.88	The Committee note that ammonium sulphate is produced by two processes—300 tonnes per day by gypsum process and 300 tonnes per day by direct neutralisation process. Although the Sharma Committee recommended production of ammonium sulphate by gypsum process on the ground that 1 tonne of sulphur can produce more end products if sulphuric acid made out of it is utilised for production of ammonium phosphate and gypsum which is a by-product can be used in the production of ammonium sulphate, the Committee note that a Committee of Directors recommended in August, 1969, the direct neutralisation process because of the continued operation of the gypsum process plant at low efficiency and so long as sulphuric acid was available at reasonable prices. The Committee have given their comments separately in regard to the performance of sulphuric acid plants. The Committee find that the cost of production of ammonium sulphate by the direct neutralisation process during the years 1970-71 to 1973-74 was more than by the gypsum process. While the cost of production by gyp-

(1)	(2)	(3)
		sum process was Rs. 400 during 1970-71, Rs. 408 during 1971-72 and Rs. 478 during 1972-73, the cost of direct neutralisation process was Rs. 420 in 1970-71, Rs. 433 in 1971-72 and Rs. 493 in 1972-73. The Committee are informed that the average price of sulphur used in direct neutralisation process decreased from Rs. 350 in 1970-71 per tonne to Rs. 327 per tonne in 1972-73. The Committee find that inspite of the fall in the average price of sulphur during 1970-71 to 1972-73, the cost of production of direct neutralisation process is higher than that by the gypsum process. The Committee are, therefore, not able to appreciate the justification given for taking to neutralisation process on the ground of reasonable price of sulphur/sulphuric acid. The Committee recommend that FACT should consider the economics of the production of ammonium sulphate by the two processes taking into account all the relevant factors and adopt a process which will enable production of ammonium sulphate at an economic price.
10	3.89	The Committee note that FACT has been importing rock phosphate from Morocco on the plea that the experiment of using rock phosphate from Rajasthan was tried in 1969-70 but not found economical. Moreover the production of rock phosphate in Rajasthan was 'limited'. The Committee understand that the mining of rock phosphate has been taken up in a big way by a State Undertaking under the Rajasthan Government and in fact they are looking out for users for consumption of this important raw material. The Committee feel that when rock phosphate deposits are available within the country there is no reason to spend precious foreign exchange on its import. The Committee also feel that with the advance in technology it should have been possible to modify, if necessary, the existing

(1)	(2)	(3)
		plants so as to utilise the indigenous rock phosphate even if marginally inferior rather than expand scarce foreign exchange in imports.
11	3.90	Since the demand for ammonium sulphate for agricultural production is going up, the Committee would like Government to thoroughly examine the feasibility and economics of achieving higher production in ammonium sulphate either by expansion of the existing units in FACT etc. or by location of new units near the source of rock phosphate which is raw material for this industry. The Committee understand that this matter has been long pending with the various Departments of the Govt. of India and they recommend that a High Powered Committee of technical experts, including representatives of the Planning Commission and the Ministry of Finance may be constituted to go into the matter in all its aspects and give a concrete plan of action within six to nine months. The Committee would like to be informed of the precise action taken in pursuance of the above recommendation.
12	1.104 to 3.109	The Committee note that against the installed capacity of 746 tonnes per day or 246,000 tonnes per year of sulphuric acid which included four plants, two small plants of 68 tonnes each (22,440 tonnes per year), another of 160 tonnes (52,800 tonnes per year and the fourth of 450 tonnes (148,500 tonnes per year) the actual production during 1970-71, to 1973-74 was 1,25,193 tonnes in 1970-71, 1,61,932 tonnes in 1971-72, 1,18,749 tonnes in 1972-73 and 1,64,760 tonnes in 1973-74. The Committee are informed that while the 450 tonnes plant is working to full capacity, 160 tonnes plant has not been operating to full capacity and the other two plants are too old to give the desired capacity, with the result that the ammonia capacity is only 650 tonnes per day or 2,14,500 tonnes

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per year and the requirements fell short by about 130 tonnes per day.

The Committee are informed that on account of the low utilisation of plants and as the full requirement was not being met, FACT had to purchase substantial quantities of sulphuric acid from M/s. Cominco Binani with whom FACT entered into an agreement in 1967 effective till 31st December, 1971 to supply 30,000 tonnes of Sulphuric Acid per year. The agreement is stated to have been automatically extended for a further period of 5 years till 31st December, 1976. The Committe note that against the agreed quantity of 30,000 tonnes, the FACT purchased 16,936 tonnes in 1970-71, 16,501 tonnes in 1971-72, 19,279 tonnes in 1972-73 at an average price of Rs. 129 per tonne, Rs. 132 per tonne and Rs. 144 per tonnes respectively, when the variable cost of production in FACT's own plant worked out to Rs. 129, Rs. 113 and Rs. 115 respectively.

The Committee feel that it should have been possible for FACT/Government to so provide in the agreement that if FACT's requirements were not met fully by their own plants, then they could buy from M/s. Cominco Binani. As FACT had detailed knowledge of the cost of manufacture of sulphuric acid in their own plants, it should have been possible for FACT/Government to ensure that the price paid was not higher than that it would have cost FACT to produce it themselves.

The Committee are also informed that when the proposal of setting up an additional plant for sulphuric acid, based on the requirements of acid in the IV stage expansion, was placed before the Board in 1970, the proposal was deferred by the Board on the advice of Government in the light of prospective availability of acid from this farm.

The Committee find that as against the agreed

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		quantity of 30,000 tones per year, the firm had been supplying only 16,936, 16,501 and 19,279 tonnes during 1970-71, 1971-72 and 1972-73 respectively. In view of this performance, the Committee are not able to appreciate the decision of the Board in 1970 to defer the setting up of acid plant or the action of the FACT in having extended the agreement automatically for 5 years. The Committee would also like to be informed of the reasons for which the FACT did not insist for the supply of the stipulated quality and in the event of the firm's failure to honour the commitment, why was no action taken against them. The Committee feel that Government should set up an expert Committee including a representative of Ministry of Finance well-versed in costing to go into the question of the relative economics of producing sulphuric acid by modernisation/replacement of the old units in FACT or by purchase from any other unit already working in the area preferably in the public sector, which could supply this vital input on assured basis and on competitive rates to meet fully the production requirements of FACT.
13	3.118	The Committee note that the attainable ratios of consumption of raw materials as fixed by the management were generally higher than the designed ratios. In the case of sulphuric acid required for production of ammonium sulphate and super-phosphate, the attainable ratios were within the designed ratios. The Committee note that the actual ratios of consumption during 1970-71 to 1973-74 were not only higher than the designed ratios but were also higher than the attainable ratios except in a few cases. It was stated that while the plant was designed to operate at certain ratios, these ratios were achievable only under optimum conditions. While deterioration in ammonia could be attributed to power fluctua-

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tion which upset the efficiency ratio, the quality of rock and sulphur also affected the ratios for acids. In addition, it was stated that the excess consumption under sulphur was due to the poor performance of the sulphuric acid plants and the excess consumption of rock phosphate and sulphuric acid was attributed to the poor performance of the phosphoric acid, slurry filters and pumps. The excess consumption of ammonia was stated to be due to the low production level in the end plant. Although the Committee on Public Undertakings in their 44th Report of 1969-70 and in their 59th Report on Action Taken thereon recommended that a constant watch over consumption ratios of various raw materials should be kept and whenever any major variations were noticed as compared to designed ratios, prompt steps should be taken to locate the reasons for higher consumption, the Committee find that the value of excess consumption including process losses of intermediate products during the period 1970-71 to 1973-74 increased from Rs. 30 lakhs in 1970-71 to Rs. 85 lakhs in 1973-74. The Committee would like that the reasons for the variations between the actual ratios of consumption and the designed ratios or attainable ratios should be analysed to identify the areas where there had been higher consumption of raw materials so that suitable remedial action could be taken. It is also evident from the discussion relating to findings of special Audit (in paragraph 11.45 of this Report) that the figures of consumption of materials like sulphur and rock phosphate as shown in the Accounts did not have any relevance to the realities of the situation. This had led to substantial unaccounted shortage, which had to be written off subsequently without ascertaining the reasons for shortages. The Committee therefore reiterate their earlier recommendation and would like FACT to maintain constant watch over the consumption ratios of

