C. P. U. No. 34.

COMMITTEE ON PUBLIC UNDERTAKINGS

(THIRD LOK SABHA)

Twenty second Report of the Committee on Public Undertakings in Indian Drugs and Pharmaceuticals Limited.

LOK SABHA SECRETARIAT
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(THIRD LOK SABHA)

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C_O_R_R_I_G_E_N_D_A

Twenty sec ond Report of the Committee on Public Undertakings in Indian Drugs & Pharmaceuticals Ltd.

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INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to submit the Report on their behalf, present this Twenty Second Report on Indian Drugs & Pharmaceuticals Ltd.

2. This Report is based on the examination of the working of Indian Drugs and Pharmaceuticals Ltd. up to the year ending 31st March, 1965. The Committee took the evidence of the representatives of Indian Drugs & Pharmaceuticals Ltd. from the 24th December to 27th December, 1965 and of the representatives of the Ministry of Petroleum and Chemicals on the 25th January, 1966. The Report was adopted by the Committee on the 22nd March, 1966.

3. The Committee wish to express their thanks to the officers of the Ministry of Petroleum and Chemicals and Indian Drugs and Pharmaceuticals Ltd. for placing before them the material and information that they wanted in connection with their examination. They also wish to express their thanks to Col. R. D. Ayyar who appeared before the Committee to tender his views as also to other non-official organisations/individuals who, on request from the Committee furnished their views on the Undertaking subject working of Indian Drugs & Pharmaceuticals Ltd.

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

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

NEW DELHI;
March 22, 1966.
Chaitra 1, 1888 (*S*)

I

INTRODUCTORY

Second Five Year Plan Proposals.

During the beginning of the Second Five Year Plan, need was felt for the establishment of further production facilities for pharmaceuticals and drugs in the context of the State taking over increasing responsibilities in regard to the provision of medical relief in the country and also the necessity of bringing down the prices of essential medicines by larger production. In view of this the Government of India invited a team of Experts from the Soviet Union in 1956 with the object of (i) investigating the possibilities of obtaining technical collaborations from the USSR on more favourable terms than were available from elsewhere and (ii) studying the possibilities for the manufacture of drugs and pharmaceuticals in the country and suggesting targets of such production. This team reported in May, 1956 and suggested the setting up of four plants for the production of antibiotics, synthetic drugs, organic intermediates for drugs and dye-stuffs and endocrines. They also recommended the expansion of the Hindustan Antibiotics Ltd. and also the extension of research facilities. The team also suggested substantially higher targets of production than those recommended by the Development Council for Pharmaceuticals and Drugs, for inclusion in the Second Five Year Plan.

2. The Government of India examined these proposals and decided to send an Indian team of experts to the Soviet Union to study *inter-alia* the extent to which it would be possible to adopt in this country the techniques and processes of manufacture offered by the Soviet Union as also to study the processes for manufacture of antibiotics in the Soviet Union and certain European countries and the extent to which foreign collaboration could be expected. The team of Indian experts headed by Dr. G. P. Kane visited the Soviet Union in September/October, 1956 and reported to Government in December, 1956. They recommended the adoption of the Russian techniques in the manufacture of drugs, pharmaceuticals and surgical instruments and suggested that the factories for their manufacture might be set up with Soviet collaboration.

Soviet Credit.

3. It was, only in early 1958 that these proposals were further taken up by the Government of India, when they invited a second team of Soviet experts of the Ministry of Health of the USSR with a view to discuss the proposals with the Indian experts and prepare estimates of foreign exchange required for the plants and the production programme of each of the plants recommended by the First Russian Team. Taking advantage of an offer of 80 million roubles credit made by the U.S.S.R. Government in April

1958, Government of India decided to establish, in the public sector, plants for the manufacture of synthetic drugs, antibiotics, surgical instruments, phyto-chemicals, and glandular products. Based on further discussions at the expert level with the technicians from the U.S.S.R. the scope and content of four of these units to cover the manufacture of these drugs and allied items were defined before the end of 1958.

Location

4. The project for the production of glandular products was dependent on the establishment of a modern slaughter house in the country. As it was expected that considerable time would be taken up in the establishment of such a slaughter house, the consideration of this project was postponed. In regard to the other four projects, a Drug Projects Location Committee was set up by the Planning Commission in 1959 to recommend suitable locations for the establishment of these factories. As a result of the suggestions made by the Committee, it was decided to locate the Projects in the following places:—

(i) Antibiotics Project at Rishikesh;

(ii) Synthetic Drugs Project at Hyderabad;

(iii) Surgical Instruments Project at Madras; and

(iv) Phyto-Chemical Project at Neriamangalam (Kerala).

5. In May, 1959, the Government of India entered into an agreement with the Government of the USSR, whereby the latter undertook to provide a loan of Rs. 9.52 crores to cover technical services including the training of Indian technicians at the Soviet plants and the cost of machinery and equipment to be imported for these plants.

Contracts

6. On the 10th June, 1960, four contracts were signed with M|s. Technoexport for the preparation of Detailed Project Reports in respect of the four plants. In the beginning, the Projects were executed by the National Industrial Development Corporation.

Setting up of IDPL

7. On the 5th April, 1961, the Indian Drugs and Pharmaceuticals Ltd. was set up with registered Office in New Delhi, with the main object of managing these four Projects. Consequently the Government of India assigned to the company on the 14th November, 1961, all rights and obligations under the Agreement with the Soviet Union dated the 29th May, 1959 relating to the loan of Rs. 9·52 crores and the four contracts with M|s Technoexport, Moscow mentioned above.

8. The progress made in regard to the three Projects up to end of 1965 is as follows:— **Progress.**

	Annual Capacity	Programme
Antibiotics Project Rishikesh	300 tonnes	Pilot plant commissioned in October, 1965.
Synthetic Drugs Project Hyderabad	851 tonnes of main drugs 4560 tonnes of intermediates	Pilot Plant was Commissioned in the middle of October, 1965.
Surgical Instruments Project, Madras	2.5. million pieces of 166 types of instruments	First pieces in the Forge shop were struck on the 31st July, 1965 and Tool Room was put into operation in October, 1964.

Delay

9. *The Committee regret to observe that it took the Government ten years to put through proposals which were thought of in 1956 for inclusion in the Second Five Year Plan. The Projects were thought of because pharmaceutical factories in India were producing only negligible quantities of drugs. Most of these factories processed the drugs imported from abroad. Apart from the heavy drain of foreign exchange for their import, these drugs were costly and the availability was limited owing to import restrictions. The position was aggravated by the fact that the biggest plants depended for raw materials on foreign firms, who used their monopoly position to maintain high selling prices. It was with a view to get over these difficulties and make available drugs and surgical instruments on a mass scale that the establishment of these Projects was thought of.*

Soviet Team's Observations.

10. The following extracts from the Report of the USSR team of Experts which visited India in 1956 would show the extent of the problem facing the country at that time:—

> "There are over 1600 enterprises producing drugs at present in India, 1550 of which with an output of 20 per cent of the total production are so small and so primitively equipped that they cannot be considered as industrial units. Each of them employ on an average 6-7 workers and have a capital of less than Rs. 40,000. *** Even the larger units on an average have a capital investment of 2-3 million rupees and such plants can be considered only as very small and employing mainly hand labour.
>
> * * *
>
> The pharmaceutical factories in India are producing a considerable number of drugs, but only negligible quantity of them are being produced starting from indigenous raw materials. The major

part of the Indian pharmaceutical factories is mainly occupied with the processing (preparation of tablets, injection solutions, ampoules etc.) of drugs imported mostly from abroad.

* * *

Almost all the essential drugs, the availability of which determines the effectiveness of the medical attention in the treatment of the most serious and common diseases in India, are not being produced in the country but imported from outside in "bulk" form or in the form of completed penultimates from which finished drugs can be produced by methods of simple and easy technological processes. Almost all the antibiotics are being imported; penicillin (indigenous production of penicillin meets only about 20 per cent of its total consumption), streptomycin, chloromycetin, aureomycin and other tetracyclins; antituberculosis preparation—Paraminosalicyclic acid (PAS), all the sulpha drugs, synthetics, anti-malarials, anti-filariasis drugs, chloroform for anaesthesia, procaine and number of pharmaceuticals of common use—aspirin, sodium salicylate, luminal, phenecetin and others and also all the synthetic vitamins and glandular products. This group of the above drugs, according to the experience in other countries, constitutes 70—75 per cent in value of the total consumption of all the drugs.

* * *

The production of drugs entirely from indigenous raw materials and independent of imported items is being carried out by Indian plants only in those cases where the technological processes are simple and do not require the creation of manufacturing units with complicated equipment. Usually, these are the simplest drugs from medicinal plants such as tinctures, extracts, some alkaloids (strychnine, quinine, caffeine or relatively simple synthetic preparations such as sulphuric ether chloralhydrate, ethylchloride, calcium, glycerophosphate, inorganic salts and also vaccines and sera. But even here, rich natural resources of the country are far from being fully utilised.

* * *

The present position of the pharmaceutical industry is aggravated by the fact that the biggest plants directly depend on foreign firms. According to the report of the Pharmaceutical Enquiry Committee, out of 93 large pharmaceutical plants,

32 are private enterprises under foreign control or working in collaboration with foreign companies. These plants produce over 50 per cent of the total value of finished drugs made in the country, employing only 15 per cent of the total number of workers. It is remarkable that during a year they purchased imported raw materials valued at Rs. 42 million and the indigenous raw materials valued only at Rs. 6 million.

* * *

Thus, the Indian Pharmaceutical industry has developed without proper foundation and, to large extent, is dependent on import of finished drugs and penultimates for the production of drugs."

Priority

11. *These facts should have warranted the grant of the highest priority to the establishment of the projects in our development schemes since the health standards were far from satisfactory. To have taken ten years for the fulfilment of these objectives when the foreign credit was available as far back as* 1958, *is a matter of concern.*

II

GENERAL ASPECTS

A. Project Report

12. As stated earlier the Detailed Project Reports and Working Drawings for each of the plants were prepared by M/s. Technoexport. The Detailed Project Reports were received in July-August, 1961 and were examined by a Committee of eminent scientists and specialists who recommended several modifications in order to suit the conditions prevailing in India. Most of these modifications were accepted by M/s. Technoexport and the final Detailed Project Report were accepted by the Government of India on 1st January, 1962.

Fees.

13. The following fees were paid to M/s. Technoexport for the preparation of Detailed Project Reports and Working Drawings:—

	Fees Paid	
	Report (In lakhs)	Working Drawings
	Rs.	Rs.
Rishikesh Project	10·80	20,84,654
Hyderabad Project	13·20	21,00,527
Madras Project	4·70	6,50,793
Phyto-Chemical Project (Kerala)	8·50	
TOTAL	37·20	48,35,974

Cost of Projects.

