C.P.U. No. 38

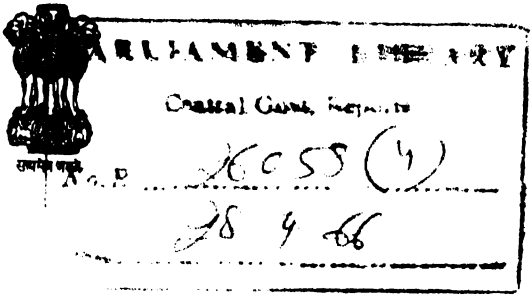
COMMITTEE ON PUBLIC UNDERTAKINGS

(THIRD LOK SABHA)

TWENTY-FOURTH REPORT

NEYVELI LIGNITE CORPORATION LTD., NEYVELI

MINISTRY OF MINES AND METALS



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NEW DELHI
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TWENTY FOURTH REPORT OF THE COMMITTEE ON PUBLIC UNDERTAKINGS ON NEYVELI LIGNITE CORPORATION LTD.

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(THIRD LOK SABHA)

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**Elected w.e.f. 23-2-1966 in the vacancies caused by appointment of Shri P. Govinda Menon as Minister and resignation of Shri Harish Chandra Mathur.

***Ceased to be a Member of the Committee on his retirement from Rajya Sabha w.e.f. 2-4-1966.

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to submit the Report on their behalf present this Twenty-fourth Report on Neyveli Lignite Corporation Ltd.

2. This Report is based on the examination of the working of Neyveli Lignite Corporation Ltd. upto the year ending 31st March, 1965. The Committee took the evidence of the Chairman of Neyveli Lignite Corporation from 20th to 22nd December, 1965 and of the representative of the Ministry of Mines and Metals on the 21st February, 1966. The Report was adopted by the Committee on the 7th April, 1966.

3. The Committee wish to express their thanks to the officers of the Ministry of Mines and Metals and Neyveli Lignite Corporation Ltd. for placing before them the material and information that they wanted in connection with their examination. They also wish to express their thanks to the non-official organisations/individuals who, on request from the Committee, furnished their views on the working of Neyveli Lignite Corporation Ltd.

4. The Committee also place on record their appreciation of the assistance rendered to them in connection with the examination of audit paras pertaining to Neyveli Lignite Corporation Ltd. by the Comptroller and Auditor General of India.

D. N. TIWARY,
Chairman,
Committee on Public Undertakings.

NEW DELHI;
April 15, 1966.
Chaitra 25, 1888 (*Saka*).

I

HISTORICAL BACKGROUND

Industrial development in Madras State, despite its mineral resources and technical skills, has been retarded by the shortage of power and indigenous fuels. Adequate deposits of high grade coal have not been found in Madras. Coal required for industrial and other purposes in the South has to be transported over a long distance. The nearest coal mine is over 250 miles north of Madras city, which is practically at the northern boundary of the State. Much of the limited supplies of coal come to Madras from the Bengal and Bihar States, over a distance of 1000 miles. The total quantity of coal needed in the Madras State is more than three million tons per annum but actual receipt in the State from collieries outside amount to about 2 million tons per annum. Further, there are limitations of transport in obtaining coal from the north. The cost of coal transported by rail to the State is about Rs. 50 to Rs. 70 per ton according to the grade of coal and destination, while coal brought by sea to Madras costs about half as much more. Moreover all other types of fuel for industrial processes and for domestic consumption are also in short supply with the result that cowdung instead of being used in the field as manure, is consumed in the domestic ovens.

2. Water resources for the generation of Hydro-electric power are very limited and the demand for power for industrial and agricultural development and rural electrification generally, is much in excess of the supplies available. Even the inadequate quantities of power available from hydel-Projects cannot always be depended upon, as the river courses, utilized for generation of power are not perennial, but subject to vagaries of the seasons.

3. The acute shortage of electric power and fuel in the Madras region, and the need for firming up undependable hydro-electric power by Thermal Power, using preferably a fuel other than coal, compelled investigations for an alternative source of fuel.

4. Investigations conducted by the Geological Survey of India and subsequently by the Madras Government indicated the existence of about 2,000 million tonnes of lignite over an area of 100 sq. miles in the South Arcot District of the Madras State. The more easily workable deposits assessed at 200 million tonnes and with favourable lignite ratio are to be found in an area of 5½ sq. miles. In terms

of thermal value, 2½ tonnes of lignite are computed to be equivalent to one tonne of good coal.

5. Mining of lignite at Neyveli, however, presents special problem of ground water control. There is further the need for avoidance of spontaneous combustion to which exposed lignite is very much susceptible. Investigations on these aspects as well as on the feasibility of establishing specific projects to utilize the lignite were, therefore, necessary. In 1954, the Government of India arranged under the Colombo Plan for the services of consulting Engineers from U.K., M/s Powell Duffryn Technical Services Ltd., to prepare a project report on the economic mining, processing and utilization of lignite. This firm submitted a report in November, 1954 proposing a number of specific alternative schemes. They also suggested further investigations and tests. One of the projects suggested by the Consultants was adopted in August, 1956 for implementation. This was an integrated project comprising the following:—

(1) Mining of 3½ million tons of lignite annually.

(2) Generation of 200 MW of power.

(3) The production of nitrogen fertilizers with a nitrogen content of 70,000 tonnes per year.

(4) Manufacture of 7,20,000 tonnes of raw lignite briquettes and their carbonisation to produce 3,80,000 tonnes of carbonised briquettes.

6. The period from the year 1954 to 1965 saw a number of changes in the complex of the integrated scheme. The main changes brought forth in the scheme after the Project Report are as follows:—

(i) inclusion of Clay Washing Scheme;

(ii) rephasing of the Fertilizer Scheme to produce 1,52,000 tonnes of urea annually;

(iii) expansion of capacity of Thermal Scheme from 200 MW to 250 per annum.

7. The Union Government in consultation with the Madras State Government took up the responsibility of financing the project from the 1st January, 1955 and administrative responsibility from the 15th September, 1955. It was registered under the Companies Act on the 14th November, 1956.

8. All the five units of the integrated scheme have since gone into production. As a part of the Third Five Year Plan programme, the capacity of the power station is being expanded from 250 MW to 400 MW. This will be further increased to 600 MW during the Fourth Five Year Plan period. In order to facilitate this expansion, the mine output will be ultimately increased to 6.3 million tonnes per annum.

II

MINING SCHEME

A. Delay in Commissioning

9. The Mining Scheme is for winning 3.5 million tonnes of lignite per annum by the open cast method. The original target date for commencing winning of lignite was July, 1960. Full yield of 3.5 million tonnes of lignite was expected to be achieved late in 1961. But the production of lignite commenced in September, 1961. The production at rated capacity has not been reached so far. The actual production of lignite has been low as shown below:—

	(Million Tonnes)
1963-64	1.206
1964-65	1.597

10. Asked about the reasons for low production of lignite, it was stated that the lignite extracted from the mine could have been used only in the consuming units namely, Thermal Station, Fertiliser Plant and Briquetting and Carbonisation Plant. Being of combustible nature it cannot be stored. As there had been considerable delay in the commissioning of the consuming units, the programme of removal of overburden was, therefore, suitably spaced.

11. At present the production of lignite at rated capacity, *i.e.* 3.5 million tonnes has been programmed from 1966-67. When the integrated scheme at Neyveli was conceived in 1954, it was assumed that sanction for it would be received by 1956 and it would be possible to produce 3.5 million tonnes by the end of 1961. Thus in reaching full production, there will be a delay of 5-6 years. This has been due to the late sanctioning and implementation of the various units of the integrated scheme. *If the commissioning of the Mining Scheme as also the consuming units had been properly planned and synchronised the present idle capacity in the Mine would not have occurred. The targets of production envisaged in the Second and the Third Five Year Plan periods would also have been adhered to.*

B. Consultants

12. In May, 1954 the Government of India and the Government of Madras requested the Commonwealth Relations Office in London to provide under the Colombo Plan, the services of M/s. Powell Duffryn Technical Services Ltd. as Consulting Engineers to prepare a Project Report for a programme of industrial development in the State of Madras based on the exploitation of the lignite deposit at Neyveli in South Arcot. Their services became available till about the third quarter of 1956. They prepared a Preliminary Project Report in 1954 and a Detailed Project Report in 1956.

13. The remuneration paid under the various agreements with M/s. Powell Duffryn Technical Services Ltd., was as follows:

(a) Technical and Economic Feasibility Study under an agreement dated 3-8-1954; first Supplemental Agreement thereto dated 23-6-1955, and Second Supplemental Agreement dated 30-1-1957..... £43,650.

(b) Preparation of D.P.R. under Agreement dated 11-4-1956 between Government of India and M/s. Powell Duffryn Technical Services Ltd., London ..... £42,000.

Reasons for preparation of D.P.R. and Technical Feasibility Report.

14. In evidence, it was clarified that the consultants rendered free service for a period of 6 months i.e. from May, 1954 to November, 1954 and during this period they prepared a Preliminary Project Report. Based on this report a Detailed Project Report which contained data about technological processes was prepared. A Technical and Economic Feasibility Report was also prepared for the utilisation of lignite in the various industrial units of the project. Asked as to why a Technical and Economic Feasibility Study was made through the same firm on payment of £ 43,650 when they had already prepared a preliminary Project Report, the Secretary of the Ministry of Mines and Metals stated that the Preliminary Project Report contained only preliminary observations about mining utilisation and processing of lignite whereas the Technical and Economic Feasibility Study dealt with the other aspects of the integrated scheme such as the utilization of lignite for the generation of power, production of ferilizers and manufacture of carbonised briquettes.

15. The Committee note that M/s. Powell Duffryn Technical Services Ltd. were engaged as Consultants in 1957 for a period of 3½ years for the supervision of the development of the Mining Scheme on a remuneration of £2,00,000. The considerations which weighed with the Government in appointing them as Consultants were—

(i) Their association in the initial stages of the Project extending over 2½ years and experience gained by them in the underground conditions at Neyveli.

(ii) The firm was not connected with manufacture of the equipment of the type which had to be used in the Neyveli Project.

(iii) The firm had vast experience of coal mining in U. K. and in other countries.

16. No quotations were invited from other parties as it was thought that there was no other consultant who could have rendered satisfactory service. As regards fees, the Consultants had demanded £ 2,59,000 as their fee for development of mine, but after negotiations, it was brought down to £200,000. The capital cost of the mining scheme was estimated at Rs. 16.90 crores and the fee paid to the consultants on the said capital cost worked out to 1:6 per cent. In regard to the competence of the firm to undertake the work at Neyveli as also the reasonableness of the fee agreed upon, the Ministry had acted upon the recommendations made by the then Chairman of the Corporation.

Practice of inviting tenders not observed.

17. It is seen that M/s. Powell Duffryn Technical Services Ltd. whose services were obtained free of cost under the Colombo Plan were actually paid a sum of £ 2,85,650 for Technical and Economic Feasibility Study, for drawing up of Detailed Project Report and for development of the Mine. This was done under different contracts, without ascertaining rates from other concerns. *The Committee would like to point out that the usual practice of inviting tenders before entering into contract was not followed in this case. Further it was not known that the consultants had any experience of lignite mining.*

C. Cost of Production of Lignite

18. The cost of production of lignite in the Project Report was estimated at Rs. 8·23 per tonne and in the revised sanctioned estimates at Rs. 10·35 per tonne. The actual cost of production during the years 1962-63 to 1964-65 was, however, as follows:—

Year	Cost of production (Rs. per tonne)	Quantity Produced (Million Tonnes)
1	2	3
1962-63	34·44	0·354
1963-64	24·60	1·206
1964-65	23·43	1·597

19. The Corporation has stated that the cost of production was high due to the low output of lignite as compared to the rated capacity of 3·5 million tonnes.

20. The cost of production of lignite on a total output of 3 million tonnes is estimated at Rs. 18·50 per tonne in 1965-66 and Rs. 17·25 per tonne in 1966-67 when the mine would produce the rated capacity of 3·5 million tonnes. The cost is expected to stabilize at Rs. 13·00 per tonne when the mine output increases to 5·5 million tonnes per annum and would be reduced further to Rs. 12·5 per tonne when the mining capacity reaches 6·3 million tonnes per year.

Reasons for high Cost of Production.

21. The Chairman of the Corporation explained that cost of Rs. 17·25 per tonne had been worked out after taking into account the bulk of the capital required to raise the output from 3·5 to 6·3 million tonnes. It will take a little time to reach the full out-put, but in the meantime the interest on additional loan capital and the depreciation on machinery which would not be worked to the full extent initially would result in the cost of production being higher than envisaged at the time of sanctioning the revised estimates in April, 1964.

Keeping separate accounts of original and expansion schemes suggested.

22. *The rise in the cost of production from Rs. 10.35 to Rs. 17·25 per tonne (an increase of 70 per cent) is considerable. The extent of rise in cost due to the capital employed on the mining expansion scheme is not known because accounts relating to the original and the expansion schemes are not kept separately. The Committee consider that for a proper appraisal of the performance of the Corporation in respect of the original scheme and the expansion, the Corporation should keep such accounts separately.*

D. Consumption of Lignite

Installation of Weightsmeter Suggested.

23. The consumption of lignite per unit of power generated showed an increase. Asked about the reasons, the Chairman of the Corporation stated that the assessment of consumption of lignite had been made approximately because in the absence of weightometer there was no actual weighment of lignite supplied to the Units. The necessity of weightometer was either not conceived earlier or it had been lost sight of. *For the purpose of accurate cost control and management efficiency, it is necessary to have accurate weighment of lignite supplied to the consuming units. The Corporation should have considered the question of installing a weightometer much earlier. This should be installed now.*

E. Use of Lignite for Iron and Steel Plant

24. The Government had set up a Committee of Technical Experts to explore how best lignite could be used

for the production of pig iron from Salem and other iron ores. That Committee, at its meeting held on the 28th May, 1962, made the following recommendations:

(i) Having regard to the transport difficulties in bringing iron ores from other deposits, the Salem iron ore, after beneficiation, is preferable for iron production based on Neyveli Lignite:

(ii) Having due regard to the fact that power could be put to more productive uses in secondary engineering industries where output per KWHr would be greater than in a primary industry like iron smelting, the low shaft furnace technique is better and preferable for this scheme;

(iii) the Madras Government may undertake site survey for the plant;

(iv) The beneficiation plant will be at or near the ore site; lignite HTC coke plant will necessarily be at Neyveli; for the low shaft furnace, Neyveli is the best location from the point of view of proximity to the coke, the availability of water and maximum utilisation of by-product gases; and

(v) A detailed project report may be got prepared through an appropriate firm of consultants.

25. In accordance with the above recommendations, the Government obtained a detailed project report on the location of a steel works in the Neyveli-Salem region, based on Neyveli lignite. No decision has so far been taken about setting up of iron and steel works based on Neyveli lignite.

26. The Committee also discussed this question during evidence of officials of the Corporation and the Ministry. The Chairman of the Corporation stated that the tests conducted in East Germany and in some Scandinavian Countries showed that lignite could be used as a good reducing agent for Salem ore. The Corporation as a unit was in favour of setting up of such a plant as that would consume about 2,00,000 tonnes of LECO and 1,20,000 tonnes of char dust. The Corporation was not sure of selling char dust but setting up of a steel plant would provide a good market for it.

27. The representative of the Ministry stated that the erstwhile Iron and Steel Department had asked a team of Japanese experts from the Japanese Consultancy Institute to study this question and their report was not yet out. He added that in case the Ministry of Iron and Steel wanted to utilise lignite for the production of pig iron, his Ministry would consider how production of lignite could be increased.

28. *It appears that the Corporation is in favour of setting up of a steel plant in the South based on Neyveli lignite. But the Committee regret to note that the Ministry of Mines and Metals has not considered this matter. In fact the representative of the Ministry thought that it was for the Iron and Steel Department to decide the issue. The Ministry of Mines and Metals which is the administrative Ministry for the Neyveli Lignite Corporation should have taken more interest in this matter. Advance planning for increasing the production of lignite will also be necessary if it is decided to use lignite for production of pig iron. The Ministry of Mines and Metals should pursue the matter with the Ministry of Iron and Steel.*

F. Use of Lignite Briquettes for Mysore Iron and Steel Works

29. The Committee also enquired whether lignite briquettes could be used in the Mysore Iron and Steel Works. The Chairman of the Corporation stated that Neyveli and the Mysore Iron and Steel Works were on the Metre-gauge but they were not linked. With the completion of the Salem-Bangalore Metre-Gauge link the picture might slightly change. He, however, added that the Corporation had started investigations whether, their material could be used in making graphite Electrodes used by the Mysore Iron and Steel Works in the Electric Process.

30. *The difficulty of transportation of lignite will be eased with the completion of the Salem-Bangalore metre-gauge link. The Corporation should examine the possibilities of utilisation of lignite by the Mysore Iron and Steel Works.*

G. Working of Mining Machinery

(i) *Dumper Fleet (Conventional Equipment)*

Defects in Working.

31. In 1957 the conventional machinery (Dumpers) was put into operation for removal of over-burden. The intention was to use this machinery till 1960 and withdraw it once the specialised mining equipment (Bucket Wheel Excavators) was put into operation. The Corporation, however, continues to use the conventional machinery and has at present a fleet of 32 Dumpers. The Chairman of the Corporation when questioned about it stated that apart from the removal of overburden, the Dumpers were being used for making bunds, filling up places etc. From March, 1964 there have been serious breakdowns of the Dumpers. The main reason is that the engines have developed major bearing trouble. The suppliers of the machinery could not locate the defects. The Corporation also carried out investigations without success. The matter has been referred to the National Metallurgical Laboratory, Jamshedpur for studies at site.

32. The Committee were informed that it was possible to reduce the present Dumper fleet from 32 to 8 provided that it could be replaced by another type of machinery which is available in Germany. This replacement would mean a substantial reduction in cost.

