ESTIMATES COMMITTEE
1962-63

THIRTY-FIFTH REPORT

(THIRD LOK SABHA)

MINISTRY OF STEEL & HEAVY INDUSTRIES

HEAVY ELECTRICALS (INDIA) LTD.,
BHOPAL

LOK SABHA SECRETARIAT
NEW DELHI

April, 1963/Chaitra 1885 (Saka)
Price : Rs. 1.80 nP.

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CORRIGENDA

Thirty-Fifth Report of the Estimates Committee on Heavy Electricals (India) Ltd., Bhopal.

Page	*Para*	*Line*	*For*	*Read*
5	14	14	'made locate'	'made to locate'
7	17(v)	Col. 3	'44 4½%'	'4½%'
15	44	9-10	'income tav'	'income tax'
17	52	2	'vide para 48'	'vide para 47'
34	108	side heading	'Cammittee's observation'	'Committee's observation'
44	138	1 of Table	'1135. 8'	'1135.88'
47	148	6	'for training'	'or training'
50	157	4	'3.9. 1'	'3.9 : 1'
59	191	8	'Gneral'	'General'
79	258	6	'have'	'has'
101	—	9 from below	'49%'	'40%'
106	—	11 from below	'sheetingly'	'sheeting'
115	65	4	'timeby'	'timely'
116	—	23 cols. 1 and 2.	—	Insert 27 and 79-80 respectively.
118	—	3	'peiod'	'period'

P.T.O.

Page	Para	Line	For	Read
118	103	1	'the'	'that'
123	142	3	'postion'	'position'
126	165	3	'idstructions'	'instructions'
137	247	2	'staff belong ing'	'staff belong ing to'
138	256	3	'split up of'	'split up'
144	-	7 from below	'at the other projects'	'for the expan- sion of the Project'.

233-LSRP-9-4-63/1,100.

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(1962-63)

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*Elected w.e.f. 18 August, 1962 *vice* Shri Shivram Rango Rane resigned.

**Elected w.e.f. 15th November, 1962 *vice* Shri B. J. Singh died on 8th September, 1962.

INTRODUCTION

I, the Chairman, Estimates Committee, having been authorised by the Committee to submit the Report on their behalf, present this Thirty-fifth Report on the Ministry of Steel & Heavy Industries —Heavy Electricals (India) Ltd., Bhopal.

2. The estimates relating to the Ministry of Steel and Heavy Industries—Heavy Electricals (India) Ltd., Bhopal were examined in detail by the Sub-Committee of the Estimates Committee on Public Undertakings which took the evidence of the representatives of the Heavy Electricals from the 26th to the 30th November, 1962 and of the representatives of the Ministry of Steel & Heavy Industries on the 18th and 19th January, 1963. The Report was adopted by the Sub-Committee on the 27th March, 1963 and finally approved by the whole Committee on the 30th March, 1963.

3. A statement showing an analysis of the recommendations contained in this Report is also appended (Appendix IX).

4. The Committee wish to express their thanks to the officers of the Ministry of Steel and Heavy Industries and the Heavy Electricals (India) Ltd. for placing before them the material and information that they wanted in connection with the examination of the estimates.

NEW DELHI;
5th *April*, 1963.
Chaitra 15, 1885 (*Saka*).

H. C. DASAPPA,
Chairman,
Estimates Committee.

I

HISTORICAL

A. *Introductory*:

The *per capita* consumption of electricity is generally recognised as a measure of the extent of industrialisation and prosperity of a country. The low production* of power in India is not a little due to the absence of indigenous manufacture of heavy electrical equipment (required for generation, transmission and distribution of power) which is being mostly imported from abroad. The value of such imports in the country has ranged from Rs. 12 to Rs. 20 crores per year during the period 1950-51 to 1955-56 and from Rs. 21 to Rs. 26·52 crores during the period 1957-58 to 1961-62. Any country which wishes to develop its industrial potential rapidly can ill-afford to depend on other countries for meeting its requirements of basic power plant. It was in recognition of the need and importance of establishing the manufacture of heavy electrical equipment indigenously that the Government of India decided to set up the Heavy Electricals (India) Ltd., Bhopal (HEL). The Company was formed on 29th August, 1956 under the Indian Companies Act of 1956. It is wholly owned by the Central Government and has an authorised capital of Rs. 30 crores. In addition to the Bhopal Project, HEL is charged with the responsibility of the execution of the following three projects:— **Importance of Heavy Electricals.**

(1) Heavy Electricals Plant, Ranipur, Hardwar (U.P.);

(2) Heavy Power Equipment Plant, Ramachandrapuram, Hyderabad. (Andhra Pradesh); and

(3) High Pressure Boiler Plant, Trichirapalli, (Madras).

B. *Setting up of a Public Sector Plant*:

2. The circumstances leading to the setting up of the company are briefly as follows:—

3. Pursuant to the findings of the Advisory Planning Board (December 1946) and the recommendations of a Technical Committee on Engineering Industries of the Industrial Conference held in December 1947, the Government of India appointed a Committee early in 1948 headed by Dr. J. C. Ghosh, (the then Director General of Industries and Supplies) to explore the possibility of developing **Appointment of Exploratory Committee.**

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*The *per capita* generation of electricity in India was 45 KWH in 1961 as against 2,260 in West Germany, 4,780 in U.S.A. and 9,300 in Norway.

the manufacture of Heavy Electrical Power Plant to meet the requirements of the generation, transmission and distribution of power in the country. That Committee recommended that a factory for the manufacture of heavy power plant should be immediately planned as a Government project in collaboration with foreign manufacturers of international repute. Accordingly, detailed project reports were invited from certain well-known firms in U.K. and U.S.A. Towards the end of 1949, after extensive surveys carried out by their representatives, three firms (Associated Electrical Industries, U.K., International General Electric Co., U.K. and Westinghouse of U.S.A.) submitted project reports to the erstwhile Ministry of Industry and Supply.

Establishment of factory recommended.

4. After considering the three project reports, the exploratory committee recommended the establishment of a factory for the manufacture of 1,75,000 K.W. of plant per year (approximate value Rs. 17·5 crores). The cost of the project including working capital, but excluding housing, was estimated to be of the order of Rs. 22 crores. Of the three firms which submitted project reports, only M/s. Westinghouse were willing to participate financially by way of a loan extending over a number of years to cover the overseas expenditure including the dollar element, and some permanent investment in the factory. Their affiliated company was also prepared for the erection and technical management of the factory over an initial period of ten years. Further consideration of the project was, however, deferred in the year 1950 owing to the prevailing financial stringency.

Project included in the First Five-Year Plan.

5. As hydro-electric development schemes and large-scale electrification of Railways were becoming necessary, the question of setting up of a Heavy Electrical Factory assumed a new dimension. The matter was, therefore, again taken up by the Ministry of Production with the Planning Commission in August, 1952 for inclusion of the Project in the First Five-Year Plan, which was agreed to and a sum of Rs. 7 crores was provided for it out of the lump-sum provision of Rs. 50 crores for basic industries and transport.

Project Reports invited.

6. The Government of India then invited firms of international repute to submit project reports with a manufacturing programme for an economic unit in which they would be prepared to participate financially as well as technically. Of the four firms which offered to prepare project reports, only two firms ultimately submitted such reports early in 1954.

Appointment of Gadkary Committee.

7. When these project reports were being examined, the production of certain items in the existing manufacturing units in the country was already expanding. Further, the programme of the proposed State Factory

had to be coordinated with the existing production. Hence a review indicating the capacity of the existing units for further expansion was considered necessary. The position was reviewed accordingly and Government affirmed that the setting up of a heavy electrical factory was an urgent necessity. But before taking a final decision Government again constituted in October, 1954 a Committee headed by Shri S. A. Gadkary. Consultant (Power), Planning Commission to investigate:—

(i) the exact requirements of the country in the matter of heavy electrical equipment;

(ii) the extent to which these could be met by current production in India and by its possible expansion in the immediate future, taking into account the unused capacity available in Government establishments and workshops including the State workshops;

(iii) the residue of the requirements left to be covered; and

(iv) how this residue ought to be met speedily and economically and through what agency.

Establishment of a State Factory recommended.

8. In its report submitted in January 1955, the Gadkary Committee observed as follows:—

"(i) The existing production in India has been examined as also its possible expansion in the near future. Production is mostly confined to small transformers and motors. The Committee finds that no heavy plant is being planned by the existing units. Nor is there any unused capacity suitable for this purpose in the Government workshops and factories.

(ii) The Committee is of the firm conviction that the manufacture of heavy electrical plant in the country is essential for speeding up industrialisation and that the only way of achieving it is for the State to establish a factory for the purpose."

Collaboration proposals invited.

9. Finally Government accepted the recommendation of the Gadkary Committee to set up a factory for the purpose. Proposals were then invited from well-known international firms engaged in this field for technical and financial collaboration. After a scrutiny of the offers received, M/s. Associated Electrical Industries of U.K. (hereinafter referred to as A.E.I.) were selected as Consultants for the Project, and an agreement was entered into with them on 17th of November, 1955.

Urgency of indigenous manufacture not realised.

10. It would thus be seen that although the Ghosh Committee had recommended in 1948 the setting up of a factory for the manufacture of heavy electrical equipment, yet another Committee was appointed in October 1954 to re-assess the demand. In the meantime the prices of plant and equipment were going up. In justification of appointing the Gadkary Committee in 1954, it was stated during evidence that there was a growing tempo of industrialisation in the country and the electrical industry was beginning to expand. Government, therefore, wanted to review the position finally before embarking upon an extensive State-owned scheme. Further, the urgency of indigenous manufacture of heavy electrical equipment was not realised as there was no difficulty of foreign exchange at the time in importing such equipment.

C. *Conclusion*:

11. *The Committee regret that although Government was conscious of the need for setting up of a factory for the manufacture of heavy electrical plant in the country as far back as* 1946, *its urgency was not fully realised till November,* 1955 *when a firm decision was taken in the matter. Detailed Project Reports were obtained from three firms in* 1949 *but their further consideration was deferred on the ground of financial stringency, though certain other projects like D.V.C., Sindri Fertilisers etc. were taken up at that time. The ground of financial stringency does not appear to be convincing in view of the fact that M/s. Westinghouse were prepared to offer a long-term loan to cover the foreign exchange expenditure as also some permanent investment in the factory.*

12. *Later in* 1952, *the Planning Commission agreed to include the Project in the First Five-Year Plan, but apparently the matter was not pursued vigorously. Project Reports were again invited in* 1954 *but were not proceeded with. On the other hand, a re-assessment of the demand for and production of such equipment in the country was considered necessary. It is also unfortunate that the terms of reference of the Gadkary Committee included an assessment of the extent to which the requirements of heavy electrical plant could be met from current production and possible expansion of it. In fact, at that time no heavy electrical equipment was being manufactured or had been planned for manufacture by the existing units in the country. Even the assessment of the demand for the heavy electrical equipment made by this Committee did not prove to be of much value as is evident from the fact that within a period of* 4 *to* 5 *years thereafter, two more heavy electrical factories had to be planned.*

13. *It would have been prudent if a decision to set up a factory had been taken in 1949 itself when Government had the project reports from three well-known firms before them. That would not only have enabled its being set up economically but also provided the much-needed experience in this field. The factory would certainly have gone into production by 1953 thus providing not only the heavy electrical equipment at a time when it was badly needed for the Power Projects, but would also have saved valuable foreign exchange. The expenditure incurred on the preparation of the Projects Reports in 1949 and 1954 was also rendered nugatory. It would thus be clear that as a result of this vacillation and delay regarding the setting up of the factory a valuable period of six years* (1949 to 1955) *was lost.*

Valuable period of six years lost.

D. *Earlier Reports*:

14. The Committee requested the Ministry of Steel and Heavy Industries in December 1962 to furnish them with a copy each of the Report of Dr. Ghosh Committee (1948) and the Project Reports submitted by the foreign electrical manufacturers in 1949. *They regret to observe that these were not made available to them and were stated to have been misplaced due to transfer of work relating to heavy electrical industry between the various Ministries during the last 14 years.* The attempts of the Ministry to locate these documents have not been successful so far. *The Committee cannot but take a serious view of the matter. They are astonished that documents which ought to be in proper care and custody have not been forthcoming. The Committee hope that earnest efforts would be made locate these important reports which must have entailed considerable sums of money.*

Not made available to the Committee.

II

CONSULTANTS AND AGREEMENTS

A. *Selection of A.E.I. as Consultants:*

15. Eleven foreign manufacturers of electrical equipment were invited in April 1955 to indicate the basis of their technical and financial collaboration for the setting up of a heavy electrical plant. Of these, seven firms submitted their proposals about the end of May, 1955. These were considered by a Committee of Experts. On the basis of the recommendations made by this Committee, Government decided that negotiations should be conducted with three firms only, *viz.*, A.E.I., and English Electric Co., both of U.K. and M/s. Siemens of Germany.

16. The Committee of Experts was of the view that the terms of A.E.I. were the most favourable. The results of the negotiations were reported to the Heavy Industries Committee of the Cabinet which approved the proposal for the appointment of A.E.I. They were accordingly appointed as Technical Consultants.

Terms asked for by AEI, Siemens & English Electric Company.

17. A statement setting out the terms asked for by A.E.I., Siemens and English Electric Company for comparable services (as appended to the note submitted to the Cabinet) is given in Appendix I. A summary of the terms offered by the three firms is as follows:—

	A.E.I.	Siemens	E.E.
(*i*) Lumpsum payments. (Consultancy Charges)	Rs. 46·50 lakhs (free of income tax).	Rs. 44·55 lakhs (free of income tax).	6% of the capital investment, i.e., total cost of the factory complete with plant and equipment. (Free of income tax). (Estimated at Rs. 60 lakhs).
(*ii*) For preparation of drawings, etc.	3% (limited to Rs. 12 lakhs).		
(*iii*) Commission on purchase of equipment.	5%		

	A.E.I.	Siemens	E.E.
(iv) Service charge.	2½ % subject to Indian income-tax.	Average 3·4% on sales value of products free of Indian income tax, subject to adjustments against a lumpsum payment of Rs. 22 lakhs. This service charge excludes hydraulic turbines.	3% on the sales value free of tax (with a minimum varying from £100,000 to £200,000 per year after two years) in addition to a licence of £250,000
(v) Financial participation.	Rate of interest on the investment asked for is 3½% subject to Indian income tax. Duration of the agreement 15 years. (£300,000 plus 10% of the payments made to AEI for 10 years for orders received from India for equipment manufactured in AEI's U.K. factories.)	Nil for first 4 years, 3% free of Indian income tax for the following 3 years, 44 4½% free of Indian income tax from the 8th year onwards. Duration of the agreement 20-25 years.	No financial participation was offered.
(vi) Estimated investment.	Rs. 15·9 crores.	Rs. 10 crores.	
(vii) Estimated output.	Rs. 14 crores.	Rs. 10 crores.	

Opinion of the Expert Committee.

18. Regarding the offer of A.E.I., the Committee of Experts had observed as follows:—

> "Their experience in establishing factories abroad is limited. In the matter of quality of their products, they have the advantage in offering wider selection from their associates who have specialised in different items of electrical equipment. Their combined resources for research and development are quite satisfactory. Their offer covers all items of equipment except hydraulic turbines for which they propose to collaborate with M/s. Bovings Ltd., (U.K.) or any other manufacturer of our choice".

"They have modified their terms of payment very considerably in their discussions with the Committee and have confirmed the same in writing. They are prepared to negotiate financial participation."

19. As regards the offer of Siemens, the Committee of Experts said the following:—

"Their offer is complete and in full details. They have extensive experience in the matter of establishing factories abroad. The Committee attached considerable importance to this aspect. As for the quality of their products, their reputation stands high. Their research and development as reflected in their products appears to be of high order. Their technical co-operation covers all the items proposed for the factory. They have an advantage in having a tie-up for hydraulic turbines with M/s. Voith Ltd., who have a high reputation in this line of manufacture."

"Their terms of payment are higher as compared with AEI's revised offer. They have given no revised proposals in this regard. They are willing to participate financially to the extent of 20% of capital investment for the machinery and equipment."

Basis for selection.

The Committee were informed that AEI were selected on the basis of the cost of services charged by them and the extent of their financial participation which was originally assumed to be £300,000. They were also informed that this participation was subsequently reduced to £160.000. The reasons for this reduction were that out of a fee of £400,000 the AEI had to incur an expenditure of £50,000. Of the remaining £350,000 they were expected to pay a tax of £185,000. It was thus estimated that they would retain a net income of £164,500. In the circumstances their financial participaion was reduced from £300,000 to £160,000.

20. *A.E.I. was stated to have been preferred to Siemens as the estimate of capital investment given by the latter (Rs. 10 crores) was considered to be an under-estimate as against the estimate of A.E.I. (Rs. 15.9 crores) which was assumed to be more accurate. In actual fact, however, the estimate of A.E.I. proved to be equally unrealistic as has been discussed in paragraph 141 of this Report.*

Service charges.

21. As regards the service charges of Consultants at Bhopal, the Committee find that the total financial obliga-

tions of HEL under the agreement with AEI and subsidiary agreements would amount to Rs. 4·66 crores as follows:—

(*i*) Technical consultants' fee. .	Rs. 59·64 lakhs (approx.)
(*ii*) Royalty @ 2½% (1960-70) .	Rs. 218·99 lakhs (excluding royalty payable under subsidiary agreements.)
(*iii*) For drawings, tracing, prints, etc.	Rs. 1·75 lakhs (not complete).
(*iv*) Salaries etc. of Resident Consultant and other specialists including demonstrators.	Rs. 164·40 lakhs
(*v*) Payments under purchasing agency agreement. . .	Rs.21·33 lakhs
	Rs. 466·11 lakhs.

22. This amount would work out to about 12% of the capital investment of Rs. 40·30 crores. For the expansion of the Project to Rs. 50 crores output per annum, the AEI are understood to have asked for an additional £15,000 for the preparation of the supplementary project report and £150,000 for implementation. designs, etc.

Observations of the Committee.

23. The Chairman of HEL was not able to give an idea of the consultancy charges paid for similar projects elsewhere. The representative of the Ministry stated that according to the manual of the association of consulting engineers in the U.K.. the consultancy and other service charges for a project of this magnitude should be between 3 and 5% of its capital cost. The question of laying down broad principles for determining the fees of consultants has been dealt with in para 37.

It is however, seen from Appendix I that the total fee payable to AEI was not clearly brought out in the note submitted to the Cabinet and only the fees, on a percentage basis, were mentioned therein. Evidently, the total commitments on this account were not known to the Expert Committee nor was this placed before the Committee of the Cabinet. The representative of the Ministry of Finance admitted that the figure of total commitment to AEI was not specifically mentioned in the note to the Cabinet. *The Committee are not happy that the approval of the Cabinet should have been obtained for the appointment of consultants on such meagre data furnished to them. In a matter like this, there should be specific instructions to avoid such situations in future. It is hoped that it will receive due attention.*

B. *Subsidiary Consultants:*

Payment of Fees.

24. Article II of the main Consultancy Agreement with AEI (November. 1955) stipulated that the Consultants

shall ensure that they have a legally valid agreement with Messrs British Insulated Callender's Cables Ltd., (subsidiary consultants), U.K. whereby they should be able to pass on to the Government of India the designs, drawings, manufacturing methods and techniques in respect of static capacitors. In this connection the Committee note that the consultants had in their letter dated 19th June, 1955 stated that the lump-sum payment of £400,000 payable to them under the main agreement as consultancy fee would not be increased on account of their having to secure collaboration from the subsidiary consultants.

25. In the fulfilment of their obligation the Consultants entered into an agreement with M/s. BICC on the 15th January. 1959 for the manufacture of static capacitors with the approval and acceptance of the Government of India. Under this agreement M/s. BICC were to be paid £6,000 in four instalments. The AEI instead of paying the BICC themselves approached the HEL for the first instalment of £1,500 to be paid to the subsidiary consultants. The HEL referred the matter to the Ministry of Commerce and Industry as they were not clear that this payment was admissible over and above £400,000 payable to the consultants. The Ministry of Commerce and Industry who were not clear themselves consulted the Ministries of Finance and Law. The Ministry of Law took the view that the lump-sum payments envisaged under the subsidiary agreement with BICC should be construed as separate and independent from the payments provided for in the main agreement with the Consultants. In regard to the contractual liability of the Government of India in respect of this subsidiary agreement, the Ministry of Law further observed that clause 8(c) of the subsidiary contract would imply direct contractual relationship between the Government of India or the Heavy Electricals, Bhopal and the subsidiary consultant. The additional payment was therefore allowed.

Additional payment objected to by Audit & P.A.C.

26. Subsequently, Audit objected to this payment. Thereupon, the Public Accounts Committee which examined the matter made the following observations in their 42nd Report (Second Lok Sabha):—

> "It passes the comprehension of the Committee as to how the subsidiary agreement contemplating additional payment was approved and accepted by the Company and the Government on 15th January, 1959.....In the absence of an evidence to prove the abrogation of the Consultants' letter dated 19th June. 1955, the Committee feel that the matter needs further investigation. It is significant in this connection that the subsidiary agreement which was finalised on 15th January, 1959 with the approval and acceptance

of the Company and the Government had superseded the terms of their letter dated the 19th June, 1955. The Committee understand that the relevant file of the Ministry leading to the conclusion of the main agreement in November, 1955 with the Technical Consultants is missing for a long time. The matter, therefore, calls for a thorough investigation."

27. In evidence it was stated that the matter was under discussion with the Director of Commercial Audit and the Comptroller and Auditor General's office. The representative of the Ministry of Finance stated that some correspondence had taken place between the consultants and the Ministry in 1956 in which the additional liability seemed to have been accepted.

Views of the Committee.

28. *The Committee have looked into the commitment made by the Consultants (AEI) in their letter dated 19th June, 1955 that "the lumpsum payment of £400,000 payable to them under the main agreement would not be increased on account of their having to secure collaboration from the subsidiary consultants". They have a feeling that the above commitment was overlooked at the time of entering into the subsidiary consultants agreement and obtaining Government's approval thereto. This position could not be confirmed as the relevant file of the Ministry is still missing. The Committee agree with the observations of Public Accounts Committee that the matter calls for a thorough investigation and desire that early action should be taken in this behalf.*

C. *Appointment of A.E.I. as Purchase Agents:*

29. The original agreement with the AEI stipulated a payment of 5 per cent on the f.o.b. price of plant and machinery which the consultants do not themselves manufacture but purchase and inspect on behalf of the Government. The Committee were informed that the original intention was that Government should purchase all plant and machinery required for Phase I of the Bhopal Project direct. Later on, a separate purchasing agency agreement was entered into with the A.E.I. on 18th August 1958 appointing them as purchasing agents for the plant and machinery required for Phase I of the Bhopal Project. As remuneration for these services they were paid a sum equal to their cost of performing such services plus ten per cent. of such cost. The remuneration paid to AEI for these services upto 1961-62 amounted to Rs. 15·15 lakhs. The total payment on this account is estimated at Rs. 21·33 lakhs.

Justification.

30. As to the reasons for entering into this agreement, the Committee were told that in July-August, 1957, when the Bhopal Project was taken up, there were serious difficulties with regard to foreign exchange and it seemed

that the Project was going to be abandoned again. It was as a result of the high level approach that a bankers' credit worth £2·72 million was arranged by the consortium of British Bankers through Morgan Grenfell & Co. One of the conditions stipulated in the credit terms of Messrs. Morgan Grenfell & Co. was that, as they could not arrange for financing serveral individual suppliers of machinery and equipment, one firm should consolidate all the buying. To comply with this requirement which was an integral part of the foreign exchange loan, it was decided that the services of AEI should be utilised for purchase purposes also.

Observations of the Committee.

31. *Normally it is expected that the foreign exchange necessary for a Project would be made sure of before sanctioning it, especially for projects of the magnitude of HEL. Here, it is clear that there was no such prospect at the time of sanctioning the Project. It is not surprising therefore that there was so much delay in arranging for the foreign exchange with the consequential delay in its execution. The Committee feel that if that is not made sure of at the time of sanctioning a Project itself, the position from which one can settle the terms of obtaining foreign exchange will be weakened. In the present case, credit arrangements, involving heavy service charges, had to be made with a consortium of British Bankers. It also became necessary to appoint AEI as purchase agents and pay them over Rs. 21 lakhs for these services. All these must necessarily affect the cost of production.*

Remuneration on 'cost plus basis.'

32. It would be seen that under the purchasing agency agreement, the AEI were to be paid the cost of performing the services plus ten per cent thereof. The following reasons were advanced for entering into this unusual arrangement on a cost plus percentage basis:

(i) it was not possible to work to any idea of a ceiling;

(ii) the consultant firm was of the highest standing in the U.K.; and

(iii) the payments were to be made not on AEI's own statements but on their Auditor's Certificate.

33. *The commercial practice is for purchase commission to be expressed as a percentage of the cost of goods purchased. Whatever might be the justification for not specifying the fees in the present case on this basis, the payment of charges on 'cost plus basis' is not conducive to economy and is open to criticism. The Committee, therefore, recommend that such an arrangement should be avoided.*

D. *Fees Payable to Consultants*:

Variation.

34. It is observed that the amount of fees payable by HEL to the Consultants at its four Projects varies from project to project.

At Bhopal the AEI and the subsidiary consultants are to be paid about Rs. 60 lakhs (excluding royalty, payment for drawings, salaries to Resident Consultant and his staff etc.) for consultancy services including the preparation of the detailed project report. The Consultants of HEL at the other projects are to be paid the following fees for the preparation of detailed project reports alone:—

	Rs.
(1) Heavy Electrical Plant, Ranipur, Hardwar. (Russian collaboration)	65 lakhs
(2) Heavy Electrical Plant, Ramachandrapuram, Hyderabad. (Czech collaboration).	52 lakhs
(3) Heavy Boilers Plant, Tiruchirapalli, Madras. (Czech collaboration).	26 lakhs

35. The Chairman of HEL informed that there was no formula to determine the fees of Consultants. In the case of Hardwar, Ramachandrapuram and Tirchirapalli Projects the amount of fees asked for by the Consultants was "brought down as much as possible by negotiation". Further, the different countries which are collaborating in these projects were following different practices. While in the case of the Bhopal Project there was only one agreement for the preparation of detailed project reports as well as consultancy service, at the other projects the Consultants insisted upon separate agreements for each item with the result that HEL is not aware at this stage of the likely financial commitments to the Consultants. **Criterion.**

36. It was stated that the East European countries, according to their procedure, prepared a detailed project report in the first instance for which the fees had to be settled in advance. The detailed Project Report submitted by them gave an idea of the overall capital cost. After the technical and administrative examination of this Report, the consultants submitted offers on an itemised basis, (*viz.* separately for technical services, plant and machinery, documentation, etc.) so that it was only at the stage of entering into an agreement for the supply of plant and machinery that an idea about the likely charges was available.

The Committee appreciate the difficulties in dealing with countries having different procedures in regard to collaboration. But at the same time it is necessary that Government should have clear idea of the total payments to be made to the Consultants for a Project before appointing them. Otherwise it would be difficult to determine the reasonableness of their overall fees. The Committee consider that the East European countries which **Need for knowing the Consultant's fee before appointing them.**

are willing to co-operate may not be averse to indicate approximately their total consultancy charges at the very beginning. They trust that Government would do so in future.

Laying down of broad principles suggested.

37. *The Committee would also recommend that Government should lay down broad principles for determining the reasonableness of fees demanded by the Consultants. The fees should bear a certain ratio to the total estimated cost of a project. In this connection, reference is invited to the Manual of the Association of Consulting Engineers in U.K. which indicates a sliding scale of fees.*

E. *Payment to Consultants*:

Remuneration.

38. Under Article XVI(a) of the consultancy agreement with AEI, the Consultants were to be remunerated as follows:—

(*i*) within one month of appointment as Consultants .	£10,000
(*ii*) within one month of receipt of the detailed project report	£20,000
(*iii*) within 6 months of the receipt of detailed project report	£70,000
(*iv*) four payments of £75,000 each at yearly intervals thereafter provided that the progress of the factory is according to the time schedule in the detailed project report accepted by Govt.; any delay in such progress to be related to the dates of the said payments which in the event are to be similarly delayed . . .	£300,000
TOTAL . . .	£400,000

Payments to not related to progress of factory.

39. The Committee note that the first payment under clause (iv) above was made to the Consultants on 17th January, 1959 and the second on 31st March, 1960. On an enquiry whether these payments were related to the progress of the factory as stipulated in the agreement, it was stated that no such investigation was conducted. The work on the construction side progressed more or less as scheduled and there were no delays either due to AEI's default or due to other causes. There had, however, been a delay of several months in ordering machine tools and equipment but this was due to the late finalisation of the purchase agreement with the AEI and with the consortium of U.K. Bankers. As such, no responsibility for this delay attached to the A.E.I. The payment of the 3rd instalment was arranged on 28th March, 1962, roughly one year later than the due date which might be deemed to have covered the slower progress of the factory during 1961-62 mainly on account of the delay in the supply of raw materials and components some of which were the responsibility of the A.E.I. The fourth and the last instalment of £75,000 was due for payment in March, 1963.

40. The representative of the Ministry of Finance stated during evidence that initially there was some difficulty in the project being implemented. It was, therefore, decided that the first payment may be made on 17th January, 1959 and the progress watched thereafter. That apparently had not been done.

Observations of the Committee.

41. *The Committee are constrained to observe that the payments so far made to the Consultants under clause XVI (a) (iv) have not been related to the progress of the factory, as stipulated in the agreement. Further, it is surprising that the total consultancy fee of £400,000 is due to be paid to them by March, 1963 while the agreement is yet to run for another 8 years (i.e. upto 1970). To sustain the interest of Consultants in their work, as also to ensure timely completion of the Project, it is desirable that the payment is spread over the entire consultancy period—a suggestion to which the Chairman of HEL and the representative of the Ministry agreed. The Committee hope that this aspect would be borne in mind while entering into such agreements for the other Projects in future.*

Recommendations of the Committee.

42. *The Committee further recommend that, as far as possible, the quantum of payment to consultants should be related to the quantum of work actually done and the legitimate expenses incurred by them. The last instalment should be a substantial one, payable after the plants have been commissioned.*

F. *Payment of Income-tax:*

Not provided in the Agreement.

43. The Committee were informed that no deduction on account of income tax had been made from the amount of fees paid to the consultants till March 1962. Subsequently, on the advice of the Income-tax authorities, a sum of £20,312.10·0 was deducted from the third instalment of £75,000 arranged for payment on 28th March, 1962. But the Consultants are stated to have protested against this deduction.

Views of the Committee.

44. In this connection the Committee find that the Consultants had originally asked for a consultancy fee of £350,000 to be paid to them in sterling "free of Indian income-tax". This amount was subsequently raised to £400,000 to provide for the payment of income tax by the Consultants. ***The Committee are surprised that from the payment of £250,000 already made to the Consultants, no income tax was charged. They also do not understand why the Consultants have objected to the payment of income tax. In their opinion, unless exemption from the payment of income tax is specifically provided for in an agreement, it should be taken for granted that it has to be paid under the law of the land. The Committee suggest that in future the taxation aspect in respect of the consultancy charges***

payable to the Consultants should be settled in advance and not later on as otherwise the Consultants are likely to claim exemption.

Increase in fees not justified.