14. The Committee found that the estimates of the cost of the Projects and the cost of production were not indicated in the Detailed Project Reports. It was learnt that the Government of India had requested the Soviet Party to include data on the costs of the enterprise and the costs of the products calculated on the basis of consolidated indices, but the Soviet Party did not agree to this as they felt that estimates of cost of production etc. were matters which should be dealt with by the Indian side and that they could not take any responsibility for them. However, they selected a few drugs which they considered to be representative of different groups in a drugs and pharmaceuticals factory and prepared estimates of cost of production. These were later examined by the IDPL in accordance with their

monetery evalution for different components of production *viz.* raw materials, chemicals, wages, power, amortization etc., and the company drew its own cost estimates. The variations in the estimates of cost of production for the quantities of drugs and surgical instruments stipulated in the Detailed Project Reports were significant as would be seen from the following figures:

	Soviet side	Indian side
	(Amount in crores Rs.)	
Antibiotics Project.	5·90	8·48
Synthetic Drugs Project	4·18	7·53
Surgical Instruments Project	0·76	1·13
TOTAL . . .	10·84	17·14

This is an increase of 58% :

15. *To eliminate the possibility of preparation of wrong estimates on the basis of which projects are sanctioned, it would be better for the Government to supply all relevant data relating to availability and cost of raw materials, labour, fuel, power, overheads etc., so that the collaborating foreign party can work out exact figures of the cost of projects and the cost of production. Unless these figures are available, it would be difficult to form an exact idea of the economics of a plant and its profitability. Such figures, if included, in the Detailed Project Report would also provide the Government a yardstick with which to measure the actual performance. Such an estimate made by one with actual experience in the field and based on figures of the actual operation costs in his own country would be more useful and accurate than the one framed later by persons who have no experience of the line. The foreign collaborators, in future, should be persuaded to include estimates of the cost of a project and the cost of production in the Detailed Project Report.*

Economic feasibility studies.

16. The Committee find that technical and economic feasibility studies in respect of the five projects were conducted by the Soviet team which visited India in 1958. The Committee went through their Report and found that most of the data was based on very rough estimates. It is as a result of this sursory data, on which the assumptions regarding economic feasibility were based, that the Phyto-Chemical Project at Neriamangalam had ultimately to be abandoned. It was found by Government that the data relating to the availability of raw materials and their cost had no relation to the actualities. Based on this meagre data, Government had proceeded with the Project incurring a loss of Rs. 33.02 lakhs (out of which Kerala Government's share was Rs. 19.96 lakhs), before the Project was abandoned as an unworkable proposition. In the other

three Projects also the assumptions in regard to cost of raw materials etc. have not proved accurate resulting in higher costs of production and less profitability than originally assumed. *It is essential that thorough and realistic feasibility studies should be made so that Government is not ultimately burdened with a project which is not economically viable.*

Time Schedules.

17. The Committee also find that the Detailed Project Reports did not include time schedules for the construction/commissioning of the projects. It was only two years after the receipt of the Detailed Project Reports that the company prepared such a time schedule. *The Detailed Project Reports should have included the time schedule; but if for any reason, these were not included, the company should have the same immediately prepared. Delay in this regard is apt to conceal any avoidable procrastination on the part of construction agencies, including suppliers of working drawings, equipment etc.*

B. Project Estimates

18. The Project estimates for the four plants which were not included in the Detailed Project Reports were worked out by the IDPL in 1961. These were later revised in 1964 and again in 1965. The figures are as follows:—

	1961	1964	1965	Percentage of increase of 1965 figures over original estimates
	(Rs. in crores)			
	FACTORY			
Rishikesh	12·25	18·35	20·15	66%
Hyderabad	11·50	17·04	19·30	58·3%
Madras	2·15	3·48	3·56	65%
	25·90	38·87	43·01	
	TOWNSHIPS			
Rishikesh	3·50	3·59	3·16	
Hyderabad	2·75	2·34	2·15	
Madras	1·50	1·63	1·54	
	7·75	7·56	6·85	

19. It is seen that the percentage of increase in the factory estimates is more than 50% in each case. When questioned about the reason for this, the IDPL stated as follows :— **Increase in factory estimates.**

> "The reason is that in 1961 the estimates were forecast on inadequate data. At that time, even the contracts for supply/equipment and services by the Soviet Party had not been finalised and the provisions for some of the important items such as Plant and Equipment were made on such rough indications as were available from the Soviet Party at that time. Expenditure on some of the items such as Working Drawings, deputation of Soviet Experts and training of Indian technologists and operators etc., were not accounted for in the 1961 estimates. The 1961 estimates were more in the nature of an attempt to forecast broadly the order of magnitude of the capital investment based on data which were not adequate. These estimates had, therefore, to be substantially modified when estimates were framed later, on availability of further data."

20. It is observed that even between 1964 and 1965, the increase in estimates in the case of Antibiotics Project was 6.2 per cent and in the case of the Synthetic Drugs Project it was 10:6 per cent. It was stated that this was largely due to the increase in the cost of plant and machinery and also due to the increase in the price and quantum of equipment imported and the rise in customs duty.

21. *The Committee cannot appreciate the reason given by the IDPL that the* 1961 *estimates were based on inadequate data. The estimates were prepared by the IDPL itself and such items like deputation of Soviet Experts and training of Indian technicians in Russia should not have been left out. Such unrealistic estimates tend to give a distorted picture of the Project and make it difficult for Government to apportion the Plan expenditure particularly when variations in estimates occur to the extent of over* 58 *per cent. The Committee regret to note the preparation of such unrealistic estimates. The Committee would draw the attention of the Government to their suggestions in the Thirteenth Report of the Committee on Management and Administration of Public Undertakings (paras.* 149-150).* *They would add that the source material for the relevant data on which estimates are prepared should also be indicated so that in case variations occur later, the exact reasons can be pin-pointed.* **Inadequate data.**

Delay in preparing and sanctioning estimates.

22. The Committee were informed that the revised estimates framed in 1964 were sent to the Government for approval in July, 1964. In April, 1965 these estimates were returned to the IDPL stating that certain expenditure had been actually incurred and that the IDPL should revise the estimates on the basis of the actuals, so that the estimates were more realistic. In September, 1965, Government received the revised estimates in respect of the Surgical Instruments Project, Madras with the request that sanction be issued. The Government, however, decided that the estimates should be prepared in an integrated manner and not piece-meal. On 17th January, 1966, the IDPL sent advance copies of estimates for all the projects together to Government before they were actually approved by the Board of Directors. The Government have not, however, so far issued the sanction pending Board's approval to the estimates prepared by the company.

23. *There has been considerable delay in the preparation and sanctioning of estimates. Estimates should be prepared in time and sent to Government for approval before the expenditure is actually incurred. "Estimates" should be understood in its literal sense and should not be equated to actuals after the money has been spent. The Government should also on their part ensure that there is no avoidable delay by the undertaking or the Ministry in attending to them. Delays in preparing and sanctioning of estimates have been noticed in other Undertakings also* e.g. *the Indian Oil Corporation and the Hindustan Steel Limited. The Government should lay down clear instructions in this regard.*

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*149. The Committee understand that a check list of project estimates has been prepared by Government for guidance of project authorities and financial advisers and has been in vogue since 1959. It is surprising that in spite of such a check list, the project estimates continue to be incomplete and unrealistic.

150. The Committee note that the Estimates Committee in their reports on H.E.C., H.E.L. and H.S.L. have repeatedly recommended that project estimates should be prepared as realistically as possible and should include total commitments before they are made available to Government for sanction. This Committee also in their report on Fertilizer Corporation of India Ltd. and Rourkela Steel Plant deprecated revisions of estimates because they vitiate the basic assumptions on which the project was sanctioned in the first instance. The Committee recommend that project estimates should be prepared realistically and efforts made to adhere to them. The Committee would like to further recommend that with a view to avoiding incomplete estimates being prepared Government should immediately conduct a post review of the reasons for under estimates in the past. Based on the findings of such a review suitable instructions should be issued to authorities concerned with the preparation of project estimates, for their guidance. If the review reveals that the existing check list omits certain items, the same should be added.

24. *The Committee were surprised to be informed by Government that the work did not actually suffer on account of delay in sanctioning the estimates. The sanctioning of estimates is an inviolable part of financial control and sanction should invariably precede the expenditure and not follow it. As for the present case, the Board of Directors of the IDPL should finalise the estimates and send them to Government for approval if it has not already been done.*

C. Cost of production and profitability

Estimates of costs of production.

25. As the Soviet Party did not work out the detailed cost structure of drugs and surgical instruments, the IDPL prepared detailed estimates of the cost of production and the economic profitability of each of the Projects in 1961. The cost and sale value of production estimated in 1961 has since undergone substantial revision as the table given below would indicate:—

At the time of sanctioning the Project	Rishikesh	Hyderabad	Madras	Total	Remarks
				(In crores of Rupees)	
(i) Cost of production	8·50	7·50	1·15	17·15	
(ii) Sale value	28·00	6·50 8*	2·00	38·00	*As result of increase in the tabletting programme of some of the drugs.
(iii) Gross profit anticipated	19·50	·50	·85	20·95	
Revised					
(i) Cost of production	14·50	8·90	2·00	25·40	
(ii) Sale value	28·00	8·40	2·50	38·90	
(iii) Gross profit anticipated	13·50	(+)·50	(+)·50	13·50	

Profitability.

26. It is seen from the above figures that the profitability of the three Projects has considerably declined; in fact taken individually the Hyderabad Plant is expected to suffer some loss.

27. In a note furnished to the Committee after the evidence, the IDPL furnished the following estimates of profit and loss as per the latest figures:—

	Profit/ Loss before tax	Profit/ Loss after tax
	(Rs. in crores)	
Antibiotics Project . . .	13	6·5
Synthetic Drugs Project .	(—)·6	(—)·6
Surgical Instruments Project . .	·4	·2
TOTAL . . .	12·8	6·1

28. The Chairman, IDPL, informed the Committee that in the case of Synthetic Drugs Project, Hyderabad, the company would attempt to improve its profitability over a period of time by improving in technology, larger degree of formulations and by introducing some additional items. The Secretary of the Ministry of Petroleum & Chemicals, in his evidence before the Committee, was more optimistic over the working result of the Hyderabad Project. He stated that it was likely to earn a profit of Rs. 57 lakhs per annum. Thus, conflicting opinions on the profitability of the Project are being held by the company and the Government. *This matter requires looking into. The Committee hope that estimates of profitability will be worked out soon. At any rate, the working of this factory should be carefully watched and it should be ensured that all possible measures are taken so that losses do not occur.*

29. Regarding the rise in the cost of production, the Committee were informed that the estimates in 1961 were prepared on very inadequate data. The capital investment estimated in 1961 had considerably increased and this accounted for larger provision for depreciation etc. in the cost of production. Materials, wages, factory services and overheads had also increased over the 1961 figures.

30. In a written note furnished to the Committee, after the evidence the IDPL informed the Committee as under:—

> "Subsequent to the receipt of the Project Reports, an attempt was made to obtain some data on the subject from the Soviet Party but it is apparent that the data and the practices as could be furnished by the Soviet Party, for working out estimates of Capital Investment and estimates of cost of production were not either sufficient or conforming to the practices in our country. There was, therefore, an inherent difficulty in working

out accurate estimates of Capital Investment on plants or cost of production in 1961 even before the contracts for supply of equipment and technical services to be rendered by the Soviet Party had been entered into. In the circumstances, it was inevitable that a number of averages and assumptions had to be made in working out the estimates at that time. The estimates worked out on this basis could only throw up dimensional figures and broad trends of profitability rather than accurate costs. The broad trend indicated by the 1961 estimates was that the Antibiotics Plant and the Surgical Instruments Plant would be profitable propositions. Despite considerable variation in estimates since then, this broad forecast has not basically altered though the amount of profit forecast in 1961 has undergone reduction. Indeed, the forecast in 1961 was not intended to be an accurate barometer of the precise amount of profit yield".