33. *The Dumpers are not giving trouble free service and the defects also remain undetected. The cost of removal of overburden with them is high and is rising with the aging of machines. In these circumstances the use of these Dumpers seems uneconomical. A thorough study should be made to find out whether the present Dumper fleet should be replaced by a new type of machinery which could be operated efficiently and economically.* Replacement of Dumper fleet to be examined.

(ii) *Bucket Wheel Excavators (Specialised Equipment)*

34. The Corporation owns 2 big and 2 small Bucket Wheel Excavators. The number of hours/days each Excavator operated during each of the last 3 years is given below:—

(HOURS)

Excavator		1962-63	1963-64	1964-65
Bucket	1144 (big)	1185.01	2540.19	3973.20
"	1145 (big)	2306.29	2813.51	3820.36
"	1137 (small)	809.25	1441.14	1947.49
"	1142 "	1527.40	1632.22	2519.21

35. It is noticed that the average utilisation of each small Excavator was about 6 hours per day while that of the big Excavator was nearly 10 hours per day. The Chairman of the Corporation admitted during evidence that this utilisation was low, but added that at full production stage this could rise upto 16 to 18 hours per day.

36. *The present rate of utilisation of the Bucket Wheel Excavators is low. Efforts should be made to utilise them to their maximum capacity.*

H. Mining Losses

37. At present the Mining losses amount to 5 per cent of the total exposed lignite. In the written reply furnished to the Committee, it was stated that these losses could not be avoided. But during evidence the Chairman of the Corporation stated that there was a proposal to substitute the existing cross filling method by earth moving conveyor system which would reduce the losses to 2 per cent.

38. *The percentage of mining losses so far has been high and no serious thought had been given to reduce them.*

The present method should be improved upon and losses reduced to the minimum.

I. Rise in Capital Cost of Expansion Scheme

39. The Third Five Year Plan envisaged an expansion of the mine output from 3.5 million tonnes per annum to 4·8 million tonnes at an estimated cost of Rs. 3·8 crores (with foreign exchange element of Rs. 1·45 crores) mainly required for the purchase of an additional unit of specialised machinery for mining. This equipment will be sufficient to raise the output of lignite to 6 million tonnes. The estimate of cost was revised in 1963 and has now been worked out at Rs. 568·30 lakhs, thus raising the cost by Rs. 188·31 lakhs as per statement given below:—

Heads	As originally estimated in 1961	Revised estimate in 1963	Increase
		(Rs. in lakhs)	
1. Cost of the Plant and Machinery including erection	331·00	460·00	(+)129·00
2. Residential Quarters	21·04	24·10	(+)3·06
3. Establishment	6.80	3·00	(—)3·80
4. Share of common administrative expenses and housing and common services	Nil	49·00	(+)49·00
5. Interest charges	16·15	32·20	(+)16·05
6. Others	5·00	0·70	(—)4·30
TOTAL	379·99	568·30	(+)188·31

Reasons for increase in cost.

40. Explaining the reasons for increase in capital cost under various heads, the Corporation has stated that the increase of Rs. 129.00 lakhs on the machinery and plant was due to the following reasons:—

(i) The estimates were based on the 1956 and 1958 prices allowing a margin of 4% to 5%. But on receipt of quotations, it was found that the increase was considerably more than that assumed in the estimates.

(ii) Addition of items and equipment valued at Rs. 45.46 lakhs which were not contemplated in the original estimates (*e.g.* Three Wheel trailors, vulcanising equipment etc.—Rs. 3.52

lakhs; additional cables and electric equipment—Rs. 16.94 lakhs. Rails and rail grating—Rs. 20.00 lakhs.—Regarding rails and rail grating it was thought that some rails of the old conveyors could be re-used. It was subsequently found that rails laid four or five years back would not be satisfactory and that new rails would have to be procured.

41. *In 1961 the cost of the Mining Expansion Scheme was estimated at Rs. 379.89 lakhs but in the revised estimates prepared in 1963 the cost was put at Rs. 568.30 lakhs thus showing a rise of 50%. The basis for the prices assumed in 1961 estimates proved incorrect. Requirement of plant and equipment of the value of Rs. 45.46 lakhs was also not visualised in the original estimates. The Corporation should pay greater attention towards framing of accurate estimates.*

J. Expansion of Mining Scheme

42. A project report for increasing the mine output from 3.5 million tonnes to 4.88 million tonnes per annum was prepared by the Corporation in 1962 and after obtaining sanction of Government, the work of expansion commenced in 1963-64. The additional lignite that will be produced from the Mine Expansion Scheme is for the Power Station which is being expanded from 250MW to 400MW. There is a proposal to increase the mining capacity upto 6.3 million tonnes. The additional lignite capacity to be produced is for utilisation in the Thermal Plant from 400 to 600 MW. The scheme is expected to be completed in 1968-69.

Second Mine Cut.

43. The Corporation has worked out a proposal to open up about 8.01 sq. miles to yield 276 million tonnes of lignite. The mine would have a capacity of 7 million tonnes per annum. During evidence the Chairman of the Corporation stated that for the second mine it would take 6-7 years to expose lignite. The major portion of the lignite would be used for generation of power (about 600 MW) and the remaining quantity might be for the briquetting and the fertiliser plants.

44. The Committee also discussed whether any study had been made to examine the possibility of utilising lignite for other industrial purposes, particularly in Railway locomotives. The Corporation has stated that tests conducted in 1962 at the instance of Railway Administration, revealed that the raw lignite could be used for locomotives only in combination with coal, while with the raw briquettes the locomotives could run normally.

45. During evidence, the Secretary of the Ministry stated that the Corporation had not approached the Railways in this connection. He added that it was for the Railway

authorities to consider whether they could use lignite on larger scale after working out relative economics of lignite and other fuel. So far as the supply position was concerned, there was no surplus quantity of lignite briquettes which could be placed at the disposal of the Railways. In case the Railways chose to utilize the raw briquettes, it would be necessary to open a new mine costing as much amount as had been incurred on the first mine cut, which it was difficult to do in the Fourth Five Year Plan period. Government had, therefore, not thought fit to explore utilization of lignite for industrial or railway use. He further stated that even if the production of lignite was increased, its most important use should probably be to augment power generation in that area rather than use it for railway locomotives or boiler or for other purposes. As regards the opening of the second mine, it was stated that studies would have to be carried out into the economic and technical feasibility of the new mine and whether heavy investment could be made on it.

46. *Hitherto not much thought appears to have been given as to how lignite mining could be developed. The present approach seems to be confined only to power generation, fertilisers and briquettes, whereas lignite can be put to several other industrial uses especially in the Railway locomotives where tests carried out so far have proved to be encouraging. At present a large quantity of coal is transported from the North to the South. There are large deposits of lignite in the South Arcot District and Government should take overall view as to the place which lignite would occupy as a substitute for domestic fuel, in railways etc. Planning in this regard should be done first. If is felt that launching of such a project during the Fourth Plan period would be commercially sound and beneficial to the country, the proposal to open a second mine should receive priority.*

III

THERMAL SCHEME

47. The Thermal Power Scheme a constituent unit of the Integrated Project envisaged the utilisation of about 1·5 million tonnes of lignite per annum for the generation of 250 MW of electric power in the Thermal Power Station. The Scheme was financed out of the Rouble Credit under the Indo-Soviet Agreement concluded in November, 1957.

A. Delay in Commissioning

48. The contract with M/s. Techno-promexport, USSR for the supply of working drawings and erection of plant, machinery and equipment for the 5 thermal power units of 50 MW each, was signed in 1959. According to the terms of the contract the first unit of the Thermal Power Station was to be commissioned in April, 1961 and the remaining units at intervals thereafter, and the entire station was to go into operation in July, 1962. But the actual dates of completion of the units were as follows:— Completion of Thermal Units.

	Anticipated dates of completion	Actually completed
1st Unit	April, 1961	May, 1962
2nd Unit	July, 1962	Jan. 1963
3rd Unit		June, 1963
4th Unit		Oct. 1963
5th Unit		April, 1964

49. From the above statement, it will be seen that there had been a delay of about 13 months in the completion of the 1st unit. The delay in the case of the Fifth Unit extended to 21 months. The Corporation has attributed this delay to the late supply of plant and equipment by the foreign suppliers. Further, for transport of heavy machinery from Madras to Neyveli, work had to be undertaken for preparing a number of diversion routes. There was some delay in arrival of the suppliers' specialists for commissioning the plant. In the absence of penalty clause in the agreement no damages were claimed from the Russian Collaborators for the delay in the supply of machinery and plant. Reasons for delay in completion.

50. The Committee are informed that the Soviet Organisations do not agree to the inclusion of such a penalty clause in the contracts entered into with them. In the present case, the Ministry had, however, taken up the matter with the Soviet Suppliers through the Russian Embassy in India and Indian Embassy in Moscow to expedite supplies.

Need for observing delivery schedules

51. *This is an instance where delay in supply of equipment by the foreign suppliers had resulted in delays ranging from 13 to 20 months in the commissioning of the various units of the scheme. The staff which had been recruited had also to be kept idle for the corresponding periods. While fixing the date of delivery of plant and equipment, the suppliers should be apprised of the repercussions of delay on their part and they should be asked to fix realistic delivery schedules for the plant and machinery and adhere to the dates so fixed.*

B. Cost of Production

52. In the Project Report, the cost of generation of power per unit was estimated at 3 Paise per KWH and later on it was worked out at 4,002 Paise per KWH on the basis of revised cost of the Project sanctioned in April, 1964. The cost of generation anticipated after the first phase of expansion (250 MW to 400 MW) and second phase of expansion (400 MW to 600 MW) is 4·18 Paise and 4.33 Paise per KWH respectively. It is stated that the cost of generation after the completion of second phase of expansion will be higher because expansions are being financed through loans only. The actual cost of production for the last 3 years has been as follows:—

1962-63	6·30 paise per kwh.	
1963-64	5·88	-do-
1964-65	5:15	-do-

Reduction in cost suggested.

53. *The cost of production of power for 250 MW station according to the revised estimates sanctioned in 1964 was* worked out at 4,002 Paise per KWH. With the expansion *of the capacity upto 600 MW, it was expected that with a larger turnover the cost would come down. But the Committee note that even after expansion, the cost would be higher* (i.e. 4·33 *Paise per KWH) than that estimated for the 250 MW Thermal Station. There is need for economising in costs. Lignite cost is a major item of expenditure for power generation. The Corporation should strive to reduce the lignite consumption per unit of power through technological improvements with a view to reducing the present production cost.*

C. Sale of Power to Madras State Electricity Board

54. The power generated by the Thermal Power Station is sold to the Madras State Electricity Board after meeting the Corporation's requirements. The following table shows the cost of generation of power by the Corporation and the rate at which it is sold to the Madras State Electricty Board:— **Cost of generation and sale price.**

Year	Cost of Generation per KWH paise	Rate per KWH at which power is sold to Electricity Board
		paise
1962-63	6.3	5·2
1963-64	5·97	5.2
1964-65	5·15	5.2

55. Thus till 1963-64 the cost of generation of power was higher than the price at which it was sold to the Madras State Electricity Board. This resulted in loss to the Corporation to the extent of Rs. 26·53 lakhs in 1962-63 and Rs. 61·67 lakhs in 1963-64. The Corporation has stated that the higher cost of generation in the early years was due to the higher cost of lignite arising out of partial production in the mines, and it was not considered justifiable to pass the higher cost to the Board in the earlier years. The selling rate of power had been fixed taking into account the overall viability of the Thermal Station including the two expansions.

During 1964-65, the Corporation made a profit of Rs. 12.36 lakhs on the sale of power to the Madras State Electricity Board, while the profits expected during 1965-66 would amount to Rs. 80 lakhs.

56. The Committee desired to know the basis for fixation of the sale price of power at 5·2 Paise per KWH. The reply furnished by Government is summed up below:— **Basis for fixation of sale price.**

(i) Based on certain calculations which provided for depreciation (by straight line method over 25 years), interest (5½%) and return on capital (3%), the Corporation had in 1961-62 suggested a rate of 6.183 Paise. per KWH

(ii) The Central Water and Power Commission provided for depreciation at 3% compound interest and the same rate of interest and return on capital and suggested a selling price of 5·582 Paise. per KWH

(iii) A meeting was held on 11th December, 1962 at which the representatives of the Ministries of Mines and Fuel, Irrigation and Power and

Finance and the representatives of the Corporation and the Madras State Electricity Board were present. At this meeting the representatives of the State Electricity Board suggested a rate of 4 Paise. The discussions concluded with the suggestion that an *ad hoc* rate of 5·4 Paise could be charged for the power supplied to Madras Grid from June, 1962.

(iv) The Electricity Board was not agreeable to pay at the rate of 5·4 Paise. During the discussions held in November, 1963, the State Government was agreeable to a maximum rate of 4·75 Paise.

(v) The matter was further discussed and a rate of 5·2 paise was accepted by the Madras Government and the Electricity Board in October/November, 1964. This rate is based on a return of not less than 5½% on the equity capital.

57. The Chairman of the Corporation informed the Committee that according to his information the price at which power is sold by the Madras State Electricity Board is 7 Paise for agricultural load and 9 Paise to other bulk consumers.

Sharing of margin of profit between Corporation and Electricity Board.

58. *In the matter of sale of power, the Corporation as well as the Madras State Electricity Board should be entitled to a reasonable margin of profit and a fair return on capital. If the Corporation is able to bring down its cost of production to about 4.3 Paise per KWH at 600 MW stage, as now envisaged, the sale price of 5·2 Paise per KWH will give a fair return on investment. However, if the price at which the Madras State Electricity Board sells power is much higher than the price at which it purchases from the Corporation and this results in a substantial return to the Madras State Electricity Board, then the Corporation should be entitled to a higher price for the power sold by it. The Committee feel that the Madras State Electricity Board should not retain higher percentage of profit from the sale of electricity which it obtains from the Corporation than the percentage of profit it makes on electricity generated* by itself. This profit should be considered rather liberal as the Madras State Electricity Board will get it without having produced this power.*

D. Supply of Power

Decision of 1954 re: supply of power.

59. The Committee noticed that ever since the commencement of the Thermal Station in May, 1962 all power surplus to the requirements of the Corporation is being pumped into the Madras State Electricity Grid. The decision to supply power to the Madras State was taken at a

*The cost of generation of power by the Madras State Electricity Board during the year 1964-65 was 9.103 paise per KWH. cost as now estimated would work out to Rs. 117:50 crores.

meeting held on the 27th December, 1954 in which the representatives of the Central Water and Power Commission, and the Planning Commission were present. The following are the relevant extracts of the minutes of the meeting:—

> "A good deal of the power generated would be consumed in the project itself, for the mining, the fertiliser production, briquetting carbonisation, etc. *i.e.*, in other parts of the integrated project. The Madras Government would take over and be responsible for distributing the surplus of electric power available from the integrated project after its own requirements were met. Supplies elsewhere even for the Central Government's requirements would be at the Madras Government price."

60. The above decision to supply power to the Madras State applied to the power station when its capacity was 250 MW.

Corporation's view.

61. During evidence it was stated that the Corporation would like Madras State Electricity Board to purchase all the power that was surplus to the Corpoartion's own requirements because they alone had the transmission lines going upto Neyveli. Asked whether power could be supplied to the neighbouring States through the same line and charged on *pro-rata* basis, the Chairman of the Corporation stated that it was fraught with problems like measurement of power and working out transmission losses. When asked about the Corporation's reaction regarding the supply of power, if the State Governments agreed to bear the transmission losses, the Chairman of the Corporation indicated that the Corporation would resist such a proposal. He added that the Corporation's attitude was that it would like to deal with one party only for the collection of bills and in the present case because of grids connection, the party could only be the Madras State Electricity Board.

Requirements of neighbouring States.

62. In this connection the Committee find that the Southern Zonal Council had in 1964 approved the proposal for supply of 25 MW power to the Kerala State who were experiencing acute power shortage. As 25 MW was not found sufficient the Kerala State Government requested the Corporation on the 14th August, 1964 to raise the quantum of power to 35 MW from January, 1965. The Corporation in their reply to the Kerala State has stated that as they were pumping their surplus power into the Madras State Electricity Grid, the matter should be settled with the Madras State Government.

63. The Kerala Government had first raised the question of supply of power from Neyveli in the summer of 1963. At that time arrangement was made to supply them power through the Madras Grid. Then in May the same

year, Andhra Government suggested that Neyveli should also supply them power. As the sharing of Neyveli power by all the Southern States became a general question, it became necessary to consult the Ministry of Irrigation and Power, Central Water and Power Commission and the Planning Commission. No final decision had been taken in the matter so far. The Secretary of the Ministry of Mines and Metals admitted during evidence that the decision had been delayed as growth of demand for power generation and demand for power in various States had to be taken into account.

Supply of Power to neighbouring States recommended.

64. *The Committee do not consider it desirable that the Corporation should think of dealing with one party alone, namely the Madras State Electricity Board. The proper course would be to ascertain the requirements of all the neighbouring States and to distribute power equitably among them. The problems of the grid and transmission losses can be resolved if measurements are taken at the outlet point and at the inlet point in the neighbouring States and the trasmission losses worked out on percentage basis. The Committee are anxious that a product like power of a Public Undertaking of which Government of India is the major or the only shareholder, should not be restricted to one State only.*

65. *Another point is that the power purchased by the Madras State Electricity Board from the Neyveli Thermal Station is sold to another State Electricity Board after keeping a certain margin. Obtaining of profits by the Madras State Electricity Board above its service charges from a neighbouring State does not seem justifiable. This also results in the power being sold to the consumers in the neighbouring State at a higher price. From this point of view, it is also desirable that the Corporation should sell power to the State Electricity Boards directly at one rate which may be mutually agreed upon.*

66. *The decision to supply Neyveli power to the Madras State Electricity Board was taken on the 27th December, 1954. On that date the Neyveli Lignite Project was administered by the Madras State Government. The Central Government took up the responsibility of financing the project from the 1st January, 1955 and administrative responsibility from the 15th September, 1955. When this responsibility was taken over, it is doubtful whether the decision to supply power to the Madras State Electricity Board only which was arrived at prior to such taking over still continued to be binding*. When the project was transferred in 1955, the Central Government should have examined this question de-novo. During evidence of officials of the Corporation and the Ministry, the Committee gather-*

*At the time of factual verification it was stated that the decision taken on 27-12-54 about the supply of surplus power to Madras continues to be valid as it became effective from the date on which the Central Govt. took over the Project

ed the impression that there was a vague idea that power was to be supplied to the Madras State, but no one really knew what exactly the decision was.