45. The Committee understand that the total income-tax deductions from the fee of £400,000 payable to AEI, are estimated to be £25,000. *In the circumstances, the raising of their fee by £50,000 (from £350.000 to £400,000) to provide for the payment of income-tax which is half of that amount does not appear to be justified. Instead of raising the fee by a fixed amount it would perhaps have been advantageous to pay the original fee of £350,000 plus the amount of tax actually levied in India.*

G. *Payment of Royalty:*

46. Under Article XVI(b) of the Agreement, royalty @2½% on the total annual sales of finished products of the factory (excluding hydraulic turbines) minus the invoice value of the imported components purchased from the Consultants during a year, is payable to the A.E.I. The total obligation of HEL on this account during the period of the agreement (from 1960, when production would start, upto 1970) is estimated at Rs. 2·18 crores. It was stated that, after deduction of income-tax, the net payment of royaly would work out to 1¼%. for the bulk of the products. This rate was not considered unreasonable in comparison with the other agreements considering the type of know-how involved.

H. *Resident Consultant and Technical Specialists:*

Provision in the agreement.

47. Article XIV(ii) of the Consultancy agreement stipulates that:—

(a) The Consultants shall provide and maintain in India technical specialists in such numbers and on such terms as are mutually agreed upon for work connected with the construction and the operation of the factory and for the training centre or centres subject to the considerations set out in Article XVI;

(b) The Consultants shall when required by the Government to do so appoint and maintain in India at the expense of the Government a Senior Engineer (Resident Consulting Engineer) as their direct representative and such assistants as may be mutually agreed upon.

48. The salaries and overheads, allowances, travelling and incidental expenses of the Resident Consultant and other technical specialists are all payable by the Heavy Electricals as per Article XVI(d) of the said agreement. The present monthly payment on this account alone is of the order of Rs. 70,453·07. The total expenditure on this account amounted to Rs. 33·58 lakhs upto 31st March, 1962.

The total obligation of HEL under this head, as estimated in the Project Report, is Rs. 1:64 crores and no upper limit has been fixed.

Duties of Consultants.

49. The duties and functions of the Consultants, as laid down in Article III ibid, however, include the following:—

(i) A.E.I. will act as consulting engineers on site and give directions, instructions and information so as to ensure that the factory is established and equipped and that the general layout is carried into effect in accordance with their final recommendations; and

(ii) A.E.I. will supervise the construction of the factory and the erection, testing, commissioning and initial operation of the plant and equipment of the factory.

50. It would thus appear that, in order to fulfil their obligations under the agreement, the Consultants were normally expected to post certain technical staff at their own cost. The Commitee find that in certain other consultancy agreements a specific provision was included to this effect. Further, where such expenses have to be met by the project concerned, an upper limit has been laid down.

Provision in the draft agreement.

51. The Committee were informed that besides the Resident Consultant and specialists stationed at Bhopal, other experts of the Consultants also visited HEL from time to time. The cost of such visits by experts was met by A.E.I. They, however, note that the draft agreement submitted for the approval of the Cabinet, which had been agreed to by the A.E.I., included the following provision:—

> "The consultants shall as soon as possible appoint and maintain as their direct representative an engineer (Resident Engineer) and such assistants as may be mutually agreed upon with the Government. The Resident engineer and his assistants will act on behalf of the Consultants in the implementation of this agreement".

52. *It will be seen that the provision finally included in the agreement (vide para 48) is at variance with the above draft provision submitted to the Cabinet. From a reading of the draft provision, it would appear that the Consultants were to be responsible to maintain the resident engineer and his assistants in India at their own cost, although it was not specifically mentioned. In the agreement finally concluded, the cost of maintaining this staff was specifically made the responsibility of the Government. The Committee are not aware of the reasons for agreeing to this material change in the agreement after its approval by the Cabinet.* The representative of the Ministry also

could not give any satisfactory explanation. He stated that the matter might have been negotiated with AEI later on and the charge agreed upon after a great deal of hard wrangling, and with the approval of the Ministry of Law.

Laying down of broad principles.

53. *The Committee consider that the terms and conditions of such agreements should be clearly specified at the very beginning and should leave no room for ambiguity or a different interpretation later on. They hope that Government would examine this matter and lay down certain broad principles for observance in this regard.*

Upper limit suggested.

54. *They recommend that where the cost of resident engineer, etc. is to be borne by Government, an upper limit for expenditure on the salaries, allowances etc. of foreign specialists to be employed in a Project should be laid down in all agreements as far as possible, as has been done in the case of the Rourkela Project.*

I. *Foreign Specialists employed at Bhopal:*

(i) Number.

55. The Committee were informed that besides the Resident Consultant, 10 senior and 24 general engineers of the Consultants were stationed at Bhopal on 30th September, 1962. The number of foreign specialists to be deputed by AEI at Bhopal is periodically determined by mutual agreement between the A.E.I. and H.E.L. This has not been determined in advance. Indian workers and supervisors had, however, been attached to them as understudies and attempts were being made to replace the foreign specialists by Indian engineers as early as possible.

Suggestions.

56. *The Committee consider it necessary that as far as possible a list of foreign staff required to be posted by the Consultants at the various stages of a Project should be broadly determined in advance and included in the agreement so as to avoid any confusion or dispute at a later stage. A phased programme for the replacement of foreign specialists should also be prepared and adhered to as far as possible.*

(ii) Terms of employment.

57. The terms and conditions of foreign specialists employed at Bhopal are given in Appendix II. These terms were determined after entering into the main agreement with AEI. The basic salary of a Senior Engineer is £1800—2700 p.a. and that of the General Engineer £800—1799 p.a. Besides the basic salary and overseas allowance (50% of basic salary) of these specialists, A.E.I. are to be paid contribution to pension, national insurance, provision for leave pay, etc. ranging from 61 to 112% of their basic salary. HEL has also to bear expenditure on other items also, *e.g.* passage for engineers and their families to and from India, a part of the expenditure on providing furnished accommodation (including air-conditioning in one room) and a car with driver to each senior engineer. The other engineers are provided one car per two engineers. The

total expenses incurred on providing free transport to these specialists amounted to Rs. 2·34 lakhs during the period 1958-59 to 1961-62.

58. According to a rough estimate, a senior engineer would cost HEL between £5800—7700 p.a. and each general engineer between £3,175 and £5,790 p.a. **Rough Estimate of Cost.**

59. It was stated that the original terms asked for by AEI were even higher and Government tried to bring them down as much as possible. It, however, transpired that the facility of individual car to senior engineer was not provided even by AEI to its senior engineers in U.K. who were provided with free transport for official duties only*. Soviet experts at Bhilai were provided free transport at the site of the works for work connected with the project. Expenses of the maintenance of the car of the Chief Engineer were however reimbursed.

60. *The Committee doubt whether it is possible to obtain favourable and equitable terms in such matters after the main agreement with the Consultants has been concluded. Further, any delay in settling the terms thereafter would affect the implementation of the project. What is more, having paid higher remuneration to foreign specialists at one Project, it may be difficult to deny similar terms to the specialists required for the other projects. The Committee therefore recommend that the terms of appointment of foreign specialists should be settled before entering into the consultancy agreement. That would enable the undertakings to get more favourable terms, as was agreed to by the representative of the Ministry of Finance during evidence. The Committee hope that this would be borne in mind while entering into agreements for the other projects in future.* **Settlement of terms before entering into agreement suggested.**

61. *They further suggest that instead of providing various facilities to the foreign specialists free of charge, the desirability of paying them a fixed salary, keeping in view the level of salary in their own country, may be examined. In that case the specialists could be asked to pay for all the facilities so that there was no hidden element in the terms of their appointment and the public at large would be aware of what was being paid to them.* **Fixed salary suggested.**

62. *The Committee also recommend that Government should lay down broad principles governing the terms and conditions of foreign specialists for adoption by all public undertakings.* **Laying down of broad principles suggested.**

J. *Periodical Reports:*

63. Under Article III(b) of the agreement, the Consultants are required to keep the Government informed **Not submitted to Government.**

*At the time of factual verification of the Report it was stated that in the U.K. there were good public transport systems and residential communities had a number of amenities easily available. In Bhopal a completely new area far away from amenities was developed and certain facilities had to be provided to attract good foreign personnel.

through periodical reports about the progress of manufacture and delivery of all plant, machinery, etc. required for the factory and to bring to their notice from time to time the need for taking such action as may be necessary to maintain the time schedule and to ensure the successful completion and working of the factory. But no such reports had been submitted to Government or the HEL till January 1963 by which time the examination of official witnesses by the Committee was over.*

64. It was stated during evidence that AEI were really responsible to the Heavy Electricals to whom all rights and obligations of Government had been assigned on its formation. But if there was any difficulty, the Resident Consultant met the Chairman of HEL, the Additional Secretary of the Ministry or the Minister. Weekly meetings were also held by the Resident Director with the Consultants to discuss common problems.

Need for such Reports.

The Committee consider that such reports from consultants, at regular intervals, are very necessary and should be called for by HEL. They also suggest that AEI should not only send these Reports to the HEL but also to Government to keep the latter posted with the progress of the Project and any difficulties encountered so as to avoid any complaints from the Consultants later on. The Committee hope that early action would be taken in this matter, as was agreed to by the Chairman of HEL during the evidence.

K. *Working of the Agreement*:

65. The Committee were glad to learn that the agreement with AEI was working satisfactorily and their approach towards the collaboration had been very helpful. Certain delays in the supply of materials and quipment had, however, occurred. *The Committee consider that a correct appraisal of the working of the agreement can only be made in terms of the achievements of HEL, namely*:

(1) *timely completion and commissioning of the factory;*

(2) *achieving the targets of production as per the Consultants' estimate or even showing better performance;*

(3) *cost of production, as compared to the cost of similar equipment imported from abroad;*

(4) *training its technical personnel so as to reduce dependence on foreign specialists as much as possible; and*

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*The Committee find that the Consultants, at the instance of H.E.L., submitted one such Report on the 5th February 1963. They trust that early action would be taken on the various suggestions contained therein.

(5) *self-sufficiency in the matter of raw materials and components.*

They trust that these aims would be constantly kept in view.

L. *Agreements*:

66. The Committee were informed that there was no single agency in the Government to scrutinise the agreements with foreign collaborators. They have already referred to the different types of agreements entered into by HEL with different foreign countries. There are also variations in regard to the terms of appointment of foreign specialists employed at Bhopal and other projects. The Chairman of HEL stated that it would be ideal if the agreements for foreign collaboration could be standardised The representative of the Ministry of Finance told the Committee that certain principles for consultancy arrangements had been laid down but it was not possible to standardise and prepare a model agreement. They were however trying to analyse the various types of agreements.

No Single agency to examine the agreements.

67. In this connection the Committee would like to refer to the recommendation made by them in their 16th Report (First Lok Sabha) for the setting up of a Section in the Cabinet Secretariat to scrutinise the agreements and maintain uptodate detailed information and comparative data on their working. In reply, Government stated that all important proposals regarding negotiations for or execution of agreements were dealt with by a Committee of Economic Secretaries to Government. The principle of co-ordination was stated to be unexceptionable but the setting up of a special Section was not considered necessary. The Committee did not accept the above reply of Government and reiterated the recommendation in their 19th Report (Second Lok Sabha).

Earlier recommendation of the Committee.

During evidence the Committee were informed by the representative of the Ministry of Finance that Government was now introducing the necessary changes as suggested by the Estimates Committee. A Projects Coordination Division had been organised in the Ministry of Finance to analyse the various kinds of agreements and to collect the necessary data so that it could provide 'reference and consultancy service' during the stages of establishment of industrial units in respect of contracting for collaboration, construction, etc. *The Committee hope that this cell would be manned by suitable personnel and the agreements routed through this cell. In this connection, they would also refer to the recommendation contained in para 86 of their 32nd Report (Third Lok Sabha) on the National Coal Development Corporation Ltd., Ranchi*

III

PRODUCTION PROGRAMME

A. *Original Programme:*

68. The original production programme of the Bhopal factory and its time-schedule are shown in Appendices III and IV respectively.

B. *Changes made from time to time:*

Phasing of the Project.

69. The factory was originally scheduled to go into production on 1st July, 1960 with a target of Rs. 12.5 crores by 1969. Due to foreign exchange difficulties during 1957-58, the production programme was revised to achieve the target in three phases by 1970. The first phase was sanctioned early in 1958. The details of the rephased programme are shown below:—

(Rs. crores)

S. No.	Description	Year of commencement	Year in which full production reached	Value of annual output on full production (1st phase).	
1	Transformers	1960	1964	2·15	6·22
2	Switchgear	,,	1965	3·09	
3	Control gear	,,	1964	0·75	
4	Capacitors	,,	1964	0·23	
5	Traction Motors	1963	1967	1·04	4·16
6	Industrial Motors	,,	,,	0 95	
7	Heavy Rotating Plant	,,	,,	2 17	
8	Water turbines	1966	1970	1·85	2·12
9	Rectifiers	1966	1970	0·27	
					12·50

Decision to double the capacity.

70. By the middle of 1959, Government reviewed the programme and not only sanctioned the entire project for an annual output of Rs. 12.5 crores but also decided in principle to increase its output to Rs. 25 crores. Sanction for the Rs. 25 crore output project was accorded in March 1960. To meet the uptodate requirements of the State Electricity Boards, it was further decided to increase the sizes of hydraulic turbines and generators from 50,000 KW, provided in the project report, to a maximum of 150,000 KW and of individual transformers from 55.000 KVA to 190,000 KVA which could be further increased upto 40,000 KVA.

71. On a further examination of the country's requirements, carried out in the middle of 1959, it was felt that the output of heavy electrical equipment at the end of the Third Plan would have to be of the order of Rs. 80 crores which should be further increased to Rs. 100 crores during the Fourth Plan. The manufacture of steam turbines and ancillary equipment was also considered extremely urgent. Consequently, the consultants were requested early in 1960 to prepare a supplementary project report for expanding the capacity of the plant and equipment at Bhopal, for an output of approximately Rs. 50 crores worth of equipment per annum including steam turbines. Considering that the manufacture of steam turbines was a matter of great urgency, the construction of a small portion of the future steam turbine factory block was also sanctioned by Government. **Further changes in the size and scope of the factory.**

72. It would thus be seen that even in the constructional stages, the output of the factory at Bhopal has been frequently revised and upgraded. The range of its production has also been changed from time to time.

73. It was explained that these changes were made by Government in consultation with the Planning Commission. The foreign exchange position had improved in 1958. Taking into account the rate of imports of heavy electrical equipment, it was decided to take up the entire project as also to increase the output. The subsequent changes were also forced upon Government by the fast changing situation and the demand for more power. **Justification.**

74. Regarding the effects of these frequent changes on the progress of work in the factory, the Chairman of HEL stated that these had delayed the completion of the project by about a year. The Committee desired to know the views of the consultants in this regard. They have stated as follows:— **Completion of the Project delayed.**

> "It is extremely difficult to state concisely what it has cost in terms of time to carry out the phasing and upgrading which has taken place from time to time. Since, however, it is clear that an indication of the time involved is required, the closest possible estimate clearly indicates that atleast six months were sacrificed in this way and it is possible that, had the phasing and later recasting of the project not taken place, a more rapid rate of development would have been possible. Assuming that we had been operating on the basis of Rs. 25 crore project plan from inception, we would by this date (14th December 1962) be ahead of the present point in development by six months or possibly

a little more and would have by now developed production activity to a point which would have represented a material financial gain."

Suggestions of the Committee.

75. *It is evident that immediately after the project report had been accepted, its execution presented difficulties. Consequently, a truncated project of Rs. 6·22 crore output called the 1st phase was sanctioned. Before the work on the project had hardly begun it was decided to revert to the original position of Rs. 12.5 crore output and also to double the target of production to Rs. 25 crores. Obviously such frequent changes affect the progress of work apart from involving extra expenditure. The Committee recommend that a firm production programme of a project should be decided in advance and no change, diversification or expansion should normally be thought of till the output initially contemplated has been achieved. The question of expansion, if necessary, should be considered and taken up only thereafter. The representative of the Ministry agreed with this view and assured that this policy would be followed in regard to other projects.*

C. *Sanction for Rs. 50 crore output Project:*

Project Report submitted by Consultants.

76. The supplementary project report for the expansion of the Bhopal Project to an annual output of Rs. 50 crores was submitted by the consultants in September, 1961. But it has not yet been accepted by Government. The Committee were informed that Government were not satisfied about the economics of the Project as presented by the consultants. They note that in answer to a question in the Lok Sabha on 9th August, 1960 the Minister of Industry also stated as follows:—

> "It is . . . not possible nor economic to have too large a concentration at Bhopal and it is therefore proposed to have an output at Bhopal of about Rs. 30 to Rs. 35 crores and to set up another unit elsewhere for a production of Rs. 15 to 20 crores."

Observations of the Committee.

77. The representative of the Ministry stated during evidence that although there was scope for doubling the Hardwar Project, the Russian consultants had expressed the view that managerial and other problems would create difficulties. They, therefore, favoured a separate unit instead of doubling the existing one. *The Committee feel that these considerations would equally apply to the Bhopal project. They trust that Government would completely satisfy themselves about the economic and administrative aspects of the proposed expansion of the Bhopal Project before according their final approval to it.*

D. *Commissioning of the Project:*

78. The target dates for the completion of the various Blocks of the Project and the dates of their actual/anticipated completion are shown below:— **Target dates.**

	Target dates	Actual/anticipated dates of completion
1. Maintenance Block .	January, 1959	December, 1959
2. Block I for manufacture of water turbines and heavy fabrication.		
(i) 5 bays + 1 open gantry	50% January, 1960 100% January, 1961	2 bays October, 1962 100% January, 1963
*(ii) 8 bays + 1 open gantry		100% March, 1963.
3. Block II for manufacture of heavy rotating plant and industrial Traction Motors.		
(i) 7 bays + 1 open gantry *(ii) 8 bays + 1 open gantry	50% January, 1960 . 100% January, 1961	2 bays, May, 1963. 100% January, 1964.
4. Block III for manufacture of transformers and capacitors.		
(i) 6 bays . . .	50% January, 1960. 100% January, 1961.	100% October, 1960.
*(ii) 8 bays . . .		100% June, 1962.
5. Block IV for manufacture of switchgears and control gears . . .		
7 bays + 1 open gantry .	50% January, 1961 100% January, 1962.	100% July, 1960.
6. Block V for Foundry 4 bays + 1 open gantry.	100% January, 1961	2 bays Aug., 1960. 100% Aug. 1962.

*Provided for on the expansion of the Project to Rs. 25 crore output.

79. It would thus be seen that even the completion of Blocks I & II which were included in the original Project (Rs. 12.5 crores output) has been delayed by about two years. This was attributed to the decision to phase the Project initially and then to authorise the work on the entire Project. The latter necessitated taking up the construction of portions of Blocks III and V, which had been dropped under the phased programme, and Blocks I and II which had been completely omitted in the first phase. Further, due to an increase in the capacity of the Project from Rs. 12.5 crores annually to Rs. 25 crores, it was found necessary to increase the available floor area by adding a certain number of bays to Blocks **Reason for delay.**

I, II, III and IV and also to provide additional and heavier cranes in some of the bays.

80. The Committee were told that Block I was expected to be completed by the end of March 1963 and production would start there from April or May, 1963. As regards Block II, the non-availability of matching sections of steel was presenting a serious problem. To overcome this problem, it was proposed to import about 1,000 tons of steel from the U.S.S.R. Besides, the Minister of Steel & Heavy Industries had issued instructions that the various steel plants in the public as well as private sectors should so plan their production as to make steel available to HEL as quickly as possible. HEL expected to complete the construction within six months of getting the supplies of steel. *The Committee hope that Government and HEL would take energetic steps to ensure that there is no further delay in the completion of the Project.*

E. *Ancillary Plants:*

(i) Delay in setting up.

81. The Committee note that the ancillary plants of the Bhopal project *viz.*, the Blue Water Gas Plant, the Oxygen and Acetylene Plants, the Boiler Plant and the Testing Laboratory had not been completed or commissioned by the time the factory commenced production. Supplies of acetylene, oxygen, etc. had, therefore, to be arranged from alternative sources. In the absence of a testing laboratory the raw materials could not be tested. The dates of placing orders for these plants and their completion are given below:—

	Date of placing orders for the plant/ equipment	Date of receipt at Bhopal	Date of completion of erection
Blue Water Gas Plant :			
(*i*) Two units . .	27-8-1959	June/Dec. 1960	5-8-1961
(*ii*) Third Unit . .	26-2-1960	Nov./Dec. 1960	
Oxygen Plant :			
(*i*) First Unit .	5-6-1958	7-11-1960	19-9-1961
(*ii*) Second Unit .	4-3-1960	16-12-1961	13-8-1962
Acetylene Plant . .	15-1-1960	23-9-1960	Aug., 1961
Boiler Plant . . .	15-8-1959	Jan./Nov. 61	18-8-1962
Technical Services Deptt., (Testing Lab.)			2-2-1961

82. Late arrival of the plants was stated to be the reason for delay in the commissioning of these plants. Though the plants had been ordered in 1958-59 their despatch was delayed by about six months to one year due to the foreign exchange difficulty. No extra cost was however involved in purchasing these products from the market as the Project required only a small quantity of oxygen, acetylene etc. As regards the Technical Services Department, the Committee were told that greater urgency was given to the construction of the factory blocks and the Testing Laboratory was left to be built a little later. **Reasons.**

83. *Since the actual production at Bhopal till 1961-62 was much below the original target, the non-commissioning of these units might not have presented any serious problem. That no extra cost was involved in purchasing the products from the market is a small consolation and is no justification for the delay in the setting up of these units in time. On the other hand, the late purchase of these plants must have cost more. The Committee hope that HEL would ensure that the various units of the other plants are commissioned in time in an integrated and co-ordinated manner.* **Observations of the Committee.**

84. The Committee understand that the Oxygen Plant, which cost Rs. 11·67 lakhs, is not being used to full capacity. It is run on a three-shift basis for 2 or 3 days in a week. They were told that HEL was trying to find a market for the oxygen surplus to its requirements. *Obviously, the partial working of the oxygen plant is not economical. The Committee would suggest that Government might make a study of the working of this as well as other ancillary plants at Bhopal with reference to the present and future needs of the factory, so that their working is placed on a satisfactory and economic footing.* **ii)Uneconomic working of Oxygen Plant.**

F. *Time taken in commencement of Production:*

85. The table below shows the time taken by the Bhopal Project to commence production and the time by which it would reach full production. Similar information in respect of the other Heavy Electrical Plants of HEL at Hyderabad and Hardwar has also been indicated:— **Position of various Projects.**

	Date of signing the agreement	Date of receiving project report	Date of commencement of production	Date of reaching full production
Bhopal Project .	7-11-55	November, 1956	1-7-60*	1965-66
Hyderabad Project .	7-6-61	24-9-62	Mid. 1965	7—8 years
Hardwar Project .	15-5-62	Not yet received. (Expected in May, 1963)	Early 1966	7—8 years

* Actual production started in 1961.

86. It would be seen that while the Bhopal Project has taken over four years, from the date of receipt of the Project Report, to go into production, the other projects are expected to take even less than 3 years. The initial delay of about 1½ years in the commencement of work at Bhopal was stated to be responsible for the excessive time taken by it. *The Committee hope that, with the experience gained at Bhopal, HEL would ensure that the other projects would go into production according to the time-schedule fixed for them.*

G. *Comprehensive Completion Report*:

Need.

87. Various difficulties and problems are generally experienced in the planning and execution of big projects, like the one being set up at Bhopal. They may be in matters of planning, negotiations with foreign collaborators, working of the agreements, designing, execution of civil engineering works, procurement of materials, purchase of plant and machinery, provision of adequate foreign exchange or credit facilities labour problems, etc. *The Committee feel that a chronological and comprehensive record of these problems together with the remedial measures taken at each stage, if properly compiled, would be of great value and guidance in the setting up of similar projects in the future.* They note that in the Third Five-Year Plan, the Planning Commission has also suggested the preparation of a similar report in the following terms:—

> "For each major project, a comprehensive completion report should be prepared giving the entire history of the project, including mistakes which occurred and risks taken, remedial measures adopted and lessons drawn, so that this report may serve as a reference book and guide to engineers charged with the execution of similar projects in the future. The preparation of the completion report should be begun while the works are in progress, and events fresh in memory and the report completed, as far as possible, simultaneously with or soon after the completion of the project. Technical bulletins dealing with various aspects of design and construction should also be prepared at the same time."

Not prepared by HEL.

88. *The Committee were surprised to note that HEL had not yet undertaken the preparation of such a report even in respect of the Factory Blocks already completed. What is more surprising is that neither the HEL was aware of the above suggestion nor had the Ministry drawn their attention to it.* The representative of the Ministry, informed the Committee during evidence that orders had since been issued asking HEL to prepare comprehensive comple-

tion reports for the units completed as well as those under construction, as envisaged in the Third Five-Year Plan.

Preparation of completion reports by all Public Undertakings Suggested.

89. *It would thus be seen that orders in this matter were issued by the Ministry only after the Committee had discussed with the representatives of HEL the desirability of preparing such a report. The Committee would suggest that Government might issue suitable instructions to all undertakings in the public sector to prepare comprehensive completion reports for their projects, as envisaged in the Third Five-Year Plan.*

Other recommendations contained in the Third Plan.

90. *The Committee would also urge that the recommendations contained in the Third Five-Year Plan, particularly those contained in Chapter XVI and XVII, which are required to be implemented by the public sector undertakings should be specifically brought to their notice by Government.*

H. *Production:*

(i) Targets *vis-a-vis* actual production.

91. The year-wise production targets envisaged at Bhopal according to the original project report and the phased programme are indicated below:—

Original Project Report		Phased Programme	
Year	Target	Year	Target
	(Rs. in lakhs)		(Rs. in lakhs)
1960 (July-Dec.)	63·84	1960 (July-Dec.)	60
1961	146·9	1961	185
1962	249·6	1962	338
1963	405	1963	450

Revised targets.

92. Thus the production target for the period July, 1960 to 31st March, 1962 would work out to Rs. 330 lakhs (60 + 185 + 1/4 × 338). After the supplementary project report for an annual output of Rs. 50 crores was submitted by the consultants, the targets of annual production were revised. The latest revised targets of production are given below year-wise:—

	(Rs. in lakhs)
1961-62	290·00
1962-63	509·82
1963-64	839·00
1964-65	1430·00
1965-66	2247·00
1966-67	2818·00

Value of production upto 31-3-1962.

93. As against a target of Rs. 290 lakhs suggested by the Consultants for the year 1961-62, the HEL aimed at a production of Rs. 350 lakhs. The details of physical targets and value of production during 1960-62 are shown in Appendix V. It would be seen that the value of finished equipment manufactured during 1961-62 amounted to Rs. 13.17 lakhs only. In addition the value of works-in-progress and departmental works amounted to Rs. 164.30 lakhs. Even if the entire works-in-progress are taken into consideration, the production works out to 61.2% of the revised target of Rs. 290 lakhs. When compared to the capital investment of Rs. 30.10 crores upto 31st March 1962, the output works out to 5.8% only.

Reasons for shortfall.

94. It was stated that due to construction of factory having been sanctioned and commenced roughly a year later than scheduled and machine tools and equipment having been ordered correspondingly later, only half the factory, *viz.*, the maintenance Block and Block IV were ready on 1st July, 1960 and Block III was completed in November of that year. The receipt and installation of the minimum requirements of machine tools and equipments took another three to six months. It would, therefore, be reasonable to assume the date of commencement of production as 1st January, 1961 for the factory as a whole for purposes of arriving at the target output. The target for the period 1960-62 would therefore work out to Rs. 217 lakhs. Further, considering that in the initial stages teething troubles were inevitable, operatives were inexperienced, production was undertaken while construction and installation work was still in progress, purchase of stores presented difficulties, and labour troubles culminating in two strikes intervened, some set-back to the production could not be avoided. The loss in production due to strikes alone was estimated to be about Rs. 22 lakhs.

Realistic targets suggested.

95. *The Committee consider that most of the difficulties enumerated above, are not uncommon during the initial period of construction and commissioning of any industrial concern and could have been foreseen. The targets of production should have been fixed taking into consideration all such factors. They are not, therefore, convinced by the reasons advanced for shortfall in production. The Committee suggest that the production programmes should be prepared realistically and every effort made thereafter to achieve them, unless extra-ordinary circumstances intervene.*

96. *It is hoped that the teething troubles of the Bhopal Project are now over. The Comimttee trust that with proper planning HEL should be able to show better performance in future and reach the targets that have been fixed.* They were assured that efforts were being made to catch up with the initial time-lag.

97. The Committee note that order for the supply of about 2300 units of switchgears and 150 transformers during the years 1962-63 and 1963-64 were pending with HEL. The dates of delivery originally offered to the customers had been extended in a number of cases. This was attributed to the initial delays in production. The Committee were, however, assured that it would be possible for HEL to make up all the arrears by the next year. HEL was also agreeable to pay a penalty in cases of delayed delivery. **(ii) Orders Pending.**

98. *As any delay on the part of HEL in supplying the equipment is likely to affect the development programmes of its customers (the State Electricity Boards etc.), the Committee suggest that HEL should offer firm dates of delivery and adhere to them as far as possible. They further suggest that the actual item-wise production by HEL during a year vis-a-vis the targets may be included in its annual reports. The statement of actual production might include the value of orders executed by HEL during the year as well as those pending at the end of it. The reasons for shortfall and steps taken to over-come the difficulties may also be indicated in the annual reports.*

I. *Sale Price of HEL Equipment*:

99. The Committee were informed that the sale price of HEL for similar items of equipment which were also manufactured by the private sector industries, *viz.*, transformers upto 10 MVA and Switchgears upto 11 KV, was competitive. As compared to the imported equipment, the selling price of transformers was 25 to 30% higher. It has now been stated that in order to bring the prices down, HEL had started using cold rolled steel which would reduce the iron loss and consequently the cost and the price. **Comparison with Indian and imported equipment.**

100. The representative of the Ministry stated during evidence that the sale price of equipment manufactured by HEL was, at present, fixed to correspond with the price of imported equipment. The prices would be completely prohibitive if the cost of production was taken into consideration. HEL aimed at reducing the cost of production by increasing the volume of output and by introducing an incentive scheme so that they could sell the equipment at slightly below the landed cost of imported material and at the same time make enough profits. **Present Policy.**

101. *It is obvious that the present practice of fixing the prices of equipment produced by HEL to correspond with prices of imported equipment cannot continue for long Price has got to be determined on the actual cost of production. The present policy is, therefore, neither sound nor economical. The solution lies in HEL exercising utmost economy and bringing down the cost of production to a reasonable level so that the selling price leaves an adequate margin of profit to the Company. The Committee* **Efforts to reduce the cost of production suggested.**

hope that efforts will be made by HEL to achieve this end as early as possible.

J. Export of Equipment:

102. The Committee understand that in 1961 the Projects Co-ordination Committee of the Ministry of Commerce and Industry decided that each undertaking should export 25% of its annual production and that this target should be reached by 1963. HEL is also exploring export markets through the good offices of Indian Embassies and Missions in Ceylon, Burma, Singapore, Thailand, Nepal, Pakistan, Cambodia and Indonesia to achieve the above object. The export would be carried out through its own agencies and HEL proposes to depute its Commercial Manager to contact the Electricity Boards in the above countries.

Confining of exports to certain types of equipment suggested.