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		various raw materials and to take prompt remedial measures as soon as major variations are noticed as compared to the designed ratios. The Committee hope that at least now serious note will be taken of their recommendations in this and earlier reports and concrete steps will be taken by the management to save the FACT of the continuing losses on this account.
14	3.125	The Committee note that besides excess consumption of raw materials there had been losses due to wastage of hydrogen and ammonia. In the case of hydrogen, the percentage of wastage over the production had increased from 10 per cent in 1970-71 to 14.5 per cent in 1973-74 and the corresponding loss increased from Rs. 18 lakhs in 1970-71 to Rs. 30 lakhs in 1973-74. In the case of ammonia, the percentage of wastage over production increased from 1.5 per cent in 1970-71 to 2.6 per cent in 1972-73 and decreased to 2 per cent in 1973-74 and the corresponding loss increased from Rs. 4.5 lakhs in 1970-71 to Rs. 9.98 lakhs in 1972-73 and Rs. 10 lakhs in 1973-74. The Committee would like Government to examine as to how far the increase in loss in terms of value is justifiable when the wastage has come down from 2.6 per cent in 1972-73 to 2.0 per cent in 1973-74. The Committee are informed that the percentage of wastage of ammonia has come down because of installation of recording instruments and control of the consumption on ammonia. It has also been stated that a two per cent wastage was considered normal in the industry. The Cammittee would like that FACT should keep continuous watch over the consumption and ensure that the percentage of loss on account of wastage is within the prescribed norms. It was stated that the wastage of hudrogen was due to the quantity vented till the plant is stabilised after each start-up and restrictions due to refrigeration limita-

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		tions. In 1973-74, the wastage was attributed to the failure of one of the high pressure air compressors and also shut-downs in the oil gassification plant. The Committee would also like that the reasons for the increase in the wastage and consequential loss thereof should be critically gone into so that suitable remedial measures are taken to avoid such wastages.
15	3.137	The Committee regret to note that during the year 1969-70, out of total quantity of 3,24,000 tonnes of steam produced, only 2,17,000 tonnes were accounted for. Even allowing for a 10 per cent wastage in production the Committee find that 23 per cent of the total production valued at Rs. 12 lakhs was not accounted for. This was stated to be due to lack of instrumentation in some of the plants. The Committee note that though the procedure for accounting of steam had been changed from 1971-72, no instruments for recording of consumption of steam were installed till March, 1974. The procedure for allocation of steam to different plants was not uniform from year to year. While up to 1970-71, for every tonne of sulphuric acid produced 1.2 tonnes of steam was assured to have been produced. Out of this, 0.2 tonne was presumed to have been consumed in the Sulphuric Acid Plant itself and the balance one tonne was treated to have been transferred to other. Consuming Plants from 1971-72 a quantity of 0.8 tonne of steam was assumed to have been transferred to the Steam Consuming Plant for each tonne of Sulphuric Acid produced. The Committee are informed that meters have since been provided in several plants for recording accurately steam consumption. The Committee regret to observe that due to the absence of meters, the allocation of steam consumption has not been uniform. The Committee, therefore, recommend that now meters have been installed, figures of the con-

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		sumption of steam should be on the basis of meter readings and allocation of cost done accurately. The Committee also recommend that FACT should fix standard norms for consumption of steam and judge consumption of steam with reference to prescribed norms.
16	3.152	The Committee note that due to frequent power fluctuations the production performance of FACT has been seriously affected and the annual loss on this account was stated to be to the extent of Rs. 150 lakhs. The Committee also note that the proposal of having a separate captive plant for Udyogmandal Division has not been pursued as it was not found attractive economically. The Committee were informed that a study team consisting of representatives of KSEB, Bangalore Institute and FACT studied the problem as far back as 1968, and as a result of implementation of most of the recommendations of this group there was some improvement and only less than 20 per cent of the dips adversely affected the plant. It was reported that KSEB implemented all the recommendations excepting the one involving foreign exchange as according to them the expenditure on the implementation of this was not commensurate with the results. The KSEB also felt that with the Iddikki power station commencing power supply the position would improve considerably. The Committee would like Government to take up the question with the Kerala State Government so that when the Iddikki power station is commissioned, FACT is assured of adequate and steady power supply for its plants in the interest of higher production of the much needed fertilizers.
17	3.162 to 3.170	The Committee note that in view of the present uneconomic working of FACT due to very low level of production in some of the old plants, heavy over-heads, high maintenance cost

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		and low stream efficiency, a scheme for diversification of production at an estimated cost of Rs. 2811 lakhs (including a foreign exchange element of Rs. 482.5 lakhs) has been formulated in order to improve the profitability of the FACT.
		The Committee further note that this diversification proposal has been mooted after four stages of expansion each one of which especially the last two, had been planned and implemented to make the FACT correct the imbalance in the demand and supply of various intermediate products so as to make the Udyogmandal unit economically viable, but none of which seem to have achieved the desired results.
		The Committee were informed that the need for diversification also arose because the conditions which were visualised in the fourth stage expansion when it was planned in 1969, had changed considerably since then and the economics of manufacture of fertilizers had also changed due to technological changes.
		The Committee feel doubtful whether the expansion schemes have been correctly formulated at all after analysing all the deficiencies and taking into consideration the condition of the plants and their capacity for production.
		The Committee are informed that the Udyogmandal units "production performance has been at a relatively low level of capacity utilisation during the past 7 to 8 years even though during this period two expansion programmes have been completed", because of the inter-dependence of as many as 20 plants of different vintages with varying capacities and different process routes, all of which have to operate simultaneously to avoid constraints of raw material supply but their efficient working simultaneously is the biggest problem before the unit. The Committee are not

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sure whether addition of some more plants under the diversification proposal to the chain of 20 inter-dependent plants will be able to improve the situation and in the context of the past history of this unit the diversification scheme will not meet the same fate as the earlier schemes.

The Committee are informed that according to the feasibility report prepared in April, 1971 the diversification proposal to produce Methanol involved an expenditure of Rs. 348 lakhs (including foreign exchange element of Rs. 78.5 lakhs) and the overall profit of the Udyogmandal Unit was expected to improve by Rs. 563 lakhs in the case of heavy petroleum feed stock and in other case the improvement in profit is expected to be Rs. 350 lakhs with an investment of Rs. 250 lakhs.

The Committee are not sure whether the results of the feasibility study conducted in April, 1971 will still hold good in view of escalation in cost of labour, feed stock, etc. The Committee would, therefore, like that the Government should before going ahead with the scheme have a second look at the economics of the project including its effect on the over-all profitability of Udyogmandal Division after making sure about the availability of raw materials and the demand for the product in the country at this stage. The Committee also recommend that the full details of the scheme along with the economics thereof may be brought to the notice of Parliament.