Realistic estimates

31. Asked if the present estimates of cost of production were realistic, the Committee were informed that these were based on very close approximation, but as these were not based on the actual performance of the plant, if the assumptions made about production efficiency and material consumption varied, the same are bound to reflect in the actual cost of production.

32. *The Committee are not convinced by the reasons advanced for such disparity in the estimated cost of production in* 1961 *and the latest estimates particularly in the case of Rishikesh Plant, where it had risen by more than* 70 *per cent. The estimates of cost of production were stated to have been prepared in* 1961 *with a view to help the Government to take a basic decision about the desirability of setting up the Plants. Such figures should be realistic and not based on inadequate, insufficient and incorrect data. The fact that the Rishikesh plant would still leave a margin of profit, is no justification for deflecting from this principle.*

Inclusion of costs in D.P.R.

33. The above is one reason why it is necessary to have the capital investment and the cost of production which are integrally linked, included in the Detailed Project Report prepared by the foreign collaborator. All the assumptions of production, material consumption etc. could be provided only by the collaborator and not by persons who have no knowledge of the working of the plant.

34. The Committee understand from the company that the rise in the cost of production has not so far been adversely commented upon by the Government. During evidence the Secretary, Ministry of Petroleum and Chemicals informed the Committee that before Government

had allowed the company to sign the contract with M/s. M. S. Technoexport in 1962, they had satisfied themselves that each project would be a profitable proposition. The Government had not since then received the revised estimates after due approval by the Board of Directors of the company. When such estimates are received the Government would examine why the cost of production had increased and how the financial position of the plant could be improved.

Government to keep close watch.

35. *The Government should have kept a closer watch over the rise in estimated cost of production. The company should have also specifically brought this fact to the notice of the Government. The Committee recommend that Government should lay down a procedure whereby the undertakings keep Government informed of substantial increases of this nature.*

Comparison of costs.

36. In this connection, the Committee enquired of the IDPL if the cost of production had been compared with the costs obtaining in other factories and were informed that no such comparison had been made. *The Company should try and obtain figures of costs of production in Russia and other foreign countries and also that of Indian manufacturers and compare them with their own. Such comparison would enable the Company to know how the cost of production stands* vis-a-vis *others and enable them to reduce them where the comparison is unfourable.*

D. Pricing

Policy.

37. In regard to the pricing, the IDPL intends to follow different patterns for drugs and surgical instruments. In regard to drugs it was proposed to enter the market on the prevalent market rates. As it gains experience and improves its technology, it might be possible to decrease the prices of the drugs, but it was not intended to start at a low level of prices and raise them in case the costs of production were high. It was on the basis of this policy that the existing market rates were taken as the basis on which the drugs would be sold.

High market prices.

38. The prices at which drugs are sold in the market at present are exorbitant. The Soviet Experts who had examined the possibilities of setting up this industry in 1956 and 1958 had commented very adversely in regard to the drug prices prevailing in India. For example, in 1958, streptomycin was sold at twice the cost. The more significant example was that of Diamox (Acetazolamide) which was sold at eight times the actual cost. The team of Soviet Experts who visited India in 1958 calculated that based on the then prevailing prices of imported drugs and allowing a profit of 10 per cent thereon, the cost of the Antibiotics Plant would be recovered in four years, that of

the Synthetic Drugs Plant in fourteen years and Surgical Instruments Plant in ten years. They further observed as follows:—

> "It should be taken into account that import prices of raw materials and other materials were taken as a basis for our calculations. When the production of indigenous chemicals and intermediates are undertaken, better conditions for the further reduction of prices of drugs will be provided in India.
>
> Besides this, the specific value of separate items of expenditures for production of drugs was based on the existing cost in Indian enterprises. New enterprises will be much bigger and this will provide the reduction of some ex-factory and production expenditures per unit weight of product."

39. The American Senate Committee in their Report (1961) regarding prices of some of the Indian drugs, stated as follows:—

> "The prices in India for the broad-spectrum antibiotics, Aureomycyin, Achromycin, are among the highest in the world. As a matter of fact, in drugs generally, India ranks among the highest priced nations of the world—a case of an inverse relationship between *per capita* income and the level of drug prices."

Necessity to reduce prices.

40. It is quite clear from the above two reports that the prevailing prices of drugs in India are very high. In certain cases they have been artificially increased by monopoly manufacturers, to the prevalent market prices which are arbitrarily fixed depending upon the gap between availability and demand. *In accordance with the aims of a welfare State all the modern life-saving drugs should be made available at cheap prices within the reach of ordinary people. It should, therefore, be one of the objectives of the IDPL to bring these medicines to the public at reasonable prices. This being so, it would not be justifiable for the IDPL to continue to base its prices on the existing market rates. Due to lack of experience there might be some justification for the Company to base its prices on the existing market rates in the beginning but it should, within a year or so of commencement of production, take steps to reduce selling prices to a reasonable level.*

Pooled price for antibiotics.

41. In regard to the antibiotics produced at Rishikesh, the Committee were informed that being a much bigger factory than the Hindustan Antibiotics Ltd. at Pimpri, it should be possible for it to keep the cost of production at

a level 5% lower than that at Pimpri. However, the sale price in the initial stages would be the market price. *The Committee suggest that there should be a pooled price between the Pimpri and Rishikesh factories and the prices of the antibiotics should be reduced. This would not present any difficulty if the two factories are under a common Management, as suggested later* (para 69).

42. The Committee were also informed that considerable changes in production technology in the manufacture of antibiotics were taking place in foreign countries. *The Rishikesh and Pimpri Plants, by keeping abreast of these changes and introducing them in their factories, should be able to bring down the cost of production of antibiotics and make them available to the public at cheaper rates.*

Price of Surgical instruments.

43. In regard to the surgical instruments, it was stated that the sale price would be what the market would bear. Unlike the drugs, the price of the instruments did not affect the public directly. The Committee were informed that the price of most of the imported instruments sold in India was fairly high. *As in the case of drugs, it should be the aim of the Management to see that these surgical instruments are made available to surgeons and hospitals at reasonable prices. The pricing should be based on a cost plus basis and every effort should be made to keep the costs down.*

E. Marketing

44. In regard to the marketing of drugs and surgical instruments, the Committee were informed in November 1965 as under:—

Rishikesh Project

Economic studies of the market had been entrusted to the National Council of Applied Economic Research and the programme of manufacture at the Plant would require to be tailored in the light of assessed marketability of the products.

Synthetic Drugs Project

The Undertaking has entrusted the work of market survey to the National Council of Applied Economic Research.

Surgical Instruments Project

The details of the marketing organization were under finalization. In the meanwhile preliminary steps had been undertaken to make available the production for the first few months to the bulk buyers through the Central Government and State Government Health Departments.

45. The Company has not, so far, taken a final decision regarding the marketing of its products. In fact, in the case of Rishikesh and Hyderabad projects, the Company was still at the stage of a market survey. *Marketing is a very important matter and as the factories will be going into full production shortly, it is necessary that the Company formulate the policy in regard to the marketing of its products at a very early date.*

Agents.

46. During evidence the Chairman, IDPL informed the Committee that so far as Rishikesh and Hyderabad Plants were concerned, a broad decision has been taken that the Company would not enter the retail market. The intention was to sell directly to bulk buyers including Government and semi-government Departments and what was left over, would be sold through recognised well-established whole-sellers, as was being done by the Hindustan Antibiotics Ltd. at the moment. *While welcoming the decision to sell in bulk to buyers directly, the Committee would recommend that the IDPL should appoint its own agents instead of selling through the existing whole-sellers only.*

Direct Government purchases.

47. *All Government Hospitals should obtain their purchases of drugs and medicines directly from Government-owned factories instead of through private selling agents. This would keep the prices down at which the hospitals would receive their supplies and also prevent adulteration of medicines at an intermediate level.*

F. Research and Development

48. The Committee were informed that research laboratories will be provided at the Rishikesh and Hyderabad Plants. A Design and Development Unit has also been set up in the Surgical Instruments Project, Madras. It was stated that constant liaison will be maintained with the Central Drug Research Institute, Lucknow, while implementing the research programme in the laboratories. The Directors of the Central Drug Research Institute and the National Chemical Laboratories were Directors of the Company.

Recommendations of Soviet Experts.

49. The Soviet team of Experts who visited the country in 1965 had laid special stress on the necessity to have a proper research organisation in the country in order to successfully achieve the programme of creating indigenous production of essential drugs and vitamins. Their recommendations were as follows:—

"(1) To set up a special institute to carry out investigations on medicinal plants on the basis of the Drug Research Institute in Kashmir under Col. Chopra, a well-known Indian scientist on medicinal plants. Such an institute is needed for more detailed investigation and utilisation of the rich natural resources of medicinal plants of Indian flora.

This recommendation is based on the experience of successful work that is being carried out by the Union Research Institute of Medicinal Plants and Essential Oils in the USSR.

(2) It is reasonable to orient the work of the Central Drug Research Laboratory in Lucknow to concentrate mainly on synthetic drugs by creating an experimental laboratory and a pilot plant within this Institute to deal with technological problems.

(3) Taking into account the great role played by antibiotics in modern medicine, it would be useful to set up a special research institute for antibiotics. Prior to the creation of this institute, it is advisable to enlarge the investigations into methods of production of new antibiotics and technology of production of those already produced at the research laboratory of 'Hindustan Antibiotics Ltd.', Pimpri. With this aim in view, the laboratory should be manned with suitable scientific workers and experimental plant (Pilot Plant) should be constructed.

(4) A special laboratory should be set up at the Haffkine Institute, Bombay, for working out problems connected with the production of glandular preparations. This laboratory would enable also the starting of production of ACTH within this laboratory.

(5) Under the Ministry of Health, Government of India, an institute of vitaminology should be set up for investigating into the problems of methods of use of vitamins and physiological activities of the vitamins. A special institute under the Ministry of Commerce and Industry, Government of India, should be set up for carrying on researches in working out new methods of production of synthetic vitamins, vitamins from natural raw materials and modifying technological processes of their production.

In addition, the following investigations connected with the work of planning and organising the production of the most essential drugs and vitamins in the country should be carried out:—

(a) Investigations into the content of the wastes of the coke ovens to determine more precisely the content and the possibilities of recovering pyridine, gamapicoline and betapicoline. This work should be entrusted to the Fuel Research Institute, Dhanbad.

(b) Investigations into the possibilities of producing lactose from the wastes of dairy farms or from other sources. This work should be en-

trusted to the Central Food Technological Research Institute, Mysore.

(c) Working out methods of production of diosgenine from dioscorea and also methods of production of synthetic hormones from diosgenine. This work should be entrusted to the School of Tropical Medicine, Calcutta. It would be useful to carry on these investigations in collaboration with the Soviet Research and Pharmaceutical Institute (Moscow) which possesses considerable experience in this field.

As desired by many Indian scientists and in the interest of development of science, it would be advisable to establish closer contact and exchange of experience between Research Pharmaceutical Institutes of the Republic of India and the USSR.

Need for proper research.

50. *It has not been possible for the Committee to enquire in detail about the progress of research in each of the above lines, but from the information placed before them, they gathered that sufficient stress on research facilities has not been given by the Government of India and the Company. As correctly pointed out by the Russian Experts it is necessary to conduct fundamental research in case the country is to produce drugs based on vegetable and animal raw material available in this country. A proper scheme for research should be planned after consulting all the known authorities on the subject in the country. The laboratories attached to the Rishikesh and Hyderabad Plants should also be manned by competent and senior scientists who should try to evolve drugs and antibiotics based on vegetable and animal raw materials of Indian origin. The country possesses a great tradition in the field of Ayurveda which has specialised in the use of medicinal plants for curative purposes. It might be profitable to do research on these plants and synthesise their properties into drugs and medicines. Unless raw materials of Indian origin are used, our dependence on foreign manufacturers will not cease.*

Pilot Plants.