103. *The Committee note that HEL is making efforts to increase the export earnings of the country. But it is clear that it would have to face tough competition from manufacturers of other countries who might even quote lower rates for export purposes. Such a competition can only be faced by adopting improved designs and production techniques. The Committee trust that HEL is addressing itself to this task. While doing so, HEL would no doubt consider whether it would be desirable to confine exports initially to certain types and ranges of equipment which lend themselves easily to mass production.*

K. *Consultative Committee:*

Setting up suggested.

104. There are several interests connected with the heavy electrical industry in India. These are mainly the manufacturers of electrical equipment in the private sector, the Government Electrical Factory at Bangalore, the C.W.&P.C., the consumers of heavy electrical equipment, the different producers of raw materials and components for the industry, the railways and the Government. All these have their respective problems which do not always coincide. The Committee feel that in order to ensure a balanced development of the industry there should be proper co-ordination among all the interests. The Committee were informed that the Central Water & Power Commission was co-ordinating the requirments of the Electricfty Boards and that HEL was in constant touch with them. It was, however, represented to the Committee that proper liaison did not exist between the HEL and the State Electricity Boards. The Committee have suggested elsewhere the desirability of having the C.W.&P.C. and the State Electricity Boards represented on the Board of Directors of HEL. *They would further suggest that a Consultative Committee consisting of the various interests might be set up to advise on the production programme of HEL, and other connected problems. The representative of the Ministry agreed that the proposed Committee could meet, once a year, to discuss the various problems. The Committee hope that early action would be taken in the matter.*

IV

PLANT AND MACHINERY

Estimated Cost.

105. According to the Consultants' estimate, the plant and machinery for the Bhopal project is expected to cost Rs. 18·51 crores, excluding purchase commission, credit charges, customs duty, etc. and Rs. 20.54 crores including all these items. Of this, the foreign exchange expenditure has been estimated at Rs. 15.09 crores. Purchases for Phase I of the Project were made under the Extended Credit Purchase Agreement with Morgan Grenfell through the Consultants. The value of orders placed for Phase I amounted to about Rs. 5.34 crores. Thereafter, purchases have generally been made from Bhopal after inviting global tenders. Indigenous purchases were restricted to particular makes of machines, such as (a) H.M.T. for milling machines, lathes, Radial Arms Drills; (b) NEI for Grinders; (c) Ambarnath for lathes; and (d) Batliboi for praga lathes.

A. *Indigenous procurement:*

Value of orders placed.

106. A statement showing the orders placed for plant and machinery is given below:—

(Rs. in lakhs)

	Foreign			Indigenous	Total	% age of (2) to (3)
	(1)			(2)	(3)	(4)
	U. K.	Outside U.K.	Total			
(1) Based on global tenders .	633·88	30·13	664·01	23·34	687·35	3·3
(2) Other than global tenders .	544·43	23·97	568·40	372·67	941·07	39·6
	1178·31	54·10	1232·41	396·01	1628·42	24·3

107. Thus the procurement of indigenous machinery amounted to 24.3% of the total equipment ordered. It was stated that during 1958 a Survey Committee of HEL Engineers, the Engineers of the Development Wing and a representative of the Technical Consultants visited various

indigenous factories and submitted a report on the quality of output of the various indigenous manufacturers of machine tools. It was only after the receipt of their report that technical clearance, which was obligatory for import of machine tools, was issued by the Development Wing.

Committee's observation

108. The Committee note that though the detailed project report for the Bhopal Project had ben received as early as November 1956, a survey of the indigenous capacity for manufacture of machine tools was not undertaken till 1958. *Had the survey been made earlier and the year-wise requirements of plant and machinery for the Project determined and publicised in advance, it might have been possible for the indigenous manufacturers to gear up their production and supply a part of the equipment that was imported.*

Committee's Suggestion.

109. It is significant to note that out of the plant and machinery valued at Rs. 12.32 crores purchased from foreign countries, equipment worth Rs. 11.78 crores was purchased from the U.K. *In such cases the Project authorities who are advised by the Consultants are prone to import substantial quantities of plant and machinery for the quick implementation of the project. The Committee would, therefore, suggest that the requirements of machinery for the other projects of HEL may be formulated sufficiently in advance and given wide publicity so as to secure indigenous supplies to the maximum extent possible.*

B. *Delay in Placing Orders*:

110. The Committee note that while the project report was accepted in March 1957, the placing of orders for the purchase of plant and machinery commenced from April 1959, *i.e.*, after a period of about two years. This delay was attributed to the foreign exchange difficulty and the time taken in finalising credit arrangements and completing other formalities connected therewith. It was also stated that there were delays in the receipt of equipment, which slowed down the tempo of production in certain cases, though no work was held up as such due to the late arrival of machines or equipment. It was admitted that the prices of machine tools had risen by ~~an average of 7½ per cent~~ per annum.

Increase in cost due to delay in placing orders.

111. The Committee called for the details of increase in the cost of equipment which could be attributed to the delay in placing orders till April, 1959. In reply it was stated that increase in cost of equipment occured mainly due to three reasons:—

(i) General increase in prices since 1956 when the project report was prepared;

(ii) Increase in the size of certain equipment to suit the bigger sizes of transformers and turbines subsequently decided upon; and

(iii) Substitution of equipment shown in the project report by more modern and uptodate designs.

It was further stated that a comparison of actual cost with the estimated cost was only possible for equipment obtained exactly as per original specifications. The delay upto April, 1959 in placing orders had affected the equipment obtained for Phase I only and was stated to be as under:—

(Rs. in lakhs)

	Foreign	Indigenous	Total
Project Report Cost	185·25	40·61	225·86
Actual Cost	203·09	46·33	249·42
Increase	17·84	5·72	23·56
Percentage increase	9·65	14·10	

Committee's observation.

112. *While the delay in receipt of plant and machinery might not have held up any work at Bhopal because the construction of factory blocks was also delayed, the additional expenditure on the cost of the equipment worth Rs. 249 lakhs alone amounted to Rs. 23.56 lakhs, which could have been avoided with better planning. The Committee would like to impress upon Government the desirability of ensuring adequate credit arrangements before sanctioning a Project of this magnitude in future.*

C. *Utilisation:*

113. The Committee were informed that plant and machinery of the value of Rs. 10 crores, *i.e.* about 50 per cent of the total requirements of Rs. 18.51 crores, had been received at Bhopal. Of this machinery worth Rs. 70 lakhs, which was meant for Blocks I & II, had not been installed as the factory blocks were not ready.

Idle capacity deplored.

114. As to the utilisation of the installed machinery it was explained that in the first year of production it was not easy to match the availability of personnel, machine tools and raw materials. The lack of one or other of these resulted in temporary idle capacity but its quantum was small and varied from week to week. All the plant and machinery installed and commissioned was now being used to the fullest extent practicable. *The Committee note that production during the year 1961-62 amounted to Rs. 177.47 lakhs including works-in-progress and construction works of the value of Rs. 164.30 lakhs. During 1962-63, the target of production of Rs. 5:09 crores is also not likely to be reached. Thus, while 50 per cent of the total equipment required for the project for an estimated annual output of Rs. 25 crores, had been installed, the production (including works-in-progress) during 1961-62 worked*

out to only 5 per cent of the total capacity. In 1962-63 also the production would be less than 20 per cent of the rated capacity. This would clearly indicate that the utilisation of equipment already installed has been very low. During their visit to the factory in September 1962, the Study Group of the Committee also gathered the impression that there was a considerable amount of idle capacity in the plant and machinery. The Committee deplore the existence of idle equipment at Bhopal to such a large extent. They hope that with the completion of Blocks I and II and better planning with regard to the procurement of components and raw materials, the position would soon improve.

115. *The Committee trust that as a result of their experience at Bhopal, the purchases of plant and machinery for the other projects would be planned in such a way that delay in commissioning them is avoided.*

D. *Shipping Arrangements:*

Present position.

116. The Committee understand that the shipment of all stores purchased in U.K. on f.o.b. basis was previously arranged by a Cell in the High Commission of India. On its re-organisation, HEL was asked to make its own arrangements for the shipment of stores w.e.f. 1st October, 1961. Accordingly the Ministry of Transport and Communications decided, in consultation with the Ministry of Commerce and Industry, to entrust the shipping arrangements in respect of HEL cargoes to M/s. Maritime Agencies (P) Ltd. for the present.

Recommendation of Shri Sivasankar.

117. In this connection, the Committee note that Shri T. Sivasankar, the then Secretary of the Ministry of Works, Housing and Supply, in his report (February, 1962) on the practicability of transferring the work of I.S.D. and I.S.M. to the D.G.S.&D., New Delhi, observed as follows:—

> "The Government cargo for shipment from United Kingdom and continental ports is not being handled by a single agency. The Public Sector undertakings make their own shipping arrangements. This affects adversely the bargaining position of the Government. In order to obtain better rebates on the tariff rates, it might be desirable to place all Government owned cargo under the control of one authority, namely the India Stores Department who have been handling this work for over a century."

Setting up of suitable organisation in U.K.

118. In evidence it was stated that, with a view to effecting economy in expenditure of foreign exchange, there was a proposal to reduce the establishment of India Stores Department and to appoint some private firm as shipping,

clearing and forwarding agents. *The Committee hope that a decision on the general question of setting up a suitable organisation in the U.K. for effectively co-ordinating the shipping arrangement of cargoes moving on account of the various public undertakings would be taken by Government at an early date and that it would be ensured that all public undertakings follow it.*

V

RAW MATERIALS AND COMPONENTS

A. *Requirements*:

Items imported.

119. Raw materials and components constitute approximately 50 per cent of the value of heavy electrical equipment. The following raw materials and components are imported by the HEL at present:—

Raw Materials			Components		
Transformers	Switchge	Capacitors	Transformers	Switchgears	Capacitors
1. Silicon Steel	1. Special and alloy steel	1. Capacitor tissue	1. Permali	1. Permali	1. Lid Assemblies.
2. Paper insulated copper conductors	2. Aluminium alloy sections and other non-ferrous sections.	2. Cold rolled general purpose steel.	2. Valves	2. M.I. castings	2. Metrosil
3. Press Boards	3. Hot rolled pickled sheet steel.	3. Insulation.	3. Bakelite cylinders	3. Porcelains	3. Porcelains
4. Insulation	4. High tensile non-ferrous sections	4. Transformer oil	4. Breathers	4. Relays	
5. Transformer oil.	5. Cold rolled sheet steel		5. Bucholtz Relays.		
	6. Transformer oil.		6. Porcelain		
			7. Bushings		
			8. Tap changers.		

(i) Attempts at indigenous manufacture.

120. As regards the procurement of the raw materials indigenously, it was stated that HEL appointed a special officer to locate suitable indigenous manufacturers for the raw materials and components. They were able to locate suppliers for a number of products. The question of manufacturing electrical steel is being taken up with Hindustan Steel Ltd. while Oil Refineries are being requested to take up the manufacture of transformer oil. HEL is also encouraging private enterpreneurs to establish small scale industries in the ancillary industrial estate being organised by it.

121. During the period July, 1960 to March 1962, HEL imported materials and components worth Rs. 90.55 lakhs. The value of material procured indigenously amounted to Rs. 59.32 lakhs. **Value of Imports.**

122. The estimated value of materials and components expected to be imported and procured indigenously by HEL for the Bhopal Project as indicated by the consultants for an ultimate output of Rs. 52.50 crores annually is given below, year-wise:—

(Rs. in lakhs)

Year	To be imported	To be procured indigenously	Total	Annual output	Percentage of (2) to (3)
	(1)	(2)	(3)	(4)	(5)
1962-63	299·0	151·0	450·0	900	33·5
1963-64	491·0	239·0	730·0	1460	32·7
1964-65	944·0	366·0	1360·0	2720	26·9
1965-66	1209·0	431·0	1640·0	3280	26·2
1966-67	884·0	1028·0	1912·0	3825	53·7
1967-68	1016·0	1184·0	2200·0	4400	53·8
1968-69	1124·0	1291·0	2415·0	4830	53·4
1969-70	1229·0	1396·0	2625·0	5250	53·1

123. *Thus in 1969-70, hardly 53 per cent of the requirements of raw materials and components for the Bhopal Project would be met indigenously. In that year the cost of imports would still be Rs. 1,229 lakhs in foreign exchange. Due to the foreign exchange position, considerable difficulty is stated to have been experienced by HEL to meet its full requirements. This has affected the production programme. With the setting up of two new projects, their requirements would largely increase. The need for making concerted efforts to locate and increase the indigenous production of the raw materials and components required by HEL is evident. It is imperative that the company should aim at ensuring that they are made available indigenously in the quickest time possible. The Committee suggest that, with this end in view, Government should appoint immediately a Committee of technical experts, which may include representatives of the HEL, Development Wing and the Ministry to survey the indigenous capacity in this regard and to draw up, in consultation with the various interests concerned, a long-term plan for allocating among various producers the responsibility for the manufacture of specified items. Attempts should also be made to standardise the components as far as possible.* **Recommendations of the Committee.**

124. *The Committee consider that it would be highly desirable if the Annual Reports of HEL indicate the percentage of imported raw materials and components used in the manufacture of equipment so that the progress made in the utilisation of indigenous raw materials and components is known from year to year.*

(ii) Delay in placing orders.

125. The Committee were informed that the production in the Bhopal Project received a set back due to non-receipt of imported and indigenous components and raw materials in time. In this connection they understand that orders for the import of raw materials required for the first year of production were placed by HEL on A.E.I. in July, 1959. The AEI then started placing orders from January 1960 on their factories and outside suppliers. This process continued till October, 1960 even though the materials were required at Bhopal from July, 1960.

Reasons.

126. The delay in the placing of orders by AEI was attributed to their anxiety to check the technical data and the quantities asked for by HEL. As considerable delay was experienced in the receipt of materials and components, a senior officer of HEL had to be deputed in April, 1961 to expedite the despatch of supplies ordered from the U.K.

(iii) Specifications not received in time.

127. The Committee note that, as per Project Report, components for the manufacturing programme of 1960 were to be ordered by HEL in January, 1958, *i.e.*, about 30 months in advance of the commencement of the manufacturing year (July, 1960). But neither the detailed specifications for the raw materials and components required in the first year of production were furnished by AEI nor had the HEL located the indigenous capacity for them. It was, therefore, decided to import in full the materials required for the first year of production. In evidence the Resident Director admitted that the material specifications had not been received in time. In the middle of 1959, AEI submitted engineering reports containing brief details of components and raw materials but these were not sufficient for ordering purposes. To save time which the location of indigenous supplies would have involved, the consultants advised the import of raw materials and components from the U.K.

Reasons.

128. The functions of the consultants include the preparation of plans and specifications for materials required by HEL. The delay in the submission of engineering reports by AEI was explained as being due to the necessity for rephasing the original programme and the assumption that production would commence six months later than the original schedule.

Committee's observations.

129. *The Committee are surprised to note that sufficient attention was not paid by HEL to an important matter like obtaining specifications for raw materials and components from the consultants in time. It was also incumbent on the consultants themselves to do so sufficiently in advance of the commencement of production. Had this been done, it would have been possible for HEL to prepare a phased programme for imports as also to obtain some supplies indigenously.*

B. *Inventory*:

130. The table below shows the value of raw materials and components purchased as well as consumed by HEL during the last two years:— **(i) Procurement vis-a-vis consumption.**

(Rs. in lakhs)

Year	Opening stock (1)	Purchases during the year (2)	Total (3)	Consumption during the year (4)	Percentage of (4) to (3) (5)
1960-61 . .	3·27	53·98	57·25	5·58	9·7
1961-62 . .	51·67	160·82	212·49	60·18	28·3

131. The consumption of raw materials and components during the year 1961-62 amounted to 28.3 per cent of the stocks. It would be evident that their procurement by HEL has been in excess of its actual requirements. The excessive purchase of articles was sought to be justified on the ground that it was difficult to obtain supplies from abroad and on the ground that the actual production was lagging behind the original target. On an enquiry by the Committee why a major part of the equipment could not be manufactured or completed by HEL when it had such large stocks of materials and components, it transpired that there were certain imbalances in the stock position due to lack of certain components. This was ascribed to lack of experience in ordering stores. *The Committee cannot help feeling that there is lack of experience and proper planning in the procurement of materials and the system of placing orders leaves much to be desired. They recommend that HEL should review the position immediately and ensure that in future the procurement of materials and components is complete and related to its requirements.* **Review of the system of planning and procurement of materials recommended.**

132. The Committee note that in their report submitted in February, 1963, the Consultants have made the following observations in this regard: **(ii) Observations of Consultants.**

> *Imported Materials.*—The organisation for obtaining imported materials and components needs putting on a much more efficient basis. Letters of intent have been issued which have not been followed by formal orders for many months, and the issue of import licenses is long delayed. The result of this is that materials urgently required lie for weeks or even months, in suppliers' warehouses awaiting shipment which cannot proceed until import licenses are received.

Stock Control.—The stock control operation in any department must be under the control of the departmental management, which must assume responsibility for ensuring that its production plan is not disrupted by lack of materials or components at the appropriate times, while at the same time departmental W.I.P. is not unduly inflated by overstocking. The central stores organisation should only control the stock levels of materials held by central stores for common use by all or several departments.

Purchasing Procedures.—Much needs to be done to streamline purchasing and procurement procedures. The present system is much too cumbersome and slow to permit of successful production, planning and control. It is known that frequently weeks, or even months. elapse between the issue of a material indent from the shops and the corresponding orders being issued to suppliers. This delay should be normally a matter of days, not weeks. The Purchasing Department should be aware of the procurement times necessary for obtaining all types of supplies and should take full cognisance of this when ordering. They should be free to order from alternative sources, even at a somewhat higher price, if such action will avoid disruption of the production plan.

Apprehensions of Committee confirmed.

133. *These observations of the consultants confirm the apprehensions of the Committee expressed in para* 131 *above. The Committee feel that there is an urgent need for examining the whole procedure of purchase and procurement of components and materials by HEL. They trust that immediate action would be taken to remove the defects and streamline the purchase organisation and procedures.*

C. *Import Duty*:

Reduction on raw materials/components suggested.

134. It was represented to the Committee that import duty on the raw materials used by HEL worked out to 22 per cent on an average. In most cases this was stated to be higher than the rate of duty (15 per cent) levied on the import of finished equipment. They were informed by the representative of the Ministry that the question of reducing the import duty on raw materials and components had been taken up with the Ministry of Finance. *The Committee hope that early decision would be taken in the matter.*

VI

FINANCIAL MATTERS

A. *Resources*:

135. The authorised share capital of HEL is Rs. 30 crores. The total subscribed capital on 31st March, 1962 amounted to Rs. 23·5 crores, including Rs. 50 lakhs for new projects. The unsecured loans amounted to Rs. 13·93 crores, including Rs. 10 crores borrowed from the Government. The capital expenditure on HEL Projects is proposed to be met by having 50 per cent as share capital and 50 per cent as Government loans. The working capital would be found by borrowings from the State Bank of India until sufficient reserves have been built up.

B. *Capital Investment*:

136. The total gross capital expenditure of HEL upto 31st March, 1962 amounted to Rs. 30.20 crores. Of this, the expenditure on the Bhopal Factory accounted for Rs. 30.10 crores and on the new projects, Rs. 10 lakhs.

C. *Estimates of Cost*:

Bhopal Project.

137. In 1949, the cost of the heavy electrical factory including working capital, but excluding housing. for an annual output of Rs. 17.5 crores was estimated to be of the order of Rs. 22 crores. In June 1955, A.E.I. estimated the cost of a factory for an annual output of Rs. 14 crores to be Rs. 15.90 crores as follows:—

(i) Factory buildings and offices including equipment	Rs. 5.60 crores
(ii) Machine tools & equipment services plant & Miscellaneous equipment	Rs. 10.30 crores
	Rs. 15.90 crores

Increase in estimates for comparable items.

138. As AEI had prepared a detailed project report in 1949 for which a comprehensive study had to be undertaken by them, their estimate was considered to be more realistic than the estimate of Rs. 10 crores for an annual output of Rs. 10 crores indicacted by Siemens.

This was one of the considerations in appointing them as Consultants, in preference to Siemens. In the detailed project report submitted in November 1956, however, the AEI put the estimated cost of the Project at Rs. 35.25 crores, excluding items (customs duty, purchase commission, hostel for trainees and township) costing Rs. 11.45 crores, as shown in paragraph 144. The estimates of cost for items comparable with the 1955 estimates were shown at Rs. 28.16 crores as under:—

	1955 (estimate)	1956 (estimate)
	(Rs. lakhs)	
Buildings and Civil Engineering Works . .	560	1135·8
Services, including service plant . . .	170	384·33
Machine tools and other manufacturing equipment .	860	1296·00
	1590	2816·21

Examination of estimates by a Committee.

139. *It would thus be seen that the estimates of capital cost of comparable items furnished by AEI in June* 1955 *rose from Rs.* 15.90 *crores to Rs.* 28.16 *crores in November* 1956, i.e. *by about* 77% *in a period of* 18 *months.* Government appointed a Committee to look into the large variation between the estimates of capital cost furnished in the detailed project report (November 1956), and the estimates furnished by AEI in June, 1955 and to reconcile these variations. In comparing the estimates that Committee brought the two estimates to a 'reasonably common footing' both in regard to the number of machine tools and the targets of production. Relevant extracts from the Report of the Committee are reproduced below:—

Civil Engineering and Building Work:

"The Consultants have explained that the 1955 estimate in regard to building costs was based on the data furnished to them by firms operating in India.....The Consultants themselves have no experience of such building costs in India and having obtained the data they had considered it to be firmly accurate.....No further explanation than the following has been given in respect of the remaining Rs. 493.91 lakhs:—

(a) under estimation of unit costs; and

(b) omission to take certain items of details into account."

Machine Tools and other Manufacturing Equipment:

> "In the total estimates of Rs. 1,851 lakhs detailed in the Project Report as the cost of machine tools and other manufacturing equipment, etc. special tools and consumable tools amounted to Rs. 124 lakhs. These two items were left out of the 1955 estimate to be taken care of in the revenue account. They have now been included in the capital account.....They (AEI) have also explained that they had under-estimated the cost of machine tools requirements for water turbine manufacture. They themselves have no experience in this line and they relied upon the estimate furnished by one of the U.K. concerns, which, in the event, have proved to be a gross under-estimate. In addition, they did not make a correct assessment of the prevailing cost of machine tools in the 1955 estimate."

140. It was stated during evidence that when the project was approved by the Cabinet, the rough estimate of expenditure was assessed at Rs. 25 crores but it was realised at that time that this estimate was not more than an 'intelligent conjecture' on the then available information. The incidental cost of the project was not a consideration in the selection of Technical Consultants for the Project. Further, the technical consultants had based their estimates in 1955 on the data and prices prevailing in 1949 with a 10% addition for increase in prices. In actual fact, the increase was considerably more.

Observations of the Committee.

141. *The Committee have already referred to the fact that one of the considerations in selecting AEI in preference to Siemens was that their estimate of Rs. 15.9 crores was considered to be more realistic than the estimate of Rs. 10 crores indicated by Siemens. In actual fact, the estimate of AEI also turned out to be a gross under-estimate and rose to Rs. 28·16 crores on comparable items. It would appear that the estimates of cost submitted by AEI in 1955 were not examined in any detail before sanctioning the project or appointing them as Consultants. The Committee are constrained to observe that the Project was sanctioned on the basis of estimates which have later on been termed as 'intelligent conjecture'.*

142. *It is always expected of Consultants that they will prepare realistic estimates of the cost of a Project. In fact the AEI were in an advantageous position in this respect in that they had the knowledge of local conditions in the country, as observed by the Gadkary Committee. One would have thought that their estimates would be reasonably accurate. It is regrettable that even their estimates proved to be so wide off the mark within a period of about 18 months.*

143. *The Consultants are generally anxious to secure contract and in their anxiety tend to submit lower estimates. It is for consideration whether in the event of wide variation in the estimates, other than due to justifiable reasons, the Consultants could be made responsible therefor. It is also necessary that the estimates of cost indicated by the prospective collaborators should be thoroughly examined before sanctioning a project or selecting the Consultants. The Committee trust that Government would examine the matter and issue necessary instructions to avoid the recurrence of similar situation in future.*

D. *Original and Revised Estimates:*

144. The Committee were informed that the estimates submitted by the Consultants had been further revised. The original and revised estimates of cost of the Bhopal Project are shown below:—

	Original	Foreign exchange expenditure	Revised	Percentage increase
		(Crores of Rs.)		
1. Civil Engineering & building work including Training School and Architect's fees .	11·36	Negligible	13·31	17·1
2. Services to buildings .	3·39	1·60	4·05	19·4
3. Furniture & Miscellaneous Equipment . . .	0·45		0·45	
4. Machine Tools & Equipment	18·51	13·96	18·51	
5. Lumpsum payment to consultants . . .	0·54	0·54	0·54	
6. Cost of Training Indian Engineers in U.K. .	1·00	0·53	1·00	
7. Customs duty on imported equipment . . .	Not provided		0·90	
8. Purchase commission and credit charges .	,,	1·13	1·13	
9. Permanent Hostel for trainees	,,		0 41	
10. Township . .	,,		9·00	
	35·25	17·76*	49·30	39·9

*It was stated that the foreign exchange component of the revised estimates may require upward revision to the extent of Rs. 1·7 crores to cater for bigger sizes of machine tools and equipment recommended by the Consultants as well as increase in world prices of these since the receipt of the original Project Report.

145. The increase under items (1) and (2) above has been attributed to the provision of additional bays in Blocks I to II of the factory and heavier and more cranes to handle bigger units of production. The estimates under items (4) and (7) would also need revision due to the increase in prices of machine tools, some heavier machines, and increase in the rate of customs duty.

Certain items provided for in the estimates.

It would be seen that the original estimates of consultants did not include the cost of items (7) to (10) namely customs duty, purchase commission, hostel for trainees and township amounting to Rs. 11·45 crores*. It was stated during evidence that HEL was not sure whether any payment would be necessary on account of customs duty, purchase commission, etc. The other items had to be provided for by HEL.

Placing of final estimates before Parliament suggested.

146. *The Committee fail to understand why estimates of important items like township. customs duty, purchase commission, and Hostel for trainees, which amounted to over Rs. 11 crores, were not provided for in the original estimates. The total commitment on such projects should be prepared as realistically as possible and should be available to Government before they are approved. It is not correct to undertake a project on the basis of incomplete estimates and to subsequently increase the outlay on it, which has in any case to be agreed to by Government— a feature which is fairly common to most of the projects and which has to be discountenanced. The Committee recommend that the final estimates of the Bhopal Project should be prepared and placed before Parliament at an early date.*

147. *The Committee hope that complete and firm estimates of the new projects of HEL would be obtained and examined before submitting them for Government's approval.*

Capital cost of establishing comparable factory abroad.

148. *The Committee regret to observe that in spite of a written enquiry from them, neither the Ministry nor the HEL could furnish information regarding the capital cost of establishing a comparable heavy electrical project elsewhere. The Senior Officers of HEL who have been visiting foreign countries for negotiations for training had also not been instructed to gather this basic information.* The Chairman HEL stated that the idea of collecting this information through their officers going abroad had not occurred to them.

Collection of data suggested.

149. *The Committee consider the collection of such data very necessary. In the absence of such data, it is difficult to determine the reasonableness of estimates given by the consultants.*

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*At the time of factual verification of the Report it was stated that township and hostel for trainees were normally considered social overheads and under the general policy of Government, approved by the Planning Commission, township etc. were not included in project costs.

E. *Factory Buildings and Services:*

Examination of outline plans & specifications by C.O.P.P.

150. It would be seen from para 144 that the factory buildings at Bhopal including services, are estimated to cost Rs. 17·8 crores. The Committee understand that the Selected Buildings Project Team of the Committee on Plan Projects (COPP) examined the outline plans and specifications of Phase I of the Project in 1957-58. They were of the view that certain rationalisation of the specifications and redesigning of the structure would lead to a saving of Rs. 42 lakhs in cost, besides 2,240 tons of steel and 2,720 tons of cement in Phase I. Redesigning of Phase II was expected to result in a saving of Rs. 90 lakhs in addition to 8,000 tons of steel. Complete redesigning for Phases I & II of the project was not considered advisable as it would have put back the execution of the project by a year or more. The recommendations of the COPP were therefore implemented to the extent indicated in Appendix VI.

Regular Machinary to scrutnise factory designs, etc. suggested.

151. It was stated that all measures of economy were being taken in the implementation of the other Projects of HEL in accordance with the experience gained at Bhopal. *The Committee would suggest in this context that, with a view to ensuring utmost economy in these matters. Government might set up some regular machinery to scrutinise the type of structure and construction, designs of factory buildings, etc. suggested by foreign consultants, before accepting them.*

Comparison with other Projects of H.E.L.

152. Table below compares the cost of factory buildings and services at the various Projects of HEL to their total cost:—

	Cost of Bldgs. & services	Total cost	%age of (1) to (2)
	(1)	(2)	(3)
		(Rs. Crores)	
Bhopal Project	17·8	40·30	44·1
Tiruchirapalli Plant	8·40	22·55	37·2
Hyderabad Project	9·84	34·17	28·7

153. It would thus be seen that the expenditure on factory buildings at Bhopal is higher than that in other projects. The expansion of the factory to an annual output of Rs. 50 crores is expected to entail an additional expenditure of Rs. 9·34 crores on factory buildings alone.

154. *The Committee feel that the factory at Bhopal has been planned on a very lavish scale. The buildings should be purely functional and related to the actual needs. It needs no emphasis that heavy expenditure on construction etc. leads to over-capitalisation and adversely affects the overall efficiency of the project, including its cost of production. Though the expenditure on buildings may have to vary from industry to industry depending on their needs, the Committee consider it very essential that it should bear a certain ratio to the total cost of the Project. They would suggest that a team of experts be appointed to make a study with a view to fixing such a ratio.*

Study of expenditure incurred on factory buildings suggested.

155. The Committee understand that the plinth area, floor area, cost etc. of the various types of residential quarters in the Industrial Projects have been laid down by Government. *To avoid the preparation of separate designs for buildings and services which are common to all projects, the Team of Experts might also suggest the designs and specifications of common buildings and service facilities e.g., administrative offices, canteens, schools, hospitals, which might be adopted by all undertakings in the public sector. In this connection para 281 may also be seen.*

Designs and specifications of common buildings and services.

F. *Investment-Output Ratio:*

156. As already stated the rated annual output of the Bhopal Project has been revised a number of times. The table below shows the capital cost of the Bhopal Project for different rated annual output:—

For different rates of output.

Annual Output	Capital cost	Working capital	Township	Total investment	Investment excluding township	Ratio of (5) to (1)	Ratio (6) to (1)
1	2	3	4	5	6	7	8
			(Rs. in crores)				
12·5	29.70	10.25	9	48 95	39·95	3·9:1	3·2:1
22·00	35·25	16·40	9	60·65	51·65	2.7:1	2.3:1
25·00	40·30	16·60	9	65·90	56·90	2·6:1	2.2:1

157. It would thus be seen that if the cost of township is taken into account the investment-output ratio of the Bhopal Project with an annual output of Rs. 12·5 crores was 3.9.1 and would be 2.6:1 for an annual output of Rs. 25 crores. If the cost of township is excluded from the total investment this would work out 3.2:1 and 2.2:1 respectively. The Committee were informed that for a similar newly established undertaking in the U.K. the investment output ratio would be of the order of 1:7.1 or 1.8:1 in the early life of establishment. The investment includes working capital but not the cost of township. The ratio at the stage of full production is not known. It was stated by the representative of the Ministry that the turnover of the Bhopal Project was low. Normally, they tried to work to an input-output ratio of 1:1, wherever possible. An electrical equipment manufacturer told the Committee that this ratio should be 1:1.5 in a heavy electrical factory. It is also noteworthy that the investment-sale ratio in the case of AEI is 1:1.5.