The Committee thus find that the FACT has been taking up schemes for expansion in succession with a view to correcting the imbalances and in spite of this, utilisation of the plants had been low and the imbalances still persist. Before consolidating the position taking into account all the expansion schemes, the FACT is now going in for diversification. The Committee would like that there should be no further ex-

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		pansion scheme till the production in the present set up stabilises. The Committee recommend that Government should consider appointing an Expert Committee to critically go into the causes of the failure of the Udyogmandal Unit even after the different stages of expansion, and also examine the various aspects of diversification schemes including the economics thereof and the effect of the diversification on the over-all profitability of the Unit. The Committee would like to be informed of the action taken in pursuance of the recommendation within three months of the Report.
18	4.12 to 4.16	The Committee note that in order to perfect a process developed by the R & D Division for recovering flourine from phosphatic fertilizers in the form of synthetic cryolite, which is a very valuable chemical required for aluminium industry, the FACT after taking the approval of Government in principle, set up a plant at a cost of Rs. 32 lakhs for producing 1650 tonnes of cryolite per annum. It was reported that cryolite was being imported and this would be a substitute for the imported cryolite. The Chairman-*cum*-Managing Director informed the Committee during evidence that the development of this process was discussed with the Government of India and their 'general' approval obtained. It has been admitted by the Chairman-*cum*-Managing Director that no specific study about the demand for the product in the country was made. It was assumed that generally the market was there. It was also admitted by the Chairman-*cum*-Managing Director that when the project was taken up, there was no firm and fixed specification available for the product and whatever FACT was hoping to produce would be acceptable to the in-

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		dustry. The Committee are surprised that such a 'general' approval was given by Government without any survey of the demand for the product or an examination of the economics of the project.
		The Committee are informed that, on actual production on a bigger scale, the silica content was found to be more than what was acceptable to the industry and therefore FACT made some improvements to reduce the silica content and had given the improved product to an aluminium firm for trial the results of which were awaited. The Committee are also informed that since a fair amount of success was achieved at laboratory scale, FACT did not seek the support of research laboratories. The Secretary of the Ministry admitted during evidence that what still remains to be done is that the quality of the product should be improved in consultation with aluminium manufacturers. He also admitted that "instead of a bigger plant, it should have been a smaller plant." The Committee do not appreciate the undue haste with which the FACT went about setting up the plant on such a big scale and started production of cryolite without making a demand survey of the product and without finalising the specification of the product to suit the needs of Aluminium Industry.
		The Committee recommend that Government should investigate into the matter and fix responsibility for this unnecessary capital investment and recurring expenditure thereon to which the FACT has been put. The Committee recommend that at least now the FACT should in consultation with Public Sector enterprises like the Bharat Aluminium Company settle the specifications for this product and the requirements for Aluminium Industry before going in for large scale production.

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		The Committee also recommend that research institutes like National Metallurgical Laboratory of the CSIR may also be consulted in order to perfect the process for product improvement.
19	5.12 and 5.13	The Committee regret to note that in its anxiety to utilise the surplus carbon-dioxide recoverable from the oil gasification plant at the end of III stage expansion, the FACT set up a dry ice plant in May, 1969 at a cost of Rs. 8.15 lakhs, to produce 6 tonnes per day of dry ice without a proper demand survey and without taking into account the full effect of excise duty on the price structure of the product. It was envisaged that the dry ice would be used by the local fishing industry. The Committee were informed that due to the excise duty leviable on dry ice being high and due to the fact that the use of dry ice fishing industry called for a new method involving additional expenditure, whereby the dry ice would not come into direct contact with fish, the price of the dry ice did not prove to be economical to the fishing industry. The result of all this has been that the plant could not go into commercial production till now. The Committee are surprised to find that "the Management is not able to locate a copy of the report" submitted by an officer of the Corporation on the basis of which this project was taken up. It has been admitted by the Chairman-*cum*-Managing Director of the Undertaking that the entire expenditure on the project "is a waste". The Secretary of the Ministry has also admitted that the project has gone wrong because of one vital omission *viz.*, absence of a thorough market study. The Committee would like the entire matter to be thoroughly investigated with a view to fixing specific responsibility for the lapses and taking deterrent action. The Committee would like to be informed of the precise action taken in pursuance of it.

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		The Committee were informed that the FACT is now exploring the possibilities of marketing the dry ice in Bombay, which again is running into difficulties due to the transport problems. The Committee would like Government/FACT to come to an early conclusion, as to whether this plant can at all be operated economically and if found otherwise, take an early decision to dispose of the plant in the best interest of the Undertaking. The Committee would like to be informed of the action taken in pursuance of this recommendation within three months.
20	6.12 to 6.14	The Committee note that the original estimates of the Cochin Phase I for Rs. 39.72 crores which were prepared and submitted to Government in August, 1966 were revised thrice in January, 1968, August, 1971 and February, 1972 for Rs. 45 crores, 57 crores and Rs. 63 crores respectively, the final revised estimates indicating an increase of 60 per cent over the original estimate. The last revision was done on the basis that the plant would go into production by January, 1973. The Committee regret that none of the estimates was approved by Government so far. It is surprising that the FACT instead of getting the approval of revised estimates informed the Government in January, 1973 that it would approach Government for approval of the revised estimates after commissioning of the plant. It is equally surprising that the Ministry also allowed the FACT to proceed with incurring expenditure without the sanction of estimates and awaited the final cost estimates. The Committee are informed that the estimates of Rs. 63 crores worked out in February, 1972 were submitted to Government in December, 1972 but as the date fixed for commissioning had slipped, a review was undertaken by FACT to ascertain estimated additional cost that would be incurred to bring the plants on commercial production. On the assumption that the commercial production shall

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start by August, 1974, the estimated cost is now expected to be about Rs. 76 crores. The Committee are informed that instead of examining the revised estimates Government had paid an amount of Rs. 10.5 crores towards equity capital and Rs. 20.45 crores as loan up to 31st March, 1970 for this project.

The Committee note that there has now been an increase of 84 per cent over the original cost estimates which have been attributed by the Company to various reasons. The increase over the original estimates was stated to be on account of revision of the process scheme originally adopted, change from Japanese quotation for supplies to Italian supplies besides increase in cost of equipment, land and township and delay in commissioning. The Committee are distressed to note that Government in spite of increase on several accounts did not go into economics of the revision but only stated that they took into consideration the revised estimates for their budget proposals. They are surprised that even at this stage there is no finality of the cost of project as still a date for commercial production has to be decided although the Revised Estimate was based on the assumption that commercial production would start by August, 1974. The Committee feel that the netire procedure displays laxity of financial control both on the part of FACT and the Ministry with the result that the expenditure on the project has increased considerably. The Committee need hardly stress that the revised estimates should not be assumed to be a mere completion report of the project but it is an instrument of financial control. The Committee recommend that Government should without further delay, examine critically the reasons for the abnormal increases in the cost estimates and the economics of the project before approving the revised estimates. In this connec-

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		tion, the Committee would like to invite attention of Government to their recommendation in paragraph 2.20 of their 39th Report (5th Lok Sabha) on Pyrites, Phosphates and Chemicals Ltd., requiring that wherever there is a material deviation from the original estimates, the matter should be brought to the notice of Parliament The Committee expect that Ministry should be-should be brought to the notice of Parliament the detailed reasons for the increase in estimates, their effect on the cost of production and the economics of the project. The Committee also note that there are no hard and fact criteria to determine when a fertilizer plant should be deemed to go into commercial production and the question is decided by the Board. In the case of Trombay Plant the date when the plant reached the rated capacity and proved the guarantees was the date of commercial production; but in the case of Gorakhpur plant, six to eight months were allowed after the commencement of production to enable the suppliers to make good some defects and prove guarantees and then the plant was put into commercial production. In the opinion of the Committee such information should have been available in the DPR. The Committee feel that the date of putting a plant on commercial production is a very significant date and a uniform set of criteria should be followed by all the undertakings in fixing this date which should not be left entirely to the discretion of the Board of Management. They recommend that Government may lay down guidelines, if necessary, sectorwise, for the benefit of the Boards to help them determining the dates for putting their plants on commercial production on a uniform basis.
21	6.32	The Committee note that the original project report based on Japanese plant and equipment estimated a period of 27 months between the

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anticipated date of signing the contract and the date of commissioning (June, 1969). At the time the contemplation was to finance the project out of free foreign exchange. Later, Government of India decided that due to non-availability of free foreign exchange, negotiations should be made with France, Italy and other countries. Consequent on the availability of Italian credit, the last contract was signed in February, 1968 and the period was reduced to 20 months and the plant was scheduled for commissioning in October, 1969. The Committee regret that because of the delay in the supply of plant and equipment by the foreign as well as indigenous suppliers and because of certain defects in the synthetic and the reform gas plants, which had to be rectified, the Ammonia and Urea Plants could be commissioned only in April, 1973. The Committee note that the collaborators had pointed out in October, 1968 that the plant using centrifugal compressors could achieve greater efficiency and produce cheaper ammonia, but cautioned that since such a plant was more complex, the commissioning and, operational difficulties would be of much higher order. The Secretary of the Ministry has admitted during evidence that "this new technology was just coming into operation in other parts of the world. So we started on this and we have to pay a heavy price for this. We put up the plant according to certain higher parameters as against the lower parameters with which we had been familiar. The only mistake we made was that we selected certain parameters with which no one was familiar", which eventually led to all the troubles in the plant and delayed the commissioning. The Committee are surprised that the FACT should have accepted the Plant without verifying whether a plant of this dimension had been in actual operation elsewhere and more so when no one in India was familiar with parameter of the technology of this Plant. While the Committee are not averse

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to the use of forward technology in setting up of the projects, they would like that Government should satisfy themselves fully that such a technology has been successfully put up in operation elsewhere so that no experiment is done at the cost of the country.