67. The Capacity of the Thermal Station is being expanded from 250 MW to 600 MW in two phases, the first is from 250 MW to 400 MW which is expected to be completed in 1966-67. The second phase of expansion from 400 MW to 600 MW would materialize in the Fourth Five Year Plan. The Corporation has already initiated action regarding the sale of power produced under the expansion schemes to the Madras State Electricity Board. It proposes to enter into an agreement with the Electricity Board for the sale of power produced by it (after meeting its own requirements) upto 1974 with a provision to renew the agreement for further periods. Agreement with Madras State for supply of power.

68. *During evidence the Secretary of the Ministry had stated that the supply of power to the Madras State upto 250 MW stage was because of the commitment made in 1954 but if there was generation of power beyond 250 MW that would be shared by other States. In view of this the Committee fail to understand as to why the Corporation is contemplating to enter into an agreement with the Madras Government for the supply of power even upto 600 MW stage.*

E. Preparation of Detailed Project Reports and Working Drawings for expansion schemes

69. The work of preparation of Detailed Project Report and Working Drawings for the 250 MW Thermal Station was entrusted to M/S Technopromexport, U.S.S.R. in 1959. For the 1st and 2nd phases of the Thermal Expansion Scheme (250 MW to 400 MW and 400 MW to 600 MW), this work has also been entrusted to the Russian Collaborators. The Committee desired to know why it was not possible to prepare the D.P.R. and Working Drawings in India in as much as considerable experience had been gained in the setting up of Thermal Stations in the country. The Chairman of the Corporation stated during evidence that the foreign collaborators took the stand that they (collaborators) would have to prepare the final detailed project report even if the Corporation prepared a preliminary report, because then only they would be able to match the specifications in the detailed project report with the equipment they had planned to manufacture during a particular period. It was stated that the manufacture of equipment as also technology was advancing fast and the collaborators wanted to incorporate that. Reasons for obtaining D.P.R. from Russia.

70. The Chairman of the Corporation stated that for the 2nd phase of expansion (400 MW to 600 MW) a project report had been prepared and it was suggested that it

might be examined by a Technical Committee of the Russians. The Russians, however, did not agree to this. The Project Report prepared by the Corporation was considered as a basic data and the Russians prepared their own report.

71. The Committee discussed with the Secretary of the Ministry whether Government took any steps to ascertain local potentialities for preparation of designs for the Thermal Stations in India. He stated that the Specialized Engineering Organisation of the Central Water and Power Commission had been set up recently, but it was not possible for it to handle all the Thermal Plants. It was thus on the advice of the Central Water and Power Commission that the work of preparation of the Detailed Project Report and Working Drawings was entrusted to the Russian Collaborators. From the correspondence exchanged in 1963 between the Corporation, the Government and the Russian firm, it is noted that the Corporation prepared a project report for the 400 MW to 600 MW expansion scheme and the advice of the Planning Cell of the Central Water and Power Commission as also of the Russian experts at site was also obtained. It was thought that on the basis of this Report it would be possible to invite equipment specifications and quotations from the U.S.S.R. A representative of the Central Water and Power Commission had gone to the U.S.S.R. in this connection, but during the discussions held on the 3rd September, 1964 the Soviet suppliers informed him that they could not supply plant and machinery on the basis of that project report.

72. *From the foregoing paragraphs it appears that when the Soviet suppliers did not agree to accept the project report prepared by the Corporation, the matter was not pursued further. The project report was based on the experience gained by the Corporation in setting up five Thermal units at Neyveli and was also seen by the Central Water and Power Commission and the Russian experts at site. It could be expected that the project report would be accepted by the Soviet Suppliers subject to the necessary modifications being made by them. Government should have pursued the matter on the above basis with the foreign collaborators.*

73. During evidence the Secretary of the Ministry could not say whether there were any private firms in India who had been preparing designs for Thermal Stations. He stated that the Ministry was guided by the advice given by the Central Water and Power Commission and his Ministry had no agencies to make enquiries for ascertaining local potentialities in this respect.

74. The Committee subsequently obtained information from the C.W.&P.C. and it is learnt that there are two Indian firms of long standing who undertake complete

work for Thermal Power Station from preliminary studies and project report to erection and commissioning of the plant. One of them has been associated as Consultants to several thermal power projects in the country some of which are D.V.C. Durgapur Thermal Power Station, Dhuvaran Power Station, West Bengal Government's Durgapur Power Project, West Bengal State Electricity Board Bandel Power Station, Bihar State Electricity Board Barauni Power Station and Madhya Pradesh State Electricity Board Satpura Thermal Power Station.

75. *The Committee regret to note that in a project costing crores of rupees and valuable foreign exchange the Ministry contented itself with a negative reply from the Central Water and Power Commission without itself trying to pursue the matter or find out the possibility of entrusting the work of preparation of Detailed Project Report to private agencies in the country. It is further regretted that the information which the Central Water and Power Commission has now supplied to the Committee could not be made available to Government earlier, otherwise a large saving of foreign exchange could have been effected. The Committee have, in their 13th Report on Management and Administration of Public Undertakings. (Planning of Projects) also dealt with at length this question of extreme dependence of foreign consultants.*

F. **Association of India Engineers for preparation of D.P.R.**

76. It transpired during the discussion with the Chairman of the Corporation that no Indian Civil Engineers could be associated with the Russians for drawing up the D.P.R. for the 2nd phase of expansion of the Thermal Power Station. A proposal to sponsor two Civil Engineers for 6 months training in Russia in latest designing techniques of the Thermal Power Stations was mooted as personnel with that training were not available and the Corporation intended to utilize them for designing and construction of the third stage expansion programme of the Thermal Power Station thereby effecting reduction in the number of the Russian Personnel. Foreign exchange to the extent of Rs. 24,000 for the purpose was not sanctioned as there was almost complete ban on official tour and deputation abroad due to emergency.

77. The representative of the Ministry of Finance stated that the proposal from the Corporation was to depute two Civil Engineers to Russia for training in the designing of Civil Works. Ministry of Finance did not agree with the proposal as it was felt that the country was not deficient in Civil Engineering. It was added that if the Corporation had put up proposals for sending Electrical or Production Engineers to associate in the designing of a power generation plant, the Ministry of Finance would have considered the proposal in a different light.

78. The Corporation's case is that a fairly adequate number of engineers of the Corporation had been trained in the operation and maintenance of the Thermal Power Stations in the U.S.S.R., but trained Civil Engineers for designing Thermal Stations were not available. *Considering the large outlay on the Thermal Scheme which is all under Russian credit, and the relatively small amount of foreign exchange that was required for sending two engineers for associating themselves in the preparation of the D.P.R. and Working Drawings, the Committee feel that the Corporation's request merited favourable consideration. It seems that the Ministry concerned and the Corporation did not clearly state the precise purpose for which the two engineers were being sponsored with the result that the Ministry of Finance rejected the request. The Committee regret to note such lack of clarity which has resulted in the loss of an opportunity for learning designing of Thermal Power Stations and will also involve further expense of foreign exchange.*

IV

FERTILISER SCHEME

79. The Fertilizer Scheme contemplates the production of fertiliser with a fixed nitrogen content of 70,000 tonnes per annum in the shape of Urea (152,000 tonnes) by the total re-cycle process. About half a million tonnes of lignite per annum will be utilized in the production of urea.

A. Delay in Finalization of the Contracts

80. The proposal for the setting up of a fertiliser plant was sent by the Corporation to Government in November, 1957. The approval of Government was given in various stages as indicated below:—

	Date of submission by the Corporation	Date of approval by the Government of India
1. Proposal for sanction	Nov. '57	Dec. '57 (administrative approval subject to adequate credit facilities becoming available for the foreign exchange component).
2. Proposal for floating tenders	Jan. '58	April '58
3. Final proposal based on quotations, for sanction.	June '59	August '59
4. Revised proposal after clarifications from the firms.	Sept. '59	Oct. '59

Reasons for delay

81. Thus from the time of submission of the proposal by the Corporation to the signing of the contract with the suppliers it took two years. The delay was partly due to the following reasons:—

(*a*) The tender letter issued by the Corporation was very precise to enable easy tabulation of offers.

(b) The tenders received did not furnish adequate details and it took time to obtain them and reduce the offers to a comparable basis.

(c) Certain technical aspects were got clarified by the Corporation from the Suppliers.

(d) Revised quotations in respect of certain items were obtained.

(e) Negotiations were held with suppliers on some details including guarantees of performance and consumption of raw materials, number of foreign erection personnel to be employed; cost of steam raising units etc.

82. *In the tender letter issued by the Corporation detailed specifications should have been given. If the tender letter had been sufficiently exhaustive, so as to contain full details of machinery and equipment required as well as the period of delivery, terms of payment etc., the need to seek clarifications from the suppliers later would have been obviated and the time taken in finalising the tenders reduced.*

B. Delay in commissioning of Fertiliser Plant

83. The Fertiliser Plant was originally expected to go into production by the end of 1961 and later on the scheduled date was altered to October, 1962. When the Estimates Committee examined the working of the Corporation in 1960-61, they were informed that the Scheme was likely to go into full production early in 1963. This date could not be adhered to, because there was 27 months' delay in the procurement of indigenous steel for fabrication.

Delay in supply of indigenous steel.

84. The delay occurred because the contract entered into with foreign supplier in October, 1959 specifically provided for the indigenous supply of steel for fabrication of certain items of equipment. This could not be made available in time. So the steel had to be ultimately imported and supplied to the indigenous fabricators. The following particulars indicate the efforts made by the Corporation for procuring the steel first indigenously and later by importing it:—

		Date
1.	Indents placed on Iron and Steel Controller.	17.5.1960
2.	Indents accepted by the Iron and Steel Controller.	27.5.1961
3.	TISCO etc. on whom orders were placed expressed their inability to supply steel according to specifications. Hindustan Steel Ltd. ageed but delivery was indefinite.	14.6.1961 and 25.8.1961

	Date
4. Date of application for sanction of foreign exchange for import of steel.	24.8.1961/ 20.9.1961
5. Date on which sanctioned.	9.3.1962
6. Date of order placed on foreign firms for supply of steel.	17.3.1962
7. Due date of supply..	6.9.1962
8. Shipment completed on.	24.1.1963

85. During evidence, the Chairman of the Corporation informed the Committee that the eventuality of non-availability of indigenous steel in time was not foreseen in 1959, when the contracts for the Fertilizer Plant were signed with the foreign suppliers. This was because new steel plants were being set up and from their targets of production it appeared that indigenous steel would be available.

86. From the evidence of the representative of the Ministry, it is noted that when the Corporation had failed to procure the steel through the Iron and Steel Controller, they made another vain attempt with the Iron and Steel Department and Iron and Steel Controller. This was done to save foreign exchange. In this process a period of 5 to 6 months was lost.

87. *The delay in procurement of indigenous steel hampered the construction schedule of the Fertilizer Scheme. The Committee feel that when the Corporation had already obtained authorisation from the Iron and Steel Controller for importing steel, the Ministry should not have spent another 5 to 6 months in exploring the possibility of obtaining steel indigenously.*

88. After a prolonged delay the plant was commissioned for trial runs in July, 1965. The trial runs were not successful because Benzene could not be separated from the gas which is needed to produce Urea. The Chairman of the Corporation could not say whether the collaborators had analysed the samples earlier. Certain modifications were now being made in the equipment and the commissioning of the plant depended on the success of these experiments. The Committee understand that the plant has gone into production in March, 1966. **Reasons for further delay in commissioning.**

C. Extra Payments of Foreign Contractors

89. The contract with the suppliers of plant and machinery for the Fertiliser Plant provided that the Corporation will supply steel for fabrication of certain specified items of machinery and equipment in the country. Failure to supply the steel in time was treated as "*force majeure*" giving the suppliers option for revision of the

agreement. The agreement was revised with M|s PBL of Germany and Ansaldo of Italy. This entailed an extra payment of Rs. 72 lakhs (Rs. 42 lakhs in foreign exchange) to the suppliers.

90. The cost of steel that had to be imported after the Corporation failed to procure it indigenously was Rs. 25·39 lakhs. Thus to save foreign exchange of Rs. 25.39 lakhs an extra sum of Rs. 72 lakhs (including Rs. 42 lakhs in foreign exchange) had to be paid to the foreign contractors.

91. *The Committee consider that this was a case of bad planning. It appears that during the period from May, 1960 till the receipt of steel in 1963, there had been no realisation on the part of the Ministry or the Corporation that the delay caused in the procurement of steel was going to result in heavy extra payments to the foreign contractors. The whole question of procurement of steel had not been dealt with the care which it deserved. The matter should be investigated and responsibility fixed for the heavy losses.*

D. Collapse of Urea Drying and Cooling Plant Building

92. The Urea Drying and Cooling Plant building of the Fertilizer Scheme, which was under construction departmentally collapsed on the 27th January, 1963 resulting in an estimated loss of Rs. 2.38 lakhs. The building had collapsed when the roof slab and 100 per cent of R.C.C. work was completed. The structural designs and drawings of the plant were prepared by M|s Engineering Construction Corporation Ltd., Madras based on the basic drawings furnished by the plant suppliers. The work was executed under departmental supervision. On the basis of a report of a technical Committee appointed to investigate into the matter, the Corporation came to the conclusion that the collapse was due to defect in design for which the designers were responsible. A penalty of Rs. 7994 was recovered from the designers, as under the contract designers' liability for defective design was limited to 3 per cent of the estimated cost of civil works for which the designs were supplied.

Conclusions of Technical Committee.

93. The Technical Committee expressed the following views on the collapse of the building:—

> "It is not clear to us why for a tall industrial building of this type such a heavy roof involving heavy beams with congested reinforcement with all the attendant difficulties of proper concreting was designed. By having a R.C.C. roof, the dead load is many times more than the live load anticipated on the roof. If a lighter roof had been adopted all the difficulties encountered in such a heavy R.C.C. roofing would have been avoided. We also feel that the Engineering Construction Company who are to prepare the detail civil engineering designs and working drawings should

have given detailed working drawings clearly indicating the joints in steel bars, order of constructions etc. We understand on enquiry that when the Engineering Construction Corporation were asked to give these detailed drawings by the Corporation, the Corporation was informed that these detailed drawings should be prepared by the construction branch of the Neyveli Lignite Corporation themselves and this work was not covered by the contract".

94. Regarding fixing up responsibility that Committee observed as follows:—

"The Committee is satisfied that there has been no intentional lapse on the part of anyone concerned with the construction. The vast volume of civil works that is being carried on, the Corporation undertaking execution of almost all civil works departmentally, lack of previous experience in R.C.C. works of this type in the Corporation Engineers and the general paucity of Civil Engineers with considerable practical experience with the result that the Corporation had to make the best use of the comparatively less experienced men available, have been responsible for the unfortunate happening".

95. The Chairman of the Corporation stated during evidence that:—

(i) There was no able designer to check the designs supplied by the collaborator or by someone appointed by the collaborator.

(ii) In the drawings supplied by M|s E.C.C. Ltd., certain details, which should have been mentioned, had not been given.

(iii) M|s E.C.C. Ltd., had contended that under the terms of the contract detailed drawings were to be prepared by the Corporation, but the Corporation's view was that the firm was obliged to give the designs with the drawings incorporated in it.

(iv) It was true that there were defects in execution and construction due to lack of experienced men in this particular type of construction. The question of re-checking a design was difficult because it would necessitate having a parallel establishment to check. But it was probable that an experienced engineer would have detected faulty expression of the design.

96. In a note furnished to the Committee subsequently, the Corporation has stated as follows:—

"Normally, whenever R.C.C. works are taken up, bar bending schedules are to be prepared by the field officers for guidance and adoption by the bar benders. In the case of structures in Fertilizer Unit the draw-

ings supplied by the designers, Messrs E. C. C. contained details of reinforcements to be adopted. In view of the designers' drawings themselves containing details of reinforcement, and also in view of the volume of civil work to be completed before the erection of machinery being heavy and in arrears, the field staff in their anxiety to push through the work did not fully realise the importance of preparation of detailed drawing for every such work".

Checking of designs before execution of works suggested.

97. *From the foregoing paragraphs it is clear that the main and contributory reasons for the collapse of the building were (i) faulty or incomplete design supplied by the designers, (ii) non-availability of any experienced engineer to check the design, (iii) employment of engineers who did not have experience in this particular type of construction and (iv) execution of the work without first obtaining detailed drawings. Reasons given in items (ii), (iii), and (iv) are within the Corporation's responsibility. The execution of work without obtaining detailed drawings was not proper. If detailed drawings had not been supplied by M/s. E.C.C. Ltd., the Corporation should have first obtained them from the firm or else should have had them prepared before undertaking execution of work. Such neglect can result in heavy losses and even involve loss of life. The Corporation should ensure that the designs supplied by outside agencies are checked by its own construction engineers and that there is no defect in the execution of work.*

E. Cost of Production of Urea

98. The following table shows the actual/estimated cost of production of Urea at various Urea producing plants in the country:—

(Rs. per tonne)

	Sindri	Trombay	Gorakhpur	Neyveli
Raw materials	103.77	91.53	113.53	100.50
Operating charges	237.85	212.13	178.43	198.94
Depreciation on main plant and machinery	140.69	107.08	100.62	174.33
Administrative overhead	9.28	—	—	8.86
Interest on loan	—	35.96	32.19	41.24
	491.59 or 492.00	446.70 or 447.00	424.77 or 425.00	523.87 or 524.00

99. Of the aforesaid units, Sindri is already producing urea. Trombay Plant has gone into production in November, 1965. Gorakhpur plant is still under construction. From the above statement, it will be seen that the cost of production of Urea at Neyveli is to be the highest as compared to other units. This is mainly because of higher incidence of depreciation on main plant and machinery which is due to the fact that at Neyveli a solid fuel, that is lignite, is gasified and the fuel handling, gasification and gas purification plants are elaborate and costly.