Ratio Low at Bhopal.

158. *It is thus evident that the Bhopal Project is over capitalised and its investment-output ratio is low. The Committee regret that due importance was not given to the economics of the project initially. It is well-known that higher capital investment increases the cost of the products and adversely affects the competitive position of the undertaking. The Committee recommend that this aspect should be carefully examined by Government before sanctioning new projects in future.*

G. *Credit Arrangements*:

Service charges.

159. A 5-year credit of £2.72 million (Rs. 3.5 crores approximately) was obtained by Heavy Electricals from a group of British Banks for financing the purchase of plant and machinery required for Phase I of the Bhopal Project. The service charges on this loan are estimated at Rs. 1.04 crores as follows:—

Interest	Rs. 96·48 lakhs	
Commitment Commission	3·63	,,
Arrangement Commission	0·46	,,
Management Commission	3·62	,,
	104·19	,,

The rate of interest was stated to be 1% above the Bank of England rate or 5% whichever was higher.

160. It has already been noted that for financing several individual suppliers of machinery and equipment purchased under this credit arrangement, AEI had to be

appointed as purchase agents. The total payments due to them on this account are estimated to be Rs. 21.33 lakhs. Besides, Purchase Cell had to be set up in London so that decisions on the recommendations of AEI could be taken and orders placed without any loss of time. The total expenditure on this Cell amounted to Rs. 5.08 lakhs upto 1961-62.

161. *The interest and other service charges on a 5-year loan of Rs. 3·5 crores would thus work out to Rs. 1.30 crores, including purchase commission and expenditure on the purchase cell in U.K. The desirability of ensuring adequate credit facilities before sanctioning a Project has been stressed in para 112. Had this been done, the payment of such heavy service charges on the above loan could have been avoided, as was agreed to by the representative of the Ministry of Finance.* **Committee's observation.**

H. *Accounts:*

162. The Committee are surprised to note that uptil 1960-61 the accounts of HEL were in arrears. 'Normal accounting standards' had generally not been maintained and the 'state of books was unsatisfactory'. The Financial Adviser attributed it to the shortage of accounting staff. The Chairman of the Undertaking stated that they could not get trained men and the persons who were recruited committed mistakes even in the posting of entries. A Financial Accounts Manual had since been issued on 1st September 1962 and steps were being taken to intensify the training of accounts staff. **Arrears.**

163. *The Committee are pained to note that arrears were allowed to accumulate in the maintenance of accounts of HEL till* 1961-62 i.e. 5 *years after its setting up. Five years was a period long enough for any undertaking to recruit suitable persons for this work and to train them if need be. Evidently HEL had not put the right type of men in their accounts department or trained them properly. It would also seem that the accounting machinery had not been strengthened to keep pace with the speed of work at the project.* **Observation of the Committee.**

164. *The need for efficient and well-organised accounting procedure and for employing technically qualified staff would be increasingly felt as the company moves from the stage of construction to the stage of production. The Committee would impress upon HEL the need to employ qualified staff and to get them trained in improved techniques of accounting with the assistance of the Institute of Cost and Works Accountants, if necessary.* **Employment of qualified staff suggested.**

Issue of instructions to organise Accounting Organisation suggested.

165. *The Committee further suggest that in order to avoid the recurrence of a similar situation elsewhere Government should issue suitable instructions to all public undertakings to organise proper accounting machinery from the very beginning.*

166. The Committee were informed that HEL proposed to arrange in 1963-64 for an examination of the accounting and financial procedures followed by it. They note that the Honorary Adviser on Management Accounting attached to the Department of Company Law Administration has undertaken special studies on the working of accounting system in a few Government compaines and made recommendations for their improved working. *The Committee trust that HEL would take advantage of the experience of the Department of Company Law Administration in this behalf and consider the desirability of associating them with the proposed examination of their financial and accounting procedures.*

Laying of suitable accounting procedure suggested.

167. *The desirability of prescribing a suitable accounting procedure for adoption from the beginning by all undertakings in the public sector may be considered by Government in consultation with the Department of Company Law Administration and the Comptroller and Auditor General.*

I. *Administrative Expenses*:

On High Side.

168. The Committee note that the administrative expenses of the Bhopal Project amounted to Rs. 41 lakhs during 1961-62 for a production of Rs. 177 lakhs, including works-in-progress. This would work out to 23.1% of the cost of production. While admitting that the administrative staff was on the high side, it was explained during evidence that the administrative staff also dealt with the work on the construction side. Orders had, however, been issued that no further appointments should be made on the administrative side. As the construction work was completed, the administrative staff was expected to be progressively diverted to the production work.

Examination of staff strength suggested.

169. *The Committee have gathered an impression that there is a general tendency in the public undertakings to recruit staff in excess of their needs. Besides increasing the cost of production, the extra staff not fully worked tends to have a demoralising effect on other staff. Further, once the staff has been recruited it becomes difficult to lay them off. It is, therefore, essential that the recruitment of staff is strictly related to requirements. The Committee suggest that HEL might have the position examined with a view to determining its actual requirements and the surplus staff may be utilised for the expansion of the Project. In this connection paras 228 to 232 may also be seen.*

J. *Results of Working*:

170. Table below shows the results of working of HEL during the last two years, *i.e.* since the Bhopal factory went into production:—

	1960-61	1961-62
	(Rs. lakhs)	
Loss before providing for depreciation and interest .	20·08	27·37
Depreciation	21·27	69·22
Interest charges	4·71	10·18
Net loss as per P & L. A/C.	46·07	106·78

Sizeable losses in initial phases inevitable.

171. The Committee were informed that this pattern of a sizeable loss in the initial phases was inevitable in a Project of this nature and was to be expected. Profits would be made only from 1970-71 when the volume of production and sales expanded sufficiently to meet the high overheads, including interest and depreciation.

172. *The Committee trust that the position would be constantly reviewed to minimise these losses to the extent possible.*

K. *Financial Reviews*:

Not submitted in time.

173. A quarterly review of financial and accounting arrangements is required to be submitted by the Financial Adviser of each project to the Government. It was stated that at Bhopal a time limit of 15 days after the close of a quarter had been fixed for the submission of such reviews. The Committee found that in actual practice, these reviews had not been prepared and submitted in time. The review for the quarter ending 31st March 1961 was submittted on 13th January 1962 *i.e.* after nine months. The reviews for the two quarters ending 31st December 1961 and 31st March 1962 were submitted on 28th August 1962 *i.e.* after seven months and four months respectively. The three subsequent reviews relating to the quarters ending 30th June, 30th September and 31st December 1962 have not been submitted to the Government as yet. Arrears in accounts and difficulties in reconciling them were stated to be the reason for this delay. The Financial Adviser stated that arrears in accounts would be cleared by December 1962 and normalcy achieved in January, 1963.

Timely preparation and submission recommen

174. *The Committee regret the abnormal delays in the submission of these reviews which serve as an instrument of financial control. They would recommend that greater attention should be paid to the timely preparation and submission of these reviews.*

L. *Other suggestions:*

175. The following suggestions, some of which are also contained in the Third Five-Year Plan, were discussed in the course of examination by the Committee:—

(1) *the desirability of establishing a 'Cost Reduction Unit' at each Project as part of the construction organisation under the exclusive control of the Chief Engineer to carry out work-studies, continuously analyse factors affecting costs, recommend suitable adjustments from time to time in materials, techniques, procedures and organisation, evaluate the result of such adjustments and keep a watch on the progress in achieving economies in construction costs;*

(2) *the desirability of setting up special units to assist the management in keeping down production costs, raising productivity, setting norms and checking performances;*

(3) *the need for organising a proper cost accounts organisation;*

(4) *the need for a system of management accounting; and*

(5) *the desirability of HEL preparing programme-cum—performance budget, as recommended by the Committee in their 73rd Report (2nd Lok Sabha).*

176. The Committee were told that a beginning had been made at Bhopal as regards items (3) and (4) above. *They trust that all these suggestions would be examined by HEL for implementation as far as possible.*

VII

ORGANISATIONAL SET—UP

A. *Board of Directors*:

177. According to the Articles of Association of the Company, the number of Directors on its Board is not to be less than two and not more than fifteen. The minimum of two was admitted to be too low for an organisation of this magnitude. Further there has been a wide variation in the number of Directors on the Board from year to year. It was twelve in 1957-58, fourteen in 1960-61 and six in 1961-62. It was stated that a small Board tended to increase the efficiency. *The minimum of two Directors is evidently too low. The Committee would suggest that the matter may be looked into and the minimum raised suitably. Wide variations in the actual strength of the Board may also be avoided, as such variations are not conducive to the sound administration of the undertaking.* **(i) Variation in the number of Directors.**

178. The Board of Directors of Heavy Electricals (India) Ltd., at present consists of the Chairman, the Resident Director of the Bhopal Project, a Project Administrator of the three new Projects, the Additional Secretary of the Ministry of Steel and Heavy Industries, the Additional Secretary, Ministry of Finance and one other State Government official. **(ii) Composition.**

179. It was claimed that in making appointments to the Board, the criteria laid down by Government in Section III of their decisions on the recommendations contained in the Report of the Krishna Menon Committee and other reports* and studies on the running of public sector undertakings were followed. But the Committee note that the appointment of the Additional Secretary of the Administrative Ministry on the Board is not in accordance with the Government decision on the recommendations of the above Committee that "no Secretary of a Ministry/Department shall be a member of any Board." It was stated that there were practical difficulties in following the above recommendation. The Department of Heavy Industries had a small number of officers with a relatively large number of undertakings under it. As such, it was difficult to find junior officers who could be effective on their Boards. It was further stated that the representatives of the Finance and the administrative Ministries on **Appointment of Additional Secretary of Administrative Ministry on the Board.**

*The Estimates Committee have also expressed themselves clearly on many occasions about the inadvisability of associating Secretaries of Ministries with the Board of Directors of State Undertakings.

the Board did not commit themselves to the decisions of the Board substantially.

Change in Composition of Board in accordance with Government decision suggested.

180. *From the above statement it would appear that the representatives of the administrative Ministry and the Ministry of Finance did not fully accept the responsibility for the decisions of the Board. It is expected of such members that they should not only help the Boards in reaching correct decisions but should also be collectively responsible for the decisions unless they have indicated their disapproval of any of them. The Committee are also not convinced of the reasons advanced for nominating top officials of the Ministries on the Board. The arrangement contemplated in Government's decision not to appoint the Secretary or Additional Secretary of the Ministry or Department on the Board is not only to relieve the volume and pressure of work on these top officials but also permit of an independent and objective examination of the proposals of the Board in the Ministry at the highest level. The Committee trust that early action would be taken to change the composition of the Board of Directors in accordance with the decision of Government in this regard.*

Representative of Ministry of Finance on the Board.

181. The Committee observed that the representative of the Ministry of Finance on the Board of HEL was serving on the Boards of as many as nine other public undertakings. On an enquiry as to how such an official could discharge his functions on all of them effectively and efficiently, in addition to performing his normal secretarial duties, it was admitted by the representative of the Finance Ministry that it was a heavy load of work for him. In fact, the officer had resigned from five of these public undertakings recently. The Committee have noticed similar cases in certain other undertakings also. They note that Government have recently decided that "no officer who is also assigned ordinary Secretariat duties should be appointed Director in more than 3 or 4 companies at the maximum. Finance officers should be selected as Directors only from such officers who, though working in the Ministry, will not be overburdened with other duties and will devote mainly to serving as Directors of public undertakings."* *They hope that these decisions would be implemented at an early date.*

Selection of Directors from a wider sphere suggested.

182. As would be seen from paragraph 178, the Board of Directors of HEL is, at present, composed of officials only, none of whom has had any previous experience of heavy electrical industry. Neither the Central Water &

*Decisions of Govt. on the recommendations of the Krishna Menon Committee and other reports and studies on the running of public sector undertakings.

Power Commission, which coordinates the requirements of Electricity Boards, nor the State Electricity Boards, which are the main customers of the undertaking, are represented on it. The Committee were informed that the question of giving representation to the Central Water & Power Commission and the State Electricity Boards was receiving their attention. *Keeping in view the responsibilities of HEL, which has four big projects under its control, the Committee feel that the members of its Board of Directors should be drawn from a wider sphere than at present and that technical experts and men experienced in the line should be appointed to the Board, care being taken that no one with a direct interest in the same industry in the private sector is appointed.*

Appointment of representatives of C.W. & P.C. and State Electricity Boards on the Board.

183. *They suggest that to ensure close coordination and liaison with the Central Water & Power Commission and the State Electricity Boards, two representatives one from the Commission and the other on behalf of the State Electricity Boards may be appointed to the Board—a suggestion to which the representative of the Ministry was favourably inclined.*

B. *Qualifications of Directors*:

Not laid down.

184. The Directors of HEL, like all Government-owned companies, are appointed by the President. No qualifications have been laid down in the Articles of Association for such appointments. In this connection it has been stated in the Third Five-Year Plan that:—

> "Membership of the Board should be on the basis of ability, experience and administrative competence".

Laying down of qualifications etc. in Articles of Association suggested.

185. *The responsibilities of such Boards in the Public Undertakings are very onerous. Apart from providing the necessary leadership and direction to the undertaking, they have to ensure that the management of the various projects under their charge is sound and effective. The right choice of members of the Board is, therefore, of prime importance. The Committee suggest that Government might lay down the qualifications and the nature of experience expected of persons who will be appointed as members of the Board of Directors of industrial undertakings. The Statutes relating to the setting up of public undertakings in the U.K. specify such qualifications and experience.*

C. *Chairman of the Board of Directors*:

Desirable qualifications.

186. Till 13th May, 1959 the Secretary of the administrative Ministry was the Chairman of the Board of Directors of HEL also. Thereafter a retired Chairman of the Railway Board was appointed as the Chairman of the Company.

On an enquiry as to what the policy of the Government in this regard was, the representative of the Ministry stated that they were now trying to put in younger people for such jobs.

Views of Krishna Menon Committee.

187. In this connection, the Sub-Committee of the Congress Party in Parliament, which considered the question of Parliamentary Supervision over State Undertakings observed as under:—

> "No hard and fast rule either in regard to the academic, technical or other qualifications or of age, can be laid down with regard to the selection of the Chairman. It is obvious, however, that he should have maturity of judgment, experience of the particular type of concern or of similar kind of industry, the capacity to work with a team and a personality that would enable him to give a lead by his example to both staff and labour. He should normally be beyond acute political or other party or sectional controversies which would make him start with a handicap. It may also be said that normally such a person at the time of his appointment should be between 30 and 50 years of age. This provision is desirable because it should not become the practice that the Chairmanship of Boards is a kind of 'berth' for retiring civil servants or others who are appointed to a post as part of a reward for any service they might have rendered to a political party."

188. *The importance of selecting the right type of person for the post of Chairman of an industrial undertaking cannot be over-emphasised. The success of an undertaking depends to a large extent on the direction and guidance provided by him. The principles enumerated above are healthy. The Committee hope that they will be kept in view while making appointments of Chairmen of public undertakings in future.*

D. *Technical Director*:

Early appointment suggested.

189. The Committee find that the post of Technical Director in HEL is lying unfilled since a year when the last incumbent (Shri M. Hayath) left to join the ECAFE. The representative of the Ministry informed the Committee that Government was looking for a Technical Director but they had not been able to get a suitable person. *The need for appointing a Technical Director possessing the necessary technical knowledge and experience in the line so as to be able to advise the Board of HEL on complex matters coming up before it needs no special emphasis. The Committee feel that there is no dearth of qualified men in the*

country to fill this post either. They recommend that early action may be taken to appoint a Technical Director on the Board of HEL. If necessary, the terms of his appointment might be so framed that it attracts a really capable man.

E. *Resident Director*:

190. A General Manager (designated as Resident Director) has been appointed for the management of the Bhopal project. He is assisted by the Heads of various Departments. Till February, 1958 an officer of the Punjab Electricity Board was the General Manager and Chief Engineer of the Bhopal Project. Since then, a retired Railway Officer is working as General Manager and Resident Director. **Qualifications.**

191. It was represented to the Committee that the Resident Director, though a good mechanical engineer, did not have any technical knowledge of the heavy electrical industry which was very essential for that post. The Chairman of the Company stated that the capacity to get team work and organise things in a satisfactory and economic manner were the more important qualifications of a Gneral Manager, though it would be ideal if he had the knowledge and experience of heavy electrical industry. A man who combined in him both the knowledge of production of heavy electrical equipment and the necessary administrative abilities was not, however, available.

192. The Third Five-Year Plan lays down the desirable qualifications of the General Manager of a Project in the following terms:— **Desirable Qualifications as laid down in Third Plan.**

> "Leadership, guidance and the main driving force in a Project has necessarily to come from the General Manager. He must, therefore, be selected on the basis of technical competence, administrative abilities and qualities of leadership. He must be able to see clearly what is going on and to know which department is not working satisfactorily and must have the requisite knowledge to help the departmental managers to put it right."

193. *In the Committee's view the right choice of a General Manager for a Project is as important as that of a Chairman of an Undertaking. They would suggest that Government should select a man for this office who fulfils the above qualifications.*

F. *Top Management Organisation*:

194. The Committee were informed that adequate powers had been delegated to the Resident Director for the administration of the Project. The local Board of Management as contemplated in Article 72(17) of the **Local Board of Management not formed.**

Articles of Association had not, however, been formed. The representative of the Ministry stated during evidence that as and when normal production was established such a Board would become necessary and would be established.

Wide Span of Control.

195. The Committee note that no less than 12 departmental heads are working directy under the Resident Director. He has thus an extremely wide span of control. It is stated that such a position tends to give rise to "procrastination, indecision, misunderstanding, irritation and strained relations." It is also doubtful whether a Resident Director charged with the task of controlling an industrial enterprise of the size of HEL can do the whole job by himself, unless he is assisted by deputies who could share some of his burden or who could advise him in various matters.

Views of Consultants.

196. In this connection, the Consultants in their Report have also observed as under:—

> "The only source of decisions on anything but comparatively minor matters is the Resident Director himself. The result of this concentration of powers of decision in one man is that vital decisions take weeks, or even months, to obtain, while less important decisions which are nevertheless essential to the efficient and smooth running of the organisation, frequently do not get taken at all.

The Consultants recommended the formation of a management team at Bhopal comprising of:—

1. Managing Director
2. Chief Engineer
3. Works Manager
4. Commercial Manager
5. Financial Manager

The members of this team, while being entirely responsible to the Board for the organisation and functioning of their respective Departments, would co-operate in the general management of the Project under the general guidance of the Managing Director. At a later date the Consultants advised adding to this team a Construction Manager to take entire charge under the guidance of the Managing Director of the construction works at Bhopal, and so leave the functional directors free to concentrate on the problems of building up production.

This organisation has not been implemented. There is no Chief Engineer. There is a Commercial Manager and a Works Manager, but they do not

exercise full executive control over their respective functions. The Resident Director himself maintains detail control of all construction works through several specialist engineers."

197. *Obviously the present position does not fulfil the needs of an undertaking and calls for a speedy reorganisation. What the Consultants have suggested about the formation of a management team seems to deserve consideration. The Committee consider it essential that a suitable organisation should be immediately provided there taking into account the various managerial problems that might have been experienced so far.* **Views of the Committee.**

G. *Works Manager*:

198. For the Bhopal Project, HEL orginally selected a Works Manager who had some experience with Jesops, Calcutta. He was deputed for training to the U.K. where he unfortunately expired. In April, 1960 a Divisional Superintendent, Central Railways was taken on deputation to act as Works Manager and sent for a brief training of 2½ months to the U.K.

199. On enquiry as to the desirable qualifications of a Works Manager for a heavy electrical undertaking, it was stated during evidence that he should be a first class mechanical engineer, capable of controlling a big workshop. But he need not necessarily be an electrical engineer. It was further stated that the post of Works Manager had been advertised but suitable candidates were not available. They also tried to get a suitable person from the electrical undertakings in the private sector. The scales of pay, however, stood in their way. Moreover people enjoyed lot of freedom and authority in the private sector which was not available in the public sector. **Desirable Qualifications.**

200. *The Committee are not convinced by the reasons advanced for not being able to get a suitable man for this post, particularly when other undertakings, like Hindustan Steel, have been able to get technical persons from the private sector. They also do not think that the scales of pay for such a key post should present any insuperable difficulty. The Committee hope that necessary action would be taken to secure the services of a suitable man for this post.* **Recruitment of suitable man.**

201. *In view of the difficulty of getting a technically qualified person for this key post, the Committee would recommend that HEL should take timely action to train the Works Managers for its other Projects.* **Timely action for other Projects suggested.**

H. *Financial Adviser:*

(i) Appointment Not provided in the Articles of Association.

202. The Articles of Association of HEL did not originally provide for the appointment of Financial Adviser. These were subsequently amended to provide for it. A Financial Adviser was appointed for the first time in 1959, *i.e.* about 3 years after the setting up of the company.

203. During evidence it was stated that HEL had an Accounts Officer during the earlier stages of construction and the appointment of a Financial Adviser was not considered necessary. The Committee are not aware of the considerations which led to this decision but they find that the accounts of the Bhopal Project have as a result fallen into heavy arrears. The 'accounting standards' and the 'maintenance of books of accounts' also came up for criticism by Audit. *Had an experienced man been posted from the very beginning, this situation could probably have been avoided. The Committee hope that to avoid similar situations HEL would take timely action to appoint for the other projects, Financial Advisers particularly those who have experience of working in industrial undertakings.*

(ii) Training.

204. The Financial Adviser of the Bhopal Project like that of most other projects in the public sector, belongs to the I.A. & A.S. and has been taken on loan from the Comptroller and Auditor General. It is not always that such an officer has experience of industrial accounts. Further, in addition to exercising control over expenditure, the Financial Advisers in industrial undertakings have to concern themselves with problems of financial management also. It is, therefore, necessary that such officers should possess experience of industrial accounting as well as some knowledge of the principles and practices of financial management. *The Committee suggest that Government might arrange for an orientation of Financial Advisers of industrial undertakings in the principles and practices of financial management either before their joining an undertaking or through refresher courses, as has also been suggested in the Third Five-Year Plan.*

(iii) Amalgamation of the posts of Financial Adviser and Chief Account s Officer.

205. In addition to the Financial Adviser, the Heavy Electricals has a Chief Accounts Officer of equal status (Rs. 1800—2500) at Bhopal for, more or less, similar functions. In a note furnished to the Committee it was stated that, due to arrears in the maintenance of accounts it was decided to post a separate Chief Accounts Officer to pull up the arrears. Since the position of maintenance of accounts had improved, it was proposed to combine the functions of the two officers again. *The Committee hope that this would be done early.*

206. To ensure that the essential pre-requisites of a Project are not overlooked in future, the Committee discussed the desirability of preparing a model Articles of Association for Government companies. They were told that a model had more or less emerged. The Committee note that as a result of Government decisions, instructions are issued from time to time to the Public Undertakings for incorporating certain provisions in their Articles of Association, so as to bring them on a uniform pattern. But no model has been prepared. *The Committee suggest that model Articles of Association for Government Companies might be framed by Government, providing for matters of common application, and circulated to all the Ministries of Government for their guidance.* **Preparation of model Articles of Association for Government companies suggested.**

I. *Commercial Department*:

207. The Marketing Organisation at Bhopal, called the Commercial Department, consists of a Commercial Manager (Rs. 1600—100—2000), five Scales Managers (Rs. 1300—60—1600), three Senior Commercial Engineers (Rs. 685—1250) and 12 Commercial Engineers (Rs. 420—950) besides the usual complement of staff. The monthly pay bill of this Department is about Rs. 20,000/-. Their functions include:— **Commercial Deptt.**

(1) Advising clients on the equipment best suited to their needs;

(2) preparing tenders;

(3) negotiating prices and agreements with purchasers in respect of contracts for plant & equipment;

(4) negotiating (in conjunction with the Works Manager) delivery and completion dates for equipment ordered from the factory; and

(5) initiating orders on the factory for equipment to be manufactured.

Apart from this, the Department maintains a continuous contact with the customers to see that the production in the factory is in line with the requirements of the customers. The Committee were told that it was also proposed to appoint regional Sales Managers to keep in touch with the local Electricity Boards and other customers. *They trust that this Department which has a very important contribution to make towards the successful working of HEL, would prove equal to the task.*

J. *Administrative Office*:

208. The head office of the Heavy Electricals is located at Bhopal. The Chairman's office (called the administrative office) is, however, located at New Delhi since the appointment of the present incumbent. A monthly rent **Considerations for location at Delhi.**

of Rs. 6700 is paid for the accommodation occupied by this office. The administrative office was stated to have been located at New Delhi on the following considerations:—

(i) constant liaison which C.W. & P.C. and Railway Board which was necessary for handling production problems of heavy electrical industry;

(ii) frequent discussion with foreigners stationed in Delhi with the technical advice and assistance of C.W. & P.C., Development Wing and Planning Commission; and

(iii) liaison and co-ordination with the various Ministries.

209. As to its justification when HEL had a Liaison Office at Delhi to perform the above functions, the representative of the Ministry stated that there were difficulties in the procurement of raw materials, foreign exchange, etc. Close contact was necessary between the project authorities and the Government. In the circumstances it was essential for the undertaking to have its Administrative Office at Delhi for the present.

Transfer to Bhopal suggested.

210. *The Committee have a feeling that there is a general tendency on the part of public undertakings as well as other Government organisations to have their offices at Delhi. The reasons advanced for setting up the administrative office of HEL at Delhi are common and apply equally to all undertakings, particularly those which are administering more than one project. The Committee are not convinced of the need for the administrative office of HEL to be located at Delhi when other industrial undertakings like Heavy Engineering Corporation, National Coal Development Corporation, Hindustan Machine Tools, etc., having more than one Project are not experiencing any difficulties without such offices at this place. It is also surprising that while the Head Office of Heavy Electricals is at Bhopal, the Chairman's office called the administrative office has been set up here. This is a new innovation. The Committee feel that the location of the Administrative Office of HEL at a place different from its head office is not necessary. Such an arrangement, if allowed to continue in the case of HEL, will have its repercussions on other public undertakings also and it may then be difficult to resist a similar demand by them. The Committee, therefore, recommend that the Administrative Office of HEL in New Delhi may be transferred to Bhopal, which is where it ought to be.*

K. *Board Meetings*:

211. The registered office of the Company is located at Bhopal. But the meetings of its Board of Directors are

generally held in New Delhi as would be seen from the following Table:—

	No. of meetings held in Delhi	No. of meetings held at Bhopal
1956	4	..
1957	6	1
1958	6	1
1959	6	2
1960	5	3
1961	10	2
1962	10	1

Annual General Meetings.

212. The Committee find that there is no restriction for holding of ordinary meetings of the Board at a place other than the registered office of the Company. The Companies Act and the Articles of Association of HEL require that the annual general meetings of the Company should be held at its registered office at Bhopal. But, it is seen that, from 1960 onwards the annual general meetings of the Company have all been held in the Chairman's office in New Delhi. *The Committee regret that the provisions of the Companies Act and the Articles of Association have not been complied with by HEL in this regard.*

213. *The presence of a majority of the Directors of HEL at Delhi may be the reason for holding the ordinary meetings of the Board there. The Committee consider it desirable that these meetings should also be held at the registered office of the Company as far as possible. In this connection attention is invited to para 155 of their 32nd Report (3rd Lok Sabha) on National Coal Development Corporation.*

L. *Liaison Offices*:

Functions.

214. HEL has set up its Liaison Offices at Bombay, Calcutta, Madras and Delhi. Their functions are shown in Appendix VII. Similar offices have also been set up by other public undertakings in these principal cities. The Liaison Offices at Calcutta, Bombay, and Madras are generally responsible for clearance of materials received there, purchase of materials from local markets and co-ordination with the various departments.

Construction of multi-storeyed building suggested.

215. The Liaison offices of the public undertakings in New Delh are located in rented buildings at different places for which heavy rent, ranging from 64 nP. per sq. ft. to Re. 1·50 nP. per sq. ft. is being paid by them. In para 173 of their 32nd Report on N.C.D.C. the Committee have recommended a review of the need for the various Liaison Offices of public undertakings in Delhi. They also discussed with the representatives of the Ministry of Steel and Heavy Industries the desirability of constructing a multi-storeyed building to house such offices of public

undertakings as are necessary and have to be located at New Delhi. They were glad to learn that the State Trading Corporation had made a proposal for the construction of a building for the purpose. *The Committee hope that an early action would be taken in the matter.*

M. *Guest House*:

Justification.

216. The Company has set up a Guest House in New Delhi for the use of officers coming from its Projects. It is housed in a building rented at Rs. 750 p.m. A sum of Rs. 3.50 nP. per day per officer is charged for its use. Similar Guest Houses have been set up by other public undertakings also. The Committee were informed that the Chairman of HEL had at one time suggested that arrangements for the stay of their officers should be made in the Janpath Hotel and the Guest House done away with. That was not accepted.

217. Justifying the need for the Guest House, the representative of the Ministry stated that very often officers had to come to Delhi for discussing project reports, negotiations with foreign collaborators, etc. With the shortage of accommodation in Delhi, they were not able to get suitable accommodation even in Central Government Hostels. Moreover the allowance paid to them was not adequate to meet the charges of Janpath Hotel, let alone Ashoka Hotel.

Construction of residential blocks suggested.

218. *The Committee doubt whether the Guest Houses set up by the various Public Undertakings in New Delhi are fully occupied throughout the year. A study of their use and economics would, perhaps, lead to interesting results. As any expenditure by an industrial undertaking on such activities affects its cost of production, there is need for utmost economy in these matters. It is obviously advantageous to pool such arrangements of the public undertakings. The Committee, therefore, suggest that the feasibility of constructing a few residential blocks in the multi-storeyed building referred to in para 215 may be examined by Government. These blocks could be used as a common Guest House by all public undertakings.*

N. *Purchase Cell in U.K.*

Reasons for setting up.

219. To facilitate the purchase of machinery and equipment for Phase I of the Bhopal Project, which had to be effected in consultation with M|s. Associated Electrical Industries, London, a small cell was organised there in

1959-60. The details of expenditure on the Purchase Cell are given below :—

	(Rs. in lakhs)
1959-60	0·77
1960-61	1·84
1961-62	2·47
1962-63 (Upto Sept. 1962)	1·72
	6·80

Abolition.

220. The procurement work in regard to Phase I has been completed. The Cell, however, continues to exist. No other public undertaking has set up such an organisation abroad. Justifying the need for the Purchase Cell, the representative of the Ministry stated that a decision regarding the purchase of plant and machinery had to be taken within 14 days of the receipt of Consultants' recommendation. The Cell was organised so that the work could be done cheaply, quickly and efficiently. The Cell was now attending to the purchase of raw materials and components required by HEL. The representative of the Ministry stated during evidence that the Purchase Cell in London might be needed for another two or three years but that efforts would be made to dissolve the Cell earlier. *The Committee hope that every effort will be made to abolish the Cell as early as possible.*

O. *Organisation in the Ministry* :

(i) Need for a Technical Planning Cell.

221. The work relating to the Bhopal factory is looked after by a Secretariat assistant and the work connected with the new Projects by a Section Officer. There are no technical personnel in the Section.