51. In this connection, the Committee would like to draw attention to the following portions of the Report of the Indian Pharmaceutical Delegation, 1964:—

"Considerable importance is attached to the pilot plant studies in almost all factories visited in Europe, U.K. and U.S.A. and every factory has a pilot plant to suit its individual requirements.

Processes developed in research laboratories are based on reaction carried out in laboratory apparatus using only very small quantities of materials, and therefore, considerable further work is required before the processes can be

used for large-scale commercial production. This work is usually carried out in a pilot plant having small capacity equipment of more or less the same designs and materials of construction as normally used in large-scale chemicals plants. The laboratory work is scaled up here several times and though the quantities handled are still not very large, the operations can give reasonably accurate idea of the possibilities and problems that the process may show on the larger commercial scale production.

A pilot plant helps in rapid evaluation and assessment, both technical as well as economical, of ideas and proposals emanating from the manufacturer's own research laboratories or those obtained from external sources such as other research institutes or from scientific literature. A special advantage of a pilot plant is that such evaluation concerning an improvement or modification of an existing process can be carried out without any interference with the normal production activity.

Experimental work on a pilot plant helps in determining the feasibility of adopting a laboratory process on plant scale. Occasionally it becomes necessary to modify the original process to suit the available materials and equipment and sometimes special equipment has to be designed to suit a particular step in the process. Requirement of energies and services such as power, steam, water, refrigeration, vacuum, etc., can also be estimated on the basis of polit plant studies.

In case of pilot plants for synthetic drugs two general types are in use. In one type, the plant is designed for the study of a specific product, and the installation is of a temporary nature. It is dismantled after the study is over and equipment becomes available for any new set-up that may be required. In other type, the plant is installed more or less as a fixed set-up but the equipment and the general design and arrangement are so versatile that the same plant is useful for studies of a variety of processes and products. Pilot Plant equipment for high pressure work is invariably installed in separate specially designed rooms. These areas are generally so constructed as to be minimum of hazard to the personnel and the rest of the plant and are usually provided with automatic fire-fighting devices."

52. *The principles enunciated above will no doubt be adopted in the laboratories attached to the Plants.*

53. In regard to the Antibiotics Plant at Rishikesh, the Company informed the Committee that like any other branch of modern medicine, antibiotics was also a highly research oriented field. The economics of the present production and the discovery of new ones would depend on further research to be done at the Plant. *The Committee recommend that the research work at the laboratories of the Hindustan Antibiotics, Pimpri, the Central Drug Research Institute, Lucknow and the Rishikesh Plant should be properly co-ordinated. The work should be done under the supervision and guidance of one authority who should direct the various research projects, both of fundamental and applied nature.* Antibiotics.

54. *New and better antibiotic drugs are being produced through advancement of technology. It is necessary to keep abreast of the latest developments in the field so that this country can catch up with the developments taking place elsewhere. It is here that the laboratory and the pilot plant at the Rishikesh Project can play a vital role.*

55. In regard to the research in the manufacture of synthetic drugs, the Committee understand that usually research work is directed along two broad channels—(i) progressive economy in production of existing products *i.e.*, by improved methods of manufacture, by the discovery of more economical basic materials or discovery of newer and shorter methods of synthesis; and (ii) research on new drugs. *The Hyderabad Plant should see that its laboratory gives due importance to these two aspects of the research work. Being the Plant with the largest product mix, it is necessary that its research work should also be more broad-based and extensive. The Plant should also maintain co-ordination with the Fuel Research Institute, Dhanbad, the Central Food Technological Research Institute, Mysore and the School of Tropical Medicine, Calcutta, as also the Research Institute in foreign countries.* Synthetic Drugs.

56. In regard to the research work being carried out in the Surgical Instruments Plant, Madras, the Committee were informed that it was envisaged to serve four purposes: Surgical instruments.

(i) evolution of new design of instruments; (ii) modifications of existing designs; (iii) liaison with the medical profession; and (iv) projection of the requirements of the country.

57. *As the research work is more of an applied nature, adequate equipment necessary for the purpose should be provided. It would also be useful for the Design and Development Unit of the Plant to obtain suggestions for modifications of instruments from the surgeons who actually use such instruments. If this liaison with eminent surgeons is properly carried out, very useful results in this field can be achieved.* Equipment.

G. Management

Ministry

58. The Company is under the Ministry of Petroleum and Chemicals. As the products manufactured by the three factories is the concern of the Ministry of Health, the Committee enquired why the Company should not be under the Ministry of Health. The Chairman of the Company stated during evidence that it did not matter much under whom the Company functioned so long as that Ministry was responsible for the development of drugs and pharmaceuticals in the country. At present, this subject was dealt with by the Petroleum and Chemicals Ministry. *The Committee feel it would be appropriate for Ministry of Health to be in charge of the IDPL projects, because they had to plan the entire health programme of the country including the requirements and supply of drugs and surgical instruments. The Ministry of Petroleum and Chemicals has at present, necessarily to consult the Ministry of Health at each stage in regard to the development of the industry in the public sector. By placing the IDPL under the Ministry of Health, the consultations would be direct instead of through an intermediary.*

Single management for Rishikesh and Pimpri factories.

59. As both the Hindustan Antibiotics factory and the Rishikesh factory produce antibiotics, the Committee enquired whether it would be desirable to place them under one management with a view to effect proper coordination in the matter of production, sales and research. The Committee were informed that the Hindustan Antibiotics worked with American collaboration while the Rishikesh Plant was set up with Russian collaboration. The seed materials for the manufacture of antibiotics were obtained from these two countries respectively and under the agreement with the Russians, the Company was bound to a certain amount of secrecy in relation to the Pimpri factory. An amalgamation of the two units would create difficulties in this regard. The Chairman of the IDPL however, admitted during evidence that there would be considerable advantages in bringing the two factories under one management.

60. *There is no doubt that by having a common management, a common Research and Development Unit and a common Sales Organisation, considerable economy can be effected. The difficulty about maintaining secrecy of production methods does not appear to be unsurmountable. It will perhaps have to be observed so long as foreign experts are there. Once they are gone the Management of the factories in the public sector could be combined.*

Headquarters of Company.

61. The Committee were informed that the Headquarters of the Company was located at New Delhi because the office of the Soviet collaborator, M/s. Technoexport, the Technical Consultancy Bureau of the NIDC, the Directorate General of Supplies & Disposals, the Directorate

General of Technical Development and the Drug Controller were in Delhi and it would facilitate consultations with them if the Headquarters remained in New Delhi. *The Committee agree that this consideration is vital during the formative stage of the Company. Once the factories have been established, there would be no occasion for any large-scale consultation with the authorities mentioned above. Thereafter the Headquarters of the Company should be shifted to Hyderabad which apart from being central, would at least be nearer to two plants.*

H. Personnel

Personnel requirements.

62. The estimated requirements of staff included in the Detailed Project Report were as under:—

	Estimates of personnel
Rishikesh Project	2178
Hyderabad Project	2200
Madras Project	986

63. The Committee were informed that the Detailed Project Reports did not, however, contain the rationale for the requirements which in the absence of such data, have been presumed by the Company to have been based on Soviet conditions. It is also stated that several Departments like Sales, Purchase, Costing, Internal Auditing, Watch & Ward, Township Edministration, etc., have not been included in the estimates. The Company had, therefore, entrusted the work of deciding the personnel requirements of each factory to a Committee of the Board of Directors. That Committee had, however, not reported so far and the Chairman, IDPL admitted during evidence that there had been considerable delay in finalising these matters.

64. *This matter should have been finalised earlier and the work-load of various categories of staff fixed with a view to determine the exact number of persons required in various sections of the factories. To arrive at these norms of work-loads, due consultation should have taken place with the Soviet authorities. After having fixed the personnel requirements, efforts should have been made to recruit the necessary staff and commence their training so that they may be in position by the time the factories were*

commissioned. The Directors should immediately finalise the personnel requirements of the factories. Once the decision has been taken in regard to the number of staff to be employed in each category in each factory, that figure should be adhered to. Surplus staff exists in many factories in the Public Sector and the IDPL should curb such a tendency in their own factories.

Deputationists.

65. The Committee note that the number of deputationists with the Company as on 31.8.1965 was as follows:—

Head Office	..	23
Rishikesh Project	..	70
Hyderabad Project	..	94
Madras Project	..	62
TOTAL		249

66. It was stated that such large number of people were on deputation because in the beginning, the Company had to borrow experienced people to get the work going. *Since the factories have almost started production, the deputationists should now be given an option to remain with the Company or return to their parent offices. It would not be desirable to keep large number of deputationists, especially on non-technical posts which apart from being more expensive, is not conducive to efficiency, as the deputationists keep looking to their parent offices for betterment of their prospects.*

67. The Committee noticed in this connection that a number of junior staff like peons, drivers, typists, Junior Assistants etc. were on deputation. *While it might be necessary to get experienced staff for a new project, it does not appear justifiable to get peons, drivers and typists on deputation, as they are available in the market.*

I. Ancillary industries

68. There are two types of ancillary industries to be set up near the Plants: (i) pre-production type, like those producing components, raw materials, etc., and (ii) the post-production type, mainly packing materials. So far as the Rishikesh Plant is concerned the Committee were informed that in August 1965, suitable entrepreneurs desiring to set up the manufacture of the following requirements were selected:—

(a) Wooden packing cases;

(b) Corrugated card board boxes;

(c) Rubber stopper; and

(d) Polythene packing materials.

69. So far as the Hyderabad Plant is concerned, as a result of the joint efforts made by the Company and the State Government of Andhra Pradesh, out of seventeen raw materials proposed to be prepared in the ancillary industries, know-how in respect of only five items had been worked out and licences had been issued in respect of manufacture of a few other items.

70. *Much progress does not appear to have been made in the setting up of ancillary industries both at Rishikesh as well as Hyderabad. Whereas the plants would soon go into production, the ancillary industries are yet at the stage of 'licences'. Further, in the case of Rishikesh project the ancillary industries so far licensed are only of the post-production type. The Company should immediately take up the matter of setting up of the industries expeditiously with the respective State Governments. In case private enterprise is not forthcoming, the Company should enter into firm contracts with outside suppliers to ensure that the production programmes does not suffer because of the delay in establishing ancillary industries.*

J. Spares

71. The Committee were informed that the contract with the Soviet Party provided for the supply of spare parts necessary for the operation of the plants for one year and that the spares were to be supplied along with equipment. Similar arrangement had been made for the equipment purchased from the East European countries. In regard to the supply of spares for subsequent years the position was stated to be under examination.

72. *The Committee feel that dependence on foreign manufacturers for the supply of spare parts is extremely unsatisfactory specially as the production technology is constantly changing, thereby resulting in changes in the equipment. The Company should persuade the Soviet Party and the other East European suppliers to give the drawings of all the spare parts of the equipment so that they could be fabricated in the country.*

Repair mechanical shops.