The Committee are informed that among the indigenous suppliers, the main bottleneck was the delay in the supply and erection of boilers and pressure vessels by M/s. A. Vickers and Babcock Ltd., Durgapur. Though the boilers were scheduled to be supplied erected and commissioned by July, 1969, the erection work was got done by FACT at the cost of the suppliers through another contractor and the boilers commissioned only in October, 1971. The FACT's claim for liquidated damages was also not accepted by M/s. A. Vickers and Babcock Ltd. and the legal opinion was also not in favour of pressing the claim. The Committee understand that the penalty leviable on M/s. A. Vickers and Babcock Ltd., for delay in supply worked out to Rs. 6.5 lakhs against which an amount of Rs. 7.4 lakhs had been withheld from the bills and the question of levy of penalty is still under consideration of Company. The Committee would like to be informed of the results.

The Committee regret to note that on account of the delay in commissioning of the plant, there had been a loss of production to the extent of 1.65 lakh tonnes of Urea in the first year of operation, 2.31 lakh tonnes in the second year of operation and 2.64 lakh tonnes in the third year of operation on the basis that the plant would be working on 50 per cent capacity in the first year of operation and 70 per cent capacity in the second year of operation and 80 per cent capacity in the third year of operation. It has been admitted during evidence that the loss in production was to the extent of Rs. 10 crores in 1973-74. It has been stated that the project is

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		presently operating on a capacity of 50 to 60 per cent on an average and the measures to step up production are on way. The Committee are informed that even now the biggest bottleneck is on the waste heat recovery system and after a review of the design of the plant has been undertaken the defects had been identified and the plant is now capable of going up to a load of 80 per cent without modification. The main constraints in achieving 100 per cent rated capacity are however stated to be insufficient superhead temperature of steam to the turbine and insufficient cooling in the ammonia synthesis loop. While in the case of the former item, responsibility has been fixed on the suppliers and they have agreed to supply all equipments necessary for rectifying the defects free of cost, in the latter case the matter has been taken up with the Fertilizer Corporation of India, who are the process guaranteers and with their collaborators. The Committee need hardly stress that FACT has already lost a valuable time in commissioning the plant and achieving the rated capacity. The Committee recommend that the FACT should lose no further time in rectifying the defects noticed in the plant and achieving the rated capacity.
22	6.44 and 6.45	The Committee note that the FACT constructed one hostel and another building (Ambalamedu House) for accommodating foreign technicians and engineers, who were to come under agreements with foreign suppliers at a cost of Rs. 4.62 lakhs and Rs. 14.2 lakhs respectively and these were furnished at a cost of Rs. 1.11 lakhs and Rs. 1.4 lakhs respectively. The Committee regret to note that the maximum number of foreign engineers accommodated in the Ambalamedu House was only 20 and the occupancy ratio was decreasing from 35 per cent in 1971 to as now as 5 per cent in 1974 (upto August, 1974). The Committee are informed that according to the contractual obligation FACT had to provide

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		for senior engineers first class hotel accommodation of international standards or equivalent and if the stay extended beyond six months of the original expected period, they had to be provided family accommodation. The FACT had to incur an expenditure Rs. 30,763 on hire charges of buildings taken on rent for the period October, 1968 to November, 1972. In the opinion of the Committee accommodation provided in the Ambalamedu House was excessive in view of the low level of occupancy. The FACT could have restricted the scale and type of accommodation to the actual number of foreign technicians and engineers expected to come under the agreement. The Committee recommend that Government should investigate the reasons for creating such large accommodation in excess of the requirements at a cost of over Rs. 15 lakhs and fix responsibility for the lapses. The Committee would like to be informed of the action taken.
		The Committee are informed that the FACT are exploring the possibility of accommodating the foreign technicians under Cochin Phase II and also for utilising it as a hotel to meet the tourist requirements. The FACT is also stated to be entering into some arrangement with the Department of Tourism. The Kerala State Tourism Development Corporation is also stated to have evinced some interest. Since it is reported that no engineer connected with Cochin Phase II is staying in Ambalamedu House at present, the Committee recommend that FACT should intensify its efforts with the Department of Tourism/ Kerala State Tourism Development Corporation and take suitable measures so that the Ambalamedu House could be put to more profitable use.
25	6.55 and 6.56	The Committee note that Government approved the project report of Cochin Phase-II excluding Ammonium sulphate and Bag making plant at a cost of Rs. 35 crores in 1970. The cost was re-assessed in October, 1972 and the project cost

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		revised to Rs. 45 crores. It was stated that the revised estimates were prepared after getting more reliable data from the collaborators. The Committee regret to note that though the revised project cost estimates were submitted to Government in February, 1973 they have not so far been approved on the ground that the estimates would have further to be revised in view of the recent escalation in equipment and construction costs. The Committee have already recommended in paragraph 6.13 that cost estimates should be prepared after taking into account all the foreseable items of expenditure and the outlay should be indicated as accurately as possible. The Committee see no reason why the revised estimates should not have been considered making provision for escalation in cost of equipment and construction as far as could be reasonably known instead of delaying the sanction and thus defeating the purpose of sanction of an estimate. The Committee recommend that Government should critically examine the reasons for excesses and also their effect on the economics of the project before sanctioning the revised estimates and bring the detailed reasons for the increase in estimates and their effect on cost of production and the economics of the project before Parliament.
		The Committee note that Cochin Phase-II was originally expected to be commissioned in September, 1974 but due to certain reasons it is not likely to be commissioned before 1975. The Committee also find that the plan are expected to reach a production level of 1,62,000 tonnes by 1975-76, 3,41,000 tonnes by 1976-77, 4,22,000 tonnes in 1977-78 and 4,85,000 tonnes in 1978-79. The Committee would like that the Government/ FACT should ensure that the capacity utilisation as planned is adhered to. The Committee also recommend that in view of the delay in commissioning of the plant, the Government/FACT should take immediate steps to get the period of

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		guarantee extended suitably. The Committee feel that unless steps are taken right from now to deal with the factors contributing to delay in the execution of the project, the story of Cochin Phase-I might be repeated in this case also leading to escalation of cost estimates and heavy loss in production. The Committee, therefore, recommend that Government|FACT should monitor the progress of this project concurrently and ensure that the revised schedules of completion by July, 1975 are adhered to.
24	6.63	The Committee also note that the project is based on imported ammonia for which an agreement had been signed with M|s. Norsk Hydro of Norway. The Committee were informed that offers for supply of liquid ammonia were orginally handled by the Fertilizer Corporation of India from where they were transferred and Chairman and Managing Director of FACT was authorised in April, 1972 to directly negotiate with the foreign firm. Accordingly, negotiations were carried out from June, 1972 and acceptance was given to the foreign firm in October, 1972. When the foreign firm suggested that the contract be formally signed in November, 1972, this could not be adhered to due to certain difficulties in the working of the Udyogmandal Unit and therefore a date convenient to both parties was fixed in February, 1973. The Committee find that in January, 1973 the foreign firm intimated that the terms settled earlier had not been accepted by their Board of Directors and a revised offer was given by them in March, 1973. This revised offer was not, however, acceptable to the Board of Directors of the FACT but later they had to accept the rates in the over-all national interest on the advice of the Ministry and the contract was concluded. It was stated that the earlier settlement with the foreign firm had a provision that it was subject to the approval of the respective Board and therefore even if FACT had accepted the offer in November, 1972, it would