222. In the Third Five-Year Plan, it has been suggested that the Central Ministries concerned with industrial development should take early steps to organise well-equipped technical planning cells to concentrate on the broad technical and economic aspects of the Projects with which they are concerned and on the study of different stages of execution and of the various related steps which require co-ordination at the level of policy and administration. No such Cell has so far been set up by the Ministry of Steel and Heavy Industries which has six major industrial undertakings, *viz.*, Heavy Electricals, Heavy Engineering, Hindustan Steel, Fertilisers Corporation of India, Hindustan Machine Tools and Praga Tools, under its administrative control.

Early organisation of the Technical Planning Cell recommended.

223. In evidence it was stated that the Department of Heavy Industries had very few officers. *Ad hoc* technical and administrative teams were appointed to examine the Project Reports. The officers dealing with the Projects also performed the above functions in the normal course of execution and administration of the Projects. The Committee were assured that as soon as the activities of the Department were organised a little more, a technical planning cell would be set up. *The Committee feel that the setting up of a Cell would be very useful as it can also continuously keep abreast of the developments in the various industries abroad. It can also evaluate the performance of the Projects referred to in para 224. The Committee trust that the proposed Cell would be organised at an early date.*

(ii) Periodical Evaluation.

224. In para 143 of their 38th Report (Second Lok Sabha) on Shipping Corporations, the Committee had recommended the setting up of a separate organisation, analogous to the Committee on Plan Projects, to evaluate the working of industrial and commercial undertakings periodically. In their reply furnished in June, 1960 Government accepted this recommendation and stated that instructions had been issued regarding the setting up of inspection teams by the administrative Ministries in consultation with the Ministry of Finance for making a periodical inspection of these undertakings. The Committee find that the Ministry of Steel and Heavy Industries has not set up such a team as yet. The representative of the Ministry stated that such an evaluation would be useful after the Bhopal factory went into production. *The Committee regret to observe that although Government issued instructions in the matter about 2½ years ago, no action has been taken by the Ministry of Steel and Heavy Industries to arrange for the evaluation of any undertaking under its control. They expect that once the Committee has made a recommendation and Government have accepted the same, it would be implemented. The Committee trust that the Ministry would lose no time in implementing the recommendation already accepted by Government.*

VIII

PERSONNEL MATTERS

A. *Recruitment Procedure*:

225. The Committee were informed that for higher non-technical posts in HEL, carrying a monthly salary of Rs. 600 and above, candidates available in the Industrial Management Pool were considered first. Failing this, recruitment was made by advertising the posts on an all-India basis. This did not preclude consideration of those candidates who applied on their own or had been retrenched from other Government Projects. Higher technical posts were also filled by advertisement on an all-India basis. The same procedure was followed for recruitment to middle level technical and non-technical posts (Rs. 350-850), special care being taken that local candidates received full consideration. In the case of skilled workers, clerks and other non-technical staff, preference was given to local residents, so long as the basic qualifications and experience were fulfilled. Unskilled workers were generally drawn from the local area, preference being given to persons displaced from the area acquired for the Project.

226. It was stated that Selection Committees had been constituted for recruitment to various categories of posts in HEL. An ex-Member of the U.P.S.C. was in-charge of recruitment to all technical posts below the scale of Rs. 1300—1600. The Chairman, HEL headed the Selection Committees for recruitment to posts carrying a salary of Rs. 1300—1600 and above.

Appointment of Personnel Commission suggested.

227. The Committee discussed the desirability of appointing a separate Personnel Commission for the public undertakings. It could broadly lay down the terms and conditions, etc., of the various categories of posts. The members of such a Commission could also be coopted on the Selection Committees of the Public Undertakings. The representative of the Ministry stated that it would not be conducive to speedy recruitment which was necessary in the case of such undertakings. Further it was a question of policy and would have to be carefully examined. *The Committee have discussed this matter in detail in paras 205—9 of their 32nd Report on the National Coal Development Corporation and have urged Government to take an early decision in the matter.*

B. *Personnel Employed*:

Total Staff.

228. As per Project Report, the requirement of staff for an annual output of Rs. 25 crores at Bhopal is estimated at

18,280. The staff requirement for 1961 and 1962 was 3171 and 4638 respectively (to be in position at the beginning of each year). A break-up of office and factory staff employed at Bhopal on 1st January each year is given below:—

	Factory				
	Administration	Construction	Non-industrial	Industrial	Total of (1) to (4)
	(1)	(2)	(3)	(4)	(5)
1-1-1957 .	33	6	..	..	39
1-1-1958 . .	125	115	..	..	240
1-1-1959 .	252	274	..	..	526
1-1-1960 . .	536	538	13	..	1087
1-1-1961 .	903	633	540	814	2890
1-1-1962 . .	1461	919	1333	2073	5786

In addition the company employs work charged staff whose number was 4202 and 3932 on 1st January 1961 and 1962 respectively.

229. It was stated that a fairly large proportion of the administrative staff was also looking after the work relating to constructional matters. It was, therefore, apportioned between training, construction and production in the proportion of 10:50:40. On this basis the factory staff at the end of 1961 worked out to 3990 as against the average of 3904 which should have been the strength of staff according to the Project Report. It was further stated that considering that the production target for 1961 in the project report was Rs. 1:47 crores, as compared to Rs. 1·85 crores achieved by HEL upto 31st March, 1962, the slight increase in the strength of staff was justified.

(1) Administrative staff.

230. As regards administrative staff, the project report envisaged that at the time of final build-up for the ultimate output, the ratio between administrative and factory staff would be 1:12. The present administrative staff (584 @ 40 per cent of 1461) and factory staff (3406) gives a ratio of 1:6. *This is on the high side and was in fact admitted as being high by the representative of HEL during evidence.*

Views of the Consultants.

231. A Study Group of the Committee visited the factory in September, 1962 and were not sure that every worker in the factory had been given his full day's work-

load. Even the Consultants in their report submitted in February, 1963, have observed as follows :—

> ..all factory departments are fully staffed except the Tool Room and manufacturing services department and indeed most are well overstaffed for their present level of output."

The Consultants have also observed :

> "that Indian workmen, properly trained in the training establishment provided, and guided in the actual production processes by experienced demonstrators from the U.K. are capable very quickly of picking up the techniques and of producing a completely acceptable standard of workmanship."

From the statement of staff given by the Consultants in their Report, it is seen that they had assessed the total requirements of staff for the factory at 8,487 for an annual output of Rs. 12.5 crores. Against this, the staff in position at Bhopal is stated to be 7,619 in January, 1963 for an output of Rs. 3·5 crores. It is significant to note that this does not include full complement of staff for the following Departments as all items of equipment have not been taken up for production as yet :—

	Estimated requirements (AEI)	Staff actually employed
Motor & Press Shop	792	235
Heavy rotating plant	601	18
Water turbines	500	13
Coil and insulation	599	253
Technical and miscellaneous services . .	354	133
	2846	652

The recruitment of another 2200 men would thus appear to be necessary sooner or later for the output of Rs. 12·5 crores which is expected to be reached in 1964-65. It is further seen that in the following departments the staff

actually employed even now exceeds the number of staff recommended by AEI for the output of Rs. 12.5 crores:—

	Staff recommended in the Project Report	Staff in position in January, 1963	Excess
Transformers, Capacitors, rectifiers	910	1154	244
Fabrication	673	1012	339
Maintenance and other services	634	969	335
Transport	87	159	72
Secretarial and accounts	443	748	305
Purchase and factory stores	132	302	170
Management	36	71	35
Personnel and catering	..	285	285
	2915	4700	1785

Review of staff strength recommended.

232. *The Committee are in agreement with the views of the Consultants that the Project is overstaffed for its present level of output. They recommend that a thorough review of the staff strength at Bhopal may be carried out immediately with a view to its reduction.*

Committee's suggestion.

233. *The Committee further suggest that the annual reports of H.E.L. should include a break-up of the staff employed category-wise separately on (a) construction (b) operation of the factory, etc.*

(ii) Industrial/Non-industrial staff.

234. Out of the total staff of 3406 in the factory at Bhopal, 2073 are industrial and 1333 non-industrial. The ratio of industrial to non-industrial staff is 1.55:1.

Reduction of non-industrial staff recommended.

235. The representative of HEL stated during evidence that at present non-industrial staff was also being used for cleaning of floors etc. and would be reduced after the construction work on the factory blocks was completed. Further, with the increase in production while the wage bill of the shop labour (industrial) would go up, there would not be a proportionate increase in the non-industrial staff.

The Committee consider that the non-industrial staff at Bhopal is on the high side. They recommend that their number should be brought down.

C. *Scales of Pay*:

Variation between

236. The Committee were informed that originally the HEL paid a starting salary of Rs. 200 p.m. to their engineer

trainees. This was raised to Rs. 250 p.m. after taking into account the scales of pay in vogue in the Hindustan Steel & Heavy Engineering Corporation. The question of raising the pay scales was again under consideration. The representative of HEL stated that there appeared to be competition between one Corporation and another in this regard. **different undertakings.**

237. *The Committee consider that variation in the scales of pay for similar posts in the various public undertakings is not desirable as it would lead to dissatisfaction and drift of staff from one undertaking to another. They, therefore, suggest that some uniformity should be attempted in the scales of pay for similar posts in various undertakings.* **Uniformity for similar posts suggested.**

D. *Promotions*:

238. The Committee find that 54 officers of HEL have had two or more promotions within a period of five years. They also find that the present pay of certain officers employed at Bhopal is double the pay that they were getting before their appointment in HEL. Two officers recruited in 1957 as Engineer Trainees in the scale of Rs. 685-1250 and Rs. 625-1275 are drawing a salary of Rs. 1600 p.m. each from April/May, 1962 i.e. within a period of five years. Another officer recruited in 1957 in the same scale is getting a salary of Rs. 1420, from October, 1962. It is significant to note that prior to his joining HEL, he was in the service of a State Government and was in receipt of Rs. 380 p.m. Another officer recruited as Assistant to Sales Manager on 16th August, 1960 on a salary of Rs. 860 p.m. in the scale of Rs. 685-1250, has been promoted in the scale of Rs. 1300-1600 w.e.f. 12th January, 1962, i.e. within a period 1½ years. **Position in HEL.**

239. In justification of the quick and accelerated promotions, it was stated that these men had joined the Project in the initial stages in the years 1957, 1958 or 1959. Though these persons were initially recruited for lower posts, they fulfilled qualifications laid down by the Company for the higher posts. As they gained experience, they were allowed to compete for these higher posts along with other outside candidates, provided they fulfilled the minimum qualifications for the post. About two years ago, it was decided to advertise the higher posts only if sufficient number of qualified departmental candidates was not available. It was further decided that ordinarily promotions from one grade to another would not be given until an employee had put in two to three years' service in a grade. **Justification for quick and accelerated promotions.**

240. *While the Committee recognise that merit has to be rewarded, they regret to note that rapid promotions are becoming common in some of the public undertakings and HEL is no exception. Promotions should be made on well-defined principles and should broadly correspond to those followed in other undertakings and Government service. For higher posts it is not the basic qualifications that mat-* **Views of the Committee.**

ter but the requisite experience to hold that post. Experience is something which is gained by service in a particular job over a period of time and before such experience is gained it would serve little purpose to lift a man to a position of higher responsibilities. The Committee have also dealt with this subject in paras 202 to 204 their 32nd Report (Third Lok Sabha) on National Coal Development Corporation and have recommended that the matter may be examined by Government in a comprehensive manner with a view to bringing about some rationale and uniformity in the present mode of promotions in the varipus undertakings.

E. *Drift of Trained Personnel:*

Position in HEL.

241. The Committee were informed that 155 technical personnel had left HEL during the years 1959, 1960 and 1961. Out of these, 136 personnel had not received any training at the expense of HEL. As such no bond for serving the company for a specific period had been taken from them. The remaining 19 persons had undergone training at the expense of the company and signed an agreement to serve it for a period of five years in 17 cases and three years in two cases after completion of training.

Bond not deterrent.

242. The Committee were informed that even the bonds had not acted as a deterrent. Six out of nineteen persons had paid the bond money but it was outstanding in the other 13 cases. A suit was filed against one person and the Court had awarded a decree in favour of the Company which was awaiting execution. Action was being taken to file suits in the remaining 12 cases. The total bond money due from 11 persons exceeded Rs. 1·27 lakhs. The bond money due in the 12th case had not been worked out so far.

243. The Committee note that during 1962 another 14 technical personnel had left HEL. The bond money due from 12 of these 14 persons amounts to Rs. 92,314·49. In the other two cases, the amount has not been worked out.

Vigorous steps to recover bond money suggested.

244. *Although these technical personnel left the company during the years* 1959, 1960 *and* 1961, *suits had not so far been filed except in one case. Three years is a long enough period and prompt action should have been taken by it to pursue these cases. It is regrettable that HEL has not made any serious efforts to recover the amounts outstanding and has dealt with this matter in a casual manner. It appears that this lenient attitude may have been responsible for the flight of such a large number of persons without paying the bond money. With a view to curbing the present tendency of trained personnel leaving HEL, the Committee suggest that vigorous steps should be taken to recover the bond money in all the defaulting cases.*

F. *Employment of Retired Personnel:*

245. At present 45 retired persons are employed by HEL, out of which 32 are engaged on non-technical jobs, including those of Assistants and Clerks. *While the Committee agree that in the initial stages there might have been some justification for HEL to re-employ retired personnel for certain technical jobs till suitable persons had been trained, they do not appreciate the reason for employing retired officers for non-technical secretarial jobs.* They note that it has recently been decided* that "Government should give broad indications of the principles to be followed in the employment of retired persons. Retired personnel should be employed with due care and only such persons with requisite competence should be considered". The representative of the Ministry stated that Government had not so far indicated the principles to be followed by public undertakings in the employment of retired persons, as stipulated in the above decision. The Committee note that except in six cases, the term of all the re-employed personnel is due to expire in 1963. They were assured by the representative of the Ministry that the decision of Government would be taken into account while granting extensions of service to these personnel. *They trust that this would be done.* **Position in HEL.**

246. *The Committee would urge that Government should indicate the principles to be followed by public undertakings in the employment of retired personnel at a very early date.* **Laying of principles suggested.**

G. *Employment of Scheduled Castes/Tribes:*

247. Out of about 8,000 persons employed at Bhopal, the number of staff belonging to scheduled castes and scheduled tribes was 495 and 110 respectively on 31st March, 1962. The Committee were told that the orders of Government reserving 12½ per cent of the posts for candidates belonging to scheduled castes and 5 per cent for scheduled tribes had been communicated to HEL. But as a majority of the posts was of technical nature, the prescribed percentage could not be reached. *The Committee suggest that the management of Heavy Electricals should seek the assistance of various organisations engaged in the uplift of scheduled castes/tribes in the country as well as the Commissioner for Scheduled Castes for recruiting persons belonging to that category.* **Committee's suggestion.**

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*Decisions of Government on the Report of Krishna Menon Committee and other Reports and studies on the running of public sector undertakings.

H. *Labour-Management Relations:*

Not satisfactory.

248. The Committee note that the labour relations at Bhopal have been none too satisfactory. Not long after the factory went into production there were two strikes—one in May, 1961 and another from 12th February, 1962 which lasted for about a month and resulted in a loss of one and a half month's work and psychological tension which in turn affected the output. The Committee find that in their recent Report the Consultants have also observed as follows:—

> "There is ample evidence that a deplorable state of indiscipline exists among the workers".

There is also a mention about "the management's representatives on the shop floor being so terrorised by threats of violence to themselves and their families that they are afraid to take disciplinary action or report men flagrantly ignoring instructions and even sleeping during working hours".

Committee's observation.

249. *It is necessary for the efficient and economic working of an undertaking, that there should be complete understanding and co-operation between its labour and management. This is all the more essential during the present emergency. The Committee were glad to be informed during evidence that the position had improved during the last two months. The Committee hope that the improvement will be kept up and the differences such as there may be between the management and labour will soon disappear completely to make room for a friendly and cooperative endeavour in the best interest of the country.*

I. *Works Committees:*

250. The Committee were told that nominated Production Committees had been set up in certain Departments at Bhopal. Elected Committees would be set up as soon as the question of recognition of Labour Union had been decided.

Setting up of elected Works Committees.

251. The Consultants have observed that "a lack of a regular means by which management can keep workers informed of its plans, and the reasons for necessary or desirable actions, and by which the workers can discuss with the management their grievances (real or fancied) and aspirations, results in a growing sense of distrust in the minds of the workers as to the aims and motives of the management towards them". *Such communication is now widely accepted as the key to all good management. The Committee trust that elected Works Committees would soon be set up in all Departments of the factory and made an active instrument for the democratic administration of labour matters.*

IX

OTHER PROJECTS

252. As stated in para 1, besides the Bhopal Project, HEL has been entrusted with the task of establishing two more heavy electrical equipment factories. One of them will be set up at Ranipur near Hardwar in U.P. with Soviet assistance by utilising a portion of the 1,500 million rouble credit extended by the USSR Government. The second will be set up at Ramachandrapuram near Hyderabad (Andhra Pradesh) with assistance from Czechoslovakia by utilising a portion of the credit of Rs. 23·1 crores extended by that Government. A high pressure boiler plant, to be set up at Tiruchirapalli (Madras State) with Czech assistance, has also been entrusted to it.

A. *Production Programme*:

253. The table below gives the original production programme, the year of commissioning and the estimated cost of each of these plants:

	Production programme	Year of commissioning	Estimated cost (Rs. in crores)
1. Heavy Electrical Equipment Plant, Ranipur, Hardwar. (Soviet collaboration)	(1) Steam turbines and turbo alternators upto 200 MW 1·5 million KW (2) Hydro turbines and Generators upto 100 MW—1·2 million KW. (3) Industrial Motors—0·5 million KW.	Early, 1966	Not received.
2. Heavy Power Equipment Plant, Ramachandrapuram, Hyderabad. (Czech collaboration).	Steam turbines and turbo alternators 12, 25 and 60 MW units—0·62 million KW.	Mid, 1965	34·17
3. High Pressure Boiler Plant, Tiruchirapalli, Madras. (Czech collaboration)	High Pressure boilers of all sizes—2400 tons of steam per hour or 0·6 million KW.	Early, 1965	22·55

B. *Progress of Work:*

254. Agreements were concluded with M/s. Technoexport of Czechoslovakia on 7th June, 1961 for the preparation of detailed project reports pertaining to the High Pressure Boiler Plant (Tiruchirapalli) and the Heavy Power Equipment Plant (Hyderabad). The project reports were received on 27th August, 1962 and 21st September, 1962 respectively and are under examination by Government. As regards the Heavy Electrical Equipment Plant at Hardwar, the agreement for the preparation of detailed project report was signed in May 1962 and the report is expected in May, 1963. In the meantime, a field organisation under the charge of a Project Engineer has been set up at each of these projects. The construction work in the field, site levelling, drainage etc. were started from May, 1962 onwards. Construction of the Training School, Workshop and Hostel buildings is in progress at all places.

C. *Splitting up of the Projects being set up with Czech Collaboration:*

Background.

255. The Committee were informed that originally the Heavy Power Equipment Plant and the High Pressure Boiler Plant, to be set up under Czech assistance, were proposed to be planned and located at the same site by providing common services and facilities so that the plant and equipment produced in these factories received a better and co-ordinated attention. Subsequently, in the discussions between the Technical Committee, appointed to recommend the location of the new heavy electrical plants and the Czech specialists, the latter expressed the opinion that in the light of future developments involving doubling of the capacity of each of the two plants and inclusion of the coal and ash handling equipment, the duplication of services, such as gas supply, electric power, steam, oxygen, etc., would become inevitable. They were also of the view that a single management would not be able to cope up with the large volume of supervisory work and the technological processes at the two plants were also totally different from each other. Further, the location of the two plants at different sites could be expected to make for speedier development of the two plants. Considering the advantages in having two independent and compact units, rather than one organisation, the Technical Committee recommended the location of Heavy Power Equipment Plant and the High Pressure Boiler Plant at different sites. The additional cost in providing completely independent services and other facilities for the two plants at separate sites, was assessed by the Technical Committee at approximately Rs. 50 to 60 lakhs. Government accepted the recommendation of the Technical Committee and decided to locate the two units separately.

256. During evidence, the Committee were informed that the Ministry of Finance was not consulted before deciding to split up the project. *While the splitting up of an integrated project offered by Czechs might have been justified in the present case on technical and other grounds, it would have been desirable if the financial implications of locating the plants at two separate places had also been examined in consultation with the Ministry of Finance before taking a final decision in the matter.* **Committee's observation.**

D. *Hyderabad Plant*:

257. The Committee were informed that in view of the sharp increase in the demand for electricity and the advantage in building large-size thermal stations near the collieries, it had been decided to increase the capacity of the equipment to be manufactured at Hyderabad from 12, 25 or 60 M.W. to nearly 100 M.W. **Decision to increase capacity.**

258. *The Committee are surprised to note that changes in the size of equipment to be produced at Hyderabad are being made so soon after the project was sanctioned and immediately after receipt of the project report from the Czech Collaborators. It clearly indicates that the project have been conceived hastily. The change would also delay the execution of the project as it might necessitate preparation of fresh blue-prints for the factory, structural changes in the designs and heavier foundations for the factory buildings. The time and money already spent on the preparation of the earlier project report might also be rendered infructuous.* **Committee's observation.**

259. The Committee were told that the Tiruchirapalli Project had already been sanctioned and that the Hyderabad Project was still under consideration. Originally the intention was to manufacture at Hyderabad the generator sets for the boilers to be produced at Trichy. It had now been decided to produce them either at Bhopal or Hardwar. *It would thus be seen that the original idea of co-ordinating the production of Tiruchirapalli and Hyderabad Projects has been abandoned.* **Original idea of co-ordinating production abandoned.**

E. *Rationalisation of Unit Sizes*:

260. The Committee were assured that the production programmes of all the three heavy electrical factories at Bhopal, Hardwar and Hyderabad would be closely co-ordinated with a view to rationalising the unit sizes to be manufactured at each one of them. *They trust that the orders for the supply of equipment produced at these factories would be coordinated and distributed in such a way that customers of one region would be able to ob-*

tain all their requirements from that region. This would facilitate speedier repair and replacement of parts in the event of breakdowns.

F. *Boiler Plant*:

Placing it under HEL.

261. On enquiry why the setting up of the Boiler Plant, involving a different technological process, has been entrusted to HEL, the representative of the Ministry stated that the reasons were historical. It was true that a concern manufacturing electric machinery would not normally manufacture boilers also. The Committee note that in this context the Heavy Electrical Equipment Project Enquiry Committee (1955) observed as follows:

> "The manufacture of boilers does not fall within the scope of the electrical industry. The subject, however, is of sufficient importance to merit separate consideration by Government."

Desirability of setting up separate organisation to be examined.

262. *The Committee consider that the placing of the Boiler Plant under Heavy Electricals had some justification originally when it formed an integral part of the Heavy Power Equipment Project. But after it was decided to split it up into two separate plants, it was not, perhaps, necessary to continue the original arrangement especially when it involved different technical processes. The Committee urge that Government may examine whether it would be desirable to set up a separate organisation for the administration of the Boiler Plant.*

G. *Foundry Forge Palnt*:

Proposal of HEL.

263. The Committee were informed that HEL proposed to set up a foundry forge plant of its own for the manufacture of heavy castings and forges required for the three heavy electrical plants. For this purpose, it had also prepared a preliminary report. During evidence, it was stated that Government were examining as to what portion of HEL requirements could be met by the Heavy Engineering Corporation, Ranchi, and the foundry forge plants coming up in the private sector. The Committee were told that it was intended that the Heavy Engineering Corporation would provide castings and forges for a number of heavy electrical industries, including the Heavy Electricals.

Views of the Committee.

264. *The Committee are unable to appreciate why the HEL thought of setting up its own foundry forge plant at all when there was already an organisation in the public sector for this purpose If any additional production in this field has to be organised, it should obviously be done by the Heavy Engineering Corporation which is already in the line and possesses the necessary technical 'know how'.*

In this connection, the Committee would invite a reference to the recommendation made in the 80th Report (Second Lok Sabha) that the existing organisation should be utilised to take up new activities in the line instead of entrusting it to new bodies. They recommend that if any additional foundry forge plant is necessary, it should be set up by Heavy Engineering Corporation and not by the Heavy Electricals.

H. *Project Reports*:

Outlines of auxiliary shops prepared by Consultants.

265. The members of Sub-Committee of the Estimates Committee on Public Undertakings examined the detailed project reports submitted by Messrs. Techno-export (Czechoslovakia) for the Heavy Power Equipment Plant and the Boiler Plant. *They were surprised to find that, besides the outlines of the main sections of the Plants, the Project Reports also contained outlines for all auxiliary shops (e.g. carpenter's shop, oxygen house) and wood storage, coke yard, garages and fire stations, locomotive shed, kitchen and dining room, cycle stand, car parking garages, parking places and bus stand.* It was explained that the consultants were asked to prepare layout plans and designs of the factory only and all civil engineering work was to be done by the HEL itself*. The East European countries were accustomed to plan their Projects in rigid details and they found it very difficult to do a part of the job. Further, for determining the cost of the project, which had to be indicated in the detailed project report, the consultants had to prepare outlines of all items forming parts of a project. It was also stated that HEL had not paid for the preparation of outlines for auxiliary shops, etc.

Collaboration only for main sections of plants suggested.

266. *The Committee do not appreciate how foreign consultants would do any work which is not expected of them or for which they are not paid. If HEL itself had prepared and furnished to the Consultants the outlines and the designs of the auxiliary shops etc. together with the data on which they were based, they do not see what objection they could have taken to it. The initiative should have been taken by HEL. That apparently was not done. The Committee consider that the assistance of foreign collaborators should be sought only for planning and designing the main sections of the projects for which 'know-how' is not available in the country. For the rest the consultants may be asked to indicate their requirements on*

*At the time of factual verification of the Report it was stated that the Consultants had only shown the line diagrams of the location of various shops etc. together with other data necessary for making detailed structural drawings and foundation designs and drawings. The latter were all done in the Design Office of HEL at Hyderabad for both Tiruchirpalli and Hyderabad Projects.

the basis of which the planning, designing and construction of auxiliary shops etc. could be undertaken by Indians. Besides effecting considerable economy, this would reduce the dependence on foreign collaborators and instil the necessary confidence in our men. The Committee hope that Government would issue suitable instructions in this matter for compliance by all undertakings in the public sector. In this connection, a reference is also invited to paras 76—78 of their 32nd Report (3rd Lok Sabha) on N.C.D.C.

Design Organisation.

267. The Committee were told that HEL was organising its own design bureau and in future the appointment of consultants for heavy electrical industry may not be necessary. *They hope that the proposed design organisation would be set up at an early date.*

I. *Central Consultancy Organisation:*

268. The Committee discussed the desirability of setting up a Central Consultancy Organisation for the public sector projects. They were told that Government was thinking of setting up such an organisation. A beginning had been made with the organisation of a Consultancy Bureau in the National Industrial Development Corporation. But it would take some time to build up a cadre of engineers for the Central Organisation.

Setting up suggested.

269. *With the emphasis placed on rapid industrialisation, many new projects are likely to be set up in the public sector during the Third and subsequent Five-Year Plans. It is seen that in some of the existing industries certain amount of experience has been gained and the technology is well-known, for instance fertilisers, sugar, cement, textiles, steel, etc. Already consultancy service is available in regard to some of these. There is need for pooling all these experiences and developing a strong central consultancy organisation. The idea should be to minimise the dependence on foreign consultants and the expenditure on foreign exchange as far as possible. The Committee trust that the proposed Central Consultancy Organisation would be built up as early as possible.*

X

MISCELLANEOUS

A. *Location of the Project at Bhopal:*

Recommendations of Siting Committee.

270. A siting committee comprising of A.E.I. experts and Central Government officials was formed to select a site for the first heavy electrical factory. The Committee examined 14 sites and, after taking into account the climatic conditions, bearing capacity of soil, availability of raw materials and distribution of finished products, transport, water supply, power supply, drainage, labour conditions, social amenities, etc., recommended the following three sites as most suitable for the establishment of a heavy electrical equipment factory:

(1) Barkakhana, Bihar;

(2) Bhopal city, (M.P.); and

(3) Antergaon, Hyderabad (Dn.).

271. After a consideration of the various factors, the site at Bhopal was decided upon as the best location.

Expenditure incurred on removing black cotton soil.

272. The Committee find that additional expenditure of Rs. 18 lakhs had to be incurred at Bhopal for removing black cotton soil and providing deeper foundations in Blocks I and II. It was stated that it was impossible to get such a large area of land where rock could be uniformally available at a reasonable depth throughout. The extra expenditure was, therefore, not unusual.

Need for laying down guiding principles.

273. The Committee were informed during evidence that Government had not laid down any criteria for the selection of sites for the Public Sector Projects. With the experience at Bhopal and with the indications given by A.E.I. in the Project Report, some basic considerations had emerged which were kept in view while selecting sites for the new Projects of H.E.L. *The Committee suggest that Government might lay down broad principles to guide in the selection of sites for factories in future. These principles may, apart from availability of power and water supply, raw materials and transport include expert opinion on foundations and soil conditions.*

B. *Power Supply:*

Agreement not reached with State

274. The Committee understand that final agreement has not yet been reached between the H.E.L. and the Madhya Pradesh State Electricity Board regarding the rates of power supply. Further, as against the demand of 15,000 KW

Electricity Board. indicated to the Electricity Board, the H.E.L. is taking less than 3,300 KW. During evidence, it was stated that the peak demand of H.E.L. would come up only when the production of turbines commenced. As regards the agreement, it was stated that originally the electric supply had been promised on no-profit—no-loss basis but the Electricity Board now proposed to charge the cost of distribution also.

Suggestions of the Committee. 275. *Obviously it is not desirable for H.E.L. to reserve a large quantum of power, not immediately required by it and prevent the quantity in excess of its own needs from being diverted to other needy consumers in the area. The Committee suggest that H.E.L. should prepare a firm schedule of its demand from time to time.*

276. *They further suggest that to avoid any dispute later on, the rates of power and water supply should be firmly settled at the time of deciding the location of a Project in a State.*

C. *Township*:

(1) Estimated Cost. 277. The original estimates of the township at Bhopal was Rs. 9 crores. According to the revised estimate, the township with 15,440 quarters is expected to cost Rs. 16·40 crores. This may go up to Rs. 19 crores, if the expansion of the Project to Rs. 50 crores output is sanctioned. Out of 6,920 quarters included in Phase I, 5,720 had been completed upto 31st March, 1962 and the remaining 1,200 quarters were under construction. In addition, construction of 2,000 quarters for Phase II has recently been sanctioned by Government. Of this, the construction of 1,000 quarters has been stopped due to the present emergency. Total expenditure on the township amounted to Rs. 6.76 crores upto 31st March, 1962.

Justification for higher cost. 278. It was stated that H.E.L. had to incur the high cost on township, because it had to lay a completely new township with all Municipal services in a "jungle" area. Further, housing problem being acute in the area, they had to provide housing on an extensive scale. A number of social amenities had also to be provided for the employees.

Comparative cost of townships. 279. The table below gives the comparative cost of the townships at the three Steel Plants, where conditions were more or less similar, and H.E.L. Bhopal, as also the total capital investment on these projects.