73. In this connection the Committee observe that the Soviet Experts in their Report (1956) had suggested that repair mechanical shops should be established in the plants. To quote the report:

> "Repair mechanical shops should be built at the pharmaceutical plant and the intermediates plant. These shops should be equipped with lathes and welding apparatus which will not only carry out repairs but also produce certain types of small size chemical equipment. If these

shops are built prior to the construction of the plants, they will meet partly the requirements of simple equipment needed for the construction of the plants. The repair mechanical shops must have special anti-corrosive departments where apparatuses will be repaired and coated with corrosion resisting materials."

74. *The progress made in setting up of these shops is not satisfactory. Whereas these shops should have been set up before the construction of the plant, they are going to be set up now. These mechanical shops could be equipped to manufacture spare parts also.*

III

ANTIBIOTICS PROJECT, RISHIKESH

Product-mix.

75. The Antibiotics Project, Rishikesh is estimated to cost Rs. 23·31 crores, including Rs. 3·16 crores for township. The plant is expected to commence trial production in middle of 1966. The product-mix and the annual rated capacity of the Plant are as follows:—

	Capacity (Tonnes)
1. Potassium Salt of Penicillin which will be completely converted into:	85
Sodium Salt	30
Procaine Salt	55
2. Streptomycin Sulphate	70
3. Dihydrostreptomycin Sulphate	15
4. Chlorotetracycline	70
5. Oxytetracycline base	25
6. Tetracycline base 7. Tetracycline hydrochloride	25
8. Nistatin	10

76. Production would begin with penicillin and the other drugs would follow. It was stated that it would take about three years to reach the full capacity after the plant started production.

A. Raw Materials

Imports.

77. Eighty-five different raw materials are required for production of eight antibiotics, the principal ones being corn steep liquor, soyabean floor, maize starch, glucose, soda ash and ammonium nitrate. Out of those eighty-five items, fifty-three are said to be available in the country and the thirty-two items have to be imported for the time being. These imports would cost Rs. 40 lakhs per annum. The list of these items is given in Appendix I.

Indian Suppliers.

78. The Committee were informed that the suppliers of raw materials available in India had been located as a result of country-wide survey. In regard to the materials which have to be imported, the Soviet Party had agreed to supply such items as are available in that country. The

Soviet Party had also been persuaded to meet a percentage of requirements even in respect of items which the USSR itself imported from other countries. In the meanwhile, enquiries were stated to be in progress for locating alternative sources of supplies of raw materials, which had to be imported. Experiments were also being undertaken at the Pilot Plant which started functioning in October, 1965 to explore the possibilities of import substitution.

Soyabean.

79. It was stated in regard to soyabean, an important raw material which is required in substantial quantities that certain samples grown in the Kangra valley and Dehra Dun had been sent to Soviet Russia for analysis with a view to find out their suitability. *This is a matter which should have been taken up three or four years ago. If the local variety was unsuitable, the right variety could have been introduced from abroad. This would have ensured that by the time factory went into production all the soyabeen required would be available in the country. Similarly, it would have been possible to obtain items like potato starch, lactose etc. from indigenous sources. Steps should be taken immediately to investigate the possibilities of producing in the country all the thirty-two raw materials which have now to be imported.*

Tapioca.

80. *The possibility of using tapioca which is pre-eminently starch, as a raw material in the preparation of antibiotics should be examined. This is a field which is probably untapped so far and if research could be conducted successfully for its utilisation, it will be beneficial to the Plant because tapioca is grown in abundance in the country.*

B. **Product-mix**

Change in product-mix.

81. A non-official memorandum submitted to the Committee had stated as follows regarding the product-mix of the factory:—

"(i) *Chlorotetracycline*: Ever since the Tetracycline was invented in 1956. Chlorotetracycline is needed very scarcely as a broad spectrum antibiotic.

(ii) *Tetracycline*: Since 1963 when Dimethylchlorotetracycline (D.M.C.T.) products came into the market, the demand for Tetracycline products has been declining because D.M.C.T. is more advantageous and less costly than Tetracycline.

(iii) *Oxytetracycline*: M/s. Chase Pfizer, the patent holders have a licence for manufacture of five tonnes of this products in India. This drug is similar to Tetracycline in its usage and the remarks in regard to tetracycline apply here.

(iv) *D.M.C.T.*:—As this is the most modern and most needed drug, manufacture of D. M. C. T. should be given greater importance."

82. The question of the declining demand for chlorotetracycline was considered by a Committee set up by the Company in 1963. It was then felt that chlorotetracycline may not require to be manufactured in quantities provided for in the Detailed Project Report. The question was thereafter discussed with the Soviet Party, but they were opposed to any change in the manufacturing programme included in the Detailed Project Report on the ground that it would delay the commissioning of the Plant.

83. It was also stated that chlorotetracycline would be converted into tetracycline by a process of dechlorination already in industrial use. So far as D. M. C. T. is concerned, assuming that D.M.C.T. replaced tetracycline to an appreciable extent it was possible to switch production from one product to another. The fermentation process being common to all antibiotics, it was only the subsequent recovery and purification process which varied.

84. *The Committee are not too sure if the problem is as simple as it is made out to be. It may not be advisable for the company at this stage to change the product-mix because that might delay the commissioning of the project. But it is necessary to review the quantities to be produced under each item in the light of the survey at present being conducted. As soon as the result of the survey is known the change in product mix should be carried out without delay.*

C. Construction

Design by Indian Engineers.

85. The Committee understand that the designing of all factory buildings, except for the administrative block, welfare and canteen blocks, research laboratory, the pilot plant and the animal house, was entrusted to the Soviet Party. The Chairman, I.D.P.L., informed the Committee during evidence that a Committee of Technical Experts had gone into the question of factory buildings and they had categorised the buildings into three categories: (i) those outside the precincts of the plant to be designed and executed by the Indian engineers; (ii) those within the precincts of the plant to be designed and executed by the Indian engineers; and (iii) those designed by the Soviet Experts but to be executed by the Indian engineers. It was felt necessary to entrust the designing of the last category of the building to the Russian Engineers because, firstly the IDPL had no factory organisation of its own for that work nor could one be built for a period of 2 or 3 years and secondly the designing of the first two categories of works was already a heavy work—the Technical

Consultancy Bureau of the NIDC having agreed to undertake responsibility for only a fraction of the first two categories. During their visit to the plant, the Committee were also informed that it was entrusted to the Russians because equipment, i.e., plant and machinery was to be supplied by them.

86. *The designing of all the buildings should have been entrusted to the Indian Engineers. The Indian Engineers have designed factory buildings of a much more complicated nature in the public sector and this work in the Antibiotics project could have been undertaken by them. The Committee would draw the attention of the company to their recommendation** (*para* 118 *of the* 8*th Report on Township and Factory Buildings*).

Work uncompleted by contractors.

87. It was seen that in the case of the following six major works of the Rishikesh Project, amounting to Rs. 15·43 lakhs, the works were left undone by the contractors:—

Name of work	Amount of contract
. .	1,75,786·00
Manufacturing and supply of 25 lakhs 1st class bricks at Project site	1,21,200·00
Manufacturing and supply of 25 lakhs 1st class bricks at Project site	1,21,200·00
Field Hostel Railing fixing of kicking plates, etc.	8,290·00
Administration Block . . .	9,96,264·00
Supply fabrication and erection of steel trestles	1,19,700·00
	15,42,440·00

88. In some cases it was stated that the contractors had to be changed due to slow progress and in the others because the quality of work was not found satisfactory. Whenever they found that the contractor was not working well, his contract was terminated and the work got done by another agency at his expense. *If only the right types of contractors had been chosen in the first instance this difficulty would not have arisen.*

*118. It is obviously not necessary to seek assistance of foreign collaborators for plans and designs for buildings which could be prepared by the Indian Engineers. The Committee recommend that Government should issue instructions to the public undertakings to avoid recurrence of such cases. In this connection paragraph 127 of the Report may also be seen.

IV

SYNTHETIC DRUGS PROJECT, HYDERABAD

89. The Synthetic Drugs Project, Hyderabad is estimated to cost Rs. 21.45 crores and it is designed to produce 851 tonnes annually in the field of vitamins, sulpha drugs. Anthelmintics, Analgesics, Antipyretics, Diuretics, Antitubercular drugs etc., as follows:— Background.

Group	Product	Licensed capacity for manufacture (in metric tons)
(a) Sulpha drugs	(1) Sulphadimidine	280
	(2) Sulphaguanidine	130
	(3) Sulphacetamide Sodium	50
	(4) Sulphanilamide	50
(b) Diuretics	(5) Acetazolamide	25
(c) Antitubercular	(6) Isoniazid	20
(d) Hypnotic	(7) Phenobarbitone	10
(e) Anthelmintics	(8) Diethylcarbamazine Citrate	30
	(9) Piperazine Adipate	50
(f) Analgesics & Antipyretics	(10) Phenacetin	100
	(11) Amidopyrine (Pyramidone)	40
	(12) Metamizol (Analgin)	10
(g) Vitamins	(13) Vitamin B1	30
	(14) Vitamin B2	5
	(15) Folic Acid	1
	(16) Nicotinamide	20
	TOTAL	851

90. The drugs will be manufactured from basic raw materials. Abuot 4560 tonnes of intermediates will be produced at the Plant, of which 270 tonnes would be available for sale in the market and the remaining utilized for producing drugs.

91. The Plant is also being provided with capacity for formulation of about 390 tonnes of drugs into dosage forms e.g. tabletting etc., and the balance of the production is proposed to be sold to other pharmaceutical manufacturers for formulation.

A. Raw Materials

92. Out of 84 different raw materials including intermediates required by the factory, 42 items as shown in Imports.

Appendix II are to be imported. The total value of these imported items is Rs. 1·75 crores for a total of 4266·76 tonnes per annum.

Supply from H.O.C.

93. The Hindustan Organic Chemicals Ltd. was originally thought of as a complementary unit to the Synthetic Drugs Project as the former would produce intermediates which would be processed later by the Synthetic Drugs Project into drugs and pharmaceuticals.

94. The Committee examined the production programme of the Hindustan Organic Chemicals Ltd. and found that only two items namely Acetanilide and Aniline were included in the product mix of this factory. The Chairman, IDPL, during his evidence before the Committee, stated that the Hindustan Organic Chemicals Ltd. was to manufacture six intermediates for the factory. The IDPL had communicated the requirements to the Hindustan Organic Chemicals Ltd., but it did not have information as to how many of these were being taken up for production. *Being a matter of vital interest, the IDPL should normally have watched the progress in this regard. The Company should take up this matter immediately with the Hindustan Organic Chemicals Ltd., and induce them to produce its requirements.*

95. The Chairman, IDPL also stated in his evidence that the Hindustan Organic Chemicals Ltd. might manufacture some of the items only if they were able to obtain outside orders in addition to the IDPL's orders, as the requirements of the Hyderabad factory might not enable an economic production. *This being so, it was all the more necessary for the IDPL to have taken up this matter with the Hindustan Organic Chemicals Ltd.*

Supply of intermediates to private manufacturers.

96. During evidence of the Representatives of the Ministry of Petroleum & Chemicals, the Industrial Adviser (Drugs) informed the Committee that at present Rs. 2½ crores worth of intermediates for various units, which are in operation today, were being imported. Once the Hindustan Organic Chemicals Ltd. went into production, this would be reduced. The production of intermediates was being taken up on a consolidated manner because most of them were also being used as intermediates in dyes, plastics, rubber, chemicals, etc. Government was assessing the total demand and examining whether any economic unit could be set up in any particular sector. *Early action is needed to determine the total requirements of the intermediates for all the pharmaceutical and drug factories and set up plants for producing them. The Committee realise that no country can be absolutely self-sufficient in all intermediates, but an import of Rs. 1·75 crores of intermediates by the IDPL alone is something which cannot be viewed with equanimity.*

B. Product-Mix

Vitamin C.