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		not have made any difference. The Committee however find that even after the finalisation of the contract, the foreign firm (M/s. Norks Hydro of Norway) was unable to supply ammonia at the agreed rates and had asked for an escalated price and stated that they were not bound by the contract because of the world situation in petroleum and petroleum products. The Committee feel that in view of the escalation in prices of ammonia the cost of production and the economics of the project would be adversely affected. The Committee recommend that Government should make use of the good offices of the IDA to pursuade the foreign firm to supply ammonia at the already agreed price and also ensure timely and assured supply of ammonia in future.
25	7.20 to 7.22	The Committee note that the FACT Engineering and Design Organisation (FEDO) was formed in 1964 as per decision of the Government of India taken in September, 1963 to construct at least three complete fertilizer plants before the end of Fourth Five Year Plan (1966—71). In pursuance of this decision the organisation was gradually developed and it became a full fledged division of FACT in 1966. But of the four fertiliser projects (Cochin, Madras, Managalore and Tuticorin), for which the project reports were prepared by FEDO, only the construction and management of the Cochin Project was entrusted by the Government to the Undertaking in July, 1965, though it had undertaken planning, designing and construction of various other works since then by its own efforts. The Committee note that the income of FEDO from engineering services has gone down from Rs. 103.64 lakhs in 1970-71 to Rs. 67.67 lakhs in 1973-74, and the profits of the organisation have also gradualy decreased from Rs. 1.50 lakhs in 1970-71 to a bare Rs. 8,000 in 1973-74. As admitted by the Chairman-*cum*-Managing Director, though in the beginning FEDO had enough work-load, but

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of late FEDO "was coming to a low level of utilisation. We have got a few orders recently. We expect to got some fresh orders also. Probably we can get going in the next year. For the future it will depend on whether we could get more orders."

The Committee are informed that five projects estimated to cost about Rs. 60 crores are currently being done by the FEDO. In addition, some jobs including diversification programmes are also being undertaken by the FEDO. The FEDO is also considering the feasibility of taking up design and engineering work for chemical industries other than fertilizer industry. It has been stated that FACT is considering the question of effecting economies in FEDO, taking all the factors into account. The Committee find that in addition to FEDO, the planning and development division of the Fertilizer Corporation of India, and the Engineers India Limited are also engaged in design and engineering work for chemical and fertilizer industries. The Committee note that when the FEDO was originally conceived, it was contemplated that this organisation would specialise in the design, engineering, construction and erection of ammonia plants based on naphtha as feed stock, as also, the plants for production of items like sulphuric acid, phosphoric acid and phosphate whereas the Planning and Development Division of the FCI would concentrate their efforts in the field of other feed stock, ammonia synthesis, manufacture of urea, etc. Although fertilizer capacity in the country is being developed to bridge the gap between demand and supply to cover the increased requirements and a number of plants are being set up based on different feed stock, according to Government there would be limitations in the different design and engineering organisations developing well defined areas of specialisations with different feed stocks. However, it has been agreed by the

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		Ministry that all efforts are required to ensure that facilities available with the different design and engineering organisations are utilised to best advantage and at the same time get the benefit of alternative technologies. The Committee, therefore, recommend that Government/FACT should examine the economics of continuing this organisation with reference to the utility of the organisation and the volume of work to be handled by it and take a decision soon. The Committee feel that FEDO should have been built up from a sound nucleus organisation and allowed to expand only after most careful assessment of the work-load from time to time in order to obviate overstaffing and frustration creeping over the staff. The Committee find that there are number of consultancy, design and engineering organisations in the field. The Committee feel that now there is need for Government to examine in depth and decide the scope and area of consultancy of the different design and engineering organisations. The Committee recommend that a high-powered Expert Committee should be set up to review the role scope and area for consultancy, design and engineering in the fertilizer industry in public sector so that the existing expertise and the resources are utilised to the best advantage of the country. The Committee would like to be informed of the report and the action taken thereon within six months.
26	8.10	The Committee are shocked to find that for over 4 year the FACT had been selling the ammonium sulphate at prices higher than the ceiling fixed under the Fertilizer Control Order. When the ceiling price ranged between Rs. 405 to Rs. 539 per tonne the consumer selling prices varied from Rs. 405 to Rs. 613 per tonne. The Committee are informed that it was on account of misinterpretation of a letter issued on 20th

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		September, 1966 by the Ministry of Agriculture which stated that "in accordance with their new policy of distribution of fertilizers, the Government of India have now decided that w.e.f. 1st October, 1966, the factories will be free to market 30 per cent of their production in the areas of their choice and at prices to be determined by them." The percentage was increased to 50 per cent from 1st October, 1967 to 100 per cent from 1st October, 1968. The Committee are surprised that even when it was clarified by the Ministry of Agriculture on 11th March, 1968 and by the Ministry of Petroleum and Chemicals on the 19th March, 1968 that so long as the pool prices continued to be fixed by the Department of Agriculture, the public sector units should fix their F.O.R. destination prices so as not to exceed the pool prices, FACT continued to sell at the higher prices in Tamilnadu, Andhra Pradesh and Karnataka and make profits at the expense of the farmers. The Secretary of the Ministry admitted that there was some confusion about the price in the minds of the pepole in charge of FACT. The Committee regret to note that it took more than 2 years for the Ministry to get the mistake rectified and even this was done only after the FACT made a representation to the Ministry of Food and Agriculture with a copy to the Ministry of Petroleum and Chemicals and the Ministry of Food and Agriculture issued a clarification in November, 1970 that the sale of any of the four nitrogenous fertilizers at a higher price was a punishable offence under the Essential Commodities Act. The Committee recommend that Government should learn a lesson from this experience and evolve a suitable machinery to ascertain the prices fixed by the different indigenous producers so as to have a check that producers do not charge in excess of the prices fixed by the Ministry of Agriculture under the Fertilizer Control Order.

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27	8.25 and 8.26	The Committee regret to note that the FACT has not been able to fully recover the expenditure incurred by it on the marketing organisation from the margin provided therefor in the selling prices, and all over the years it has been spending more than the margin. The net excess expenditure rose steeply from Rs. 38 lakhs in 1970-71 to Rs. 149 lakhs in 1971-72 and then came down sharply to Rs. 16 lakhs in 1972-73. Even on an earlier occasion, the Committee on Public Undertakings (1968-69) in their 44th Report (4th Lok Sabha) had recommended that "there was a need for critical study of the marketing organisation and the expenditure incurred on it." Government in their reply in November, 1969 stated that the Committee of Directors felt the expenditure actually incurred by FACT in their market operations cannot be considered excessive and the percentage of marketing expenditure had come down from 12.37 in 1967-68 to 9.3 in 1968-69 and with increased production in 1969-70 it was expected to be 8.7. The Committee, however, find that the actual percentage during 1968-69 was 10.59. The Committee fail to understand as to how it was then intimated by Government that the percentage was only 9.3, while the actual was different. It is surprising that the FACT has not been able to locate the basis on which the figure was worked out. The Committee regret to note that in spite of their earlier recommendation in the 44th Report (4th Lok Sabha) the percentage of marketing expenditure to sale value, instead of coming down, has gone up from 11.65 in 1970-71, 13.88 in 1971-72 and .11.89 in 1972-73, and this is because, as admitted by the Chairman-*Cum*-Managing Director, "the organisation has been built up for a larger sale. It is also unfortunate that the market expansion was taken up rather prematurely." The Committee see no justification