(*Rs.in crores*)

	Cost of Township (1)	Total investment (2)	Percentage of (1) to (2) (3)
1. Durgapur	17·29	189·20	9·1
2. Bhilai	15·17	202·34	7·4
3. Rourkela	14·33	224·39	6·3
4. HEL, Bhopal	9·00	49·70	18·0

280. *It would thus be seen that even at present the cost of township at Bhopal is disproportionately high and works out to as much as 18 per cent. of the total investment on the project as against 6 to 9 per cent. at the three Steel Plants. This high ratio may be considerably worsened should the revised programme for an additional outlay of Rs. 7·40 crores on township be taken up. During their visit to Bhopal the Study Group of the Committee gathered the impression that the Bhopal township was very sprawling and lacked compactness. It is very essential that the cost on the township is kept to the absolute minimum. It should also bear a reasonable proportion to the total cost of the Project. The Committee recommend that utmost economy should be exercised in this regard.* **Cost to be kept to absolute minimum.**

281. The Committee note that a Middle School at Bhopal cost Rs. 1·08 lakhs, Secondary School Rs. 5 lakhs, Primary-*cum*-Kindergarten School Rs. 0·75 lakh and the Community Centre, Assembly Hall and Auditorium Rs. 9·15 lakhs. *The above buildings are on a very lavish scale. Such a heavy expenditure is hardly justified. There is, therefore, need for practising utmost austerity in such matters. The Committee trust that this aspect would be borne in mind while sanctioning the construction of townships at the new projects.* **(ii) Non-residential Buildings.**

282. *The Committee would like to make the following other suggestions in this regard:* **(iii) Other suggestions**

(1) *The layout of the townships should be compact so as to avoid extra expenditure on roads, electric wires, water mains, sewage, etc.;*

(2) *The desirability of changing the designs and specifications of residential buildings, particularly those for the use of higher officers, may be examined with a view to reducing their cost; and*

(3) *The construction of the township should be according to a phased programme which should bear some proportion to actual requirements. In the initial stages, the construction of the factory should be given higher priority. The housing designs may be simpler and cheaper, so as to bring down the ratio of cost on township to a reasonable level.*

283. *Maintenance Expenditure.*—During the year 1961-62 the total expenditure on the upkeep and maintenance of the Bhopal township amounted to Rs. 7·77 lakhs while the total rent recovered (including electricity charges) amounted to Rs. 7·78 lakhs. It would thus be seen that the rent recovered is just sufficient to meet the maintenance charges. The maintenance charges are high and need to be brought down. **(iv) Incidence of cost of township on production.**

Financial assistance under subsidised housing scheme.

284. It was represented to the Committee that the cost of the township was considerably in excess of what a private undertaking would have spent. In consequence, the interest payable by H.E.L. on the loan taken from Government for the construction of the township was a big drag on its resources and added to its cost of production. It had approached Government for an interest-free loan for the township repayable in 25 years but the request had not been acceded to. *The Committee were surprised that the undertaking had not taken advantage of the financial assistance and subsidy available to industrial employers under the subsidised industrial housing scheme. They hope that it would now utilise the assistance available under this scheme.*

Committee's suggestion.

285. *The Committee also suggest that Government might examine the general question of the incidence of cost of townships on the cost of production of industrial undertakings in the public sector, and examine to what extent relief could be given by way of lower rate of interest on the investment in townships.*

Interspersing of houses of various categories suggested.

286. The Committee would also like to refer to the recommendation contained in their 84th Report (Second Lok Sabha) that the houses for different categories of employees should be interspersed in the same block/area so as to eliminate class-consciousness, disguised or otherwise. Sharing of common amenities like schools, play-grounds, recreation centres, dispensaries, canteens, shopping centres would tend to create a feeling of belonging to a common family among employees of different categories serving the Company. *They trust that H.E.L. would implement this recommendation in its projects as far as possible.*

D. *Research:*

287. A Technical Services Department has been organised by H.E.L. for the testing of raw materials. The equipment produced is tested by the Manufacturing Departments concerned for which adequate test equipment is stated to have been provided in each factory block. A short circuit laboratory is also proposed to be set up by Government (C.W. & P.C.) at Bhopal at a site adjacent to the factory. The facilities at this Laboratory would be available to the company. As regards long-term research, the Chairman of H.E.L. stated that they proposed to take it up after the industry had developed to some extent. *The Committee trust that this matter would receive the attention of Government and H.E.L. at the appropriate time. They suggest that in the meantime, H.E.L. might sponsor research on problems of immediate importance to it in any of the National Laboratories or Engineering Colleges by meeting a part of the expenditure from its funds, if necessary.*

XI

CONCLUSION

288. In the setting up of the heavy electrical industry, the Ministry and the Project authorities were faced with a difficult task. It was envisaged for the industry that it will play a very vital role in the future industrialisation of the country. For the first time an industry of this type and of this magnitude was being set up in the country. The Project called for quick decisions on complicated questions of policy, planning and execution. It involved leadership and technical know-how of a very high order. The Committee undertook an examination of this project even though it was in the process of completion, just with a view to ascertain what difficulties and problems such an undertaking would encounter in that process, how they were faced and how far those were avoidable in similar projects.

289. The nature and magnitude of the project called for much courage, determination, talent and organising ability which, the Committee note, have been brought to bear by the Ministry and H.E.L. in a large measure in grappling with the difficult task. At the same time, in the course of their examination, the Committee have noticed several disquieting features in the handling and implementation of the Project. The more important of these are briefly given below:

(1) *Planning.*—Procrastination is the thief of time. This is the first lesson to be drawn from this project. The setting up of basic industries should not be delayed once the need therefor has been recognised. In the present case the need for such an industry was felt as far back as 1946 but it did not go beyond the stage of examination by Committees till 1955. There is little doubt that much valuable time was lost by this vacillation and delay. Project reports were invited in 1949 but the matter was dropped on the ground of financial stringency though certain other projects were taken up during that time. In 1952 the Planning Commission included the Project in the First Five-Year Plan and agreed to allocate funds for the purpose but apparently the matter was not vigorously pursued. Project reports were again invited in 1954 but they were not proceeded with. On the other hand, a reassessment of the demand for heavy electrical equipment in the country was embarked upon. Had the decision to set up the factory been taken in 1949, there is little doubt that by 1953 the Project would have gone into production and provided the country with heavy electrical equipment at a time when it

was badly needed for the power projects, thus saving valuable foreign exchange. It would also have by now provided the country with necessary technical know-how which would have been valuable for the future projects.

(2) *Changes in Productive Capacity.*—The second lesson to be drawn from this Project is that the target of production once set should not be changed, least of all during the stage of construction. Such changes involve large machinery, more men, bigger buildings, heavier cost and above all they hold up the progress. In the present case the targets have been changed thrice. Originally the factory was planned for an ultimate annual production of Rs. 12·5 crores. Before the work on the project had hardly begun, it was decided to phase it and defer parts of it owing to foreign exchange difficulties. Soon thereafter it was decided to revert to the original target of Rs. 12·5 crores output and to execute the project in its entirety. By the middle of 1959, it was decided to increase the output to Rs. 25 crores per annum. It is now understood that Government have under contemplation the expansion of the project to an annual output of Rs. 50 crores.

(3) *Commissioning of the Project.*—The third lesson to be drawn is that once the project is taken up for execution, the shortages of constructional materials like steel should not be allowed to come in the way of its timely implementation. Of the four factory blocks at Bhopal, two are still under construction which are stated to have been delayed by about two years. Delayed construction leads to delayed output and increased cost. It also necessitates imports of equipment included in the manufacturing programme of the concern, which consume valuable foreign exchange.

(4) *Production.*—The fourth lesson to be drawn from this project is that the procurement of raw materials and components, which constitute about 50 per cent. of the value of output, should be planned well ahead of production and related to requirements. It is not wise to indent for the components and materials after the orders for the supply of equipment have been booked. Such a procedure will only delay production and timely execution of orders which lead to further delay in the execution of developmental programmes of the customers.

During 1961-62 the production of finished goods at Bhopal amounted to Rs. 13·17 lakhs, excluding works-in-progress and constructional works amounting to Rs. 164·30 lakhs, as against a target of Rs. 2·9 crores. Even if the entire works-in-progress are taken into account, the production works out to 61·2 per cent. of the target. When compared to the capital investment of Rs. 30·10 crores in the project upto March, 1962 the production works out to only 5·8 per cent. It is understood that on an investment of Rs. 37 crores so far, the output (Rs. 3·5 crores) during 1962-63 would be about 10 per cent.

(5) *Plant and Machinery.*—The fifth lesson is that adequate foreign exchange or credit facilities should be ensured before sanctioning a project of such magnitude. It is estimated that in the present day conditions the cost of imported machinery goes up every year by about 7½ per cent In the present case though the project was sanctioned in 1957, orders for plant and machinery could not be placed till April, 1959 due to the time taken in finalising credit arrangements.

(6) *Estimates of Cost.*—The sixth lesson is that firm and complete estimates of cost must always be asked for from the Consultants. In the present case, when the project was approved by the Cabinet in June 1955, two estimates were before them. Siemens had estimated a capital investment of Rs. 10 crores for an annual output of Rs. 10 crores while A.E.I. had indicated a capital investment of Rs. 15·9 crores for an annual output of Rs. 14 crores. A.E.I. were appointed as Consultants in preference to Siemens because the estimates of the latter were considered to be unrealistic. In actual fact the estimates of A.E.I. proved to be equally unrealistic as the project report submitted by them in November, 1956 raised the estimates for comparable items by 77 per cent. (from Rs. 15·9 crores to Rs. 28·16 crores) all in a period of about 18 months.

Further the estimates of A.E.I. submitted in 1956 did not include the estimates of important items like customs duty, purchase commission, hostel for trainees and townships amounting to Rs. 11·45 crores.

(7) *Investment-output ratio.*—The seventh lesson is that the economics of a Project should be thoroughly examined before it is undertaken. This goes to the very essence of its economic working. The minimum ratio of investment to output that one expects in an undertaking of this nature is 1 : 1. At Bhopal the investment-output ratio with an annual output of Rs. 12·5 crores was 3·9 : 1 and would be 2:6 : 1 for an annual output of Rs. 25 crores.

(8) *Agreements.*—The eighth lesson is that draft agreements to be entered into with foreign collaborators should be examined by a special cell in Government to achieve uniformity in the terms and conditions of Consultants and to ensure that there were no unusual provisions in the agreements. In the case of Bhopal, there was a dispute regarding the additional payment of fees to the subsidiary consultants and the payment of income-tax by AEI. The number of specialists to be deputed at Bhopal had also not been determined in advance. There was also no upper limit laid down as regards the expenditure to be met by HEL on this account.

(9) *Organisation.*—Lastly, the success of a project depends on the men who work it. The Board of Directors must provide leadership, direction and guidance. The management, while it should be dynamic, must be so organised that it does not throw its burden on one man at the top. In HEL the Board of Directors consists of officials only, none of whom has had any previous experience of heavy electrical industry. The powers that have been delegated to the Resident Director are not within the normal span of control of one individual. There could be further delegation.

A senior Financial Adviser was not appointed in the initial stages with the result that there were arrears in accounts and the accounting procedure came up for criticism by Audit.

290. *The Committee consider it necessary that in order to avoid the defects in planning, execution of the projects, organisation and construction, selection of personnel for the top posts, particularly the Chairman, Managing Director, Financial Adviser and Works Manager, should as far as possible, be made from among the existing successful undertakings so that they could bring to bear their experience and knowledge in the field. This, in the Committee's view, would help avoiding the pitfalls and overcoming the difficulties that generally occur in the early stages. They trust that this matter would receive earnest attention of Government.*

291. *The Committee also consider it desirable that Government should prepare a Handbook on Public Undertakings for the guidance of Project authorities. The proposed Handbook might contain among other things directions, instructions and decisions of Givernment on all important matters relating to the organisation and administration of industrial undertakings, e.g. agreements with foreign collaborators, siting of projects, organisation, procedure for recruitment, training, scales of pay, employment of foreign specialists and retired personnel, delegation of powers, relationship with Government, accountability to Parliament, maintenance of accounts, procurement of plant and machinery and raw materials and components, pricing policy and research.*

292. *The Committee further suggest that the heads of various undertakings in the public sector should meet at intervals to exchange views and discuss common problems with a set agenda.*

NEW DELHI;
5th April, 1963.
Chaitra 15, 1885 (S)

H. C. DASAPPA,
Chairman,
Estimates Committee.

APPENDIX I

(*Vide* paragraph 17)

Comparative Statement of the terms of Siemens, Associated Electrical Industries and English Electric Company.

The terms of English Electric are distinctly higher than those of Siemens and Associated Electrical Industries. The terms of Siemens and AEI only have therefore been compared in detail first.

2. *Consultants fee.*—Siemens have asked for a Consultants' fee of 4·5 per cent on the capital investment estimated at Rs. 10 crores, while AEI's demand is for a lump sum payment of Rs. 46·5 lakhs (in sterling). On the AEI's estimate of the capital investment, Rs. 15·9 crores, this works out at just below 3 per cent. The estimates of capital investment however are essentially tentative and are also based on assumptions which vary between wide limits in the matter of layout, machinery and equipment, production programme, etc. In fact it seems likely that Siemen's is an underestimate and the actual investment may be considerably higher; the percentage in the two cases would therefore provide a more correct basis for comparison, and the figures of Siemens & AEI are 4·5 and 3 respectively, AEI having a ceiling of Rs. 46·5 lakhs.

3. *Procurement of Equipment.*—AEI will make a charge of 3 per cent on the value of such non-standard equipment as calls for the preparation of detailed design drawings and purchasing specifications. This work however will be very limited in extent and the total payment will certainly not exceed Rs. 12 lakhs and may well be conisderably lower. Similarly, if AEI are required to act as purchasing agents of Government, the charge will be 5 per cent of the value of equipment. It is however not intended that any purchases should be made except by the Government direct.

Siemens have indicated that in respect of certain equipment they have developed special designs which they are interested in keeping confidential. Offers for such equipment should be obtained only from 2 or 3 firms selected in consultation with Siemens and the equipment purchased only from one of those firms. The purchase therefore will be on the basis of limited tenders.

4. *Capital investment.*—There is a very considerable difference between the estimates of capital investment by Siemns and AEI, the figures being Rs. 10 crores and Rs. 15·9 crores respectively. There is reason to think that the estimate of Siemens is unduly low and that of AEI more realistic. AEI have the advantage of having prepared a detailed project report in 1949 for which a comprehensive study had to be undertaken by them. Moreover, in another

respect, namely the time required for commencement of production, the estimate of Siemens has been established to be too low and a similar "error" is not unlikely in the estimate of investment. Siemens indicated that in one section of the factory it would be possible to commence production in 2 years from the selection of the site but they had to concede in discussion that allowing for civil engineering work, ordering of machinery, obtaining delivery, etc., this was unrealistic and the period could not be less than 5 years.

It has also to be noted that the annual output estimated by Siemens is only Rs. 10 crores as against AEI's Rs. 14 crores and Siemens have indicated that if the output were to be of the order of Rs. 14 crores, the capital investment would require to be increased in more or less the same proportion.

In all the circumstances, it would be safer to assume the AEI's estimate to be more accurate and to regard that of Siemens as an under-estimate which is likely to be exceeded in practice.

5. *Personnel.*—The position is the same in respect of the estimates of the personnel required, the figures of Siemens and AEI being 6,500 and 12,200 respectively. These figures have been worked out on an assumed factor of efficiency as between foreign and Indian workers and the factor taken by Siemens appears to be more favourable to Indian personnel than is justified. Moreover, AEI have experience of their factory in this country and of the local conditions in general and might be expected to arrive at a more reliable estimate than Siemens who have of necessity been guided by somewhat theoretical considerations. The output assumed by Siemens namely Rs. 10 crores per year is also, as noted already, lower than that of AEI's which is Rs. 14 crores per year, and for the latter output the strength of personnel required must be higher.

6. *Service Charges.*—The difference under this head is the most noticeable. AEI ask only for 2½ per cent of the sales value of the products except hydraulic turbines (subsidiary collaboration) in which the charge will be £7500 per year for 2 years and later 5 per cent. This payment will be subject to Indian income tax so that the net payment will be about 1¼ per cent for the bulk of the products. Siemens on the other hand demand (a) lump sum payments totalling Rs. 29·12 lakhs (in D.M. free of tax) as the manufacture of products is undertaken and (b) service charge on the sales value of the products varying from 3 to 7 per cent free of Indian Income tax. The average service charge will be 4·5 per cent. excluding hydraulic turbines for which the figure will be 6.7 per cent. Under this head therefore the terms of Siemens involve an additional payment of nearly Rs. 30 lakhs and an annual charge on the sales of the products of over 4·5 per cent. as against about 1¼ per cent.

In addition while AEI are agreeable to the period of the contract being 15 years, Siemens ask for a much longer period. Their first preference is for the main contract being 15 years with the individual licence contracts for the different products also for 15 years

from the time of conclusion of such contracts, which in some cases will be 10 or 11 years from the signing of the main agreement. In the alternative, that is, if the period of the agreement and of the individual licence contracts is to be co-terminus, they would want the period of the contract to be 25 years, if the output of the factory is less than Rs. 7·5 crores in the tenth year from the signing of the agreement or 20 years if the output is Rs. 7·5 crores or more in that year. The result would be that the service charge which is at a much higher rate than AEI's would have to be paid for five years or possibly ten more years than in the case of AEI.

7. Siemens also stipulate that the Technical Manager and the Assistant Commercial Manager of the factory and certain other experts should be nominated by Siemens. They maintain that otherwise it would not be possible for the factory to be established and to be operated in a satisfactory manner.

8. As regards fianancial participation also, the proposition of AEI is more favourable than that of Siemens while EE. have not made any such offer at all. Siemens' "investment" is limited to the value of electrical equipment for the factory ordered from them and is repayable with interest varying from 3 to 6%. They also imply that if the value of the "shares" appreciates in the meanwhile, they should receive the increased value. Further, they desire to be given representation on the Board of Directors of the factory. This position is hardly tenable as the participation consists essentially of a loan at a specified rate of interest and is repayable in full. AEI on the other hand ask for only 3½% interst on the loan subject to Indian income tax. The amount will consist of (i) £300,000 taken from the lump sum payment due to them as Consultants (£350,000) and (ii) 10% of payments made to AEI for 10 year for orders received from India for equipment manufactured in AEI's U.K. factories and covered by the manufacturing schedule of the State factory.

9. As regards English Electric Co. their terms are clearly out of line with those of Siemens and AEI. They desire a lump sum payment of 6% on the capital investment as Consultants' fee and in addition 5% purchasing fee on the purchase of machines and equipment of which 80% if not all must be purchased through them. Again, for the manufacture of products, the licence fee required by them is £250,000 (this they state is the maximum figure) and a service charge of 3% on the sales value of the products, the latter being subject to a minimum of £100,000 to £200,000 per year in different years. The period of the Agreement should also be 20 years according to them, although they are considering reducing it to 15 years.

APPENDIX II

(*Vide* paragraph 57)

Basis of Charges for Technical Specialists

(Applicable to men whose tour of duty in India is expected to be 12 months or more)

A. EMOLUMENTS	*Senior Engineers*	*General Engineers*
1. U.K. Basic Salary	£1800-2700 p.a.	£800-1799 p.a.
2. Overseas Service allowance	50% of the basic salary (1) with a maximum of £1000 p.a.	50% of the basic salary (1)

B. CONTRIBUTION TO AEI OVERHEADS ON ACCOUNT OF GENERAL OVERHEADS COMPANY'S CONTRIBUTION TO PENSION, NATIONAL INSURANCE, PROVISION FOR LEAVE PAY ETC.	*Married*	*Single*	*Married*	*Single*
Percentage of Basic Salary.	98%	61%	112%	61%

C. ITEMS TO BE PROVIDED FREE OF COST BY H.E.P. LTD. OR IF PROVIDED BY A.E.I. LTD. TO BE RECOVERABLE FROM H.E.P. LTD. AT COST

1. Air fares from U.K. to India and return for the technician, his wife and family plus incidental travelling expenses in accordance with the A.E.I. Ltd.'s normal rules.

   First Class Air Travel for technicians whose basic U.K. salary is £1000 p.a. or above. Tourist Class Air Travel for technicians whose basic U.K. salary is below £1000 p.a.

2. Travelling expenses from airport of entry to Bhopal and return for the technician, his wife and family on the basis of first class air-conditioned rail fares or first class air fares, plus incidental travelling expenses in accordance with A.E.I. Ltd.'s normal rules.

3. Travelling expenses in respect of any journeys carried out in India on behalf of H.E.P. on the basis of First Class

Air fares or First Class Air-conditioned rail fares, plus all incidental travelling expenses in accordance with A.E.I.'s normal rules.

4. Furnished Air-conditioned accommodation on a scale to be agreed between A.E.I. Ltd. and H.E.P. Ltd. for the Technician, his wife and family with electricity, hot and and cold water supply, sanitation and use of telephone (subject to the proviso in note 'D' below).

5. Transport as required on the site of work and elsewhere for all journeys made in connection with H.E.P. Ltd.

6. Free medical attendance and treatment for the technician and his family in Bhopal. If any services are not available in Bhopal or services available are, in the opinion of the Resident Consulting Engineer, unsuitable, the Managing Director of H.E.P. Ltd. will have discretion to authorise expenditure for treatment elsewhere.

7. Transport for personal use will be provided on the following basis:

(a) All senior Engineer—married, whose wives are with them in Bhopal—Individual car.

(b) All other Engineers—Cars on the basis of one car per two engineers.

The cars would form a pool under the administrative control of the Resident Consulting Engineer.

D. THE PROVISION OF FREE FURNISHED ACCOMMODATION REFERRED TO IN C(4) ABOVE IS SUBJECT TO THE FOLLOWING CONDITIONS:—

1. Scale of furnishing will be as agreed between the Resident Consulting Engineer and the Managing Director, H.E.P. Ltd.

2. A rental assessed at 2½% of the Technician's basic salary will be payable to H.E.P. Ltd. This will be recovered by deduction from the bills in respect of the man's services.

3. Supply of electricity will be free up to a limit to scales agreed for each class of quarter between the Resident Consulting Engineer and the Managing Director, H.E.P. Ltd. Any excess consumption over the maximum will be charged for, recovery being made by deduction from bills submitted for the technicians' services.

4. Air-conditioning will normally be provided in one bed-room only, but at the discretion of the Managing Director additional air-conditioning units may be provided in special circumstances.

NOTE.—The rates quoted are based on the assumption that the technician would be exempted from payment of Income-tax in India as a Foreign technician and would not incur any liability to other direct personal taxation such as Wealth Tax, Expenditure Tax, etc. Should liability to direct personal taxation arise the rates would be subject to adjustment so as to leave the technician with the same nett emolument that he would have had, had no tax liability arisen.

APPENDIX III

(*Vide* paragraph 68)

Production Targets as in original Project Report

(Extracts from different pages of the Report—By Financial years)

Products	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Transformers (MVA)	92·90	240·1	377·3	513	651·7	686	686	686	686
Traction motors and control gear—(Sets)	6	15	23	33	40	42	42	42	42
Switchgear-IIKV. Units		150	218	281	375	412	533	629	723
Switchgear-33 KV. Units			4	8	25	33	61	89	105
Switchgear-66 KV. Units			1	2	10	17	30	41	46
Switchegear-132 K.V. Units			1	3	8	14	31	54	69
Switchgear-220 KV. Units				1	2	3	10	15	20
Control gear Industrial units	to suit motors								
Industrial motors-(HP)			4,975	11,375	22,750	35,750	49,750	61,850	65,000
Heavy Rotating Plant (KW)									
(HP)			16,103	42,940	81,586	1,28,820	1,71,760	2,10,500	2,14,700
Water Turbines—KW				7,044	35,220	61,635	96,855	1,46,163	1,76,100
Capacitors—KVAR				11,000	24,300	37,800	48,600	54,000	54,000
Rectifiers—KW.						5,760	34,560	74,880	1,29,600

PRODUCTION TARGETS AS IN ORIGINAL PROJECT REPORT

Output Sales Value in Rupees (lakhs). (Financial Year)

Figures given in table 15.2 of the report refer to years ending July. These have been revised to correspond to financial years.

Products	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Transofrmers	32.25	75.28	118.26	161.25	204.25	215.08	215.08	215.08	215.08						
Traction motors and Control gear	15.61	36.43	57.24	77.07	92.82	104.00	104.00	104.00	104.00						
Switchgear		11.58	21.23	40.59	81.17	115.89	193.20	253.81	301.47						
Control gear (Industrial)		2.73	3.73	12.13	20.50	33.64	50.57	69.69	74.62						
Ind. Motors			7.17	16.58	33.14	52.07	70.02	89.95	94.71						
Heavy Rotating Plant			16.29	45.42	86.65	130.34	173.81	209.11	217.26						
Capacitors				6.94	9.84	14.46	21.09	22.50	22.50						
Water Turbines					37.03	67.13	101.63	152.86	180.62						
Rectifiers						1.02	6.48	14.33	23.07						
Total	47.86	126.02	223.92	359.98	565.40	733.63	935.88	1131.33	1233.33	1391	1579	1766.10	1953.00	2147.00	2187.0

APPENDIX IV

(*Vide* Paragraph 68)

TIME SCHEDULE (ORIGINAL), BHOPAL PROJECT

1956	Training report presented.
	Training report accepted.
	Project report presented.
1957	Project Report accepted.
	Work started on training school and training workshop building.
	Executives hostel ready for occupation.
1958	Construction work started at site for Factory Main drainage on factory site completed. Railway marshalling sidings completed and connections laid to site of factory buildings.
1959	The following buildings ready for installation of plant :—
	(i) Power Station
	(ii) Maintenance department
	(iii) Administration office block 50%
	(iv) Service tunnels
	Work started on installation of power plant and services in tunnels.
	Tool room area ready of installation of plant.
1960	The following sections of buildings ready for installation of plant and equipment :—
	(i) Tool room area 100%
	(ii) Block I—50% (office and fabrication area)
	(iii) Block II—50% (office and light bays)
	(iv) Block III—50% (offices and light bays)
	(v) Administration block—100%
	(vi) Canteen—staff

(vii) Canteen—factory—1 building
viii) Welfare and medical bolck—100%
ix) Personnel block
x) Laboratories and print room

The following production sections equipped and ready for production :—

(i) Fabrication—medium weight
(ii) Transformers—medium sizes
(iii) Traction motors
(iv) Coil forming and insulating
(v) Press department.

1961 January — The following production rates reached as % of programme :—

(i) Transformers 20%
(ii) Traction motors 20%

1963 requirements for components ordered from A.E.I.

1961 July — The following departments built, equipped and ready for production :—

(i) Transformer—coils insulating Block III 100%
(ii) Heavy rotating plant Block II 100%
(iii) Facrication and haevy machinery Block I 100%
(iv) Foundry 100%
(v) Switchgear—Block IV 50%
(vi) Canteens 50%

Production rate increased on :—

(i) Transformers
(ii) Traction motors.

Production started on :—

(i) Switchgear
(ii) Control gear.

1962 January — The following production rates attained as % of programme :—

(i) Transformers 40%
(ii) Traction motors 40%.

(iii) Switchgear . . . 40%
(iv) Control gear . . 5%

1964 requirements for components ordered from A.E.I.

July — The following buildings completed and equipped:—

Switchgear and control gear block 7 100%.

Production increased on :—

(i) Transformers
(ii) Traction motors
(iii) Switchgear
(iv) Control gear.

Production started on :—

(i) Industrial motors
(ii) Heavy rotating. plant

1963 January — The following production rates attained :—

(i)	Transformers . .	60 %
(ii)	Traction motors . .	60 %
(iii)	Switchgear . . .	7½ %
(iv)	Control gear . . .	5 %
(v)	Industrial motors . .	10 %
(iv)	Heavy rotating plant . .	10 %

All buildings and site work complete.
1965 requirements for components ordered from A.E.I.

July — Production increased on :—

(i) Transformers
(ii) Traction motors
(iii) Switchgear
(iv) Control gear
(v) Industrial motors
(vi) Heavy rotating plant.

Production started on :—

(i) Capacitors
(ii) Water turbines.

1964 January . The following production rates achieved :—

(i)	Transformers	80%
(ii)	Traction motors	80%
(iii)	Switchgear	15%
(iv)	Control gear	20%
(v)	Industrial motors	20%
(vi)	Heavy rotating plant	25%
(vii)	Capacitors	25%
(viii)	Water turbines	5%

1966 requirements for components ordered from A.E.I.

Production increased on all products in manufacture.

1965 January . The following proeduction rates acheived :—

(i)	Transformers	100%
(ii)	Traction motors	100%
(iii)	Switchgear	30%
(iv)	Control gear	30%
(v)	Industrial motors	40%
(vi)	Heavy rotating plant	45%
(vii)	Capacitors	50%
(viii)	Water turbines	25%

1967 requirements for components ordered from A.E.I.

[illegible] July Production increased on all products in manufacture still below schedule.

Production started on :—

Rectifiers.

1966 Janufary The following production rates achieved :—

(i)	Transformers	100%
(ii)	Traction motors	100%
(iii)	Switchgear	49%
(iv)	Control gear	50%
(v)	Industrial motors	60%
(vi)	Heavy rotating plant	65%
(vii)	Capacitors	75%
(viii)	Water turbines	40%
(ix)	Rectifiers	5%

1968 requirements for components ordered from A.E.I.

July — Production increased on all product in manufacture still below schedule.

1967 January — The following production rates achieved :—

(i)	Transformers	100%
(ii)	Traction motors	100%
(iii)	Switchgear	70%
(v)	Control gear	75%
(v)	Industrial motors	80%
(vi)	Heavy rotating plant	85%
(vii)	Capacitors	100%
(viii)	Water turnines	60%
(ix)	Rectifiers	30%

1969 requirements for components ordered from A.E.I.

July — Production increased on all products under manufacture still below schedule.

1968 January — The following production rates achieved :—

(i)	Transformers	100%
(ii)	Traction motors	100%
(iii)	Switchgear	90%
(iv)	Control gear	100%
(v)	Industrial motors	100%
(vi)	Heavy rotating plant	100%
(vii)	Capacitors	100%
(viii)	Water turbines	90%
(ix)	Rectifiers	60%

1970 requirements for components ordered from A.E.I.

1969 January — 100% production achieved for all products.

APPENDIX

(*Vide* paragraph

Comparison of physical targets and value of production in 1960-61 *and*

Product	Quantity		Value	
	Original	Supplementary Report	Original	Supplementary Report
1	2	3	4	5
A. *Swirchgear*				
1. 11 KV Indoor BV .	112	300	9.64	
2. 11 KV Isolator B_4 .	8	35	.28	
3. 11 KV Outdoor GPC .	38	75	1.56	120
4. 33 KV Outdoor LGI .	..	75	..	
5. 66 KV Outdoor IG_3 .	..	7	..	
Total for Switchgear .	..	..	11.58	120
6. Control gear to suit Motors	..	..	2.73	30
7. Total for switchgear and controlgear . .	..	..	14.31	150
B. *Transformer*				
8. Transformer MVA .	393	400	107.53	90
9. Capacitor KVAR .	-	18,000	..	10
C. *Traction*				
10. Motors and Controllergear (Sets) . . .	21	10	52.04	40

V

93)

1961-62

(In Rupees Lacs)

Present day sale value of quantity shown in Col. 3	Actual Sold		W.I.P.	H.E.L. manufact-tured components inventory	Total Cols. 8 to 10
	Qty.	Value			
6	7	8	9	10	11
28.50	50	4.17			
1.23					
3.38					
26.25					
3.64					
63.00					
30.00	18	0.21			
93.00	..	4.38	57.41	20.23	82.02
90.00	25	8.37	43.15	2.85	
9.00	1,004	0.42	3.87	0.11	
40.00				0.22	

APPENDIX VI

(*Vide* Paragraph 150)

A note showing the savings effected as a result of modifications made in the design etc. of buildings of Phases I, II and III of the Bhopal Project on the recommendations of COPP and Technical Consultancy Bureau of the National Industrial Development Corporation

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For the Bhopal Project, the Technical Consultancy Bureau of the N.I.D.C. has not given any recommendations, but the COPP Committee made recommendations in favour of—

(i) design of steel structures on the basis of indeterminate frame analysis,

(ii) welded construction instead of rivetted construction,

(iii) for using single layer of roof sheeting instead of double layer of roof sheeting recommended by the Consultants, and

(iv) designing alternate columns to take the load of jib cranes.