97. The Indian Pharmaceutical Delegation to the Soviet Union in 1956 had spoken very highly of the production of Vitamin 'C' in the Soviet Union and had suggested that the collaboration with the USSR for the production of Vitamin 'C' seemed possible on an immediate basis. The Soviet Delegation (1958) stated that "taking into consideration the absence of production of Vitamin 'C' in India and its importance because of wide implementation of antibiotics in medical practice, we recommend also to include the production of Vitamin 'C' in the Synthetic Drugs Plant."

98. The Committee found, however, that Board of Directors of the Company had decided that the Company need not proceed with the manufacture of Vitamin 'C' but in view of the importance of this vitamin, the matter should be brought to the notice of the Government for considering alternative proposals for the establishment of capacity for the production of this Vitamin.

99. The Chairman, IDPL, in his evidence before the Committee stated that if Government took a decision to manufacture Vitamin 'C' at the Hyderabad Plant and if the Plant was given the machinery and technology, it would be able to produce it.

100. The Secretary of the Ministry of Petroleum & Chemicals, during his evidence, informed the Committee that according to the Soviet Experts had the production of Vitamin. 'C' been included initially it would have been alright but now they were not in favour of this until the present plant went into production. The production of Vitamin 'C' could, therefore, be taken up as a part of its expansion programme.

101. The Committee find that out of a total licensed capacity of about 110 tonnes in the country today, only 90 tonnes are actually produced. The Development Council for Drugs is understood to have recommended 375 tonnes annual production during the Fourth Five Year Plan, *i.e.* an increase of about 168 per cent over the licensed capacity at the end of the Third Five Year Plan or over 500 per cent of the existing production. *It is obvious that the demand for Vitamin 'C' in the country is far in excess of the existing production. In view of what was stated by the Indian and Soviet Experts in their Reports, quoted above, the Hyderabad Plant should have taken up the manufacture of this Vitamin from the beginning. The Committee hope that early steps will be taken to do so.*

C. Formulations

102. The drugs are first produced in bulk and thereafter converted into dosage forms in the shape of tablets, capsules, injectibles, drops, ointments, liquids, etc. Various dosage forms have come into use in the Pharmaceutical Industry to take advantage of the full clinical potentiality of the various drugs in different combinations and to make their administration to the patients more convenient and palatable. It is, however, understood that there has also been an exploitation of the formulations for larger profits, not always necessitated by clinical considerations.

103. As stated earlier the Synthetic Drugs Plant is expected to formulate 390 tonnes in dosage forms out of total production of 851 tonnes of drugs per year. The rest of the production is proposed, according to present decision, to be sold to other pharmaceutical manufacturers for formulations. The 390 tonnes of drugs would be formulated only in the form of single-drug tablets.

104. The formulations in the Pharmaceutical Industry in the country, at present, in respect of these drugs are not confined to single-drug tablets. On the other hand, based on these drugs, a number of formulations such as ointments, drops, syrups, injections, granules and multi-drug preparations, in combination with other drugs, are prepared and sold.

105. The Committee were informed that it would be very difficult to compare the profitability of various drugs sold in different formulations. It is, however, apparent that, as conditions exist at present, it is far more profitable to sell the drugs in formulations rather than in bulk. Further the profitability increases with the variety of dosage forms and multi-drug formulations.

106. There is no directive from the Government limiting the formulation at the Synthetic Drugs Project, though the present arrangement contemplates the transfer of a considerable proportion of the basic products in bulk to the pharmaceutical units in the private sector engaged in formulations. Also, the Finishing Block at the Synthetic Drugs Project, as equipped at present, does not, by and large, envisage formulations other than single-drug tablets.

107. *Since the profitability of the Plant depends largely on formulations it would be worthwhile reviewing the formulation programme of the Plant both in terms of quantities and the varieties to be formulated. There should not be a multiplicity of formulations merely for the sake of earning larger profits but the factory should take up formulations found useful on clinical considerations or those that are widely prescribed by the medical profession. The Government might have this aspect examined by competent persons.*

D. Location

108. The Soviet Experts who visited India in 1958 had stated as follows in regard to the location of the Synthetic Drugs Project:— View of Soviet Experts.

> "Special attention should be paid to the possibility of removing of polluted effluents (1500 cu. m. per day) including 500 cu. m. of effluents which should be preliminarily naturalized. That is why we recommend to put up the plant at the seashore as has been done in the case of some chemical plants in India."

109. The choice of the location of the factory at Sanatnagar was recommended by the Drug Projects Location Committee of the Planning Commission who suggested that the pretreated effluents could be channelled into the Musi river. Drug Project Location Committee's Recommendations.

110. In this connection, the Committee also came across the following observations of the Indian Pharmaceutical Delegation which visited several countries in 1964:—

> "Correct selection of sites for chemical plants from the point of view of water supply and effluent disposal facilities is of vital importance particularly in India where most of the rivers are not perennial and in the few that are perennial, the flow of water varies widely from season to season. Wrong location in respect of these essential considerations would seriously limit further growth in the industrial units besides causing several problems to civic life, agriculture etc."

111. *The Committee are of the view that the choice of the location of the Synthetic Drugs Project at Hyderabad was not a happy one because the disposal of effluents has created a very big problem for the factory. It will also involve incurring of enormous expenditure which could have been avoided if the Drug Projects Location Committee of the Planning Commission had heeded the advice of the experts.* Wrong choice.

112. The Government representative, in his evidence had, however, justified the choice of Sanatnagar by stating that there were several other considerations which had been taken into account *i.e.* availability of water, closeness to research laboratories, situation with reference to supply of raw materials and markets for finished goods, climatic conditions etc. The Chairman, IDPL, when asked whether Hyderabad had been an ideal choice, replied that on techno-economic considerations alone, it might have been better to locate the factory elsewhere.

Disposal of effluents.

113. The original proposal was to discharge the effluents into the Musi river after biological treatment. A scheme was offered for the biological treatment by a firm. This was, however, not accepted by the Soviet Expert. The Soviet Expert was also against a proposal for solar evaporation of the effluents. He suggested that the best plan will be to construct a masonry dam about three miles from the Plant site, where sheet rock of monolithic granite over an area of about 30 acres was available to serve as an impervious bed. This reservoir was to serve as an accumulator-*cum*-evaporator for a period of fifteen years. This scheme was examined by a Technical Committee who found that the scheme would cost Rs. 78 lakhs as against Rs. 40 lakhs for the original scheme for biological treatment and discharge into the Musi river. The reservoir scheme also has several disadvantages, chief of them being the possibility of seepage of toxic effluents and its corrosive qualities, affecting the masonry structure and that as the proposal was only an interim measure, the money spent on the construction was likely to prove infructuous. The Technical Committee suggested an alternative solution to the problem of disposing the effluents by an evaporation method costing Rs. 75 lakhs. The Company has, however, ultimately decided to resort to disposal of the effluents by evaporation in shallow masonry pans suitably lined. Seven such pans would store the effluents during the period of monsoon. There would be 100 evaporation tanks which would enable the effluents to evaporate during the hot months. The cost of this scheme will be about Rs. 85 lakhs. The Company is also searching for a cheaper solution.*

114. *All this trouble and expenditure could have been avoided, if the factory had been located near the sea in which case the effluents could have been easily discharged into the sea. The Committee hope that the Company will soon find a permanent and cheaper solution to this problem. The Public Health Department of the Government of Andhra should also be associated with the final decision so that it does not lead to any public hazards.*

115. The effluents are stated to contain high percentage of sulphuric acid and if it could be separated it could be used to prepare super-phosphates, a valuable fertiliser. *Research should be carried out in regard to this as its success will influence the financial results of the factory.*

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*At the time of factual verification, the Company has pointed out as follows:—

"Since the conclusion of the evidence before the Committee, there has been a significant development on this point. The Company has succeeded in its research for a cheaper solution of the problem. It is based on a scheme formulated by the Central Public Health Engineering Research Institute, Nagpur. The implementation of this scheme would result in substantial savings over the earlier estimates".

V

SURGICAL INSTRUMENTS PROJECT, MADRAS

116. The Surgical Instruments Project, Madras has been constructed at a cost of Rs. 5·10 crores. The Plant is designed to produce about 2.5 million pieces of surgical instruments per annum of 166 types pertaining to different branches of Surgery such as General, Dental, Opthalmic, Neuro-surgery and Gynaecology etc. Background.

117. The following is the production programme of the factory:—

(a) Different types of surgical knives and scalpels	200,000	Nos.
(b) Scalpels with removable blades (20 blades & handles in a set)	100,000	,,
(c) Forceps	500,000	,,
(d) Bone cutting forceps & others	100,000	,,
(e) Surgical scissors	700,000	,,
(f) Needle holders	40,000	,,
(g) Clamps	500,000	,,
(h) Speculums wound retractors	20,000	,,
(i) Surgical hooks	25,000	,,
(j) Diff. types of curretes & bone scoops	50,000	,,
(k) Raspatories for detachign periosteum bone	10,000	,,
(l) Guages	9,000	,,
(m) Surgical saws	10,000	,,
(n) Wire saws a guides for them	15,000	,,
(o) Spatules	20,000	,,
(p) Probes	30,000	,,
(q) Gynaecological forceps	15,000	,,
(r) Pelvimeters	5,000	,,
(s) Rectal speculums	3,000	,,
(t) Braces, reamers & drills	47,000	,,
(u) Teeth filling instruments	50,000	,,
(v) Tracheal tubes	25,000	,,
(w) Smith-petersen trifid nails	1,000	,,
(x) Ligature needles	5,000	,,
(y) Dental forceps	20,000	,,
TOTAL	2·5 million pcs.	

A. Raw Materials

Alloy steels.

118. The annual requirements of raw materials of the factory is 980.3 tonnes and consist of the following:—

(a) Stainless steel	466·5	tonnes
(b) Alloy Tool Steel	220·0	,,
(c) Carbon Steel	160·3	,,
(d) Low Carbon Steel	123·0	,,
(e) Non-ferrous	10·5	,,
	980·3	,,

Indian production.

119. Initially all these alloy steels will have to be imported, the total value being Rs. 35 lakhs per annum. The Committee understand that as soon as the specifications of the alloy steels were received from the USSR, the requirements of the factory were made known to the Hindustan Steel Ltd., Mysore Iron and Steel Works and M/s. Madras Alloy and Stainless Steel. They had taken note of the requirements and would begin production during the next few years. The representative of the Government, during his evidence before the Committee stated, however, that since the total requirements of the factory were small it was not known how far the steel factories would be able to produce their requirements, unless they obtained orders from elsewhere to make the production economic.

120. It appears from evidence that the matter is still vague, as the Company is not sure whether its requirements will be obtained from the Indian steel mills or not. *It is necessary for the Company to be definite about this particularly the exact date by which the steel mills will be able to effect supplies so that the Company could arrange for necessary imports during this period. The Ministry of Petroleum & Chemicals should take up this matter urgently with the Ministry of Iron and Steel to ensure that the required quantity and quality of steel is produced in India to meet the demands of the Madras factory.*

B. Product-mix

Committee of Surgeons.