100. Asked as to how will this plant compete with other units in the country, the Secretary of the Ministry stated that the Neyveli Fertilizer plant had the locational advantage since there were no prospects of any other Fertilizer (Urea) plant coming up in the South.

101. According to the information supplied to the Estimates Committee in 1960-61, the cost of production of urea was estimated at Rs. 500 per tonne. This estimate was based on a capital investment of Rs. 26·10 crores. But the cost of the scheme has now gone upto Rs. 36·19 crores and there has also been considerable delay in the commencement of production. The cost of production at Rs. 524 per tonne as now estimated is higher than that of the actual/estimated cost of other urea manufacturing units. But in view of the increase in capital cost and the delay in the operation of the Plant, the Committee are doubtful whether the Corporation will be able to produce urea even at Rs. 524 per tonne.

F. Sale Price of Urea

102. The retention price of urea for the years 1964-65 to 1966-67 for the Sindri unit has been fixed at Rs. 582 per tonne. The Corporation has assumed that it will get a retention price of Rs. 670 per tonne. This is because the cost of production at Neyveli will be much higher than at Sindri thus necessitating a higher retention price. *The Corporation should see whether its cost of production can be reduced so that there is some margin of profit even at the prevailing retention price.*

103. The Committee were informed during evidence that with an investment of another Rs. 2·70 crores the output of urea could be increased from 152,000 tonnes to 202,000 tonnes, *i.e.* by about 30 per cent. *If this proposal is implemented, the cost of production will be brought down. If the Government is satisfied that the above is based on studies carried out by competent persons it could ask the Corporation to initiate the necessary action for its achievement.*

V

BRIQUETTING AND CARBONISATION SCHEME

104. The Briquetting and Carbonisation Scheme envisages the utilisation of lignite (1½ million tonnes per annum) for the production of 380,000 tonnes of carbonised briquettes for use as domestic fuel.

A. Delay in Commissioning

105. The Scheme was conceived in 1957. The various stages in the completion of the scheme are indicated below:—

(i) A Pilot Plant valued at Rs. 25 lakhs received under T.C.M. Aid commissioned in May, 1958.

(ii) Detailed Project Report prepared in March, 1959.

(iii) Tenders invited in July, 1959.

(iv) Tenders received in January, 1960.

(v) Proposal based on quotations, submitted to Government in June, 1960.

(vi) Contract with the suppliers signed in March, 1961.

(vii) Plant commissioned in August, 1965.

106. According to the report of M/s. Powell Duqryn Technical Services Ltd. Consulting Engineers of U.K. the plant was scheduled to commence production in 1961. But as stated above by 1961 only the contract for supply of plant and equipment could be signed.

107. Though the tenders were received early in January, 1960, the Corporation took 6 months to put up the final proposal, based on the quotations, to the Government and Government took another 9 months in according approval. Both the intervals are stated to have been utilised for carrying out negotiations with the tenderers. Government also took sometime in arranging foreign credit. *The Committee consider that a period of about 15 months taken in signing the contract after the receipt of tenders was unduly long.*

B. Failure of I.D. and F.D. Fans

108. It has been stated that when the process steam plant was put on trial runs in December, 1964 the I.D. and F.D. Fans supplied by an Indian firm failed due to the

shaft giving way. Examination revealed that it was due to defective manufacture. The fans were ordered by Foreign Contractors, M/s. Ansaldo Italy on M/s. Keymer Bagshawe, & Co. (India) Private Ltd., Calcutta. It became necessary to replace the fans by imported substitute from Italy. This further delayed the commissioning of the Plant. Production of carbonised briquettes commenced in August, 1965, The Ministry have stated that the Director General of Technical Development was looking into the question of supply of defective fans.

109. It appears that the fans were not tested by the Corporation or the foreign experts to ensure that they were according to the specifications supplied to the Indian firm. The Corporation did not incur any loss on this account because the fans were replaced by the foreign suppliers at their own cost. However, production was delayed by a few months.

C. Cost of Production and Sale Price of Briquettes

110. The cost of production of briquettes (LECO is its trade name) was originally estimated at Rs. 110.00 per tonne on a capital investment of Rs. 19:37 crores. At full production. the present estimated cost of carbonised briquettes is about Rs. 120 per tonne. The cost of lignite for the purpose of calculation has been taken at Rs. 13 per tonne.

111. The sale price of the carbonised briquettes is fixed at Rs. 160.00 per tonne ex-works. The charges for packing, loading, taxes etc. have been estimated at Rs. 35 per tonne. The briquettes would thus cost Rs. 195·00 per tonne in the market. In assessing this price, the Corporation has taken into consideration the prevailing sale price of the firewood which varies from Rs. 55 to Rs. 85 per tonne as between mofussal and city markets. On an average 3·5 tonnes of firewood can be taken as equivalent to one tonne of LECO (measured in terms of heating value). Viewed from the commercial angle, the price which LECO can bear in the mofussal market will be about Rs. 55x3.5 *i.e.*, Rs. 192 per tonne.

112. *The Corporation has taken due care in fixing the sale price of the carbonised briquettes so as to make it competitive with firewood. But it will have to educate the people about the advantages of LECO over firewood because of the fact that its heating value is 3½ times that of firewood may not be known or fully appreciated.*

D. Production of Carbonised Briquettes

113. The Briquetting and Carbonisation Plant commenced production on the 9th August, 1965. The month-

wise production and sales figures of the carbonised briquettes are furnished below:—

Month	Production of Carvonised briquettes (Tonnes)	Sale of carbonised briquettes (Tonnes)
August, 1965	1014	—
September, 1965	2023	299.28
October, 1965	119	886.17
November, 1965	4748	1261.62
December, 1965	2314	4184.00
January, 1966 (upto 23.1.1966)	4528	2553.00
TOTAL	14746	9184.07

114. Against the annual rated capacity of 380,000 tonnes of briquettes, the production of carbonised briquettes for the next three years has been assumed as follows:—

1966-67	86,430 tonnes
1967-68 . .	261,620 "
1968-69	269,000 "

115. Though the plant would be completing a period of more than 3 years, the estimated production of carbonised briquettes works out to 70% of the rated capacity in 1968-69.

116. The Committee were informed that the production of carbonised briquettes was proposed to be kept low because the market was in the process of being built up and it was proposed to adjust the production to off-take. The Chairman of the Corporation stated that there was a good consumer demand but he was not sure whether it would measure upto 380,000 tonnes per annum. Another apprehension was that the Corporation would have to compete with firewood and charcoal merchants. The estimate of 269,000 tonnes of production by 1968-69 was a conservative estimate keeping in view the difficulties that might have to be faced, but efforts would be made to increase the sales.

117. *The break-even point for the briquettes and Carbonisation Plant is about 260,000 tonnes of production of carbonised briquettes per annum. The production in 1968-69 is assumed at Rs. 269,000 tonnes. It follows that till 1968-69 the scheme will not make profit. To show a reasonable profit the plant has to be worked much above that point. Since the plant can produce according to the rated capacity, the Corporation's approach should be towards vigorous sales programme so that the production can be taken up to the maximum.* Vigorous sales programme for Briquettes Suggested.

E. Marketing of Carbonised Briquettes

118. To introduce the carbonised briquettes *i.e.*, LECO to the public the following sales programme work has been undertaken since July, 1964:—

(i) Participating in exhibitions for conducting demonstration of the burning of 'LECO'.

(ii) Distribution of pamphlets depicting the properties and uses of LECO.

(iii) Publicity through mobile demonstration vans.

(iv) Advertisements through the medium of dailies, journals and souvenirs.

(v) Appointment of selling agents.

(vi) An incentive scheme of allowing rebates for off-take of 100 tonnes and over per month has been introduced with effect from 1st January, 1966.

119. During evidence it was stated that the selling agents appointed by the Corporation were asking for a higher margin of profit and a higher selling price to the consumer. If the Corporation was not able to reach the consumers through the agents it might have to sell the product through departmental depots.

F. Sale of Briquettes to Industrial Units

120. Section III (2) (d) of the Memorandum of Association of the Corporation enjoins upon it to carry out all kinds of business relating to supply and sale of industrial and domestic fuel produced by the Briquetting and Carbonisation Plant. When asked whether the Corporation had explored the possibility of utilisation of the briquettes for industrial purposes, the Secretary of the Ministry stated that the production of briquettes was on a limited scale and was meant for domestic consumption. However, the Corporation would meet demand for small quantities of briquettes by some industry.

121. *It has been pointed out in para 116 that the Corporation proposed to keep the production at a lower level deliberately because the consumer demand was not certain. In view of this the Committee feel that the Corporation should have made attempts to find out industrial consumers for the products. If this had been done, the Corporation could have accelerated the rate of production and sold the entire quantity for domestic and industrial uses. This may now be done.*

G. Cost Estimates of Civil Works

122. As against an expenditure of Rs. 153·51 lakhs sanctioned in April, 1964 for the Civil Works of the B. & C. Scheme, the actual expenditure on this account was estimated at Rs. 260·06 lakhs which showed a rise of about 70%. The Chairman of the Corporation stated during evidence that it was due to an under-estimate. It was added that no norms were available to prepare estimates for this type of construction, but the future estimates should be reasonably accurate in view of the experience gained.

VI

CLAY WASHING SCHEME

A. Short-fall in production

123. With a view to utilizing large deposits of China Clay occurring immediately above the lignite seam which have to be removed as a part of the overburden, a Clay Washing Plant has been set up at a cost of Rs. 14.3 lakhs with a foreign exchange element of Rs. 89,000. This clay can be used for the production of high tension and low tension insulation, sanitary ware, crockery and ceramics of various descriptions. The Plant went into production in December, 1961. The annual rated capacity of washed clay is 6000 tonnes per year (Rated capacity for the year 1961-62 being 1500 tonnes) while the production of washed clay for the past four years has been as follows:—

Year	Production
1961-62	250
1962-63	1469
1963-64	4310
1964-65	2536
TOTAL	8565

124. In the Audit Report (Commercial), 1965 it was stated that the shortfall in production was mainly due to defective functioning of the Plant.

Defects in working of Plant.

125. The Corporation has stated that a trial run of the machinery was taken before accepting it, but the defects were noticed during the course of operation in December, 1961. The defects were rectified in May, 1963 and the rated capacity was attained. The delay of 1½ years in removing the defects in the plant was due to the fact that the supply and erection contractors, M/S Dorr Oliver, did not have experience in the operation of such a plant but they were appointed because the mechanism was similar to any filtration plant and they had experience of dealing with like components.

B. Accumulation of Stocks

126. The production and sale figures of washed clay for the past three years is indicated below:—

Year	Production (Tonnes)	Sales (Tonnes)
1961-62	250	1 (sample)
1962-63	1469	497
1963-64	4310	1568

127. As on the 31st March, 1964 the quantity of washed clay in stock was 3908 tonnes which worked out to 64·8 per cent of the total production of the plant from the date of its commissioning. Audit Report (Commercial), 1965 pointed out that no effective steps have been taken by the Corporation to increase the sales. Instead, it was decided in March, 1964 to reduce the monthly production from 500 tonnes to 250 tonnes till the stocks were cleared.

128. Asked as to why there was not sufficient market for the washed clay, the Chairman of the Corporation stated that the manufacturers, who had earlier agreed to buy the clay, later stopped buying. It was learnt that the foreign collaborators of those manufacturers had pointed out that they had agreed to a guarantee of the product on the basis of a particular composition which this clay did not satisfy. The Corporation carried out laboratory experiments to prove that if their clay was mixed in a certain proportion, the glazing would not be affected. The manufacturers then agreed to buy the clay, but the Corporation found that there was not enough recoverable clay from the mine.

129. *The Committee feel that if adequate and timely steps had been taken to develop the market for the Washed Clay, the question of accumulation of stocks and the necessity of reducing production for want of sales in the earlier years would not have arisen.*

C. Suspension of production of Clay

130. In July, 1965 the production of washed clay was suspended as sufficient clay for continuous running of the plant was not available. It was stated that clay occurs only in patches and packets. Difficulties had arisen in selective mining of the clay with the available specialised mining equipment. What is practicable now is that whenever clay is available in mineable thickness of about 3

metres it will be excavated and stocked and when it is enough for running the Plant continuously for 6 months, the washing of the clay will be started. The Committee desired to know as to why the short recovery of clay could not be foreseen at the time of installation of the Plant. The Chairman of the Corporation stated that the investigations carried out in the past related only to lignite and sufficient data was not collected regarding clay. He added that the recovery of clay in sufficient quantity was only a reasonable expectation. Explaining the future prospects about this Scheme, he stated that a geological division had been set up which shall prospect in advance for the pockets of clay and there would be good recoveries of it after about 18 months.

131. *It appears from the above that the future prospects of the scheme are uncertain. This is another instance* where machinery with excessive capacity has been purchased from abroad without carrying out any advance studies.*

D. Cost of Production

132. The cost of production and sale price of washed clay during the years 1962-63 to 1964-65 was as follows:—

(Rs. per tonnes)

Year	Cost of production	Sale Price	
1962-63 . .	284	135·00	
1963-64 . . .	189	135·00	upto 30-9-63
1964-65 . .	209	128·00	from 1-10-63

133. Thus the cost of production of washed clay has been much higher than the sale price. The Chairman of the Corporation admitted during evidence that the Clay Washing Plant could not be sustained as a separate unit and had been attached with the Mining Scheme. The cost of production would go down if the plant was worked and depreciation charged on the basis of hourly working instead of monthly or daily basis.

E. Discrepancies in figures of stock of clay

134. During evidence it was stated that out of the book figures of washed clay 3191:502 tonnes had to be written off

*The Fertilizer Corporation of India had purchased two Stamping Machines (costing about Rs. 15 lakhs) which had been lying idle for the last seven years (*See* para 29 of the 6th Report of the Committee on Public Undertaking).

due to over-estimates. Giving an account of the wrong stock figures, the Chairman of the Corporation stated that in the initial operation of the plant, the washed clay output was estimated from the number of filter cakes formed because the plant did not have any mechanism for weighment. If the cake was fully formed and was of a certain density, it would have a certain weight. If it was lower, the weight would be less. The weight of the washed clay was calculated on the basis of the number of cakes, assuming an average of 28% as rate of recovery and production figures were not checked for a period of 16 months and sales were effected. It was then noticed that the quantity available in stock did not tally with the book figures. A check revealed that there was a shortage of nearly 3191.502 tonnes of washed clay. Since there was no weighment and because the figures of 3191.502 tonnes was an over-estimate of production, it had to be written off.

135. *It is regrettable that the quantity of washed clay produced was entered in the books on approximate basis without carrying out actual weighments. The total quantity of Clay produced till* 1964-65 *was itself not much. That the variations in book figures and the actual stock showed a shortage of* 3191:502 *tonnes is all the more surprising. Perhaps the washed clay was also sold without weighment. The Committee are not convinced with the reasons given in this connection and desire that the matter should be investigated and responsibility fixed.*

VII

BY-PRODUCTS

A. Research on Availability of By-products

136. In order to explore fully the possibility of utilising lignite and its by-products etc. a laboratory was set up at Neyveli as early as 1951. The work so far done in this laboratory has highlighted the availability of various by-products so that further industries based on them could be developed. The Laboratory is at present engaged on the following items of work:—

(1) High temperature coke from Neyeli Lignite for use in metallurgical industries.

(2) Utilisation of fly ash, which will be a by-product under the Neyveli Thermal Power Station, as a substitute for cement in concrete and hollow blocks.

(3) Making of light weight aggregate from fly ash.

(4) Electrode carbon from lignite tar.

(5) Utilisation of Neyveli lignite char for the production of Salem Iron Ore.

(6) Ceramics from Neyveli Clay processed in the Clay Washing Plant.

(7) Preparation of sand from rejects from the Clay Washing Plant for glass manufacture.

(8) Recovery of wax from lignite.

(9) Hydrogenation of lignite tar to make different grades of fuel oils.

(10) Char fines and briquettes chips for use in brick kiln and other industries.

(11) Utilisation of char fines as domestic fuel.

(12) Refractories from fire clay.

B. By-products from Briquetting and Carbonisation Plant

137. The approximately quantity of by-products deri from the Carbonisation of lignite briquettes is given below:—

Sl. No.	Name of the product	Estimated Quantity at full production Tonnes/ annum
1	Tar	37,800
2	Middle Oil	20,100
3	Light Oil	300
4	Kerosene	5,900
5	Carbolic Acid	1,340
6	Ortho Cresol	580
7	Meta Cresol	1,340
8	Xylenols	585
9	Polyvalent phenols	1,400

138. It is stated that tar products produced for the first time in this country will be a good source for the establishment of numerous chemical industries. When the B. & C. plant goes into full production the foreign exchange saved by the production of these by-prdoucts, is expected to be of the order of about one crore of rupees per annum.

139. The Madras Government had constituted a sub-Committee in 1962 to study the utilization of the by-products that will be available from the Briquetting and Carbonisation plant at Neyveli. The Sub-Committee has been examining the following schemes:—

(i) utilization of tar and manufacture of electrodes.

(ii) utilization of Ortho, Meta and Para Cresols.

(iii) utilisation of char for various ranges and the utilization of Xylenols and Polyvalent Phenols.