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		for such a premature expansion when the production was far behind the target and the demand for fertilizer was in excess of supply. The Committee find that in the case of Fertilizer Corporation of India Ltd., the cost of marketing as a percentage of turn over is 3 per cent, exclusive of distributor's margin and freight. If these were also to be included, the cost of distribution may work out to about 15 per cent of the turn-over value. The Committee are informed that the FACT has introduced a system of sales budget and marketing expenditure budget, broken down to level of regious and the marketing efforts made by various field officers was watched on the basis of these budgets. It was also stated that that with the commissioning of Cochin Phase I, the incidence of fixed marketing expenditure was expected to come down. The Committee feel that unless there is an increased turn-over due to higher production, the expenses on marketing will prove to be burden-some to the FACT. The Committee, therefore, recommend that Government|FACT should immediately undertake a critical analysis of the market expenses with a view to identifying the areas where economies could be effected so that expenses on marketing are kept to the minimum and in any case within the margin provided for in the selling price. The Committee also recommend that it should be the endeavour of the marketing organisation of the FACT to continuously review their system of distribution with a view to seeing that farmers, particularly marginal and small farmers got fertilizers and the agricultural inputs at the right time and in adequate quantities at fair prices.
28	8.33 to 8.36	The Committee note that the targets for the preparation of mixtures in the different mixing centres were not achieved during 1970-71 to 1972-73, except in a few cases. Not only have the

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targets been not achieved, but the actual quantities of mixtures prepared at different centres also show a declining trend which has been attributed to lack of demand. Consequently, four centres had to be closed down during the last three years. The Committee are informed that the targets are based on projected demand for the mixtures in the area and actual production was limited to the ready effective demand for mixtures registered by the dealers of the area from time to time. The Committee do not see any justification for keeping a target which is not related to the actual demand for the mixtures and why the FACT should not have ascertained the demands first from the dealers and then fixed the targets.

While the Committee see no justification for keeping a target unrelated to the demand, they would like FACT to examine critically the reasons for the declining trend in the demand and whether it was due to the ineffectiveness or any imbalance in the mixture. The Committee recommend that the assistance of agricultural research institutes may be obtained in order to assess the suitability of the mixtures with reference to soil conditions particularly, when the modern trend in agriculture is more towards the use of mixed fertiliers.

The Committee are surprised to note that a declining trend having set in the preparation of mixtures, the FACT has not taken any steps to evaluate the performance of each Centre in order to work out the profit or loss incurred by each Centre separately. In the absence of the working results, the Committee are not able to appreciate the manner in which the financial viability of each Unit is being assessed at present.

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		The Committee recommend that the operations of the Mixing Centres should be kept under continuous review and the number of mixing centres should be regulated with reference to the demand for the type of fertilizers and the financial viability of operations of each Centre.
29	8.45	The Committee note that the agreement entered into by FACT with M/s. Southern Gas Limited for sale of oxygen provided that irrespective of the actual off-take, the party would be billed for a minimum quantity of 56,630 c.m. per month. The actual off-take by the party from the commencement of supply to 31st March, 1970 was substantially lower than the minimum quantity and the value of the shortfall was Rs. 5.6 lakhs. Even after 31st March, 1970, every year there had been shortfalls and from 1970-71 to 1973-74 the quantity of shortfall was 14.78 lakhs c.m. valued at Rs. 5.4 lakhs. When the FACT billed for the amount, according to the agreement, the party had not so far paid the amount on the ground of (a) poor quality of the product, (b) force majoure conditions, (c) failure of the FACT to supply the minimum quantity. The Southern Gas Limited contended that since FACT failed to supply oxygen and therefore, for such periods of failure no minimum guarantee was payable. It was also admitted by FACT that though the quality of gas suffered before November, 1967 FACT was able to maintain the purity thereafter. There were limitations in the supply prior to June, 1973 as FACT was requiring the oxygen for its own plants. The Committee are informed that the question was being examined in consultation with the FACT's attorneys and it was expected that a settlement would be

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		reached by making due allowances for the period during which either party was not able to fulfil its obligations. If mutual agreement was not reached, it was stated that the matter would be settled by arbitration. The Commitee would like to be informed about the settlement. The Committee however, see no justification for FACT entering into long term contract for 30 years at a stretch without even an escalation clause and with terms and conditions which FACT could not enforce especially when other parties were able to offer better prices. The Committee are not sure whether financial implications of such a long-term commitment had been examined in depth keeping in view the utilisation of the capacity of the FACT plants and the cost of production. The Committee recommend that this matter should be thoroughly examined from all aspects and the Committee informed of the results.
30	9.17 to 9.19	The Committee note that as against the sanctioned strength of 3199 fixed by the Managing Director in April, 1965 and the strength of 3380 finalised on the basis of works study and discussion with unions in October, 1968, the actual strength was as 3385 on 31st March, 1970*. This increased to 3699 on 31st March, 1973 but came down to 3552 on 31st March, 1974. The increase was quite marked in the semi-skilled and unskilled category where the strength on 31st March, 1973 was 1497 as against 1178 fixed as a result of works study. The Committee of Directors which examined the staff position in August 1969 justified the excess in the ground of difficulty in retrenching the surplus staff due to change in the process. The Committee are surprised to find that FACT was carrying a surplus even from 1965 when the surplus was 567

*At the time of factual verification FACT intimated that the sanctioned strength [illegible] Udyogamandal division is [illegible].

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		and after IInd Stage expansion it was 486 and IIIrd stage 330 and after IVth stage—398. The additional expenditure due to the surplus staff was reported to be of the order of Rs. 72 lakhs per year and the increase in the cost of production was about 2 per cent. The Committee are informed that though the Government were aware of the surplus staff and the need to find a solution, there were difficulties in reduction in strength on account of the opposition from the unions. The Committee are not able to appreciate the logic in this argument and they do not see any justification for recruitment of staff in excess when they found that even as early as 1965 the surplus was as huge as 567. They feel that the situation should have been tackled even at that stage and staff recruitment should have been only with reference to the actual requirements. The Committee are surprised that the Project Report of the IIIrd stage Expansion did not indicate the staff strength, although it has been admitted by the Ministry that it was the normal procedure to show the strength in the project report. The Committee fail to understand as to why this omission was not noticed and rectified before the approval to the IIIrd stage expansion was given. The Committee are informed that in September, 1973 a settlement was arrived at for increasing the productivity according to which the personnel strength in all the departments would be fixed by the Management on the basis of works study conducted by Industrial Engineering Department. It was stated that the attempts are being made to adjust the staff to the maximum extent by deployment in Cochin Phase II. But according to the Management there would still be certain people who obviously would not be fitted in. Management would be considering this matter and resolving the problem.

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		The Committee have been pointing out in several of the reports that one of the maladies in public undertakings is recruitment of staff in the initial stages in excess of requirements thus creating problems at the stage of operation. The Committee expect that at least now Government Undertaking should learn a lesson and ensure that there is no recruitment of the staff at any level unless the surpluses are absorbed and proper norms are fixed for the Cochin Phase II and the future projects. The Committee need hardly stress that the indications given in the DPR about the staff strength should always be taken as the maximum and the FACT should ensure that these limits are not exceeded at any time without a full and detailed assessment by the Board.
		The Committee find that on the one hand, the FACT is carrying a large surplus involving an additional expenditure of 72 lakhs per year, on the other hand, the overtime bill of the Corporation has been amounting from Rs. 8.7 lakhs in 1967-68 to Rs. 36 lakhs in 1973-74. The Committee are informed that surplus are in certain departments like Marine, Transportation, Garage, Security etc. and could not be utilised by the production or Maintenance Departments where the incidence of overtime is high. The Committee recommend that Government/Corporation should critically go into the reasons for abnormal increase in overtime and fix suitable productivity norms so that the expenses on overtime are obviated. The Committee also suggest that special care should be taken to see that non-technical and supporting staff should be multifunctional capable of handling a variety of jobs and this will enable the problems of the typs now felt by FACT being easily tackl-

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		ed. The Committee also recommend that there should be a system of inbuilt incentives in wages with a view to increasing the productivity.
31	10.15	The Committee regret to note that FACT has been incurring huge losses on its manufacturing activities and the cumulative loss on 31-3-1974 is over Rs. 11 crores. The loss has increased from Rs. 1.8 crores in 1970-71 to Rs. 3.8 crores in 1971-72 and it came down to Rs. 2.3 crores in 1972-73 and Rs. 1.8 crores in 1973-74. The main reasons for the losses have been attributed to low utilisation of capacity and consequential loss in production, maintenance problems, failure of some critical equipments besides power shortage and labour troubles. The Committee are informed that the loss in 1972-73 came down because of certain economy measures and with certain rationalisation of the distribution and marketing function. The Committee are constrained to observe that in spite of the Four Expansion Schemes which FACT had implemented, there had been gross under-utilisation of capacity, excess consumption of raw materials, losses on account of stores, surplus in non-power and the manufacturing and marketing expenses were very much on the high side. The Committee, therefore, feel that unless some concrete and concerted efforts are made to improve the performance and reduce costs, rationalise the man-power and control, consumption of materials, it will be difficult for FACT to come out of the red. The Committee would like to be informed of the measures initiated in this regard.
32	10.35 to 10.40	The Committee note that FACT is following the system of standard costs which were fixed in 1966 on the basis of designed capacities of the plants and the ratios of the consumption of raw materials as also stream efficiency of 330 days

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in a year. The Committee note that the standard costs were revised only in March, 1971 after taking into account the attainable stream efficiency of 317 days although the attainable stream efficiency was indicated by the Sharma Committee as early as April, 1968. The result was the standard cost during the intervening period between 1968 to 1971 did not serve as the correct basis for judging the efficiency of operations.