121. The production programme of the factory was decided on the recommendations of a Committee of eminent surgeons. They decided the proto-types of the surgical instruments to be taken up for manufacture and also tested them in hospitals. The surgeons recommended change of designs in the case of nine instruments, modifications in the case of twenty three instruments and approved proto-types of 120 instruments. Some of these instruments are still under trial and the proto-types of a

few are awaited from Russia. It was stated that change of designs and modifications wherever recommended by the surgeons was being implemented.

122. Col. R. D. Ayyar, a member of the Committee of surgeons who examined this question stated that the surgical instruments manufactured at the factory were very good and conformed to standards suiting Indian conditions.

Require-ments.

123. The Committee are glad to note that the medical profession considers the instruments that are being manufactured as of high quality. Further, that the instruments selected are those which are required by the small primary health centres and Taluq hospitals. They however, find that whereas in a good District hospital about 600 types of instruments would be required, the present production programme of the Madras factory envisaged production of only 166 items. It is further understood that the total requirements of the country of the 166 types of instruments proposed to be manufactured at Madras is to the tune of Rs. 500 lakhs at present and this is likely to exceed Rs. 800 lakhs by the end of the Fourth Five Year Plan. The production in Madras is, however, only about Rs. 250 lakhs worth of instruments per annum.

Increase in production.

124. *It is clear, therefore, that the Madras factory has made only a beginning both in terms of types of instruments and their quantity and the production will touch only a fringe of the problem of indigenous manufacture of surgical instruments required by the country. The Committee hope that after gaining experience the factory will be able to increase its production to satisfy the requirements of the ountry to a larger extent.*

Small scale production.

125. In this connection, the Committee were informed that there were several small scale producers especially at Jullunder and Ludhiana. They had acquired very good skill but unfortunately were stated to be suffering from three drawbacks—lack of raw materials, lack of forging and heat treatment and lack of equipment and technical know-how. *The Government should, in consonance with the policy of encouraging indigenous production of surgical instruments, give all possible assistance to these small scale producers and help them to produce instruments of good quality to meet shortage in the country. In fact, the small scale producers should be treated as complementary to the Madras factory and Government should apportion the production of various instruments between them so that the country's needs are adequately met and unhealthy competition avoided.*

'C. Forgings

126. A suggestion was received from a non-official in his memorandum to the Committee that it would be advisable if forgings produced in the factory could be sold at a

reasonable profit to small scale firms. The Chairman, IDPL had, however, stated during his evidence that the dies and jigs were based on forgings. The Tool Room was so designed that it would cope only with the production capacity of the factory. If any of the forgings were sold, the subsequent shops would not be fully employed as it was a closely-knit unit.

127. *In view of shortage of surgical instruments it might be advisable to increase the capacity of the forging shops in order to make the surplus forgings so produced available to the small scale producers of surgical instruments.*

D. Input-output ratio

128. For a total capital investment of Rs. 5.1 crores in the Madras factory the annual estimated sale value of its products is Rs. 2·5 crores. The Committee gather from a non-official memorandum that with much less capital and size the factories in England, Germany and Japan produced anything upto a thousand types of different surgical instruments required in big and small hospitals and that the total output of production was very much larger than in the Madras factory.

129. *The input-output ratio for the factory appears to be on the high side. The Company should compare the input-output ratio of this factory with similar figures of factories in other countries with a view to increasing its productivity and bettering its capital output ratio.*

E. Township

130. The factory is expected to cost Rs. 3.56 crores and the township will cost Rs. 1.54 crores. It will be seen that the cost of the township is about 30 per cent of the total cost of the Project. It was stated that the reason for the high percentage of township cost was the fact that the Plant by its very nature of operation was labour intensive and that the number of workers employed was in higher proportion as compared to the other two projects. It was also stated that only 50 per cent of the total number of employees have been provided with accommodation as against 80 per cent in Rishikesh.

131. *Since the Project is located in Madras city and the factory is well served by good public transport, it is perhaps not necessary to have a large township. The factory should economise on township during its expansion.*

132. The Committee found that the Unit cost of the various types of residential units at the townships of the three factories were as follows:— **Higher Unit cost.**

(Figures in Lakhs)

Type of quarters	Unit cost at Hyderabad	Unit cost at Rishikesh	Unit cost at Madras
I	·059	·062	·077
II	·062	·069	·085
III	·094	·105	·131
IV	·159	·177	·221
V	·288	·295	·365
VI	·426	·471	·640
TOTAL	1·088	1·179	1·519

133. It will be seen that the cost of construction at Madras was 50 per cent more than that at Hyderabad and about 30 per cent more than the cost at Rishikesh. The Committee were informed that this was due to high cost of construction at Madras.

134. *It is doubtful if the variations exist to the extent of 50 per cent over the rates at Hyderabad. Nevertheless the matter requires looking into with a view to bringing down the future cost of construction.*

VI

OTHER PROJECTS

A. Phyto-Chemical Project

Back-ground.

135. The Phyto-Chemical Project was one of the four projects taken up with the Soviet collaboration. It was located at Neriamangalam in Kerala and was expected to produce mainly caffeine from tea prunings and a few other drugs such as Ephedrine Papion etc. When the Detailed Project Report prepared by M/s. Techno-export was examined, it was found that the cost of production per ton of caffeine would be about Re. 1 lakh against an imported price of Rs. 18,000 and Rs. 50,000 at which M/s. Bengal Chemicals manufactured caffeine. It appears that the cost of tea prunings estimated while drawing the Detailed Project Report was much less than the prevailing market price. It was then thought of producing caffeine from tea waste only, but this also was not successful as tea waste was only available at a relatively high cost in the South and in limited quantity.

136. In the meanwhile, the Government of Kerala and the Central Medicinal Plants Organisation had gone ahead with the cultivation of various medicinal plants required as raw materials for this Project. The Government, therefore, thought that the IDPL should explore possibilities of manufacturing phyto-chemicals by indigenous processes. A Committee was set up by the IDPL to go into the question, but they found that by leaving out caffeine from the programme, the Project would not be economical. It was, therefore, decided to abandon the project. The total expenditure incurred by the Company is Rs. 13.6 lakhs, out of which Rs. 8·5 lakhs accounts for the payment to M/s. Techno-export for the Detailed Project Report. The Kerala Government also had spent Rs. 19·96 lakhs on the various facilities provided at the Project site.

137. *The Committee had dealt with this matter in para 13 to 17 of their Thirteenth Report on Management and Administration of Public Undertakings.* It is apparent that this infructuous expenditure could have been avoided if a more careful assessment of the availability of raw materials had been undertaken.*

138. In this connection, the Committee would draw attention to the recommendations made by the Soviet Experts who visited India in 1956 and 1958 regarding the very great necessity of producing drugs and medicines from Indian medicinal plants. *With the abandonment of the Phyto-Chemical Project, a great possibility in this direction has been lost. The Government should further explore the possibilities of establishing a Phyto-Chemical*

Advice of Soviet experts.

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*13. It was explained to the Committee during evidence that the techno-economic study of the Phyto-Chemical Project formed part of the study of the entire complex of five projects which the Russians had prepared. Taking the whole complex together, it was a profitable proposition; but when Government examined each Project individually it was not found so.

14. In a note furnished to the Committee subsequently it was stated that the main reason for the project to be abandoned was the uneconomic price at which the raw material i.e. tea prunings for the manufacture of caffeine would be available. It was estimated that at the prevailing market price of tea prunings (which constituted 75% raw material for cafleine manufacture) the cost of production per ton of caffeine would come to nearly Rs. 1 lakh as against Rs. 18,000 which was the price at which caffeine could be imported and Rs. 50,000 at which M/s Bengal Chemicals were marketing the caffeine manufactured by them.

15. The Committee learn that the cost of the raw material originally estimated was Rs. 25 per ton. This figure was supplied by the Kerala Government to N.I.D.C. and on that basis a Detailed Project Report was prepared by the Russians. Actually the price came to Rs. 100 per ton. The total expenditure incurred on the project by the company till the end of June, 1964 was above Rs. 18.6 lakhs of which Rs. 8.5 lakhs represented the payment to M/s Techno-export for the Detailed Project Report. The State Government of Kerala are also stated to have incurred an expenditure of Rs. 12 lakhs on providing the various facilities at the project site.

16. Availability of raw material in adequate quantity and at economic price is one of the primary considerations in determining the economic feasibility of a project. In this case the techno-economic study failed to take note of this important factor. Thus the study failed in its objective causing loss of valuable foreign exchange.

17. In the light of this experience the Committee would stress the utmost need for closely scrutinising the figures and data supplied which form the basis for embarking on a project. It is worthwhile considering how in cases referred wrong data came to be supplied. It should also be borne in mind that in their eagerness to have the project located in their territories, it is possible that the State Governments may not give the same care and attention to basic data as is necessary. The Committee would therefore recommend that the Central Government should exercise a close and independent check on any data supplied by the State Governments.

Project in the public sector and exploit the large variety of flora in the country for the manufacture of life savings drugs and medicines.

Synthetic caffeine.

139. In regard to the production of caffeine, the Committee were informed that the latest trend was the production of synthetic caffeine. The gap between production and demand for caffeine in the country was to the extent of 20 tons and there was no possibility of an increase in the production during the next few years. It is understood that in China, caffeine used to be formerly produced from tea leaves but now that was considered un-economical and a low yielding process. They now produce caffeine chemically.

140. The main intermediates for the production of synthetic caffeine are Urea and Cyano-malonic ester. India already produces Urea and other intermediates are expected to be produced in the country in three or four years. *The Synthetic Drugs Project, Hyderabad should examine the possibility of manufacturing synthetic caffeine in order to meet the needs of the country.*

B. Glandular Products Project

141. The team of Soviet Experts who visited India in 1956 stated as follows regarding the production of glandular products:—

> "From the animal raw materials, only liver for production of extracts is used on industrial scale in India. The rest of glandular raw materials are neither used for production of drugs nor even investigated to determine their active principles. Indian specialists attribute the absence of the production of glandular preparations to the inability of collecting endocrinic raw materials in the country. However, glandular preparations are, undoubtedly needed and to meet the requirements of them, import is required. During 1955, 264.8 mega units of Insulin were imported valued at Rs. 18,66,646.
>
> Study of the conditions of the slaughter houses in Bombay and Delhi showed that position of these slaughter houses is not so convenient for collecting endocrinic raw materials. Slaughtering of animals is carried out by hand in unsuitable buildings without water supply, sewerage and electric lines and other elementary industrial installations. But in spite of this, there is possibility of collecting hypophysis (petuitary) after some additional measures such as setting up small refrigerators at big slaughter houses

and construction of rail coach refrigerators are fulfilled. The collection of animal glands in all big slaughter houses can be organised and this will enable collection of endocrinic raw materials from half of the total number of animals slaughtered in the country.

The quantity of glandular preprations which can be obtained from these raw materials has been calculated. But these calculations are carried out on the basis of the standards of endocrinic raw materials collected in the Soviet Union (because of non-availability of similar data in India) but as the quality of endocrinic raw materials in India can considerably differ from those in the USSR, these quantities should be considered as very provisional, which should be defined more precisely after the analysis of the endocrinic raw materials of India is made."

142. The Indian Pharmaceutical Delegation to Soviet Russia (1956) stated as follows in regard to this matter:—

"While production of endocrines in India must await the development of facilities such as modern slaughter houses and cold storage arrangements for the preservation of glands and organs, it is clear that assistance in establishing these facilities can be obtained from the Soviet Union. The Soviet Team of Experts has recommended already that a beginning can be made in this direction by preserving the pituitary glands in acetone solution immediately after slaughter and working them up for recovery of active principles such as A.C.T.H. at the Haffkine Institute in Bombay. It is desirable to investigate this possibility immediately even before establishment of modern slaughter houses which are being projected in Bombay and other cities."