(iv) utilization of middle oil for the manufacture of Methanol and Formadehyde.

140. Asked whether the Corporation has begun producing the various by-products expected from the Plant, the Chairman of the Corporation stated that by April, 1966 some of the by-products would be coming out. He added that plants for their production were ready, but had not been commissioned because the feed stocks had not been accumulated in sufficient quantity to enable continuous operation.

141. *The Briquetting and Carbonisation Plant Commenced operation in August, 1965, but the by-products plants have not started working yet. The sale of the by-products will improve the over-all profitability of the scheme apart from the fact that it will save a considerable amount of foreign exchange expenditure now being incurred on importing these products. The Corporation should expedite the commissioning of the by-product plants.*

C. Melamine Plant

142. Melamine is an important raw material for plastics. A proposal to manufacture 15 tonnes of Melamine per day has been put up by the Corporation for Government's approval. The capital cost of the plant has been estimated at Rs. 162 lakhs (including foreign exchange element of Rs. 60 lakhs). The scheme envisages the utilisation of surplus capacity in the Ammonia and Urea Groups of the Fertiliser Plant. This in-built surplus capacity is to the extent of 33 per cent. If the scheme for Melamine plant is not sanctioned, the alternative proposal is to increase the urea production itself by about 30 per cent by adding certain balancing equipment which would cost about Rs. 2 crores.

143. *No convincing reason has been advanced to the Committee for providing built-in-surplus ammonia capacity to the extent of 33 per cent. However, as the position is, the setting up of the Melamine plant would take time after the sanction from Government is received. Thus the surplus capacity of ammonia would remain unutilised till such time as this plant is installed. Government should take a decision as to how this surplus capacity should be utilized.*

D. Fly Ash

144. About 40 tonnes of lignite fly ash per day is available from each 50 MW unit in the Thermal Power Station. A large amount of research work has been carried out in various countries for the utilisation of fly ash as mortar, bulk fill, grout, concrete, industrial raw filler and raw material for brick, block and light weight aggregate making. Investigations have been conducted at Neyveli on the utilisation of fly ash for making hollow blocks for building construction, for making concrete and aggregate and also for its utilisation as a binder and flocculating agent. Tests conducted at Neyveli indicate that it is possible to manufacture good hollow blocks by replacing at least 50 per cent of cement now used in the making of hollow blocks by fly ash. The Corporation has been making use of 50% fly ash

Uses of Fly ash.

with cement in making hollow blocks. The production and sale of fly ash during the last two years were as follows:—

Year	Production (Tonnes)	Sales (Tonnes)
1963	41,417	2282
1964-65	66,250	7306·777

Sale of Fly Ash.

145. Audit Report (Commercial), 1965 pointed out that during the year 1963-64, 2282 tonnes of fly ash was sold at Rs. 10/- per tonne and the balance quantity of 39,135 tonnes valued at Rs. 3·91 lakhs was scrapped for lack of storage facilities. Sales promotion efforts made till then had not resulted in any substantial increase in sales.

146. The Corporation has stated that fly ash is an industrial waste and it is not worthwhile to provide storage facilities for it. This material normally poses a disposal problem to most of the Thermal Stations in India and abroad.

147. At present the fly ash is sold to Government Departments and the Government authorised contractors for manufacturing R.C.C. posts. From May, 1965, fly ash is being supplied to M|s. India Cements Ltd. at the rate of 200 tonnes per day. It is the policy of the Management not to issue fly ash to private parties as there is a risk of its being misused in all proportions with Portland cement and sold as such.

Increase in Sales suggested.

148. *The Committee notice that from 75,000 tonnes of fly ash produced annually, the revenue could be of the order of Rs. 7·5 lakhs. Instead of merely treating it as a disposal problem, the Corporation should consider it as an important source of revenue and make efforts to sell the entire quantity. The reason put forward for not selling fly ash to private parties is not convincing. The Corporation should consider selling it to all reputable parties.*

VIII

ORGANISATION AND PERSONNEL

A. Board of Directors

149. The management of the Corporation vests in a Board of Directors appointed by the President. The Board of Directors consists of 10 members and includes two representatives nominated by the Madras Government.

150. The present composition of the Board is at Appendix I.

151. From the personnel of the Board of Directors, it is seen that there are representatives of the Ministries of Finance and Irrigation and Power. Fertilizer scheme is one of the constituent units of the Corporation, but there is no representative from the Ministry of Petroleum and Chemicals which is the administrative Ministry for fertilizer production in the country. *The Committee consider that for a proper liaison in the matter of production and distribution of fertiliser produced at Neyveli, it will be useful to have a representative of the Ministry of Petroleum and Chemicals or the Fertiliser Corporation of India on the Board of Directors of the Neyveli Lignite Corporation.*

B. Staff

152. The following table shows the estimated requirements of staff and the staff actually in position during the year 1964-65:—

Name of the Scheme	Staff as per D.P.R.	Requirements as sanctioned on 31-3-1965	Staff actually employed as on 31-3-1965	Total Staff that would be employed where the scheme is at full production	Remarks
1	2	3	4	5	6
Mining	1558	3494	2775	3231	The employment will be restricted to the figures indicated in column 5.

113(Aii)LS—4.

1	2	3	4	5	6
Thermal	363	1239	1317	1205	The figure in column 5 is with reference to 250 MW station of the Thermal station. The additional employment (Column 4) is against the requirements of the VI & VII Units. The employment in 600 MW stage will be restricted to a little over 3 per MW.
Fertilizer	1145	1893	1580	1840	Employment will be restricted to the figures indicated in Column 5.
Briquetting and Carbonisation	1186	919	801	887	

C. Staff in Mining Scheme

153. It is seen that in the Mining Scheme, the staff employed at full production stage would be almost 100 per cent more than that estimated in the project report. The Corporation has stated that this is due to the fact that the provision of personnel for operating the Bucket Wheel Excavators, Spreaders and Conveyors made by the consultants was an under-estimate. No provision for staff was also made for cleaning the excavators and conveyors, for preparation of tracks for Bucket Wheel Excavators and for cutting and maintenance of drains in and around the mines.

D. Staff in Thermal Scheme

Reasons for employing staff in larger number.

154. In the Thermal Scheme, the staff employed at 250 MW stage is 1205, *i.e.*, three times the number (363) envisaged in the project report. The Corporation has given the following reasons for employing more staff—

(i) lignite due to its high moisture content is a difficult fuel to handle and requires more staff.

(ii) Project Report envisaged fly ash and slag to be transported in Railway Wagons. But these are transported in automobile vehicles. This requires more labourers.

(iii) Detailed Project Report did not provide staff for cleaning lignite dust and fly ash.

(iv) Detailed Project Report is based on norms obtaining in U.S.S.R. where skilled personnel are available. At Neyveli due to lack of experienced staff more men have to be employed to safeguard the equipment and operate it.

155. During evidence the Chairman of the Corporation stated that it was impossible to work with the number of staff provided in the Detailed Project Report.

156. A statement giving the strength of personnel employed in three coal fired Thermal stations and Neyveli is furnished below:— **Staff in other Thermal Stations.**

Sl. No.	Station	Capacity	Persons employed		
			Total	Per unit	Per MW
1	Bokaro	3×50 MW 1×75 MW =225 MW	628	157	2·8
2	Durgapur	2×75 MW =150 MW	511	255	3·4
3	Bandel	4×75 MW =300 MW	767	192	2·56
4	Neyveli	6×50 MW =300 MW	1344	224	4·45

157. Thus the staff per MW employed at Neyveli is much higher than that employed by the other Thermal stations mentioned above. The Committee were informed that the existing staff in the Thermal Station would be reduced by 7 to 10 per cent from April, 1966, and the surplus staff transferred to the new Thermal units being set up under the expansion scheme. The Corporation also hopes to attain the norm of 3 to 3·5 per MW when the Thermal Station reaches 600 MW capacity.

158. *The Committee could appreciate a small increase in staff employed over the number envisaged in the project report, but that this variation should be three to four times the number envisaged in the project report is rather surprising. Such variations affect the estimates of expenditure and vitiate the economics of the scheme. The fact that the Corporation has decided to reduce the staff in the Thermal Plant by about 10 per cent itself shows that there* **Need to reduce staff.**

was scope for reduction. The Corporation should constantly review the deployment of staff at various levels in relation to the work load and make efforts to bring down the number to the minimum. Adequate training should be given to the various categories of personnel so that their output becomes comparable with that of personnel employed in comparable establishments in foreign countries. Efforts should also be made to train unskilled workers for skilled job.

E. Staff in other Schemes

159. The Fertilizer and Briquetting and Carbonisation Schemes have recently gone into production and will take time to reach rated capacity. A comparison of the staff actually employed with the staff originally envisaged will be possible when the plants reach full production stage.

F. Training of Apprentices

Number of Apprentices recruited.

160. To meet the requirements of engineering personnel a number of posts of Special Grade Apprentices were sanctioned. The number of posts sanctioned and the recruitment made against these posts from year to year are given below:—

Special Grade Apprentices	Sanctioned	Filled up					
		'59	'60	'61	'62	'63	'64
Civil .	100	75	148	73	19	7	
Mechanical .	75	79	195	272	292	17	..
Electrical	59	25	120	175	136	15	1
Chemical	16			26	5	12	1
Mining	20		15	23		..	..

161. It will be noticed that as against the sanctioned posts of Special Grade Apprentices, the number of persons actually recruited was much higher as indicated below:—

Civil—148 in 1960 (against 100 sanctioned).

Mechanical—195, 272 and 292 in 1960, 1961 and 1962 respectively (against 75 sanctioned)

Electrical—120, 175 and 136 in 1960, 1961 and 1962 respectively (against 59 sanctioned).

162. The Corporation has stated that in some years, Special Grade Apprentices over and above the anticipated requirements had to be recruited to fill up the vacancies in the posts of Section Officers as a result of "flight of personnel". It was added that if the sanction of Special Grade Apprentices and the Section Officers is taken together, there had been no excess of appointments over the sanctioned strength. The number of apprentices who left the service of the Corporation is given below :— Reasons for large recruitment.

Special Grade Apprentice	No. left.
Civil	127
Mechanical	169
Electrical	143
Mining	24
	463

163. *The Committee are not convinced that there could be sufficient justification to recruit yearly* 195, 272 *and* 292 *Apprentices (Mechanical) against a sanction of* 75 *posts or to appoint* 120, 175 *and* 136 *Apprentices (Electrical) against a sanction of* 59 *posts. While some margin can be allowed for excess recruitment to replace those who resign etc., recruitment to the extent of three to four times the number sanctioned is far in excess.*

G. Premature Training of Apprentices for Fertiliser Scheme

164. In accordance with the decision taken in July, 1957 and September, 1959 to train 200 apprentices for employment in the operation and maintenance of the Fertiliser Plant to be set up at Neyveli, the Corporation sent the following batches of trainees for two years training at Sindri Fertilizers. Number of Apprentices trained.

Batch No.	Number of apprentices.	Date of reporting for training at Sindri	Date of completion of training
1st	24 Chargemen and 43 Operators.	July/August, 1958	June & November, 1960
2nd	17 Chargemen and 6 Operators.	December, 1959	August, 1961
3rd	12 Chargemen, 6 Operators and 4 Chemists.	January/February, 1961	November, 1962

165. Audit Report (Commercial), 1965 pointed out that owing to premature recruitment of Apprentices, and avoidable expenditure of Rs. 17·53 lakhs on salaries and allowances of the trainees from the date of completion of the training to August/September, 1964, had been incurred. This loss will be augmented due to further delay expected in the commissioning of the Plant.

Reasons for premature training programme.

166. The Corporation has stated that they had not anticipated any delay in the commissioning of the Fertilizer Plant, when the programme of training was taken up in July, 1957. It was also not possible to cut short the period of training after its commencement and to dispense with the services of the trainees, even when it was seen that the plant was not going to be completed as scheduled. As these trained personnel were later on utilized for the preparatory work connected with the erection of the plant, the Corporation considers that the training given to apprentices has incidentally benefitted them. It is also stated that the Sindri Unit of the Fertilizer Corporation of India was not in a position to entertain the Apprentices of the Neyveli Lignite Corporation from 1961 onwards for the reason that the training places in that Unit were being fully utilised to train Apprentices of that Corporation.

167. *The training course of the apprentices commenced in July/August, 1958. The tenders for the Fertilizer Scheme were floated in May, 1958 and the contract with the foreign suppliers was signed in October, 1959. The completion of a Scheme of this nature takes about four years from the date of signing of the contract. Thus it was not difficult to forsee even in 1958 that the scheme would not be completed till 1963. To have the first batch trained by June and November, 1960 was thus premature. It appears to the Committee that in a bid to have the trained personnel at the earliest, the element of time that was to be taken in the more difficult and complicated work of commissioning the scheme was lost sight of. The Corporation should have kept the training programme in abeyance till the contract with the foreign suppliers was finalised and some clear picture emerged regarding the erection of the plant.*

168. *The plea of the Corporation that the trainees were utilized on the preparatory work of erection of the Fertilizer Plant is not convincing because such utlisation was incidental. It could at best be said that having trained the men, the Corporation thought it advisable to use them in the erection work for which some recruitment would have otherwise become necessary.*

169. The trainees have executed bonds for serving the Corporation for a period of five years after the completion of training. Out of 150 trainees, the bond period in res-

pect of the first batch of 67 trainees is already over. The bond period of 23 trainees will be over by August, 1966. The Chairman of the Corporation felt that after the bond period was over, judged from the morale of the trainees, the Corporation would not lose more than 10—20 per cent and that too would be to the other public undertakings.

H. Surplus Engineering Staff

170. It is stated that 186 Civilian Engineering Personnel (14 Degree holders and 172 Diploma Holders) would become surplus after the Fertilizer the Briquetting and Carbonisation Schemes are completed. The then Minister of Steel and Mines announced in the Lok Sabha on the 10th December, 1965, that out of these the Corporation would absorb 99 Engineers and the Government would try to absorb others in various Industrial Undertakings.

171. During evidence the Chairman of the Corporation apprehended some difficulty in the absorption of surplus personnel in other undertakings. Under the Industrial Disputes Act persons drawing less than Rs. 500 per month are treated as "Workmen". Thus junior Engineers on becoming surplus in one undertaking become junior-most when they join other undertakings. In case of retrenchment, these personnel are the first to go. The Chairman of the Corporation felt that something should be done to resolve this problem. The Committee are informed that the problems relating to employees becoming surplus to the requirements of various public sector undertakings are being dealt with by the Bureau of Public Enterprises.

172. *There is a case for giving due protection in the matter of seniority, promotion, etc., to technical personnel who become surplus at one undertaking and join another undertaking. Government might examine how best this could be done.*

I. Mining Engineers

Shortage of Mining Engineers.

173. The Corporation does not expect any shortage of qualified engineering personnel in the civil, mechanical, electrical and chemical categories during the next five years. However shortage of mining engineers with statutory qualifications is expected to some extent. The Corporation is not getting Mining engineers with First Class Colliery Certificate for filling up posts of Under Managers. The Committee noticed that against the sanction of twenty posts every year for training of Special Grade Apprentices in Mining, only fifteen and twenty-three persons could be recruited in 1960 and 1961 respectively. There was no recruitment in this category during the years 1959 and 1962 to 1964. It seems that out of the

thirty-eight Apprentices recruited, twenty-four have already left the Corporation.

174. During evidence the Chairman of the Corporation stated that owing to limited prospects at Neyveli Mines, there was frequent flight of mining engineers having First Class certificates. These were being replaced by mining engineers with Second Class certificates after getting temporary exemptions from the Chief Inspector of Mines. The Chairman also expressed the view that the conditions of Neyveli open-cast mine were more akin to civil engineering than mining and the statutory qualification of First Class certificate in colliery with experience in underground mining was not necessary. The Ministry whose help in the matter was sought by the Corporation have stated that according to their assessment there was no shortage of Mining Engineers in the country. The Corporation had been advised to take the assistance of the Chief Inspector of Mines in recruiting suitable mining engineers.

175. *From the above it appears that the main difficulty is that in view of limited prospects at Neyveli, the Corporation is not able to attract qualified mining engineers nor is it able to check the flight of such personnel. This difficulty can be resolved either by offering more favourable terms of service to qualified mining engineer or by appointing personnel with lower qualifications who are otherwise considered suitable.*

IX

INVENTORY

A. Stocking of Stores and Spares

176. The stock verification report for the year 1963-64 disclosed non-moving stock amounting to Rs. 34.52 lakhs [spares not moved for over three years Rs. 25·19 lakhs); consumables not moved for over one year (Rs. 9.24 lakhs) and oil and paints not moved for over six months (Rs. 0.09 lakhs)].

177. The Corporation has stated that a large stock of imported materials had to be maintained owing to the long lead time for procurement. The lead time was stated to be 27 to 30 months in the case of the Corporation. There has been over-stocking due to the fear of stockouts in items on which there was not sufficient experience to gauge the correct life of the component. The Committee were informed that out of the 7,504 items, 6,678 related to spares which had not moved for over 3 years and 809 items had not moved for over one year. The value of parts which did not move for over one year was Rs. 20·33 lakhs. The Chairman of the Corporation admitted that some parts had not moved, but added that these included critical parts which had to be kept so that the machine did not break down.

178. *The Committee consider that the lead time of 27 to 30 months for imported materials is on the high side as compared to some other Public Undertakings and there is scope for reduction.*

179. In order to avoid over-stocking of spares and also in regard to their import at cheaper rates, the Corporation had made a suggestion to the Government for the placement of orders on the foreign suppliers 3 or 4 years in advance so as to enable them to club demand with other users at the production stage. But the suggestion was not agreed to by the Government as that would result in committing the foreign exchange in advance. Regarding the steps taken to reduce the foreign exchange component on inventories, it was stated that the Corporation had manufactured about 300 items indigenously and 60 out of them had been put to use and found useful. In about 80 per cent cases the cost and life of such items equated with the imported items. In the case of 20 per cent of items, the cost of production was higher which was due to use of ordinary steel in place of imported alloy steel.