It was clarified that the revision of standard costs was made not only with reference to stream efficiency indicated by the Sharma Committee but also after standardising the norms of consumption ratios.

The Committee note that the actual cost of production of different products except superphosphate and sulphuric Acid were higher than the revised standard costs and the actual costs ranged from 121 per cent to 167 per cent of the revised standard costs during 1971-72 to 1973-74.

An analysis of the variation in costs during the period 1971-72 to 1973-74 indicates that there had been huge variations between the actual fixed and variable costs over the revised standard costs while the increase in the variable cost were attributed to increase in price of raw materials, packing materials and increase in the cost of intermediate products, the increase in the fixed cost were mainly due to lower volume of production. The Committee find that though the increase in variable cost has been mostly attributed to increase in the cost of raw materials, there have been variances due to usage also thus indicating excessive consumption.

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		The Committee are informed that every month a variance report is prepared on the basis of information received from production Departments and circulated to Plants for action. The Committee recommend that the Management should introduce a system of analysis of the variance reports with a view to identifying the causes for such variances and taking suitable remedial measures in time.
		The Committee find that in spite of the recommendation in paragraph 3.33 of their 44th Report (4th Lok Sabha) that it would be useful for a Public Undertaking to have comparative figures from other undertakings in the same industry on various aspects of their working, so far no system has been introduced to have a regular exchange of information. The Committee recommend that the Bureau of Public Enterprises should devise ways and means of introducing such a system for the benefit of the Public Undertakings.
33	10.49 to 10.51	The Committee regret to note that though the Board of Directors approved the strengthening of internal audit section as early as January, 1969, the reorganisation of the Internal Audit and the post of Chief Internal Auditor were approved only in March, 1973, after over 4 years. The Chief Internal Auditor was appointed about one year thereafter. The proposals regarding staff strength and internal audit manual prepared in March, 1974 are still awaiting approval. The Committee also note that the Company auditors have in their Report for accounts for 1972-73 remarked that—
		"There is no proper Internal Audit Department in the Company.....we are of the view that there should be a proper Internal Audit Department which should

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		function independently and report directly to the top Management."
		The Committee are informed that the reorganisation proposals were made after a study of the arrangements existing in other public sector undertakings. The Board decided that in addition to Financial and Proprietory audit, a comprehensive audit programme including management audit should be introduced. It is stated that the draft internal audit manual is expected to be approved and staff would be in position by end of March, 1975. The Committee are not happy at the inordinate delay in strengthening up the internal audit wing and finalising the Internal Audit Manual. The Committee recommend that the company should lose no time in strengthening the Internal Audit Wing to evaluate a comprehensive audit including management audit being conducted in time and the results reported to management so that they can serve as an effective tool of management. The Committee need hardly stress that the reports of internal audit should receive serious consideration at all levels.
34	10.53	The Committee note that the volume of book-debts had come down from Rs. 581 lakhs on 31-3-1971 to Rs. 300 lakhs on 31.3.73 and in terms of turn-over 18 per cent to 15 per cent. The Committee, however, find that the total amount on 31-3-1973 includes Rs. 217 lakhs outstanding for over six months and out of this Rs. 50.28 lakhs is considered as doubtful debts (25 per cent of the total debts). In the opinion of the Committee this provision of nearly 25 per cent is on the high side FACT should take concerted measures to realise the amounts post-haste.
35	11.29 to 11.35	The Committee note that the inventory of stores has shown a decrease from Rs. 15.29 crores as at the end of 1970-71 to Rs. 8.85 crores

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on 31st March, 1974. The value of spares included in the inventory however showed an increasing trend from Rs. 108 lakhs representing 42.8 months consumption as on 31.3.1971 to Rs. 185 lakhs on 31.3.74 representing 71 months consumption. Even with reference to cost of machinery, the percentage of spares has indicated an increase from 6.2 per cent to 7.9 per cent. The Committee are informed that the records are not maintained to indicate the spares received with plant and machinery as distinct from those purchased later. Although the management has not considered it necessary to do so, the Committee feel that in the interest of regulating purchase of spares such a seggregation is essential. The Committee hope that action would be taken to seggregate the spares accordingly.

The Committee regret to note that out of 31,149 items on stock on 31.3.70, minimum limits have been fixed only in respect of *14,500 items. The Committee are informed that an Inventory Control Committee was formed to fix the maximum and minimum levels for all store items. This Committee has just finalised the work relating to identification of obsolete and surplus stores and the other work is yet to be taken up.

The Committee understand that a Review Committee appointed by the Chairman-*cum*-Managing Director identified value of obsolete and surplus stores on 30th September, 1970 as 20.83 lakhs.

The value of such surplus and obsolete items has been reduce to 12.34 lakhs. The Committee are informed that the Inventory Control Committee are reviewing 'A' Value items to fix the maximum and minimum limits and also to locate the surplus. The Committee recommend that the Inventory Control Committee should

*At the time of factual verification FACT intimated that presently minimum levels have been fixed for 2500 items approximately.

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		finalise its work soon and management should fix the maximum and minimum limits for all the stores without delay. The management should take action to circulate the list of surplus stores to all the public undertakings including fertilizer producing units with a view to disposing the surplus items.
		The Committee also note that the percentage of items physically verified to the total number of items in store was 20.93 per cent on 31.3.71, 32 per cent on 31.3.72 and 29.82 per cent on 31.3.73. The Committee regret to note that the value of items verified in any year is not available. The Committee are surprised that the discrepancies noticed as a result of verification have also been not adjusted in accounts from 1968-69 to 1972-73. The Committee however note that in respect of 8,229 items verified during 1972-73 and 17268 items verified during 1973-74 there had been shortages to the extent of 1,047 items of value Rs. 9.76 lakhs in 1972-73 and 154 items valuing Rs. 3.77 lakhs in 1973-74 respectively. The Committee are informed that the Managing assessing the reason for the shortages. The Committee would like the management to investigate into the reasons for the shortages and fix responsibility therefor. The Committee would like to be informed of the results.
		The Committee also find that in regard to raw materials, sulphur and rock phosphate, the inquiry made by a Committee of Directors revealed shortages of stock of sulphur and rock phosphate valued Rs. 113.53 lakhs during 1969-70 and 1970-71 out of which shortages of value Rs. 46 lakhs were wiritten off, and that the Government handed over the case to the Central Bureau of Investigation for inquiry. The Commitee would like to be informed of the findings of the inquiry and the action taken by the management in pursuance thereof.