Complete redesign on the basis of indeterminate frame analysis was out of the question for Phases I and II of the Project unless the execution of the project was put back by a year or more; actually both the COPP and ourselves found that such designs were not possible even for the next phase due to the shortage of experienced designers in the country and the time factor.

In regard to adoption of welded construction instead of rivetted construction, the two most experienced tendering firms *viz.*, B. B. J. and Richardson and Cruddas had already tendered for part welding and in view of the time factor, only part welding could be carried out in the 1st contract but more extensive welding was stipulated in the 2nd. It is difficult to state with any degree of accuracy how much saving in steel due to welding can be ascribed as being due to the recommendations of the COPP.

In regard to roof sheetingly, single layer was accepted on the recommendation of the COPP against the advice of our Consultants but after completion of the work, it has been found that during the summer months the working conditions are not comfortable and there have been representations from the workers regarding poor ventilation and excessive heat. We are now examining alternative arrangements such as induced or forced draught of cool air especially in the centre of each Factory Block. The figures of savings, as furnished below, have therefore to be accepted with reserve and may not represent overall savings. (It is added that Messrs. Richardson and Cruddas who have been entrusted

with the work of Phase III have fabricated and erected welded columns, roof trusses etc. on a number of sheds built by them prior to the work at Bhopal).

PHASES I AND II:

CONSTRUCTION OF FACTORY BLOCK

III, IV, V and Maintenance Block

Due to using single layer 'aluminium' sheeting in lieu of double layer of asbestos sheeting and designing alternate columns to take load of jib cranes, following economies could be effected:—

(*Rs. in lakhs*)

(1) Saving in steel work (about 800 tons) Rs. 10.00

(2) Saving due to single layer of aluminium sheeting in lieu of double layer of asbestos sheeting. Rs. 1.13

PHASE III:

CONSTRUCTION OF BLOCKS I, II, & IA

We had stipulated in the tenders that maximum use of welding should be made with a view to economising on steel.

A. Technical Scrutiny Committee consisting of

1. Shri O. S. Murthy, Director (Planning), Railway Board
2. Shri R. Reiser
3. Shri T. S. Vedagiri } Members of COPP
4. Chief Engineer (Civil) of H.E.(I) Ltd.,

was formed to scrutinise designs given by the tenderers for Blocks I & II.

It was decided to use steel welded construction throughout including crane gantry girders upto 50' span to carry a maximum load of 2 x 50 tons cranes, while for other higher capacities rivetted designs for crane girders were accepted. It will be recalled that all crane gantry girders were to be welded in Phases I & II according to the original tender itself and not due to any directive from the COPP.

(1) Due to welded construction and lighter loading due to single layer of asbestos sheeting in roof after allowing for saving in steel due to 50' spacing of columns ... Rs. 4.75 lakhs

(2) Due to single layer of asbestos sheeting instead of double layer of asbestos sheeting ... Rs. 3.50 lakhs

APPENDIX VII

(*Vide* Paragraph 214)

Functions of various Branch Offices, etc.

The Project Administrator at Delhi administerrs the other three projects A skeleton establishment has now been set up at Hardwar. Hyderabad and Tiruchirapalli for carrying out preliminary works. The functions of the other branch offices are as detailed below :—

1. Liaison Office, Bombay	Responsible for the work relating to clearance of materials received in Bombay Port from foreign countries and arranges expeditious despatch of materials ordered on various firms in Bombay. Liaison work with contractors and suppliers.
2. Liaison Office, Calcutta	Responsible mainly for co-ordination work with the office of the Iron and Steel Controller, Coal Controller, etc. and expedites issue of permits, contacts various firms on whom the Iron & Steel Controller has planned steel supplies for us, and expedites execution of purchase orders placed on firms at Calcutta.
3. Liaison Office, Delhi	Responsible for co-ordinationwork with the Ministry of Steel and Heavy Industries, Development Wing/CCI, expedites issue of import licences, technical clearance etc., from the Ministry and Development Wing and clearance of foreign exchange releases.
4. Sales Offices, Delhi & Madras	Liaison work with the local Govern ment and customs. These offices are at present engaged more on liaison work than on sales. As soon as our production is built up and our goods start going into the market, these offices will function as full-fledged Sales Offices.
	The Sales Office, Delhi is part of Administrative Office of H.E. (I) L.

APPENDIX VIII

Summary of Recommendations/Conclusions

Sl. No.	Ref. to para No. of the Report	Summary of Conclusions/Recommendations
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1	11-12	The Committee regret that although Government was conscious of the need for setting up a factory for the manufacture of heavy electrical plant in the country as far back as 1946, its urgency was not fully realised till November, 1955 when a firm decision was taken in the matter. Detailed project reports were obtained from three firms in 1949 but their further consideration was deferred on the ground of financial stringency though certain other projects like D.V.C., Sindri Fertilizers etc. were taken up at that time. The ground of financial stringency does not appear to be convincing in view of the fact that Ms. Westinghouse were prepared to offer a long-term loan to cover the foreign exchange expenditure as also some permanent investment in the factory. Later in 1952, the Planning Commission agreed to include the Project in the First Five-Year Plan, but apparently the matter was not pursued vigorously. Project reports were again invited in 1954 but were not proceeded with. On the other hand, a re-assessment of the demand for and production of such equipment in the country was considered necessary. It is also unfortunate that the terms of reference of the Gadkary Committee included an assessment of the extent to which the requirements of heavy electrical plant could be met from current production and possible expansion of it. In fact, at that time no heavy electrical equipment was being manufactured or had been planned for manufacture by the existing units in the country. Even the assessment of the demand for the heavy electrical equipment made by this Committee did not prove to be of much value as is evident from the fact that within a period of 4 to 5 years thereafter, two more heavy electrical factories had to be planned.

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2	13	It would have been prudent if a decision to set up a factory had been taken in 1949 itself when Govt. had the project reports from three well-known firms before them. That would not only have enabled its being set up economically but also provided the much needed experience in this field. The factory would certainly have gone into production by 1953 thus providing not only the heavy electrical equipment at a time when it was badly needed for the Power Projects, but would also have saved valuable foreign exchange. The expenditure incurred on the preparation of the Project Reports in 1949 and 1954 was also rendered nugatory. It would thus be clear that as a result of this vacillation and delay regarding the setting up of the factory a valuable period of six years. (1949 to 1955) was lost.
3	14	The Committee regret to observe that the report of Dr. Ghosh Committee and the Project reports submitted by foreign electrical manufacturers in 1949 were not made available to them and were stated to have been misplaced due to transfer of work relating to heavy electrical industry between the various Ministries during the last 14 years. They cannot but take a serious view of the matter. The Committee are astonished that documents which ought to be in proper care and custody have not been forthcoming. They hope that earnest efforts would be made to locate these important reports which must have entailed considerable sums of money.
4	20	A.E.I. was stated to have been preferred to Siemens as the estimates of capital investment given by the latter (Rs. 10 crores) was considered to be an underestimate as against the estimate of AEI (Rs. 15·9 crores) which was assumed to be more accurate. In actual fact, however, the estimate of AEI proved to be equally unrealistic as has been discussed in paragraph 141 of the Report.
5	21—23	The total financial obligation of HEL under the agreement with AEI and subsidiary agreements would amount to Rs. 4·66 crores or about 12% of the capital investment of Rs. 40·30 crores. It is, however, seen that the total fee payable to AEI was not clearly brought out in the note submitted to the Cabinet and only the fees, on a percentage basis, were mentioned therein. Evidently, the total committments on this account were not known to the Expert Committee nor was this placed before the Committee of the Cabinet. The Committee are not happy that the approval of the Cabinet should have been obtained for the appointment of consultants on such meagre data fur-

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		nished to them. In a matter like this there should be specific instructions to avoid such situations in future. It is hoped that it will receive due attention.
6	28	The Committee have looked into the commitment made by the Consultants (AEI) in their letter dated 19th June, 1955 that "the lumpsum payment of £400,000 payable to them under the main agreement would not be increased on account of their having to secure collaboration from the subsidiary consultants." They have a feeling that the above commitment was overlooked at the time of entering into the subsidiary consultants' agreement and obtaining Government's approval thereto. This position could not be confirmed as the relevant file of the Ministry is still missing. The Committee agree with the observations of P.A.C. that the matter calls for a thorough investigation and desire that early action should be taken in this behalf.
7	31	Normally it is expected that the foreign exchange necessary for a Project would be made sure of before sanctioning it, especially for project of the magnitude of HEL. Here, it is clear that there was no such prospect at the time of sanctioning the Project. It is not surprising therefore that there was so much delay in arranging for the foreign exchange with the consequential delay in its execution. The committee feel that if that is not made sure of at the time of sanctioning a Project itself, the position from which one can settle the terms of obtaining foreign exchange will be weakened. In the present case, credit arrangements, involving heavy service charges, had to be made with a consortium of British Bankers. It also became necessary to appoint AEI as purchase agents and pay them over Rs. 2 laks for these services. All these must necessarily affect the cost of production.
8	32-33	Under the purchasing agency agreement, the AEI were to be paid the cost of performing the services *plus* ten per cent thereof. The commercial practice is for purchase commission to be expressed as a percentage of the cost of goods purchased. Whatever might be the justification for not specifying the fees in the present cases on this basis, the payment of charges on 'cost plus basis' is not conductive to economy and is open to criticism. The Committee, therefore, recommend that such an arrangement should be avoided.
9	35-36	While in the case of the Bhopal Project there was only one agreement for the preparation of detailed project reports as well as consultancy service, at the other

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		projects the Consultants insisted upon separate agreements for each item with the result that HEL is not aware at this stage of the likely financial commitments to the Consultants.
		The Committee appreciate the difficulties in dealing with countries having different procedures in regard to collaboration. But at the same time it is necessary that Government should have a clear idea of the total payments to be made to the Consultants for a Project before appointing them. Otherwise it would be difficult to determine the reasonableness of their overall fees. They consider that the East European countries which are willing to co-operate may not be averse to indicate approximately their total consultancy charges at the very beginning. The committee trust that Government would do so in future.
10	37	The Committee would recommend that Government should lay down broad principles for determining the reasonableness of fees demanded by the Consultants. The fees should bear a certain ratio to the total estimated cost of a project. In this connection, reference is invited to the Manual of the Association of Consulting Engineers, U.K., which indicates a sliding scale of fees.
11	41	The Committee are constrained to observe that the payments so far made to the Consultants under clause XVI (*a*) (*iv*) have not been related to the progress of the factory, as stipulated in the agreement. Further, it is surprising that the total consultancy fee of £400,000 is due to be paid to them by March 1963 while the, agreement is yet to run for another 8 years (*i.e.*, upto 1970). To sustain the interest of Consultants in their work, as also to ensure timely completion of the Project, it is desirable that the payment is spread over the entire consultancy period—a suggestion to which the Chairman of HEL and the representative of the Ministry agreed. The Committee hope that this aspect would be borne in mind while entering into such agreements for the other Projects in future.
12	42	The Committee recommend that, as far as possible the quantum of payment to consultants should be related to the quantum of work actually done and the legitimate expenses incurred by them. The last instalment should be a substantial one, payable after the plants have been commissioned.

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13	44	The Committee are surprised that from the payment of £ 2,50,000 already made to the Consultants, no income-tax was charged. They also do not understand why the Consultants have objected to the payment of income tax. In their opinion, unless exemption from the payment of income-tax is specifically provided for in an agreement, it should be taken for granted that it has to be paid under the law of the land.
14	44	The Committee suggest that in future the taxation aspect in respect of the consultancy charges payable to the Consultants should be settled in advance and not later on, as otherwise the Consultants are likely to claim exemption.
15	45	The total income-tax deductions from the fee of £400,000 payable to AEI, are estimated to be £25,000. In the circumstances, the raising of their fee by £ 50,000 (from £350,000 to £400,000) to provide for the payment of income-tax which is half of that amount does not appear to be justified. Instead of raising the fee by a fixed amount, it would perhaps have been advantageous to pay the original fee of £350,000 *plus* the amount of tax actually levied in India.
16	52-53	The provision finally included in the agreement (*vide* para 48) is at variance with the draft provision submitted to the Cabinet. From a reading of the draft provision, it would appear that the Consultants were to be responsible to maintain the resident engineer and his assistants in India at their own cost, although it was not specifically mentioned. In the agreement finally concluded, the cost of maintaining this staff was specifically made the responsibility of the Government. The Committee are not aware of the reasons for agreeing to this material change in the agreement after its approval by the Cabinet. They consider that the terms and conditions of such agreements should be clearly specified at the very beginning and should leave no room for ambiguity or a different interpretation later on. The Committee hope that Government would examine this matter and lay down certain broad principles for observance in this regard.

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17	54	The Committee recommend that where the cost of resident engineer, etc., is to be borne by Government, an upper limit for expenditure on the salaries, allowances, etc. of foreign specialists to be employed in a Project should be laid down in all agreements as far as possible, as has been done in the case of the Rourkela Project.
18	56	The Committee consider it necessary that as far as possible a list of foreign staff required to be posted by the Consultants at the various stages of a Project should be broadly determined in advance and included in the agreement so as to avoid any confusion or dispute at a later stage. A phased programme for the replacement of foreign specialists should also be prepared and adhered to as far as possible.
19	60	The Committee doubt whether it is possible to obtain favourable and equitable terms in regard to the employment of foreign specialists after the main agreement with the Consultants has been concluded. Further, any delay in settling the terms thereafter would affect the implementation of the project. What is more, having paid higher remuneration to foreign specialists at one Project, it may be difficult to deny similar terms to the specialists required for the other projects. The Committee therefore recommend that the terms of appointment of foreign specialists should be settled before entering into the consultancy agreement. That would enable the undertakings to get more favourable terms, as was agreeed to by the representative of the Ministry of Financeduring evidence. The Committee hope that this would be borne in mind while entering into agreements for the other projects in future.
20	61	The Committee suggest that instead of providing various facilities to the foreign specialists free of charge, the desirability of paying them a fixed salary, keeping in view the level of salary in their own country, may be examined. In that case the specialists could be asked to pay for all the facilities so that there was no hidden element in the terms of their appointment and the public at large would be aware of what was being paid to them.
21	62	The Committee recommend that Government should lay down broad principles governing the terms and conditions of foreign specialists for adoption by all public undertakings.

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22	64	The Committee consider that reports from consultants at regular intervals, are very necessary and should be called for by HEL. They also suggest that AEI should not only send these Reports to the HEL but also to Government to keep the latter posted with the progress of the Project and any difficulties encountered so as to avoid any complaints from the Consultants later on. The Committee hope that early action would be taken in this matter, as was agreed to by the Chairman of HEL during the evidence.
23	65	The Committee consider that a correct appraisal of the working of the agreement can only be made in terms of the achievements of HEL, namely :— (1) time by completion and commissioning of the factory; (2) achieving the targets of production as per the Consultants' estimate or even showing better performance; (3) cost of production, as compared to the cost of similar equipment imported from abroad; (4) training its technical personnel so as to reduce dependence on foreign specialists as much as possible; and (5) self-sufficiency in the matter of raw materials and components. They trust that these aims would be constantly kept in view.
24	67	The Committee were informed that a Projects Co-ordination Division had been organised in the Ministry of Finance to analyse the various kinds of agreements and to collect the necessary data so that it could provide 'reference and consultancy service' during the stages of establishment of industrial units in respect of contracting for collaboration, construction, etc. The Committee hope that this cell would be manned by suitable personnel and the agreements routed through this cell. In this connection, they would also refer to the recommendation contained in para 86 of their 32nd Report (3rd Lok Sabha) on the National Coal Development Corporation Ltd., Ranchi.

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25	75	The Committee recommend that a firm production programme of a project should be decided in advance and no change, diversification or expansion should normally be thought of till the output initially contemplated has been achieved. The question of expansion, if necessary, should be considered and taken up only thereafter. The representative of the Ministry agreed with this view and assured that this policy would be followed in regard to other projects.
26	77	The representative of the Ministry stated during evidence that although there was scope for doubling the Hardwar project, the Russian consultants had expressed the view that managerial and other problems would create difficulties. They, therefore, favoured a separate unit instead of doubling the existing one. The Committee feel that these considerations would equally apply to the Bhopal Project. They trust that Government would completely satisfy themselves about the economic and administrative aspects of the proposed expansion of the Bhopal Project to Rs. 50 crore output before according thier final approval to it. Even the completion of Blocks I and II which were included in the original project (Rs.12.5 crore output) has been delayed by about 2 years. The Committee hope that Government and HEL would take energetic steps to ensure that there is no further delay in the completion of the Project.
28	81—83	The ancillary plants of the Bhopal Project and theTesting Laboratory had not been completed or commissioned by the time the factory commenced production. Since the actual production at Bhopal till 1961-62 was much below the original target, the non-commissioning of these units might not have presented any serious problem. That no extra cost was involved in purchasing the products from the market is a small consolation and no justification for the delay in the setting up of these units in time. On the other hand, the late purchase of these plants must have cost more. The Committee hope that HEL would ensure that the various units of the other plants are commissioned in time in an integrated and coordinated manner.
29	84	The Oxygen Plant, which cost Rs. 11.67 lakhs, is not being used to full capacity. It is run on a three-shift basis for 2 or 3 days in a week. Obviously, the partial

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		working of the oxygen plant is not economical. The Committee would suggest that Government might make a study of the working of this as well as other ancillary plants at Bhopal with reference to the present and future needs of the factory, so that their working is place on a satisfactory and economic footing.
30	86	While the Bhopal Project has taken over four years, from the date of receipt of the Project Report, to go into production, the other projects are expected to take even less than 3 years. The Committee hope that, with the experience gained at Bhopal, HEL would ensure that the other projects would go into production according to the time-schedule fixed for them.
31	88-89	The Committee were surprised to note that HEL had not yet undertaken the preparation of a completion report even in respect of the Factory Blocks, already completed. What is more surprising is that neither the HEL was aware of the suggestion contained in the 3rd Plan not had the Ministry drawn their attention to it. The Committee would suggest that Government might issue suitable instructions to all undertakings in the public sector to prepare comprehensive completion reports for their projects, as envisaged in the Third Five-Year Plan.
32	90	The Committee would urge that the recommendations contained in the Third Five-Year Plan, particularly those contained in Chapter XVI and XVII, which are required to be implemented by the public sector undertakings should be specifically brought to their notice by Government.
33	93—95	As against a target of Rs. 290 lakhs suggested by the Consultants for the year 1961-62, the HEL aimed at a production of Rs. 350 lakhs. The value of finished equipment manufactured during 1961-62 amounted to Rs. 13.17 lakhs only. In addition, the value of works-in-progress and departmental works amounted to Rs. 164.30 lakhs. Eve if the entire works-in-progress are taken into consideration, the production works out to 61.2% of the revised targets of Rs. 290 lakhs. When compared to the capital investment of Rs. 30.10 crores upto 31-3-1962, the output works out to Rs. 5.8 % only.

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		The Committee consider that most of the difficulties experienced by HEL are not uncommon during the initial peiod of construction and commissioning of any industrial concern and could have been foreseen. The targets of production should have been fixed taking into consideration all such factors. They are not, therefore, convinced by the reasons advanced for shortfall in production. The Committee suggest that the production programme should be prepared realistically and every effort made thereafter to achieve them, unless extraordinary circumstances intervene.
34	96	It is hoped that the teething troubles of the Bhopal Project are now over. The Committee trust that with proper planning HEL should be able to show better performance in future and reach the targets that have been fixed.
35	98	(*i*) As any delay on the part of HEL in supplying the equipment is likely to affect the development programmes of its customers (the State ElectricityBoards etc.), the Committee suggest that HEL should offer firm dates of delivery and adher to them as far as possible. (*ii*) They further suggest that the actual item-wise production by HEL during a year *vis-a-vis* the targets may be included in its annual reports. The statement of actual production might include the value of orders executed during a year as well as those pending at the end of it. The reasons for shortfall and steps taken to overcome them may also be indicated in the annual reports.
36	101	It is obvious that the present practice of fixing the prices of equipment produced by HEL to correspond with prices of imported equipment cannot continue for long. Price has got to be determined on the actual cost of production. The present policy is, therefore, neither sound nor economical. The solution lies in HEL exercising utmost economy and bringing down the cost of production to a reasonable level so that the selling price leaves an adequate margin of profit to the Company. The Committee hope that efforts will be made by HEL to achieve this end as early as possible.
37	103	The Committee note the HEL is making efforts to increase the export earnings of the country. But it is clear that it would have to face tough competition from manufacturers of other countries who might

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		even quote lower rates for export purposes. Such a competition can only be faced by adopting improved designs and production techniques. The Committee trust that HEL is addressing itself to this task. While doing so, HEL would no doubt, consider whether it would be desirable to confine exports initially to certain types and ranges of equipment which lend themselves easily to mass production.
38	104	There are several interests connected with the heavy electrical industry in India. These are mainly the manufacturers of electrical equipment in the private sector, the Government Electrical Factory at Bangalore, the C.W.&P.C., the consumers of heavy electrical equipment, the different producers of raw materials and components for the industry, the railways and the Government. All these have their respective problems which do not always coincide. The Committee feel that in order to ensure a balanced development of the industry there should be proper co-ordination among all the interests. They would suggest that a Consultative Committee consisting of the various interests mignt be set up to advise on the production programme of HEL, and other connected problems. The representative of the Ministry agreed that the proposed Committee could meet once a year to discuss the various problems. The Committee hope that early action would be taken in the matter.
39	108	[The Committee note that though the detailed project report for the Bhopal Project had been received as early as November, 1956, a survey of the indigenous capacity for manufacture of machine tools was not undertaken till 1958. Had survey been made earlier and the year-wise requirements of plant and machinery for the Project determined and publicised in advance, it might have been possible for the indigenous manufacturers to gear up their production and supply a part of the equipment that was imported.]
40	109	It is significant to note that out of the plant and machinery valued at Rs.12.32 crores purchased from foreign countries, equipment worth Rs.11.78 crores was purchased from the U.K. In such cases the Project authorities who are advised by the Counsultants are prone to import substantial quantities of plant and

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		machinery for the quick implementation of the project. The Committee would, therefore, suggest that the requirements of machinery for the other projects of HEL may be formulated sufficiently in advance and given wide publicity so as to secure indigenous supplies to the maximum extent possible.
41	110—112	(*i*) The Committee note that while the project report was accepted in March 1957, the placing of orders for the purchase of plant and machinery commenced from April 1959, *i.e.* after a period of about two years. While the delay in receipt of plant and machinery might not have held up any work at Bhopal because the construction of factory blocks was also delayed, the additional expenditure on the cost of the equipment worth Rs. 249 lakhs alone, amounted to Rs.23.56 lakhs which could have been avoided with better planning.
		(*ii*) The Committee would like to impress upon Government the desirability of ensuring adequate credit arrangements before sanctioning a Project of this magnitude in future.
42	113—114	(*i*) Plant and machinery of the value of Rs.10 crores, *i.e.* about 50 per cent of the total requirements of Rs.18.51 crores, had been received at Bhopal. Of this machinery worth Rs.70 lakhs, which was meant for Blocks I and II, had not been installed as the factory blocks were not ready. The production during the year 1961-62 amounted to Rs. 177.47 lakhs, including works in-progress, and construction works of the value of Rs. 164·30 lakhs. During 1962-63, the target of production of Rs.5.09 crores, is also not likely to be reached. Thus, while 50 per cent of the total equipment required for the project for an estimated annual output Rs. 25 of crores, had been installed, the production (including works-in-progress) during 1961-62 worked out to only 5 per cent of the total capacity. In 1962-63 also the production would be less than 20 per cent of the rated capacity. This would clearly indicate that the utilisation of equipment already installed has been very low. During their visit to the factory in September 1962, the Study Group of the Committee also gathered the impression that there was a considerable amount of idle capacity in the plant and machinery. The Committee deplore the existence of idle equipment at Bhopal to such a large extent.

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		(ii) They hope that with the completion of Blocks I and II and better planning with regard to the procurement of components and raw materials, the position would soon improve.
43	115	The Committee trust that as a result of experience at Bhopal, the purchases of plant and machinery for the other projects would be planned in such a way that delay in commissioning them is avoided.
44	118	The Committee hope that a decision on the general question of setting up a suitable organisation in the U.K. for effectively co-ordinating the shipping arrangement of cargoes moving on account of the various public undertakings would be taken by Government at an early date and that it would be ensured that public undertakings follow it.
45	123	(i) In 1969-70 hardly 53% of the requirements of raw materials and components for the Bhopal Project would be met indigenouslyl. In that year the cost of imports would still be R 1229 lakhs in foreign exchange. Due to the foreign exchange position, considerable difficulty is stated to have been experienced by HEL to meet its full requirements. This has affected the production programme. With the setting up of two new projects, their requirements would largely increase. The need for making concerted efforts to locate and increase the indigenous production of the raw materials and components required by HEL is evident. It is imperative that the Company should aim at ensuring that they are made available indigenously in the quickest time possible. The Committee suggest that, with this end in view, Government should appoint immediately a Committee of technical experts, which may include representatives of the HEL, Development Wing and the Ministry to survey the indigenous capacity in this regard and to draw up in consultation with the various interests concerned, a long-term plan, for allocating among various producers the responsibility for the manufacture of specified items.
		(ii) Attempts should also be made to standardise the components as far as possible.

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46	124	The Committee consider that it should be highly desirable if the Annual Reports of HEL indicate the percentage of imported raw materials and components used in the manufacture of equipment so that the progress made in the utilisation of indigenous raw materials and components is known from year to year.
47	127—129	The Committee note that, as per Project Report, components for the manufacturing programme of 1960 were to be ordered by HEL in January, 1958. *i.e.* about 30 months in advance of the commencement of the manufacturing year (July, 1960). But neither the detailed specifications for the raw materials and components required in the first year of production were furnished by AEI nor had the HEL located the indigenous capacity for them. It was, therefore, decided to import in full the materials required for the first year of production. The Committee are surprised to note that sufficient attention was not paid by HEL to an important matter like obtaining specifications for raw materials and components from the consultants in time. It was also incumbent on the consultants themselves to do so sufficiently in advance of the commencement of production. Had this been done, it would have been possible for HEL to prepare a phased programme for imports as also to obtain some supplies indigenously.
48	131	[The Committee cannot help feeling that there is lack of experience and proper planning in the procurement of materials and the system of placing orders leaves much to be desired. They recommend that HEL should review the position immediately and ensure that in future the procurement of materials and components is complete and related to its requirements.]
49	133	The observations of the consultants reproduced in para 132 confirm the apprehensions of the Committee expressed in para 131. They feel that there is an urgent need for examining the whole procedure of purchase and procurement of components and materials by HEL. The Committee trust that immediate action would be taken to remove the defects and streamline the purchase organisation and procedures.

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50	134	It was represented to the Committee that import duty on the raw materials used by HEL worked out to 22 per cent on an average. In most cases this was stated to be higher than the rate of duty (15 per cent) levied on the import of finished equipment. The Committee hope that early decision would be taken to reduce the import duty on the raw materials and components.
51	139—141	The estimates of capital cost of comparable items furnished by AEI in June 1955 rose from Rs. 15.90 crores to Rs. 28.16 crores in November 1956 *i.e.* by about 77% in a period of 18 months. It would appear that the estimates of cost submitted by AEI in 1955 were not examined in any detail before sanctioning the project or appointing them as consultants. The Committee are constrained to observe that the Project was sanctioned on the basis of estimates which have later on been termed as 'intelligent conjecture'.
52	142	It is always expected of consultants that they will prepare realistic estimates of the cost of a Project. In fact the AEI were in an advantageous postion in this respect in that they had the knowledge of local conditions in the country, as observed by the Gadkary Committee. One would have thought that their estimates would be reasonably accurate. It is regrettable that even their estimates proved to be so wide off the mark within a period of about 18 months.
53	143	The consultants are generally anxious to secure contract and in their anxiety tend to submit lower estimates. It is for consideration whether in the event of wide variation in the estimates, other than due to justifiable reasons, the consultants could be made responsible therefor. It is also necessary that the estimates of cost indicated by the prospective collaborators should be thoroughly examined before sanctioning a project or selecting the consultants. The Committee trust that Government would examine the matter and issue necessary instructions to avoid the recurrence of similar situations in future.
54	145—146	(i) The original estimates of consultants did not include the cost of certain items, namely customs duty, purchase commission, hostel for trainees and township amounting to Rs. 11.45 crores.