B. Idle Plant and Machinery

180. On the 31st March, 1964 plants and equipment *e.g.*, motor graders, transformers and switch boards etc., worth Rs. 16·35 lakhs purchased by the Corporation during the period from 1952-53 to 1962-63 to meet its anticipated requirements were lying unutilized. The years of purchase and the value of machinery are indicated below:—

Year of purchase	Value
	Rs.
Pre-incorporation	12,461
1958-59	15,228
1959-60	1,19,239
1960-61	53,665
1961-62	4,23,424
1962-63	7,69,986
Items for which date of purchase is not known	2,41,169
	16,35,172

181. The Corporation has stated that a number of items are of auxiliary character which can be put to use only when the main plants are put into commission. Some of the items are spares or, standby equipment and these can be used only when the original equipment are taken out for major overhaul and repairs. It was further stated that plant and machinery worth Rs. 6·84 lakhs had since been commissioned.

182. During evidence the Chairman of the Corporation stated that they were making a survey of all the obscolescent equipment and connected spare parts with a view to disposing them of as it was costlier to maintain them. It also transpired during the discussion that the machinery and equipment were indented for liberally as foreign exchange difficulties were not serious in 1952-53.

X

TOWNSHIP

A. Construction of Houses

183. A scheme for raising township at Neyveli was approved in 1957. Till December, 1965, 9,616 houses had been constructed. These provide accommodation to 75 per cent of the permanent employees. During their visit to Neyveli, the Committee gathered the impression that the township was planned in a sprawling manner and lacked compactness. The Corporation has stated that by virtue of liberal spacing and compounds, many open spaces, wide alleys, broad and extensive roads, etc., the colony appears far flung. It has been admitted that the sprawling manner of construction has meant more expenditure on services and transportation.

184. The Chairman of the Corporation stated during evidence that township was planned in this manner possibly because land was available and there was a feeling that every one should have a spacious compound due to the area being dusty.

185. *When the lay out plan of the Township was drawn up, the Corporation should have made it more compact so as to avoid extra expenditure on roads, electric wires, water mains, sewage, etc. In any case, in the further expansion of township, when required, utmost economy in the utilisation of available space should be observed.*

186. *The Committee were informed that after two houses, space was left for one more house to be built on receipt of sanctions for building more houses. After such sanctions, 1,056 additional houses have been built. This is an uneconomical way of undertaking construction. The obvious and rational way would be to complete a block at a time.*

B. Economic Construction

187. The designs of houses constructed at Neyveli were prepared by the Chief Architect in accordance with the scales laid down by the Government of India in 1957. In 1960 in order to bring economy in the expenditure on housing, the Ministry of Finance laid down certain standards and scales of accommodation for Public Sector Projects. The Corporation did not adopt the revised scale and pattern of houses laid down by the Ministry of Finance on the

ground that a good number of houses had already been built and adoption of different designs for houses and reducing plinth area then for the same class of employees would have created heart burning and was not considered conducive to efficient working.

188. Out of 8,560 houses sanctioned upto March, 1960, 2,884 had been completed or were in the process of construction. This constituted only 33 per cent of the total number of houses to be constructed. If the scales laid down by the Ministry of Finance had been adopted even at that stage, there would have been a saving in plinth area to the extent of 380,720 sq. ft. The saving in cost at the rate of Rs. 10 per sq. ft., works out to Rs. 38 lakhs. The Chairman of the Corporation stated that if the commitments made, *i.e.*, contracts finalised, etc., for 2,000 houses were taken into consideration, the net saving would have been about Rs. 20 lakhs.

189. The revised scales of accommodation laid down by the Ministry of Finance in 1960 were applicable to all houses to be built for employees of public sector projects of the Central Government. *The Committee are, therefore, not satisfied with the plea that economic construction of remaining 67 per cent of the houses would have created heart burning among the employees. They regret that the Corporation took no advantage of the new pattern and design of the houses, which would have resulted in a saving of Rs. 38 lakhs in the construction expenditure apart from saving in the land etc.*

C. Delay in allotment of Houses

190. Audit Report (Commercial), 1965 pointed out that during 1961-62 to 1963-64 there was considerable delay in the allotment and also in the occupation of quarters after allotment. Allowing one month's time as a reasonable period for completion of all the procedural formalities, the loss of rent on the basis of 10 per cent of the average (mean) of the pay ranges fixed for the allotment of quarters worked out to Rs. 1.24 lakhs as per details given below:—

(Rs.)

Year	Loss due to delay in allotment	Loss due to delay in occupation	Total
1961-62 . .	18,250	5,500	23,750
1962-63	23,045	14,635	37,680
1963-64 . .	31,682	30,916	62,598
TOTAL . .	72,977	51,051	1,24,028

191. The delay in allotment of quarters as well as in occupation has been attributed to the employees' insistence for quarters near the works. In addition 997 quarters remained vacant for a period of more than one month during the year 1964-65. Some of the reasons for the quarters remaining vacant are given below:— **Reasons for delay.**

(i) Allottees asking for more time as no auspicious days were available for occupation.

(ii) Allottees asking for cancellation of allotment because the quarters were away from workspot, children's educational facilities, hospital facilities etc.

(iii) Allottees being on leave when allotment orders were issued.

D. Revision of rules regarding allotment

192. The Committee are informed that the rules regarding allotment of quarters have been revised in 1964. According to the new rules the allotment is made with reference to the priorities already determined and the project employees are given 10 days time from the date of receipt of allotment order and outsiders 15 days, from the date of allotment order, for occupying the quarters. To persons on leave the allotment orders are served after their return from leave with usual time for occupation. The rules also provide for penalty for non-occupation of quarters within the prescribed period.

193. *The Committee understand that under the rules prescribed for the Central Government employees, possession of accommodation has to be taken within five days from the date of service of the allotment order. Further, there is no provision that allotment orders are to be served to the persons on leave only after their return from leave. The rules of allotment enforced by the Corporation in 1965 are still more liberal than those applicable to the Central Government employees and should be revised to cut down the vacancy period of the houses.* **Need for further revision of Rules.**

XI

FINANCE AND ACCOUNTS

A. Authorised Capital

194. The authorised capital of the Corporation fixed at Rs. 80 crores had been fully subscribed by the Government of India by March, 1963. In addition, loans aggregating Rs. 48.19 crores had been advanced by the Government of India by the end of 1964-65. The preliminary expenditure of about Rs. 83 lakhs incurred by the Government of Madras has been treated as a loan in perpetuity bearing interest at 4½ per cent per annum. The unallocated expenditure during construction amounted to Rs. 12.70 crores and the accumulated deficit stood at Rs. 7.72 crores at the end of 1964-65.

B. Financial Results

195. The financial results of the working of the Corporation for the years 1961-62 to 1964-65 are given below:—

(Rs. in lakhs)

Resources available	1961-62	1962-63	1963-64	1964-65
1. Equity Capital	7526·22	8000·00	8000·00	8000·00
2. Unsecured loans from the Government of India and the Government of Madras	82·44	1508·66	3323·66	4901·6
3. Depreciation Provision	316·23	427·72	592·21	783·8
4. Development Rebate Reserve	210·00	210·00	210·00	210·00
TOTAL	8134·89	10146·38	12125·87	13895·4

(Rs. in lakhs)

Utilised on	1961-62	1962-63	1963-64	1964-65
1. Gross Block	5412·11	4359·12	6428·28	9403·9
2. Capital work-in-progress	1603·57	4441·59	3617·36	2004·9
3. Unallocated expenditure during construction shown under "Deferred Revenue expenditure account" and "Preliminary Investigation expenses" in the Balance Sheet for 1964-65	..	..	..	1270·7
4. Other assets—current assets less current liabilities	87·99	(—)2·87	394·38	443·6
5. Deferred Revenue expenditure	638·40	852·33	1059·61	
6. Cumulative losses	392·82	496·21	626·24	772·3
TOTAL	8134·89	10146·38	12125·87	13895·4

C. Return on Investment

196. On a capital investment of Rs. 117·72 crores (Rs. 80·00 crores and Rs. 37·72 crores), the gross income from all the units of the integrated scheme is estimated to be Rs. 642·42 lakhs showing a return of 8·03 per cent on equity. The break-up of this income is shown below:—

Scheme	Gross Income (Rs. lakhs)
Mining	92·86
Power	179·62
Fertiliser	226·68
Briquetting & Carbonisation	159·69
Clay Washing	0·62
	659·47
Deduct interest or interest accumulation during construction	17·05
	642·42

197. According the latest study made, the Corporation expects to wipe out all developmental losses by 1968-69 and show a return of 8·05% in that year after providing for interest and depreciation but before taxes and dividend. The return would be 4 to 4·5% after payment of taxes. He said that in mining industry the return was very much lower than in the consumer industries. He considered a return of 6% on equity as reasonable in the case of the Corporation.

198. *The Committee consider that a return of 4 to 4.5% on equity after depreciation, interest and taxes would be rather low. The Corporation is expected to generate its internal resources in future to some extent. With the level of 4 to 4·5% return it will be hardly possible for it to finance its expansion programmes. Declaration of dividend on equity capital in the foreseeable future also seems impossible. The Corporation has already proposals of expansion of its schemes. The capital employed on these schemes will proportionately be less and sales more. This should enable the Corporation to have higher level of return. Greater attention should also be paid to reduce operational costs.*

D. Return on Investment on Mining Scheme

199. In this connection the Committee note that lignite is sold to the consuming units at rates fixed by the Board of Directors. The rate so fixed is related to the cost of production of lignite. The Trading Account of the Mining Scheme shows the following results during the last three years:

	Profit/Loss (Rs. lakhs)
1962-63	(+) 1 19
1963-64	(—) 7·22
1964-55	(—) 6 89

200. Thus in the past two years lignite sold is being charged at rates below the cost of production. It follows that the financial results of the consuming units do not give a true picture of their working in as much as lignite would have cost more if Mining Scheme was considered as an independent unit and lignite produced charged on the basis of cost of production plus a reasonable margin of profit. The present position is that there is no return on investment in the Mining Scheme. Besides, this results in the Trading Account of the consuming units showing lower operational cost than what would be if lignite was purchased from the Mining Scheme on cost plus profit basis.

201. *The Committee consider that each unit should work on its own profit and loss basis. This would enable a better managerial control over its operations because each unit would be required to produce certain results on the basis of standard costs.*

E. Return on Investment (Unit-wise)

202. The various schemes of the Corporation are still in a developmental stage. The estimated return on investment on the Thermal, Fertiliser, and Briquetting and Carbonisation Schemes till 1967-68/1968-69 is as follows:—

(i) Thermal Scheme

(Rs. in crores)

	1964-65	1965-66	1966-67	1967-68
(*i*) Capital Expenditure for power generation scheme including expansion .	33·98	43·68	55·72	63·24
(*ii*) Amount of capital investment based on units actually commissioned .	26·43	29·52	38·41	50·10
(*iii*) Operational Expenditure	5·97	6·96	7·51	9·37
(*iv*) Gross income after depreciation and interest on loan . . .	0·12	0·79	1·12	1·45
(*v*) Return on Equity (Rs. 19·39 crores) . .	0·62%	4·07%	6·77%	7·48%

(*ii*) Fertiliser Scheme

	1966-67	1967-68	1968-69
(*i*) Capital investment (Rs. in lakhs)	3619·00	3619·00	3619·00
(*ii*) Operation expenses (estimated in lakhs) . .	826·40	816·27	812·94
(*iii*) Profit after depreciation and interest (Price at Rs. 670/- per tonne) . .	192·16	201·63	205·46
(*iv*) Return on Capital investment (Price at Rs. 670/- per tonne) . . .	5·31%	5·57%	5·68%

(*iii*) Briquetting and Carbonisation Scheme

	1966-67	1967-68	1968-69
(*i*) Capital investment (Rs. in lakhs) . . .	2817·00	2817·00	2817·00
Production assumed (in tonnes) . . .	86,430	2,61,620	2,69'900

	1966-67	1967-68	1968-69
(*iii*) Operational expenditure (Rs. in lakhs) . . .	325·27	558·33	559·78
(*iv*) Profit after depreciation and interest (Rs. in lakhs)	(—)129·42	(—)24·74	(—)4·26
(*v*) Return on Capital investment	Nil	Nil	Nil

F. Apportionment of Profits

Brief History.

203. The Neyveli Lignite Corporation was formed as a Government Company on the 14th November, 1956 with the main object of taking over, implementing and managing the Lignite Project which had already undergone preliminary investigations by the Government of Madras. The expenditure which had been incurred by the Government of Madras, *viz.* about Rs. 83 lakhs including interest accrued thereon during the period from the 1st April, 1952 to the 31st December, 1954 was treated as a loan in perpetuity from that Government bearing interest at 4½ per cent per annum. According to the terms and conditions for the transfer of Project as set out in Government of India's letter No. Fy. 18/28/56 dated the 11th October, 1956 the net profits of the Company after providing for depreciation, amortisation and interest on the entire capital at 4½ per cent per annum are to be shared by the Government of India and the Government of Madras in proportion of 75 per cent and 25 per cent. The share of profit allowed to the State Government is in lieu of royalty and the other payments due to that Government for the lignite.

Government's views.

204. In pursuance of the recommendation of Estimates Committee made in their 125th Report (1960-61) the Government of India in consultation with the Corporation reviewed the position and decided in May, 1965 that the profit sharing by the Madras Government should be related to the 'Net Profits' not only of the Mining Scheme but also of the integrated Project as a whole including the constituent schemes, *viz.*, the Thermal Power, Fertilizer and Carbonisation Schemes which are being set up to utilize the lignite mined from the first mine cut.

205. During evidence the representative of the Ministry stated that a number of factors were taken into consideration before arriving at the arrangement for profit sharing. It was stated that the Madras Government had taken preliminary steps for this project and its co-operation in respect of land and other things was necessary for the successful implementation of the project. On actual calculations it was found that profit sharing was more advantageous to the Corporation as compared to the grant of royalty to the State Government.

Views of Dy. C&AG.

206. The Addl. Deputy Comptroller and Auditor General (Rlys.) stated that under the ordinary commercial practice the expenditure of Rs. 83·00 lakhs incurred by the Madras

Government should have been treated as equity capital and that that Government should have got the profit on that amount. So far as lignite was concerned the State Government could claim royalty on it.

207. In 1960 it was estimated that the gross income from the Integrated Project after providing for depreciation, amortisation and interest would be Rs. 555·2 lakhs. On this basis the share of net profit (25%) payable to the Government of Madras would be Rs. 139 lakhs. The Ministry had stated that under the profit sharing arrangement the Madras Government would get about Rs. 54 lakhs more than what they would have got if they were to be paid royalty with profit proportionate to their investment. Financial Implications.

208. According to present estimates the gross income from all the units of the Integrated Scheme will be Rs. 642·42 lakhs. The amount payable to Madras Government by way of its share in profit would thus be larger than what was estimated in 1960. The mine is being expanded from 3.5 to 6.3 million tonne capacity during the Fourth Five Year Plan. This would further increase the gross income of the Corporation and the Madras Government will also have a share of profit from the income derived from the Thermal and other consuming units that are being developed.

209. The Addl. Deputy Comptroller and Auditor General (Rlys.) stated during discussion with the Committee that he was not aware of a similar arrangement regarding profit sharing having been made by the Government of India in any other Company. A similar statement was made by the Secretary of the Ministry during his evidence given before the Estimates Committee in 1960-61.

210. *A departure from the normal commercial practice has been made by entering into a profit sharing arrangement with the Madras Government. The argument put forward by the Ministry that the co-operation of the Madras Government in obtaining land and other facilities was necessary for the successful implementation of the scheme is not tenable because such considerations apply in the case of all public sector projects of the Central Government. As regards the financial implications of the profit sharing arrangement, the representative of the Ministry had stated that the profit sharing arrangement was more advantageous than payment of royalty on lignite. But earlier in 1960-61 the information given was that Madras Government would get about Rs. 54 lakhs more by the present arrangement than what they would have got by way of royalty. The Corporation has not yet started earning profits and as such the amount payable to the Madras Government cannot be assessed at this stage. The Committee are not fully convinced whether the profit sharing arrangement would be advantageous to the Corporation. They desire that the matter should be reviewed.* Need to review present arrangement.

211. *The proposal for opening a second mine has not been approved by Government so far. The decision taken in 1956 applies to the first mine cut including all expansions from the first mine. For the second mine cut a fresh decision will have to be taken regarding payment of profit. The observation of the Committee made in the preceding paragraphs should be taken into consideration before any decision on the second mine cut is taken.*

G. Deferred Revenue Expenditure

212. The deferred revenue expenditure accumulated during the last 3 years is indicated below:—

	(Rs. in lakhs)
1961-62	638·40
1962-63	852·33
1963-64	1059·61
1964-65	1270·65

Explaining the reasons for the above accumulation the Corporation has stated that salaries and wages (other than those directly charged to works) relating to construction which have to be ultimately capitalised were tentatively kept in a Miscellaneous Expenditure—Construction Account. When partial production started, provisionally a large portion of the balance in the Miscellaneous Expenditure Account was treated in the accounts as Deferred Revenue and the balance retained in the Profit and Loss account.

213. The Addl. Deputy Comptroller and Auditor General (Rlys.) informed the Committee that the practice followed by the Corporation was not in consonance with the normal accounting practice. The Chairman of the Corporation admitted that it would have been more correct to allocate the whole amount towards capital in the initial stage of construction and as the plant came into operation small amount could be allocated to production, and a higher percentage to capital. The question of finally classifying the expenditure had now been examined in consultation with the Statutory Auditors and the Comptroller and Auditor General of India and it had been decided with their concurrence to capitalise such portion of the expenditure relating to construction which should be correctly treated as capital. This adjustment is proposed to be carried out in the accounts of 1965-66. When this is done, major portion of the 'Miscellaneous Expenditure' during construction

treated in the accounts so far mostly as Deferred Revenue will be correctly capitalised. Any amount which is ultimately decided to be treated as Deferred Revenue will be written off over a period of time according to accepted accounting practice.