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		The Committee note that as a result of review by a departmental Committee in May, 1970, 8,700 items of stores and spares valued at Rs. 80.75 lakhs out of 30,596 items of stores and spares of value of Rs. 336 lakhs were reported to have not moved for 5 years or more. Out of these slow moving stores, it has been reported that stores valued at Rs. 21.34 lakhs were declared obsolete by the same Committee. Even after the sale of some stores at a loss of Rs. 1.74 lakhs, there are still obsolete stores worth Rs. 18.58 lakhs. In regard to stores other than machinery stores and general stores another departmental committee is reported to be going into the question and its report is awaited. It is unfortunate that no time limit has been fixed for completion of the work by this Committee. The Committee recommend that the Departmental Committee should be required to complete its work soon, identify items of surplus obsolete stores other than machinery stores and general stores so that management can take action for disposal of such stores by diverting them usefully to other public undertakings. From the foregoing, the Committee are led to conclude that the maintenance of store accounts and the inventory control in FACT has not been quite satisfactory. It is surprising that even the elementary requirements of fixation of maximum and minimum limit of stores for purposes of control has not been taken care of. No action has been taken in respect of results of physical verification and there had been accumulation of obsolete and surplus stores resulting in blocking up of capital. It is only in 1973 that the management has thought of the Inventory Committee to revamp the whole system. The special audit conducted in regard to stores has also revealed a number of irregularities. These

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		have been dealt with in a separate section. The Committee recommend that Government/FACT should critically examine the reasons for this state of affairs and take into account the results of investigations by special audit and the suggestions given by them so that the entire store system can before long be put in proper order.
36	11.45 to 11.47	The Committe note that on the request of Ministry of Petroleum & Chemicals, a special audit (covering the period from 1st April, 1967 to 31st March, 1972) of high value items of stores and raw materials including sulphur and rock phosphate was conducted by associating technical members from the Ministry. The special audit has brought to light the following deficiencies in the stores procedures and accounts:— (1) No weighment of the raw materials carried by the boats to the factory was done and the quantity indicated in the bills of lading was shown as fully received. Payments to suppliers were made on the basis of the weights indicated in the bills of lading. Weights shown in the bills of lading and the weights originally determined on arrival were not reconciled. (2) Materials Receipt Reports for receipt of sulphur and rock phosphate shipments were issued after considerable delay ranging even upto one year. (3) Entries in stores ledgers have not been made in chronological order. (4) Theoretical consumption ratios were adopted from time to time including in some cases extra quantities to cover handling and other losses. This quantity was not however charged in the accounts. The stock at Udyogmandal

(1)	(2)	(3)
		had therefore been over stated in the accounts to this extent.
		(5) Rock phosphate was reported to have been washed down river due to collapse of retaining wall. No steps were taken to ascertain the quantity lost although remarks were made from time to time that rock phosphate was being washed down the river.
		(6) The methods of survey adopted for measurement of sulphur were not free from defects. The measurement books containing the measurements in respect of surveys conducted up to 5th January, 1971 were not traceable and the loss of measurement books has not been investigated. On many occasions sulphur and rock phosphate were kept in open heaps and large quantities of gypsum were dumped in various parts of the township. For several years it was shown in the books although it was not physically available. Eventually a value of Rs. 6.12 lakhs was written off in accounts of March, 1970.
		(7) Discrepancies noticed between survey figures and book balances were not reconciled. The management went on certifying the book figures in spite of these being widely different from the actuals for purpose of annual accounts. It has been reported that the survey report figures were made to agree with the book figures.
		(8) As against shortage of Rs. 1.38 crores rupees both in regard to rock phosphate and sulphur during the period 1967-68 to 1971-72, the value of stores written off in

(1)	(2)	(3)
		the accounts for 1969-70 to 1971-72 was Rs. 1.11 crores only although the quantity of shortage had been written off in full.
		(9) The quantities charged to accounts as consumed are higher than those calculated on the basis of reasonable consumption ratios for consumption of sulphur and rock phosphate, resulting in a loss of Rs. 43.25 lakhs in sulphur and Rs. 37.83 lakhs in rock phosphate. The difference might have been due to factors like pilferage loss of raw materials, loss in process manufacture, accountal of less finished products than actual production.
		(10) There was no effective system of internal check on raw materials and efficiencies in their usage and on finished products.
		(11) There was no proper system of assessing the raw material requirements and for planning purchases which resulted in excessive stocks.
		(12) In regard to stores and tools and plant (a) for none of the items maximum limits were fixed, (b) Stores ledgers were in arrears, (c) bincards for about 6,000 spares and stores were continued to be maintained though the stores were not physically available. Balances in respect of 4,000 items were shown without values.
		(13) In spite a system of perpetual stock verifications, only a small number of the total items was covered in any one year. The value of shortages in 1972-73 was of the order of Rs. 10.89 lakhs and excess

(1)	(2)	(3)
		Rs. 2.23 lakhs. The shortages and excesses noticed are still stated to be under investigation and no adjustments have been made.
		(14) Non-Moving stores which constituted 28 per cent of total value of stores accounted for more than Rs. 118 lakhs as on 31.3.1972. There was no systematic procedure in vouge for review of store items from time to time for purpose of locating surplus and obsolete stores.
		(15) No reconciliation of bincard balances with ledger balances was done.
		(16) Accounts of tools and plant were not properly reconciled.
		(17) Physical verification reports were not pursued centrally with the result that shortages had not been regularised. The value of such shortages as on 31.3.72 was Rs. 23.80 lakhs. The Committee note that the whole matter was investigated by the CBI and based on their report departmental action had been initiated against some of the officers of the company. In so far as they pertain to the Managing Director and Finance Manager, the matter is stated to be under the consideration of the Central Vigilance Commission.
		The Committee are informed that the management is taking action on the observations/ suggestions of special audit. The Committee recommend that the management should finalise action on all the points and furnish a report of compliance. The Committee also recommend that the FACT should streamline the procedures of purchase and store accounting, adopt modern methods of inventory control and take suitable

(1)	(2)	(3)
		measures to ensure that the defects pointed out do not recur. The Committee also emphasise the need for scientific assessment and proper accountal of sulphur and rock phosphate which are obtained through imports after expending huge foreign exchange. Since these materials are received in boats, there should be regular pre-shipment and after-shipment surveys to ensure that the quantities loaded are actually received. The Committee would like that the FACT should consider the matter and take suitable precaution to see that no portion of the rock phosphate is washed away due to lack of adequate storage facilities.
		The Committee are distressed to note that the management went on certifying the book balances for purpose of annual accounts in spite of the wide differences between the actuals and the book figures without investigating into the shortages. They would like that this should be specially investigated and the responsibility for this lapse fixed.
		The Committee desire that the internal audit should also as a part of their work conduct a regular check of the store accounts and the working of systems and procedures, bring the defects and deficiencies to the notice of top management for remedial action. The Committee recommend that Government should keep a careful watch on the implementation of the suggestions given in the special audit reports and ensure that such irregularities do not recur. The Committee also recommend that for purposes of uniformity in the procedure for accounting of sulphur and rock phosphate which are the main raw materials in the manufacture of fertilizer, Government should consider issuing siutable instructions in the matter and review from time to time the implementation of these instructions. The Committee would like that the Central Vigilance Commission would expedite the matter.

(1)	(2)	(3)
		The Committee would also like FACT|Ministry to communicate the results of investigations and the action taken in this and all other matters enquired into by CBI.
37	12.13	The committee regret to note that as against the contractual amount of Rs. 15.96 lakhs for the work of fabrication and erection of tanks and vessels undertaken by FEW on behalf of M|s. T. T. Products Ltd., FEW completed the work at a cost of Rs. 19.13 lakhs resulting in a loss of Rs. 3.17 lakhs. The Committee are informed that the loss was due to the delayed completion of the work which entailed increase in cost of labour material which in turn was due to delay in putting up the structures by another sub-contractor of the T.T.C. The Committee regret that in the absence of an escalation or any other suitable clause in the contract (to protect the interest of FEW against such delay) and to enable recovery of such increase in costs from the customer, the FEW could not recover the excess over contract amount from the party. Moreover, the sub-contractor because of whom the main work got delayed was not under FEW but under the party for whom the work was undertaken.
	12.14	Yet another case where the FEW had to incur a loss of about one lakh, was in the contract with M|s. T. T. Products for fabrication and supply of converter. In this case while the contracted amount was only Rs. 86,381, the actual cost was Rs. 188337.
	12.15	The Committee feel that FEW should on the basis of experience in these works, learn a lesson and provide suitable safety clauses in the agreements with parties to protect the interests of FEW against such losses.

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