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		The Committee fail to understand why estimates of important items which amounted to over Rs. 11 crores, were not provided for in the original estimates. The estimates of total commitment on such projects should be prepared as realistically as possible and should be available to Government before they are approved. It is not correct to undertake a project on the basis of incomplete estimates and to subsequently increase the outlay on it, which has in any case to be agreed to by Government—a feature which is fairly common to most of the projects and which has to be discountenanced.
		(*ii*) The Committee recommend that the final estimates of the Bhopal Project should be prepared and placed before Parliament at an early date.
55	147	The Committee hope that complete and firm estimates of the new proejcts of HEL would be obtained and examined before submitting them for Government's approval.
56	148—149	The Committee regret to observe that in spite of a written enquiry from them, neither the Ministry nor the HEL could furnish information regarding the capital cost of establishing a comparable heavy electrical project elsewhere. The senior officers of HEL who have been visiting foreign countries for negotiations or training had also not been instructed to gather this basic information. The Chairman, HEL stated that the idea of collecting this information through their officers going abroad had not occurred to them. The Committee consider the collection of such data very necessary. In the absence of such data, it is difficult to determine the reasonableness of estimates given by the Consultants.
57	151	The Committee would suggest that, with a view to ensuring utmost economy Government might set up some regular machinery to scrutinise the type of structure and contruction, designs of factory buildings, etc. suggested by foreign consultants, before accepting them.
58	153—154	(*i*) It would be seen that the expenditure on factory buildings at Bhopal is higher than that in other projects. The expansion of the factory to an annual output of Rs. 50 crores is expected to entail an additional expenditure of Rs. 9·34 crores on factory buildings alone. The Committee feel

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		that the factory at Bhopal has been planned on a very lavish scale. The buildings should be purely functional and related to the actual needs. It needs no emphasis that heavy expenditure on construction etc. leads to over-capitalisation and adversely affects the overall efficiency of the project, including its cost of production.
		(ii) Though the expenditure on buildings may have to vary from industry to industry depending on their needs, the Committee consider it very essential that it should bear a certain ratio to the total cost of the project. They would suggest that a team of experts be appointed to make a study with a view to fixing such a ratio.
59	155	To avoid the preparation of separate designs for buildings and services which are common to all projects, the Team of Experts referred to in para 154 might also suggest the designs and specifications of common buildings and service facilities, *e.g.* administrative offices, canteens, schools, hospitals, which might be adopted by all undertakings in the public sector. In this connection para 281 may also be seen.
60	157—158	(i) If the cost of township is taken into account the investment-output ratio of the Bhopal Project with an annaul output of Rs. 12.5 crores was 3.9 : 1 and would be 2.6:1 for an annual output of Rs. 25 crores. If the cost of township is excluded from the total investment, this would work out to 3.2 : 1 and 2.2 :1 respectively. The Committee were informed that for a similar newly established undertaking in the U.K. the investment-output ratio would be of the order of 1.7:1 or 1.8 : 1 in the early life of establishment. An electrical equipment manufacturer told the Committee that sale ratio should be 1:1·5 in a heavy electrical factory. It is also noteworthy that the investment sale ratio in the case of AEI is 1:1·5 It is thus evident that the Bhopal Project is over capitalised and its investment-output ratio is low.
		The Committee regret that due importance was not given to the economics of the project initially.
		(ii) It is well-known that higher capital investment increases the cost of the products and adversely

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		affects the competitive position of the undertaking. The Committee recommend that this aspect should be carefully examined by Government before sanctioning new projects in future.
61	161	The interest and other service charges on a 5-year loan of Rs. 3.5 crores would work out to Rs. 1.30 crores, including purchase commission and expenditure on the purchase cell in U.K. The desirability of ensuring adequate credit facilities before sanctioning a Project has been stressed in para 112. Had this been done, the payment of such heavy service charges on the above loan could have been avoided, as was agreed to by the representative of the Ministry of Finance.
62	163	The Committee are pained to note that arrears were allowed to accumulate in the maintenance of accounts of HEL till 1961-62, *i.e.* 5 years after its setting up. Five years was a period long enough for any undertaking to recruit suitable persons for this work and to train them if need be. Evidently HEL had not put the right type of men in their accounts department or trained them properly. It would also seem that the accounting machinery had not been strengthened to keep pace with the speed of work at the project.
63	164	The need for efficient and well-organised accounting procedure and for employing technically qualified staff would be increasingly felt as the company moves from the stage of construction to the stage of production. The Committee would impress upon HEL the need to employ technically qualified staff and to get them trained in improved techniques of accounting with the assistance of the Institute of Cost and Works Accountants, if necessary.
64	165	The Committee further suggest that in order to avoid the recurrence of a similar situation elsewhere Government should issue suitable instructions to all public undertakings to organise proper accounting machinery from the very beginning.
65	166	The Committee were informed that HEL proposed to arrange in 1963-64 for an examination of the accounting and financial procedures followed by it. They trust that HEL would take advantage of he experience of the Department of Company Law Ad-

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		ministration in this behalf and consider the desirability of associating them with the proposed examination of their financial and accounting procedures.
66	167	The desirability of prescribing a suitable accounting procedure for adoption from the beginning by all undertakings in the public sector may be considered by Government in consultation with the Department of Company Law Administration and the Comptroller and Auditor General.
67	168-169	The administrative expenses of the Bhopal Project amounted to Rs. 41 lakhs during 1961-62 for a production of Rs. 177 lakhs, including works-in-progress. This would work out to 23·1% of the cost of production. The Committee have gathered an impression that there is a general tendency in the public undertakings to recruit staff in excess of their needs. Besides increasing the cost of production, the extra staff not fully worked tends to have a demoralising effect on other staff. Further, once the staff has been recruited it becomes difficult to lay them off. It is therefore essential that the recruitment of staff is strictly related to requirements. The Committee suggest that HEL might have the position examined with a view to determining its actual requirements and the surplus staff may be utilised for the expansion of the Project. In this connection paras 228 to 232 may also be seen.
68	171-172	Profits would be made at Bhopal only from 1970-71 when the volume of production and sales expanded sufficiently to meet the high overheads, including interest and depreciation. The Committee trust that the position would be constantly reviewed to minimise these losses to the extent possible.
69	173-174	The financial review for the quarter ending 31st March 1961 was submitted on 13th January, 1962, *i.e.*, after nine months. The reviews for the two quarters ending 31st December 1961 and 31st March 1962 were submitted on 28th August 1962, *i.e.*, after seven months and four months respectively. The three subsequent reviews relating to the quarters ending 30th June, 30th September and 31st December 1962 have not been submitted to the Government as yet. The Committee regret the abnormal delays in the submission of these reviews which serve as an instrument

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		of financial control. They would recommend that greater attention should be paid to the timely preparation and submission of these reviews.
70	175-76	The following suggestions were discussed in the course of examination by the Committee:— (1) the desirability of establishing a 'Cost Reduction Unit' at each Project as part of the construction organisation under the exclusive control of the Chief Engineer to carry out work-studies, continuously analyse factors affecting costs, recommend suitable adjustments from time to time in materials, techniques, procedures and organisation, evaluate the result of such adjustments and keep a watch on the progress in achieving economies in construction costs ; (2) the desirability of setting up special units to assist the management in keeing down production costs, raising productivity, setting norms and checking performances; (3) the need for organising a proper cost accounts organisation; (4) the need for a system of management accounting; and (5) the desirability of HEL preparing programme-*cum*-performance budget, as recommended by the Committee in their 73rd Report (2nd Lok Sabha). The Committee were told that a beginning had been made at Bhopal as regards items (3) and (4) above. They trust that all these suggestions would be examined by HEL for implementation as far as possible
71	177	The number of Directors on the Board is not to be less than two and not more than fifteen. Further there has been a wide variation in the number of Directors on the Board from year to year. The minimum of two Directors is obviously too low. The Committee would suggest that the matter may be looked into and the minimum raised suitably. Wide variations in the actual strength of the Board may also be avoided, as such variations are not conducive to the sound administration of the undertaking.

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72	179-180	The Committee note that the appointment of the Additional Secretary of the Administrative Ministry on the Board is not in accordance with the Government decision that "no Secretary of a Ministry/Department shall be a member of any Board." The arrangement contemplated in Government's decision not to appoint the Secretary or Additional Secretary of the Ministry or Department on the Board is not only to relieve the volume and pressure of work on these top officials but also permit of an independent and objective examination of the proposals of the Board in the Ministry at the highest level. The Committee trust that early action would be taken to change the composition of the Board of Directors in accordance with the decision of Government in this regard.
73	181	The representative of the Ministry of Finance on the Board of HEL was serving on the Boards of as many as nine other public undertakings. It was admitted by him that it was a heavy load of work for him. In fact, the officer had resigned from five of these public undertakings recently. The Committee have noticed similar cases in certain other undertakings also. They note that Government have recently decided that "no officer who is also assigned ordinary Secretariat duties should be appointed Director in more than three or four companies at the maximum. Finance Officers should be selected as Directors only from such officers who, though working in the Ministry, will not be overburdened with other duties and will devote mainly to serving as Directors of public undertakings". They hope that these decisions would be implemented at an early date.
74	182	The Board of Directors of HEL is, at present, composed of officials only, none of whom has had any previous experience of heavy electrical industry. Keeping in view the responsibilities of HEL, which has four big projects under its control, the Committee feel that the members of its Board of Directors should be drawn from a wider sphere than at present and that technical experts and men experienced in the line should be appointed to the Board, care being taken that no one with a direct interest in the same industry in the private sector is appointed.

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75	183	The Committee suggest that to ensure close co-ordination and liaison with the Central Water & Power Commission and the State Electricity Boards, two representatives, one from the Commission and the other on behalf of the State Electricity Boards, may be appointed to the Board—a suggestion to which the representative of the Ministry was favourably inclined.
76	185	The responsibilities of Boards in the Public Undertakings are very onerous. Apart from providing the necessary leadership and direction to the undertaking, they have to ensure that the management of the various projects under their charge is sound and effective. The right choice of members of the Board is, therefore, of prime importance. The Committee suggest that Government might lay down the qualifications and the nature of experience expected of persons who will be appointed as members of the Board of Directors of industrial undertakings. The Statutes relating to the setting up of public undertakings in the U.K. specify such qualifications and experience.
77	188	The importance of selecting the right type of person for the post of Chairman of an industrial undertaking cannot be over-emphasised. The success of an undertaking depends to a large extent on the direction and guidance provided by him. The principles enumerated in para 187 of the Report are healthy. The Committee hope that they will be kept in view while making appointments of Chairmen of public undertakings in future.
78	189	The post of Technical Director in HEL is lying unfilled since a year when the last incumbent (Shri M. Hayath) left to join the ECAFE. The need for appointing a Technical Director possessing the necessary technical knowledge and experience in the line so as to be able to advise the Board of HEL on complex matters coming up before it needs no special emphasis. The Committee feel that there is no dearth of qualified men in the country to fill this post either. They recommend that early action may be taken to appoint a Technical Director on the Board of HEL. If necessary the terms of his appointment might be so framed that it attracts a really capable man.

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79	193	In the Committee's view the right choice of a General Manager for a Project is as important as that of a Chairman of an undertaking. They would suggest that Government should select a man for this post who fulfils the qualifications laid down in the Third Five-Year Plan and reproduced in para 192 of the Report.
80	195—97	The Committee note that no less than 12 departmental heads are working directly under the Resident Director. He has thus an extremely wide span of control. It is stated that such a position tends to give rise to "procrastination, indecision, misunderstanding, irritation and strained relations." It is also doubtful whether a Resident Director charged with the task of controlling an industrial enterprise of the size of HEL can do the whole job by himself, unless he is assisted by deputies who could share some of his burden or who could advise him in various matters. Obviously the present position does not fulfil the needs of an undertaking and calls for a speedy reorganisation. What the Consultants have suggested about the formation of a management team seems to deserve consideration. The Committee consider it essential that a suitable organisation should be immediately provided there taking into account the various managerial problems that might have been experienced so far.
81	200	The Committee are not convinced by the reasons advanced for HEL not being able to get a suitable man for the post of Works Manager, particularly when other undertakings, like Hindustan Steel, have been able to get technical persons from the private sector. They also do not think that the scales of pay for such a key post should present any insuperable difficulty. The Commitee hope that necessary action would be taken to secure the services of a suitable man for this post.
82	201	In view of the difficulty of getting a technically qualified person the Committee would recommend that HEL should take timely action to train the Works Managers for its other projects.

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83	202—203	(i) The Articles of Association of HEL did not originally provide for the appointment of a Financial Adviser. These were subsequently amended to provide for it. A Financial Adviser was appointed for the first time in 1959, *i.e.* about three years after the setting up of the company. The Committee are not aware of the considerations which led to this decision but they find that the accounts of the Bhopal Project have as a result fallen into heavy arrears. The 'accounting standards' and the 'maintenance of books of accounts' also came up for criticism by Audit. Had an experienced man been posted from the very beginning, this situation could probably have been avoided. (ii) The Committee hope that to avoid similar situations HEL would take timely action to appointfor the other projects, Financial Advisers particularly those who have experience of working in industrial undertakings.
84	204	The Committee suggest that Government might arrange for an orientation of Financial Advisers of industrial undertakings in the principles and practices of financial management either before their joining an undertaking or through refresher courses, as has also been suggested in the Third Five-Year Plan.
85	205	Due to arrears in the maintenance of accounts at Bhopal, it was decided to post a separate Chief Accounts Officer to pull up the arrears. Since the position of maintenance of accounts had improved, it was proposed to combine the functions of the Financial Adviser and the Chief Accounts Officer again. The Committee hope that this would be done early.
86	206	The Committee suggest that model Articles of Association for Government Companies might be framed by Government, providing for matters of common application, and circulated to all the Ministries of Government for their guidance.
87	207	The Committee trust that the Commercial Department which has a very important contribution to make towards the successful working of HEL, would prove equal to the task.

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88	210	The Committee have a feeling that there is a general tendency on the part of public undertakings as well as other Government organisations to have their offices at Delhi. The reasons advanced for setting up the administrative office of HEL at Delhi are common and apply equally to all undertakings, particularly those which are administering more than one project. The Committee are not convinced of the need for the administrative office of HEL to be located at Delhi when other industrial undertakings like Heavy Engineering Corporation, National Coal Development Corporation, Hindustan Machine Tools, etc. having more than one project, are not experiencing any difficulties without such offices at this place. It is also surprising that while the Head Office of Heay Electricals is at Bhopal, the Chairman's Office called the administrative office has been set up here. This is a new innovation. The Committee feel that the location of the Administrative Office of HEL at a place different from its head office is not necessary. Such an arrangement, if allowed to continue in the case of HEL, will have its repercussions on other public undertakings also and it may then be difficult to resist a similar demand by them. The Committee, therefore, recommend that the Administrative Office of HEL in New Delhi may be transferred to Bhopal, which is where it ought to be.
89	212	The Companies Act and the Articles of Association of HEL require that the annual general meetings of the Company should be held at its registered office at Bhopal. But, it is seen that from 1960 onwards, the annual general meetings of the Company have all been held in the Chairman's office in New Delhi. The Committee regret that the provisions of the Companies Act and the Articles of Association have not been complied with by HEL in this regard.
90	213	The presence of a majority of the Directors of HEL at Delhi may be the reason for holding the ordinary meetings of the Board there. The Committee consider it desirable that these meetings should also be held at the registered office of the Company as far as possible. In this connection, attention is invitd to para 155 of their 32nd Report (Third Lok Sabha) on N.C.D.C.
91	215	The Liaison Offices of the public undertakings in New Delhi are located in rented buildigs at different places

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		for which heavy rent, ranging from 64 nP. per sq. ft. to Re. 1.50 nP. per sq. ft. is being paid by them. In para 173 of their 32nd Report on N.C.D.C. the Committee have recommended a review of the need for the various Liasion Offices of public undertakings in Delhi. They also discussed with the representative of the Ministry of Steel and Heavy Industries the desirability of constructing a multi-storeyed building to house such offices of public undertakings as are necessary and have to be located at New Delhi. They are glad to learn that the State Trading Corporation had made a proposal for the construction of a building for the purpose. The Committee hope that an early action would be taken in the matter.
92	218	The Committee doubt whether the Guest Houses set up by the various public undertakings in New Delhi are fully occupied throughout the year. A study of their use and economics would, perhaps, lead to interesting results. As any expenditure by an Industrial Undertaking on such activities affects its cost of production, there is need for utmost economy in these matters. It is obviously advantageous to pool such arrangements of the public undertakings. The Committee, therefore, suggest that the feasibility of constructing a few residential blocks in the multi-storeyed building referred to in para 215 may be examined by Government. These blocks could be used as a common Guest House by all public undertakings.
93	220	The Committee hope that every effort will be made to abolish the Purchase Cell of HEL in U.K. as early as possible.
94	223	The Committee feel that the setting up of a Technical Planning Cell in the Ministry of Steel and Heavy Industries would be very useful as it can also continuously keep abreast of the developments in the various industries abroad. It can also evaluate the performance of the projects referred to in para 224. The Committee trust that the proposed Cell would be organised at an early date.
95	224	In para 143 of their 38th Report (Second Lok Sabha) on Shipping Corporations, the Committee had recommended the setting up of a separate organisation, analogous to the Committee on Plan Projects, to evaluate the working of industrial and commercial undertakings periodically. In their reply furnished in

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		June, 1960 Government accepted this recommendation and stated that instructions had been issued regarding the setting up of inspection teams by the administrative Ministries in consultation with the Ministry of Finance for making a periodical inspection of these undertakings. The Committee regret to observe that although Government issued instructions in the matter about 2½ years ago, no action has been taken by the Ministry of Steel and Heavy Industries to arrange for the evaluation of any undertaking under its control. They expect that once the Committee has made a recommendation and Government have accepted the same, it would be implemented. The Committee trust that the Ministry would lose no time in implementing the recommendation already accepted by Government.
96	227	The Committee discussed the desirability of appointing a separate Personnel Commission for the public undertakings. It could broadly lay down the terms and conditions etc. of the various categories of posts. The members of such a Commission could also be coopted on the Selection Committees of the Public Undertakings. The representative of the Ministry stated that it would not be conducive to speedy recruitment which was necessary in the case of such undertakings. Further, it was a question of policy and would have to be carefully examined. The Committee have discussed this matter in detail in paras 205-9 of their 32nd Report on the N.C.D.C., and have urged Government to take an early decision in the matter.
97	230	The project report envisaged that at the time of final build-up for the ultimate output, the ratio between administrative and factory staff would be 1:12. The present administrative staff (584 @40% of 1461) and factory staff (3406) gives a ratio of 1:6. This is on the high side and was in fact admitted as being high by the representative of HEL during evidence.
98	232	The Committee are in agreement with the views of the Consultants that the Project is overstaffed for its present level of output. They recommend that a thorough review of the staff strength at Bhopal may be carried out immediately with a view to its reduction.

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99	233	The Committee suggest that the annual reports of HEL should include a break-up of the staff employed category-wise separately on (a) construction, (b) operation of the factory, etc.
100	235	The Committee consider that the non-industrial staff at Bhopal is on the high side. They recommend that their number should be brought down.
101	237	The Committee consider that variation in the scales of pay for similar posts in the various public undertakings is not desirable as it would lead to dissatisfaction and drift of staff from one undertaking to another. They, therefore, suggest that some uniformity should be attempted in the scales of pay for similar posts in various undertakings.
102	238—240	The Committee find that 54 officers of HEL have had two or more promotions within a period of five years. They also find that the present pay of certain officers employed at Bhopal is double the pay that they were getting before their appointment in HEL. While the Committee recognise that merit has to be rewarded, they regret to note that rapid promotions are becoming common in some of the public undertakings and HEL is no exception. Promotions should be made on well-defined principles and should broadly correspond to those followed in other undertakings and Government service. For higher posts it is not the basic qualifications that matter but the requisite experience to hold that post. Experience is something which is gained by service in a particular job over a period of time and before such experience is gained it would serve little purpose to lift a man to a position of higher responsibilities. The Committee have also dealt with this subject in paras 202-204 of their 32nd Report (Third Lok Sabha) on National Coal Development Corporation and have recommended that the matter may be examined by Government in a comprehensive manner with a view to bringing about some rationale and uniformity in the present mode of promotions in the various undertakings.
103	241—244	Out of 155 technical personnel who left HEL during the years 1959, 1960, and 1961, 19 persons had undergone training at the expense of the company and

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		signed an agreement to serve it for a period of five years in 17 cases and three years in two cases after completion of training. During 1962 another 14 technical personnel had left HEL. Although these technical personnel left the company during the years 1959, 1960 and 1961, suits for the bond money had not so far been filed except in one case. Three years is a long enough period and prompt action should have been taken by HEL to pursue these cases. It is regrettable that HEL has not made any serious efforts to recover the amounts outstanding and has dealt with this matter in a casual manner. It appears that this lenient attitude may have been responsible for the flight of such a large number of persons without paying the bond money. With a view to curbing the present tendency of trained personnel leaving HEL, the Committee suggest that vigorous steps should be taken to recover the bond money in all the defaulting cases.
104	245	At present 45 retired persons are employed by HEL, out of which 32 are engaged on non-technical jobs, including those of Assistants and Clerks. While the Committee agree that in the initial stages there might have been some justification for HEL to re-employ retired personnel for certain technical jobs till suitable prsons had been trained, they do not appreciate the reason for employing retired officers for non-technical secretarial jobs. The Committee note that except in six cases, the term of all the re-employed personnel is due to expire in 1963. They were assured by the representative of the Ministry that the decision of Government would be taken into account while granting extensions of service to these personnel. They trust that this would be done.
105	246	The Committee would urge that Government should indicate the principles to be followed by public undertakings in the employment of retired personnel at a very early date.
106	247	Out of about 8,000 persons employed at Bhopal, the number of staff belonging scheduled castes and scheduled tribes was 495 and 100 respectively on 31s March, 1962. The Committee suggest that the management of Heavy Electricals should seek the assistance of various orgainsations engaged in the uplift of scheduled castes/tribres in the country as well as the Commissioner for Scheduled Castes for recruiting persons belonging to that category.

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107	248—249	The Committee note that the labour relations at Bhopal have been none too satisfactory. Not long after the factory went into production, there were two strikes—one in May, 1961 and another from 12th February, 1962 which lasted for about a month and resulted in a loss of one and a half month's work and psychological tension which in turn affected the output. It is necessary for the efficient and economic working of an undertaking, that there should be complete understanding and co-operation between its labour and management. This is all the more essential during the present emergency. The Committee were glad to be informed during evidence that the position had improved during the last two months. The Committee hope that the improvement will be kept up and the differences such as there may be between the management and labour will soon disappear completely to make room for a friendly and cooperative endeavour in the best interest of the country.
108	251	The Committee trust that elected Works Committees would soon be set up in all Departments of the factory and made an active instrument for the democratic administration of labour matters.
109	256	The Committee were informed that the Ministry of Finance was not consulted before deciding to split up of Heavy Power Equipment Plant and the High Pressure Boiler Plant to be set up under Czech. assistance. While the splitting up of an integrated project might have been justified in the present case on technical and other grounds, it would have been desirable if the financial implications of locating the plants at the separate places had also been examined in consultation with the Ministry of Finance before taking a final decision in the matter.
110	257—258	It has been decided to increase the capacity of the equipment to be manufactured at Hyderabad from 12, 25 or 60 M.W. to nearly 100 M.W. The Committee are surprised to note that changes in the size of equipment to be produced at Hyderabad are being made so soon after the project was sanctioned and immediately after receipt of the project report from the Czech Collaborators. It clearly indicates that the project has been conceived hastily. The change would also delay the execution of the project as it would necessitate preparation of fresh blueprints for the factory, structural changes in the designs and

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		heavier foundations for the factory buildings. The time and money already spent on the preparation of the earlier project report might also be rendered infructuous.
111	259	Originally the intention was to manufacture at Hyderabad the generator sets for the boilers to be produced at Trichy. It had now been decided to produce them either at Bhopal or Hardwar. It would thus be seen that the original idea of co-ordinating the production of Trichy and Hyderabad Projects has been abandoned.
112	260	The Committee trust that the orders for the supply of equipment produced at the factories of HEL would be coordinated and distributed in such a way that customers of one region would be able to obtain all their requirements from that region. This would facilitate speedier repair and replacement of parts in the event of breakdowns.
113	262	The Committee consider that the placing of the Boiler Plant under Heavy Electricals had some justification originally when it formed an integral part of the Heavy Power Equipment Project. But after it was decided to split it up into two separate plants, it was not, perhaps, necessary to continue the original arrangement especially when it involved different technical processes. The Committee urge that Government may examine whether it would be desirable to set up a separate organisation for the administration of the Boiler Plant.
114	263—264	The Committee were informed that HEL proposed to set up a foundry forge plant of its own for the manufacture of heavy castings and forges required for the three heavy electrical plants. The Committee are unable to appreciate why the HEL thought of setting up its own foundry forge plant at all when there was already an organisation in the public sector for this purpose. If any additional production in this field has to be organised, it should obviously be done by the Heavy Engineering Corporation which is already in the line and possesses the necessary technical 'know-how'. In this connection, the Committee would invite a reference to the recommendation made in their 80th Report (Second Lok Sabha) that the existing organisation should be utilised to take up new activities in the line instead of entrusting it to new bodies. They recommend that if any additional foundry forge plant is necessary, it should be set up by Heavy Engineering Corporation and not by the Heavy Electricals.

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115	266	The Committee consider that the assistance of foreign collaborators should be sought only for planning and designing the main, sections of the projects for which 'know-how' is not available in the country. For the rest the consultants may be asked to indicate their requirements on the basis of which the planning, designing and construction of auxiliary shops etc. could be undertaken by Indians. Besides, effecting considerable economy, this would reduce the dependence on foreign collaborators and instil the necessary confidence in our men. The Committee hope that Government would issue suitable instructions in this matter for compliance by all undertakings in the public sector. In this connection, a reference is also invited to paras 76—78 of their 32nd Report (3rd Lok Sabha) on N.C.D.C.
116	267	The Committee were told that HEL was organising its own design bureau and in future the appointment of consultants for heavy electrical industry may not be necessary. They hope that the proposed design organisation would be set up at an early date.
117	269	With the emphasis placed on rapid industrialisation, many new projects are likely to be set up in the public sector during the Third and subsequent Five-Year Plans. It is seen that in some of the existing industries certain amount of experience has been gained and the technology is well-known, for instance fertilisers, sugar, cement, textile, steel, etc. Already consultancy service is available in regard to some of these. There is need for pooling all these experiences and developing a strong central consultancy organisation. The idea should be to minimise the dependence on foreign consultants and the expenditure on foreign exchange as far as possible The Committee trust that the proposed Central Consultancy Organisation would be built up as early as possible.
118	273	The Committee were informed during evidence that Government had not laid down any criteria for the selection of sites for the Public Sector Projects. With the experience at Bhopal and with the indications given by AEI in the Project Report, some basic considerations had emerged which were kept in view while selecting sites for the new projects of HEL. The Committee suggest that Government might lay down broad principles to guide the selection of sites for factories infuture. These principles may apart from availability of power and water supply, raw materials and transport, include expert opinion on foundations and soil conditions.

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119	275	It is not desirable for HEL to reserve a large quantum of power, not immediately required by it and prevent the quantity excess of its own needs from being diverted to other needy consumers in the area. The Committee suggest that HEL should prepare a firm schedule of its demand from time to time.
120	276	The Committee suggest that to avoid any dispute later on, the rates of power and water supply should be firmly settled at the time of deciding the location of a Project in a State.
121	280	It would be seen that even at present the cost of township at Bhopal is disproportionately high and works out to as much as 18·0% of the total investment on the project as against 6 to 9 per cent at the three Steel Plants. This high ratio may be considerably worsened should the revised programme for an additional outlay of Rs. 7·40 crores on township be taken up. During their visit to Bhopal the Study Group of the Committee gathered the impression that the Bhopal township was very sprawling and lacked compactness. It is very essential that the cost of the township is kept to the absolute minimum. It should also bear a reasonable proportion to the total cost of the Project. The Committee recommend that utmost economy should be exercised in this regard.
122	281	The Committee note that a Middle School at Bhopal cost Rs. 1·08 lakhs, Secondary School Rs.5·00 lakhs, Primary-*cum*-K.G. School Rs. 0·75 lakhs and the Community Centre, Assembly Hall and Auditorium Rs. 9·15 lakhs. The above buildings are on a very lavish scale. Such a heavy expenditure is hardly justified. There is, therefore, need for practising utmost austerity in such matters, The Committee trust that this aspect would be borne in mind while sanctioning the construction of townships at the new projects.
123	282	The Committee would like to make the following other suggestions:— (1) The layout of the townships should be compact so as to avoid extra expenditure on roads, electric wires, water mains, sewage, etc.;

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		(2) The desirability of changing the designs and specifications of residential buildings particularly those for the use of higher officers, may be examined with a view to reducing their cost; and (3) The construction of township should be according to a phased programme which should bear some proportion to actual requirements. In the initial stages the construction of the factory should be given higher priority. The housing designs may be simpler and cheaper, so as to bring down the ratio of cost on township to a reasonable level.
124	283	The maintenance charges of the Bhopal township (*viz.* Rs. 7·77 lakhs) are high and need to be brought down.
125	284	The Committee were surprised that the undertaking had not taken advantage of the financial assistance and subsidy available to industrial employers under the subsidised industrial housing scheme. They hope that it would now utilise the assistance available under this scheme.
126	285	The Committee suggest that Government might examine the general question of the incidence of cost of townships on the cost of production of industrial undertakings in the public sector, and examine to what extent relief could be given by way of lower rate of interest on the investment in townships.
127	286	The Committee would also like to refer to the recommendation contained in their 84th Report (Second Lok Sabha) that the houses for different categories of employees should be interspersed in the same block/area so as to eliminate class-consciousness disguised or otherwise. Sharing of common amenities like schools, play-grounds, recreation centres, dispensaries, canteens, shopping centres would tend to create a feeling of belonging to a common family among employees of different categories serving the Company. They trust that HEL would implement this recommendation in its projects as far as possible.
128	287	(i) As regards long-term research, the Chairman of HEL stated that they proposed to take it up after the indsutry had developed to some extent. The Committee trust that this matter would receive the attention of Government and HEL at the appropriate time.

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		(ii) They suggest that, in the meantime, HEL might sponsor research on problems of immediate importance to it in any of the National Laboratories or Engineering Colleges by meeting a part of the expenditure from its funds, if necessary.
129	290	The Committee consider it necessary that in order to avoid the defects in planning and execution of the projects, organisation and construction, selection of personnel for the top posts, particularly the Chairman, Managing Director Financial Adviser and Works Manager should as far as possible, be made from among the existing successful undertakings so that they could bring to bear their experience and knowledge in the field. This, in the Committee's view would help avoiding the pitfalls and overcoming the difficulties that generally occur in the early stages. They trust that this matter would receive earnest attention of Government.
130	291	The Committee consider it desirable that Government should prepare a Handbook on Public Undertakings for the guidance of Project authorities. The proposed Handbook might contain among other things directions, instructions and decisions of Government on all important matters relating to the organisation and administration of industrial undertakings, *e. g.*, agreements with foreign collaborators, siting of projects, organisation, procedure for recruitment, training, scales of pay, employment of foreign specialists and retired personnel , delegation of powers, relationship with Government, accountability to Parliament, maintenance of accounts, procurement of plant and machinery and raw materials and components, pricing policy and research.
131	292	The Committee suggest that the heads of various undertakings in the public sector, should meet at intervals to exchange views and discuss common problems with a set agenda.

APPENDIX IX

Analysis of Recommendations contained in the Report

I. CLASSIFICATION OF RECOMMENDATIONS

A. Recommendations for improving the organisation and working:—

(S. Nos. 22, 23, 25, 26,27, 28, 29, 30, 35, 36, 37, 38, 39,40, 41, 42, 43, 45, 47, 48, 49, 50, 60, 61, 62, 63, 64, 65, 66, 68, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 87 , 88, 89, 90 , 92, 102, 103, 104, 105, 107, 108, 112, 113, 116, 120, 125, 126, 128, and 129).

B. Recommendations for future guidance while examining Project Reports, entering into agreements, etc.:—

(S. Nos. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,14, 15, 16, 17, 18, 19, 20, 21, 24, 51, 52, 53, 54, 55, 57, 109, 110, 111, and 115).

C. Recommendations for effecting economy which include suggestions for increasing production:—

(S. Nos. 33, 34 ,5 8, 67, 85, 93, 97, 98, 100, 121, 122, 123 and 124).

D. *Miscellaneous* :

(S. Nos. 3, 31, 32, 44, 46, 56, 59, 69, 84, 86, 91, 94, 95, 96, 99, 101, 106, 114, 117, 118, 119, 127, 130 and 131).

II. ANALYSIS OF THE MORE IMPORTANT RECOMMENDATIONS DIRECTED TOWARDS ECONOMY :

S. No.	No. as per summary of recommendations	Particulars
1	2	3
58	153—54	Suggestion for reducing the expenditure on factory buildings.
67 & 98	168—169 & 232	Examination of the staff strength and utilisation of surplus staff at the other Projects.
85	205	Abolition of the post of Chief Accounts Officer.
93	220	Abolition of Purchase Cell in U.K.
100	235	Reduction of non-industrial staff.
121	280	Keeping the cost of township to the absolute minimum.
122	281	Need for practising utmost austerity in the construction of non-residential buildings.

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53. The Secretary, Establishment Department, The High Commission of India, India House, Aldwych, London. W.C.-2.

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