H. Bus Service

214. The expenditure on the maintenance of Bus Service and receipts by way of Bus fare for the years 1962-63 to 1964-65 were as follows:—

(Rs. in lakhs)

	1962-63	1963-64	1964-65
Expenditure . . .	5·49	10·63	16·90
Receipts .	6·26	8·41	11·09
	(+)0·77	(—)2·32	(—)5·91

215. It will be seen that in 1962-63 the Corporation had some surplus from the maintenance of bus service but there was deficit in the subsequent years.

Estimates Committee's Recommendation.

216. In 1963-64 the Estimates Committee had made a study of the staff cars and other vehicles maintained by the various public undertakings and had made the following recommendation:—

> "It is therefore, desirable that the Undertakings which are running buses should aim that the income from buses is not less than the expenditure incurred on their running and maintenance. Where this is not possible efforts should be made to entrust the work to the State Transport Department or private transport agencies who might be able to run the buses on commercial basis."
>
> [Estimates Committee 50th Report (Third Lok Sabha), Para 73.]

217. The Committee were informed that initially, by convention, free transport to workers by lorries had been provided. This facility was later on found to be untenable and was withdrawn. But in lieu of this facility workers were sanctioned a transport allowance of Rs. 5 per month. On the introduction of regular bus service, the transport allowance of Rs. 5 was discontinued. The increase in loss in 1964-65 was due to the fact that houses had been constructed at distant places in the colony and

the buses had to ply over long distances and empty trips. The minimum and maximum bus fare was 5 paise and 25 paise respectively. It was stated that considering the point of view of workers, it was not advisable to increase the bus fare in order to reduce the deficit on the maintenance of bus service.

Need to break-even expenditure and income from Buses.

218. *The Committee feel that the Corporation should so rationalise the bus fare, the timings and the trips that the receipts from bus fare are not less than the expenditure incurred on their running and maintenance.*

XII

GENERAL ASPECTS

A. Delay in completion of the Projects

219. There have been considerable changes in the Integrated Project as approved in 1956 as regards estimated output or production of the various units and their scheduled dates of completion. The table below indicates the dates for commissioning the various constituent units according to the Project Reports and the actual or expected dates of commissioning:—

Unit	Original Estimated Production (per annum)	Revised Estimated Production (per annum)	Date of Commissioning as originally envisaged	Actual or expected dates of commissioning	Period of delay
(1)	(2)	(3)	(4)	(5)	(6)
Mining Scheme	3·5 million tonnes	Same	1st Phase Jan. 1960 and Phase (Full Development to yield 3·5 million tonnes). September, 1960	Sept. 1961 1966-67	1 yr. 8 m. Over 6 yrs
Thermal Power Scheme.	210/200 MW	250 MW	1st Unit in April, 1961 and completion of all units by December, 1962.	1st Unit in May, 1962 and completion of all units in April, 1964.	1 year 1 month for 1st unit & 1 yr. 4 months for other units.
Fertilizer Scheme	2,00,000 tonnes Ammonium Sulphate.	1,52,000 tonnes of Urea.	End of 1961	March, 1966	4 years, 3 months
Briquetting & Carbonisation Scheme.	3,80,000 tonnes carbonised briquettes	Same	Do.	August, 1965	3 years 8 months.
Clay Washing Scheme	6000 tonnes of washed clay.	Same	December, 1961	Dec. 1961	

Briefly the position is as follows:—

(i) The Mining Scheme is under partial production. At the present the Thermal units consume the lignite produced from the mine, but the production is expected to be stepped up to the rated capacity of 3·5 million tonnes when the other

two consuming units, namely, the Fertiliser Plant and the Briquetting and Carbonisation Plant go into full production during 1966-67.

(ii) The Thermal Scheme intended to generate 250 MW of thermal power was completed in April, 1964.

(iii) The Clay Washing Scheme was completed in December, 1961 as scheduled. It was intended to produce 6000 tonnes of washed clay per annum, but in March, 1964 the production was reduced by 50 per cent as the quantity produced could not be sold and there was accumulation of stocks. The production was suspended in July, 1965, due to non-availability of raw clay from the mine.

(iv) The Briquetting and Carbonisation Plant commenced production in August, 1965.

(v) The Fertiliser Plant commenced production in March, 1966.

B. Project Estimates

220. There have been considerable changes in the Integrated Project as approved in 1956 regarding cost of various units. The following table indicates the estimates of the cost of the project according to the project reports and the estimates sanctioned by Government from time to time:—

(Rs. in crores)

Name of the Scheme	Estimates as given in the Project Report	Original sanctioned estimates (1959)	Revised Estimate sanctioned in April 1964	Total (as now estimated)
(1)	(2)	(3)	(4)	(5)
Mining Scheme	16·90	20·32	4·96	25·02
Thermal Scheme	20·00	21·72	29·33	26·72
Fertilizer Scheme	21·00	26·10	38·11	37·93
Briquetting & Carbonisation Scheme	11·00	20·00	29·06	29·05
Clay Washing Scheme	..	0·14	0·14	0·15
Housing for Common Services	..	6·38	(Allocated among various schemes)	
	68·90	94·66	121·60	118·87
Less Receipts and Recoveries	..	..	3·88	3·88
	68·90	94·66	117·72*	114·99**

*Does not include the interest amounting to Rs. 310 lakhs payable during the construction period on the loan obtained from the Government of India.

**After capitalisation of expenditure incurred on Fertilizer and Briquetting and Carbonisation Schemes during 1965-66, the cost as now estimated would work out to Rs. 117.50 crores.

221. It will be seen that the revised estimates sanctioned in April, 1964 have gone up by Rs. 48·82 crores (70·86 per cent) over the Project Reports Estimates and by Rs. 23·06 crores (24·36 per cent) over the original sanctioned estimates.

222. The increase in the estimates has been stated to be due to the fact that the Project Report estimates were in the nature of rough assessments made in 1954 by the Technical Consultants. The other reasons for the increase were higher cost and additional expenditure on alternative equipment resulting from delay on the part of Government in coming to a decision regarding the various constituent units of the project, non-inclusion of Clay Washing Scheme and common services in the Project estimates and change in the character of the Fertilizer Scheme. The increase of Rs. 23·06 crores over the original sanctioned estimates was due to increase under the heads of Housing, Establishment and Welfare amenities of the Project Personnel (Rs. 10·15 crores), customs duty (Rs. 5·88 crores), freight charges (Rs. 1·22 crores), cost of materials both in India and abroad and appreciation in foreign currency (Rs. 7·74 crores) and insurance charges under the Emergency Risk (Factories) Insurance Act, 1962 (Rs. 0·98 crore) less overall anticipated savings of Rs. 2·91 crores.

223. The Estimates Committee in their Action Taken Report on this Undertaking presented in 1963-64 expressed concern over the abnormal rise in the cost of Integrated units and emphasized that the estimated cost of such projects should be prepared as realistically as possible in the beginning which should be available to Government and Parliament before a project was approved. The Committee also pointed out that it was not correct to undertake a project on the basis of incomplete estimates and to subsequently increase the outlay thereon.

C. Contribution during Fourth Plan period

224. A statement showing the expected contribution of the Corporation during the Fourth Five Year Plan period is given below:—

(Rs. in lakhs)

Year	Revenue surplus	Depreciation	Total	Replacements & additions	Balance available
1966-67	180·00	580·00	760·00	329·00	431·00
1967-68	302·00	744·00	1046·00	200·00	846·00
1968-69	404·00	793·00	1197·00	200·00	997·00
1969-70	539.00	847.00	1386.00	300.00	1086.00
1970-71	539·00	847·00	1386·00	300·00	1086·00
	1964·00	3811·00	5775·00	1329·00	4446·00

225. The contribution had been worked out without allowing for repayment of loans as repayment of loans in a sense add to the liquid resources for the financing of the Plan. A part of this total contribution may become payable to the Government of Madras under the profit sharing arrangement with that Government.

226. In working out the contribution, it has been assumed that no tax will be payable during the Fourth Five Year Plan period in view of the tax holiday that will be available and the carry forward of losses and unabsorbed depreciation. The working is also based on a retention price of Rs. 670 per tonne for Urea and the Lignite rate settling at Rs. 12·50 per tonne in 1969-70.

XIII

Conclusion

227. The Neyveli Lignite Corporation is an undertaking of great national importance. In terms of Central Government investment (equity and loans), this Corporation, with an investment of Rs. 129 crores, stood fourth* among the various public undertakings at the end of 1964-65.

228. Of the various schemes of the Corporation, the Thermal Scheme has progressed fairly satisfactorily. The Briquetting and Carbonisation and Fertiliser Schemes have, after prolonged delays, recently gone into production. The Clay Washing Plant had gone into production as scheduled but its production was suspended from July, 1965 for want of Clay. The Mining Scheme had been completed but the production of lignite was below rated capacity because the consuming units had not gone into full production.

229. *The Committee, after a study of the working of the Corporation, feel that its performance over the years leaves much to be desired. There is considerable scope for improvement. With this view, the Committee have made certain observations/recommendations in the paragraphs* supra. *Some of the important ones are:—*

(i) *The Mining as also other schemes were not well planned and failure to synchronise their commissioning has upset the targets of production envisaged in the Second and Third Five Year Plan periods.* (*para* 43).

(ii) *Advance planning has not been done for additional uses of lignite.* (*Para* 46).

(iii) *There is need to reduce the cost of production of power.* (*Para* 53).

(iv) *The rate at which power is sold to the Madras Government should be reviewed.* (*Para* 58).

(v) *The Corporation should supply power not only to the Madras State but also to the neighbouring States. It should directly negotiate with the State Governments rates for sale of power.* (*Paras* 64—67).

(vi) *The work of preparation of D.P.R. and Working Drawings for the Thermal expansion scheme*

*The first three undertakings were—Hindustan Steel Ltd. (Rs. 885 crores), Heavy Engineering Corporation Ltd., (Rs. 140 crores), and Oil and Natural Gas Commission (Rs. 130 crores).

was entrusted to foreign collaborators without ascertaining local potentialities. (*Paras* 72—74).

(vii) *The delay in the procurement of steel for the Fertiliser Scheme resulted in heavy extra payments to foreign contractors. This could have been foreseen and delay avoided.* (*Para* 91).

(viii) *Cost of production of Urea at Neyveli is likely to be higher than that produced at other public sector projects.* (*Para* 101).

(ix) *The Corporation should take steps to increase the production of carbonised briquettes according to the rated capacity. The briquettes should be sold to industrial units also.* (*Paras* 117—121).

(x) *The operation of the Clay Washing Scheme has proved to be a losing proposition so far.* (*Paras* 125—135).

(xi) *Greater efforts are needed to sell the entire quantity of fly ash produced.* (*Para* 148).

(xii) *There is need to reduce the staff in the Mining and Thermal Schemes.* (*Para* 158).

(xiii) *The Neyveli Township was planned in an extravagant manner. In building houses for staff, considerations of economy have not been observed. Rules framed in regard to allotment of houses need to be revised.* (*Paras* 183—193).

(xiv) *The arrangement made for sharing of profit with the Government of Madras should be reviewed.* (*Para* 210).

230. *The Corporation has great potentialities and if the suggestions made by the Committee are implemented, there is no doubt that it will fulfil the objectives for which it was set up.*

NEW DELHI;
April 15, 1966.
Chaitra 25, 1888 (*Saka*)

D. N. TIWARY,
Chairman,
Committee on Public Undertakings.

APPENDIX I

(*Vide* Para 150)

Composition of the Board of Directors

Shri K. N. Subbaraman, Chairman, Neyveli Lignite Corporation Ltd. Neyveli.

Official Directors

1. Shri N. D. Gupta, Joint Secretary to the Government of India, Ministry of Mines and Metals, New Delhi.
2. Shri K. S. Bhandari, Joint Secretary to the Government of India, Ministry of Finance, (Department of Expenditure), New Delhi.
3. Shri B. C. Gangopadhyay, Director (Power and Foreign Exchange) Ministry of Irrigation and Power, New Delhi.
4. Shri T. N. Lakshminarayanan, Secretary to the Government of Madras, Department of Industries, Labour and Cooperation, Madras.
5. Shri G. R. Ramachandran, Secretary to the Government of Madras, Finance Department, Madras.

Non-Official Directors

1. Shri N. Mahalingam, M.L.A., Madras.
2. Shri D. Venkatesh, General Secretary, I.N.T.U.C., Mysore State Branch, Bangalore.
3. Shri P. Thima Reddy, M.L.A., President Andhra Pradesh Congress Committee, Andhra Pradesh, Hyderabad.
4. Shri Mohamed Ali, President, Mysore Pradesh Congress Committee, Mysore.

APPENDIX II

Summary of conclusions/recommendations

Sl. No.	Reference to Para. No. in the Report	Summary of conclusions/Recommendations
1	2	3
1	11	At present the production of lignite at rated capacity, i.e. 3·5 million tonnes has been programmed from 1966-67. When the integrated scheme at Neyveli was conceived in 1954, it was assumed that sanction for it would be received by 1956 and it would be possible to produce 3·5 million tonnes by the end of 1961. Thus in reaching full production, there will be a delay of 5-6 years. This has been due to the late sanctioning and implementation of the various units of the integrated scheme. If the commissioning of the Mining Scheme as also the consuming units had been properly planned and synchronised the present idle capacity in the Mine would not have occurred. The targets of production envisaged in the Second and Third Five Year Plan Periods would also have been adhered to.
2	17	M/s. Powell Duffryn Technical Services Ltd. whose services were obtained free of cost under the Colombo Plan were actually paid a sum of £2,85,650 for Technical and Economic Feasibility Study, for drawing up of Detailed Project Report and for development of the Mine. This was done under different contracts, without ascertaining rates from other concerns. The Committee would like to point out that the usual practice of inviting tenders before entering into contract was not followed in this case. Further it was not known that the consultants had any experience of lignite mining.
3	22	The rise in the cost of production from Rs. 10·35 to Rs. 17·25 per tonne (an increase on 70 per cent.) is considerable. The extent of rise in cost due to the capital employed on the mining expansion scheme is not known because accounts

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		relating to the original and the expansion schemes are not kept separately. The Committee consider that for a proper appraisal of the performance of the Corporation in respect of the original scheme and the expansion the Corporation should keep such account separately.
4	23	For the purpose of accurate cost control and management efficiency, it is necessary to have accurate weighment of lignite supplied to the consuming units. The Corporation should have considered the question of installing a weightometer much earlier. This should be installed now.
5	28	It appears that the Corporation is in favour of setting up of a steel plant in the South based on Neyveli lignite. But the Committee regret to note that the Ministry of Mines and Metals has not considered this matter. In fact the representative of the Ministry thought that it was for the Iron and Steel Department to decide the issue. The Ministry of Mines and Metals which is the administrative Ministry for the Neyveli Lignite Corporation should have taken more interest in this matter. Advance planning for increasing the production of lignite will also be necessary if it is decided to use lignite for production of pig iron. The Ministry of Mines and Metals should pursue the matter with the Ministry of Iron and Steel.
6	30	The difficulty of transportation of lignite will be eased with the completion of the Salem-Bangalore metre-gauge link. The Corporation should examine the possibilities of utilisation of lignite by the Mysore Iron and Steel Works.
7	33	The Dumpers are not giving trouble free service and the defects also remain undetected. The cost of removal of over-burden with them is high and is rising with the aging of machines. In these circumstances the use of these Dumpers seems uneconomical. A thorough study should be made to find out whether the present Dumper fleet should be replaced by a new type of machinery which could be operated efficiently and economically.

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8	36	The present rate of utilisation of the Bucket Wheel Excavators is low. Efforts should be made to utilise them to their maximum capacity.
9	38	The percentage of mining losses so far has been high and no serious thought had been given to reduce them. The present method should be improved upon and losses reduced to the minimum.
10	41	In 1961 the cost of the Mining Expansion Scheme was estimated at Rs. 379·99 lakhs but in the revised estimates prepared in 1963 the cost was put at Rs. 568·30 lakhs thus showing a rise of 50 per cent. The basis for the prices assumed in 1961 estimates proved incorrect. Requirement of plant and equipment of the value of Rs. 45·46 lakhs was also not visualised in the original estimates. The Corporation should pay greater attention towards framing of accurate estimates.
11	46	Hitherto not much thought appears to have been given as to how lignite mining could be developed. The present approach seems to be confined only to power generation, fertilisers and briquettes, whereas lignite can be put to several other industrial uses especially in the Railway locomotives where tests carried out so far have proved to be encouraging. At present a large quantity of coal is transported from the North to the South. There are large deposits of lignite in the South Arcot District and Government should take overall view as to the place which lignite would occupy as a substitute for domestic fuel, in railways etc. Planning in this regard should be done first. If it is felt that launching of such a project during the Fourth Plan period would be commercially sound and beneficial to the country, the proposal to open a second mine should receive priority.
12	51	Delay in supply of equipment by the foreign suppliers had resulted in delays ranging from 13 to 21 months in the commissioning of the various units of the thermal scheme. The staff which had been recruited had also to be kept idle for the corresponding periods. While fixing the date of delivery of plant and equipment, the suppliers should be apprised of the repercussions

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		of delay on their part and they should be asked to fix realistic delivery schedules for the plant and machinery and adhere to the dates so fixed.
13	53	The cost of production of power for 250 MW station according to the revised estimates sanctioned in 1964 was worked out at 4.002 Paise per KWH. With the expansion of the capacity upto 600 MW, it was expected that with a large turnover the cost would come down. But the Committee note that even after expansion, the cost would be higher (i.e. 4·33 Paise per KWH) than that estimated for the 250 MW Thermal Station. There is need for economising in costs. Lignite cost is a major item of expenditure for power generation. The Corporation should strive to reduce the lignite consumption per unit of power through technological improvements with a view to reducing the present production cost.
14	58	In the matter of sale of power, the Corporation as well as the Madras State Electricity Board should be entitled to a reasonable margin of profit and a fair return on capital. If the Corporation is able to bring down its cost of production to about 4·3 Paise per KWH at 600 MW stage, as now envisaged, the sale price of 5·2 Paise per KWH will give a fair return on investment. However, if the price at which the Madras State Electricity Board sells power is much higher than the price at which it purchases from the Corporation and this results in a substantial return to the Madras State Electricity Board, then the Corporation should be entitled to a higher price for the power sold by it. The Committee feel that the Madras State Electricity Board should not retain higher percentage of profit from the sale of electricity which it obtains from the Corporation than the percentage of profit it makes on electricity generated by itself. This profit should be considered rather liberal as the Madras State Electricity Board will get it without having produced this power.
15	64-66	The Committee do not consider it desirable that the Corporation should think of dealing with one party alone, namely the Madras State Electricity Board. The proper course would be to ascertain

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		the requirements of all the neighbouring States and to distribute power equitably among them. The problems of the grid and transmission losses can be resolved if measurements are taken at the outlet point and at the inlet point in the neighbouring States and the transmission losses worked out on percentage basis. The Committee are anxious that a product like power of a public undertaking of which Government of India is the major or the only shareholder, should not be restricted to one State only.
		Another point is that the power purchased by the Madras State Electricity Board from the Neyveli Thermal Station is sold to another State Electricity Board after keeping a certain margin. Obtaining of profits by the Madras State Electricity Board above its service charges from a neighbouring State does not seem justifiable. This also results in the power being sold to the consumers in the neighbouring States at a higher price. From this point of view, it is also desirable that the Corporation should sell power to the State Electricity Boards directly at one rate which may be mutually agreed upon.
		The decision to supply Neyveli power to the Madras State Electricity Board was taken on the 27th December, 1954. On that date the Neyveli Lignite Project was administered by the Madras State Government. The Central Government took up the responsibility of financing the project from the 1st January, 1955 and administrative responsibility from the 15th September, 1955. When this responsibility was taken over, it is doubtful whether the decision to supply power to the Madras State Electricity Board only which was arrived at prior to such taking over still continued to be binding. When the project was transferred in 1955, the Central Government should have examined this question *de novo*. During evidence of officials of the Corporation and the Ministry, the Committee gathered the impression that there was a vague idea that power was to be supplied to the Madras State, but no one really knew what exactly the decision was.
16	68	The Secretary of the Ministry had stated that the supply of the power to the Madras State upto

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		250 MW stage was because of the commitment made in 1954 but if there was generation of power beyond 250 MW that would be shared by the other States. In view of this the Committee fail to understand as to why the Corporation is contemplating to enter into an agreement with the Madras Government for the supply of power even upto 600 MW stage.
17	72	It appears that when the Soviet suppliers did not agree to accept the project report prepared by the Corporation for Thermal Expansion Scheme the matter was not pursued further. The project report was based on the experience gained by the Corporation in setting up five Thermal units at Neyveli and was also seen by the C.W. & P.C. and the Russian experts at site. It could be expected that the project report would be accepted by the Soviet suppliers subject to the necessary modifications being made by them. Government should have pursued the matter on the above basis with the foreign collaborators.
18	75	The Committee regret to note that in a project costing crores of rupees and valuable foreign exchange the Ministry contented itself with a negative reply from the Central Water and Power Commission without itself trying to pursue the matter or find out the possibility of entrusting the work of preparation of Detailed Project Report to private agencies in the country. It is further regretted that he information which the Central Water and Power Commission has now supplied to the Committee could not be made available to Government earlier, otherwise a large saving of foreign exchange could have been effected. The Committee have, in their 13th Report on Management and Administration of Public Undertakings (Planning of Projects) also dealt with at length this question of extreme dependence on foreign consultants.
19	78	Considering the large outlay on the Thermal Scheme which is all under Russian credit, and the relatively small amount of foreign exchange that was required for sending two engineers for associating themselves in the preparation of the D.P.R. and Working Drawings, the Committee feel that the Corporation's request merited

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		favourable consideration. It seems that the Ministry concerned and the Corporation did not clearly state the precise purpose for which the two engineers were being sponsored. With the result that the Ministry of Finance rejected the request. The Committee regret to note such lack of clarity which has resulted in the loss of an opportunity for learning designing of Thermal Power Stations and will also involve further expense of foreign exchange.
20	82	In the tender letter issued by the Corporation for the supply of plant and machinery for the Fertilizer Scheme, detailed specifications should have been given. If the tender letter had been sufficiently exhaustive, so as to contain full details of machinery and equipment erquired as well as the period of delivery, terms of payment etc., the need to seek clarifications from the suppliers later would have been obviated and the time taken in finalising the tenders reduced.
21	87	The delay in procurement of indigenous steel hampered the construction schedule of the Fertiliser Plant. The Committee feel that when the Corporation had already obtained authorisation from the Iron and Steel Controller for importing steel, the Ministry should not have spent another 5 to 6 months in exploring the possibility of obtaining steel indigenously.
22	91	The Committee consider that the delay in procurement of steel for the Fertilizer Plant was a case of bad planning. It appears that during the period from May, 1960 till the receipt of steel in 1963, there had been no realisation on the part of the Ministry or the Corporation that the delay caused in the procurement of steel was going to result in heavy extra payments to the foreign contractors. The whole question of procurement of steel had not been dealt with the care which it deserved. The matter should be investigated and responsibility fixed for the heavy losses.
23	97	The main and contributory reasons for the collapse of the Urea Drying and Cooling Plant building were (i) faulty or incomplete design supplied by the designers, (ii) non-availability of any experienced engineer to check the design, (iii) employment of engineers who did not have experience in this particular type of construc-

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		tion and (iv) execution of the work without first obtaining detailed drawings. Reasons given in items (ii), (iii), and (iv) are within the Corporation's responsibility. The execution of work without obtaining detailed drawings was not proper. If detailed drawings had not been supplied by M|s. E.C.C. Ltd., the Corporation should have first obtained them from the firm or else should have had them prepared before undertaking execution of work. Such neglect can result in heavy losses and even involve loss of life. The Corporation should ensure that the designs supplied by outside agencies are checked by its own construction engineers and that there is no defect in the execution of work.
24	102	The Corporation should see whether its cost of production of Urea can be reduced so that there is some margin of profit even at the prevailing retention price.
25	103	With an investment of another Rs. 2·70 crores the output of urea could be increased from 1,52,000 tonnes to 202,000 tonnes, i.e. by about 30 per cent. If this proposal is implemented, the cost of production will be brought down. If the Government is satisfied that the above is based on studies carried out by competent persons it could ask the Corporation to initiate the necessary action for its achievement.
26	107	The Committee consider that a period of about 15 months taken in signing the contract after the receipt of tenders for Briquetting and Carbonisation Scheme was unduly long.
27	112	The Corporation has taken due care in fixing the sale price of the carbonised briquettes so as to make it competitive with firewood. But it will have to educate the people about the advantages of LECO over firewood beause of the fact that its heating value is 3½ times that of firewood may not be known or fully appreciated.
28	117	The break-even point for the B. & C. Plant is about 260,000 tonnes of production of carbonised briquettes per annum. The production in 1968-69 is assumed at 269,000 tonnes. It follows that till 1968-69 the scheme will not make profit. To show a reasonable profit the plant has to be

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		worked much above that point. Since the plant can produce according to the rated capacity, the Corporation's approach should be towards vigorous sales programme so that the production can be taken up to the maximum.
29	121	The Corporation proposed to keep the production carbonised briquettes at a lower level deliberately because the consumer demand was not certain. In view of this the Committee feel that the Corporation should have made attempts to find out industrial consumers for the products. If this had been done, the Corporation could have accelerated the rate of production and sold the entire quantity for domestic and industrial uses. This may now be done.
30	129	The Committee feel that if adequate and timely steps had been taken to develop the market for the Washed Clay, the question of accumulation of stocks and the necessity of reducing production for want of sales in the earlier years would not have arisen.
31	131	The future prospects of the Clay Washing Scheme are uncertain. This is another instance where machinery with excessive capacity has been purchased from abroad without carrying out any advance studies.
32	135	It is regrettable that the quantity of washed clay produced was entered in the books on approximate basis without carrying out actual weighments. The total quantity of Clay produced till 1964-65 was itself not much. That the variations in book figures and the actual stock showed a shortage of 3191·502 tonnes is all the more surprising. Perhaps the washed clay was also sold without weighment. The Committee are not convinced with the reasons given in this connection and desire that the matter should be investigated and responsibility fixed.
33	141	The Briquetting and Carbonisation Plant commenced operation in August, 1965, but the by-product plants have not started working yet. The sale of the by-products will improve the over-all profitability of the scheme apart from the fact that it will save a considerable amount of foreign exchange expenditure now being in-

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		curred on importing these products. The Corporation should expedite the commissioning of the by-product plants.
34	143	No convincing reason has been advanced to the Committee for providing ammonia capacity to the extent of 33 per cent. However, as the position is, the setting up of the Melamine plant would take time after the sanction from Government is received. Thus the surplus capacity of ammonia would remain un-utilised till such time this plant is installed. Government should take a decision as to how this surplus capacity should be utilized.
35	148	The Committee notice that from 75,000 tonnes of Fly-Ash produced annually, the revenue could be of the order of Rs. 7·5 lakhs. Instead of merely treating it as a disposal problem the Corporation should consider it as an important source of revenue and make efforts to sell the entire quantity. The reason put forward for not selling fly ash to private parties is not convincing. The Corporation should consider selling it to all reputable parties.
36	151	The Committee consider that for a proper liaison in the matter of production and distribution of fertiliser produced at Neyveli, it will be useful to have a representative of the Ministry of Petroleum and Chemicals or the Fertiliser Corporation of India on the Board of Directors of the Neyveli Lignite Corporation.
37	158	The Committee could appreciate a small increase in staff employed over the number envisaged in the project report, but that this variation should be three to four times the number envisaged in the project report in the case of Mining and Thermal Schemes is rather surprising. Such variations affect the estimates of expenditure and vitiate the economics of the scheme. The fact that the Corporation has decided to reduce the staff in the Thermal Plant by about 10 per cent itself shows that there was scope for reduction. The Corporation should constantly review the deployment of staff at various levels in relation to the work load and make efforts to bring down the number to the

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		minimum. Adequate training should be given to the various categories of personnel so that their output becomes comparable with that of personnel employed in comparable establishments in foreign countries. Efforts should also be made to train unskilled workers for skilled jobs.
38	163	The Committee are not convinced that there could be sufficient justification to recruit yearly 195, 272 and 292 Apprentices (Mechanical) against a sanction of 75 posts or to appoint 120, 175 and 136 Apprentices (Electrical) against a sanction of 59 posts. While some margin can be allowed for excess recruitment to replace those who resign etc., recruitment to the extent of three to four times the number sanctioned is far in excess.
39	167-168	The training course of the apprentices for the Fertilizer Scheme commenced in July/August, 1958. The tenders for the Fertilizer Scheme were floated in May, 1958 and the contract with the foreign suppliers was signed in October, 1959. The completion of a Scheme of this nature takes about four years from the date of signing of the contract. Thus it was not difficult to foresee even in 1958 that the scheme would not be completed till 1963. To have the first batch trained by June and November, 1960 was thus premature. It appears to the Committee that in a bid to have the trained personnel at the earliest, the element of time that was to be taken in the more difficult and complicated work of commissioning the scheme was lost sight of. The Corporation should have kept the training programme in abeyance till the contract with the foreign suppliers was finalised and some clear picture emerged regarding the erection of the plant. The plea of the Corporation that the trainees were utilised on the preparatory work of erection of the Fertilizer Plant is not convincing because such utilisation was incidental. It could at best be said that having trained the men, the Corporation thought it advisable to use them in the erection work for which some recruitment would have otherwise become necessary.
40	172	There is a case for giving due protection in the matter of seniority, promotion etc. to technical

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		personnel who become surplus at one undertaking and join another undertaking. Government might examine how best this could be done.
41	175	The main difficulty is that in view of limited prospects at Neyveli, the Corporation is not able to attract qualified mining engineers nor is it able to check the flight of such personnel. This difficulty can be resolved either by offering more favourable terms of service to qualified mining engineers or by appointing personnel with lower qualifications who are otherwise considered suitable.
42	178	The Committee consider that the lead time of 27 to 30 months for imported material is on the high side as compared to some other Public Undertakings and there is scope for reduction.
43	185-186	When the lay out plan of the Township was drawn up, the Corporation should have made it more compact so as to avoid extra expenditure on roads, electric wires, water mains, sewage etc. In any case, in the further expansion of township, when required, utmost economy in the utilisation of available space should be observed. The Committee were informed that after two houses, space was left for one more house to be built on receipt of sanctions for building more houses. After such sanctions, 1056 additional houses have been built. This is an uneconomical way of undertaking construction. The obvious and rational way would be to complete a block at a time.
44	189	The Committee are not satisfied with the plea that economic construction of 67 per cent of the houses would have created heart burning among the employees. They regret that the Corporation took no advantage of the new pattern and design of the houses, which would have resulted in a saving of Rs. 38 lakhs in the construction expenditure apart from saving in the land etc.
45	193	The Committee understand that under the rules prescribed for the Central Government emuloses, possession of accommodation has to be taken within five days from the date of service of the allotment order. Further, there is no provision that allotment orders are to be served to the persons on leave only after their return from

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		leave. The rules of allotment enforced by the Corporation in 1964 are still more liberal than those applicable to the Central Government employees and should be revised to cut down the vacancy period of the houses.
46	198	The Committee consider that a return of 4 to 4·5 per cent on equity after depreciation, interest and taxes would be rather low. The Corporation is expected to generate its internal resources in future to some extent. With the level of 4 to 4·5 per cent return it will be hardly possible for it to finance its expansion programmes. Declaration of dividend on equity capital in the foreseeable future also seems impossible. The Corporation has already proposals for expansion of its schemes. The capital employed on these schemes will proportionately be less and sales more. This should enable the Corporation to have higher level of return. Greater attention should also be paid to reduce operational costs.
47	201	The Committee consider that each unit should work on its own profit and loss basis. This would enable a better managerial control over its operations because each unit would be required to produce certain results on the basis of standard costs.
48	210-211	A departure from the normal commercial practice has been made by entering into a profit sharing arrangement with the Madras Government. The argument put forward by the Ministry that the co-operation of the Madras Government in obtaining land and other facilities was necessary for the successful implementation of the scheme is not tenable because such considerations apply in the case of all public sector projects of the Central Government. As regards the financial implications of the profit sharing arrangement, the representative of the Ministry had stated that the profit sharing arrangement was more advantageous than payment of royalty on lignite. But earlier in 1960-61 the information given was that Madras Government would get about Rs. 54 lakhs more by the present arrangement than what they would have got by way of royalty. The Corporation has not yet started earning

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		profits and as such the amount payable to the Madras Government cannot be assessed at this stage. The Committee are not fully convinced whether the profit sharing arrangement would be advantageous to the Corporation. They desire that the matter should be reviewed. The proposal for opening a second mine has not been approved by Government so far. The decision taken in 1956 applies to the first mine cut including all expansions from the first mine. For the second mine cut a fresh decision will have to be taken regarding payment of profit. The observation of the Committee made in the preceding paragraphs should be taken into consideration before any decision on the second mine cut is taken.
49	218	The Committee feel that the Corporation should so rationalise the bus fare, the timings and the trips that the receipts from bus fare are not less than the expenditure incurred on their running and maintenance.
50	229	The Committee, after a study of the working of the Corporation, feel that its performance over the years leaves much to be desired. There is considerable scope for improvement. With this view, the Committee have made certain observations/recommendations. Some of the improtant ones are:— (i) The Mining as also other schemes were not well planned and failure to synchronise their commissioning has upset the targets of production envisaged in the Second and Third Five year Plan periods. (Para 43). (ii) Advance planning has not been done for additional uses of lignite (Para 46). (iii) There is need to reduce the cost of production of power. (Para 53). (vi) The rate at which power is sold to the Madras Government should be reviewed. (Para 58).

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		(v) The Corporation should supply power not only to the Madras State but also to the neighbouring States. It should directly negotiate with the State Governments rates for sale of power. (Paras 64—67).
		(vi) The work of preparation of D.P.R. and Working Drawings for the Thermal expension scheme was entrusted to foreign collaborators without ascertaining local potentialities. (Paras 73—74).
		(vii) The delay in the procurement of steel for the Fertiliser Scheme resulted in heavy extra payments to foreign contractors. This could have been foreseen and delay avoided. (Para 91).
		(viii) Cost of production of Urea at Neyveli is likely to be higher than that produced at other public sector projects (Para 101).
		(ix) The Corporation should take steps to increase the production of carbonised briquettes according to the rated capacity. The briquettes should be sold to industrial units also, (Paras 117, 121).
		(x) The operation of the Clay Washing Scheme has proved to be a losing proposition so far. (Paras 125—135).
		(xi) Greater efforts are needed to sell the entire quantity of fly ash produced. (Para 148).
		(xii) There is need to reduce the staff in the Mining and Thermal Schemes. (Para 158).
		(xiii) The Neyveli Township was planned in an extravagant manner. In building houses for staff. considerations of economy have not been observed. Rules framed in regard to allotment of houses need to be revised. (Paras 183—193).
		(xiv) The arrangement made for sharing of profit with the Government of Madras should be reviewed. (Para 210).
51	230	The Corporation has great potentialities and if the suggestions made by the Committee are implemented, there is no doubt that it will fulfil the objectives for which it was set up.

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