143. The Glandular Products Projects as conceived by the Government was to produce Insulin, Andrenalin, ACTH Pituitrin, Pepsin (medicinal). The Project was dependent upon the new slaughter house then proposed to be constructed by the Bombay Municipal Corporation at Devnar. Pending construction of the slaughter house the Glandular Products Project was postponed.

144. The Committee were informed that since the last ten years the Bombay Municipal Corporation has been proposing to set up a modern slaughter house in the country. Very little progress, however, has been made in regard to this matter. The latest position is that the Maha-

rashtra Government had invited global tenders for the supply of machinery etc. for this purpose which were under examination.

145. As regards the investigations regarding the yield and content of active substances present in the glandular raw material obtainable from animals slaughtered in important centres e.g. Bombay, Clacutta, Delhi and Madras, the Government informed the Committee as follows:—

> "Investigations were made by the Haffkine Institute, Bombay on the glandular raw materials from animals slaughtered in Bombay only. The Haffkine Institute have stated that it was not possible to collect the glandular raw material from places like Madras, Delhi or Calcutta in a condition suitable for further processing. They have also stated that even in Bombay it was a herculean task and it was with great difficulty that materials could be collocated for investigation."

146. *The Committee regret that in spite of the great importance of this Project, practically nothing has been done even in regard to the preliminary research required before the setting up of the Project. The Committee feel that either the research work has been entrusted to wrong hands or that the Institute is not taking the interest in the matter as it should. Government should examine the cases of the delay and ensure that the necessary investigations are carried out expeditiously.*

VII

CONCLUSION

147. *The setting up of the drug manufacturing units and surgical instruments factory in the public sector was intended to serve the triple objectives, namely, to bring down the prices by large-scale production of high quality life-saving drugs, to provide facilities for medical relief to the people on a mass scale in consonance with the declared objectives of the Government in this regard and finally, not only to achieve self sufficiency but also to produce an exportable surplus and earn foreign exchange. Viewed from these angles, the pace at which the Government has proceeded about these projects is very slow. Even after a loan of Rs. 9.52 crores was offered by the Soviet Union in April, 1958 it should not have taken four years for the Government to put these proposals into concrete shape. Besides the delay in the initial stage, there had been some procrastination during the construction stage. Unlike most public undertakings, this Company's activities concerned the welfare of a very large proportion of the public and hence a sense of urgency which is apparent now should have been shown from the beginning.*

148. *Out of the three projects of the Company, only one has been commissioned so far. As such the Committee is not in a position to comment upon the operational efficiency of these projects. But the one disquieting feature of which the company shall have to take care is the tendency towards rise in the estimated cost of production. The Committee was alarmed at the rise of about 70 per cent in the cost of production envisaged at Rishikesh. The Company and the Government should take appropriate action to bring it down.*

149. *The Committee noticed among other things that:*

(i) *the raw materials will have to be imported for some years;*

(ii) *all the products of the company are highly research oriented but so far adequate steps have not been taken to establish; research facilities;*

(iii) *the company has not yet decided the mode of marketing its products.*

150. *The suggestions of the Committee in regard to the above are given in appropriate paras of the report. The Government should also endeavour to set up projects for the preparation of Phyto-Chemicals and Glandular products, for which already some spade work has been done.*

New Delhi;
March 22, 1966
Chaitra 1, 1888(S)

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

APPENDIX I

Statement indicating the Raw Materials available in the country and those required to be imported.

AVAILABLE IN THE COUNTRY		REQUIRED TO BE IMPORTED
Sl. No.	Items	Items Sl. No.
1.	Corn Flour	1. Lactose
2.	Glucose	2. Pot. Hydroxide
3.	Hydrol	3. Pot. Hydroxide C. P.
4.	Ammon Nitrate	4. Phenyl Acctamide
5.	Mag-Sulphate	5. Diatomaceous Earth
6.	Manganese Sulphate	6. Catexol
7.	Zinc Sulphate	7. Tween—80
8.	Calcium Carbonate	8. Pot. Carbonate C. P.
9.	Sodium Hyposulphite	9. Procaine Hydrochloride
10.	Soda Ash	10. Soyabean Flour
11.	Ammon Sulphate	11. Tween—20
12.	Sod. Bromide	12. Carboxy Methyl Cellulose
13.	Ammon Thiocyanate	13. Silicone M.S. Antifoan
14.	Sod. Sulphate	14. Pot. Ferrocyanide
15.	Phosphoric Acid	15. Benzyl rhodonate
16.	Sod. Hydroxide	16. Potato Starch
17.	Sod. Chloride	17. Sugar of Milk
18.	Corn Steep Liquor	18. Sodium Borohydride
19.	Sulphuric Acid	19. Sterile pads for Filteration
20.	Hydrochloric Acid 31-32%	20. Thick Kapron.
21.	Oxalic Acid	21. Khlorine sack
22.	Ground nut oil	22. Stainless steel sieve
23.	Pot Phosphate Mono Substituted	23. Phnoey acetic acid
24.	Formalin	24. ION Exchange tar KB—4P
25.	Ethonal	25. ION Exchange tar EDE—
26.	Bromne	26. ION Exchange Tar KV-2-20
27.	Cal. Chloride	27. ION Exchange tar SDV-3T
28.	Ammon Hydroxide	28. Lunro Sulf coal 1st
29.	Ammon Chloride	29. Caustic wood characoal
30.	Mathanel	30. Acid coal B
31.	Pot. Acetate	31. Activated Carbon BAV
32.	Barium Hydroxide	32. Activated carbon KAD
33.	Sod. Acetate	

34. Butanol
35. Butyl Acetate
36. Sod. Carbonate C. P.
37. Sulphuric Acid C. P.
38. Hydrochloric Acid 35%
39. Sod. Hydroxide 98%
40. Sod. Hydroxide C.P.
41. Sod. Hydroxide 42%
42. Sod. Bicarbonate
43. Maize Starch
44. Copper Sulphate
45. Oil Cake
46. Acetic Acid
47. Cane Sugar
48. Talc Pharma
49. Wheat Flour
50. Mag. Carbonate
51. Pulv. Gum Accacia
52. Captax
53. Boric Acid

APPENDIX II

Requirement of Imported raw materials for the Synthetic drugs Project, Hyderabad, Andhra Pradesh.

See Para 92

Sl. No.	Name	Purity (not less than percentage)	Grade	Quantity per year (in tons)
1	2	3	4	5
1	Acetanilide	99·50	Techincal	1282·50
2	Acetone	98·00	Grade—1	169·41
3	Acetone	99·00	Pure	244·00
4	Acrilonitrile	97·50	Techncial	35·04
5	Adipic Acid	..	Technical	37·50
6	Ammonium Thiocyanate	98·00	Pure	209·36
7	Aniline	99·00	Technical	43·59
8	Ortho-Anisidine	99·00	Technical	0·065
9	Banzaldehyde	90·00	Technical	0·51
10	Benzene Sulphonic Acid methy ester	93·50	Technical	64·40
11	Para-Nitro Benzoic Acid	100·00	..	12·43
12	Benzoic Acid	..	Technical	25·50
13	Benzyl chloride	..	Technical	14·10
14	Caustic Potash (Solid)	96·00	Technical	35·65
15	Catalyst (for diethylamine)	..	..	0·30
16	Chloroform	..	Technical	58·12
17	Dicyandiamide	95·00	Technical	489·40
18	Dimethyl sulphate	98·00	Technical	110·87
19	Diphenyl	..	Technical	0·30
20	Diphenyl ether	..	..	0·30
21	Ethylene Oxide	98·50	..	70·00
22	Formic Acid	80·00	..	179·10
23	Glutamic acid hydrochloride	..	Pure	6·29
24	Guanidine Nitrate	93·50	Technical	6·34
25	Iodine (crystals)	99·50	..	3·155

1	2	3	4	5
26	Ion-Exchange resin . .	AB-70R	..	0·87
27	Magnesium, metallic . .	99·50	..	0·07
28	Mercury, metallic . . .	..	..	4·60
29	Monochlore acetic acid . .	99·07	..	15·29
30	Monoethanolamine . . .	80·00	..	152·00
31	Aluminium Nickel Catalyst .	66%AI	..	13·5
32	Para-Nitrochlore Benzene .	98·80	..	131·00
33	Phosgene	..	..	56·00
34	P-Picoline fraction . . .	..	..	181·50
35	Potassium carbonate . .	96·00	..	170·00
36	Pyridine	..	Pure	0·06
37	Pyridine base (solvent) . .	..	..	41·00
38	Sodium metal . . .	..	.	234·9
39	Sodium cyanide . . .	85·00	..	15·82
40	Sodium Nitrite' . . .	98·50	..	59·3
41	Sulphur, lumps . . .	99·00	..	82·00
42	Orthe-Xylene . . .	..	Pure	10·50

APPENDIX III

Statement showing the Summary of conclusions/recommendations contained in the Report

S. No.	Reference to para No. in the Report	Summary of conclusions/recommendations
1	2	3
1	9	The Committee regret to observe that it took the Government ten years to put through proposals for establishment of the projects which were thought of in 1956 for inclusion in the Second Five Year Plan. The Projects were thought of because pharmaceutical factories in India were producing only negligible quantities of drugs. Most of these factories processed the drugs imported from abroad. Apart from the heavy drain of foreign exchange for their import, these drugs were costly and the availability was limited owing to import restrictions. The position was aggravated by the fact that the biggest plants depended for raw materials on foreign firms, who used their monopoly position to maintain high selling prices. It was with a view to get over these difficulties and make available drugs and surgical instruments on a mass scale that the establishment of these Projects was thought of.
2	11	The facts regarding the state of the drugs and pharmaceuticals industry in the country stated in the Report of the USSR team of Experts which visited India in 1956 should have warranted the grant of the highest priority to the establishment of the projects in our development schemes since the health standards were far from satisfactory. To have taken ten years for the fulfilment of these objectives when the foreign credit was available as far as back as 1958 is a matter of concern.
3	15	To eliminate the possibility of preparation of wrong estimates on the basis of which projects are sanctioned, it would be better for the Government to supply all relevant data relating to availability and cost of raw materials, labour, fuel, power, overheads etc., so that the collaborating foreign party can work out exact figures

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		of the cost of projects and the costs of production. Unless these figures are available, it would be difficult to form an exact idea of the economics of a plant and its profitability. Such figures, if included, in the Detailed Project Report would also provide the Government a yardstick with which to measure the actual performance. Such an estimate made by one with actual experience in the field and based on figures of the actual operation costs in his own country would be more useful and accurate than the one framed later by persons who have no experience of the line. The foreign collaborators in future should be persuaded to include estimates of the cost of a project and the costs of production in the Detailed Project Report.
4	16	Based on the meagre data, Government had proceeded with the Phyto-Chemical Project incurring a loss of Rs. 33·02 lakhs (out of which Kerala Government's share was Rs. 19·96 lakhs), before the Project was abandoned as an unworkable proposition. In the other three Projects also, the assumptions in regard to cost of raw materials etc. have not proved accurate resulting in higher costs of production and less profitability than originally assumed. It is essential that thorough and realistic feasibility studies should be made so that Government is not ultimately burdened with a project which is not economically viable.
5	17	The Detailed Project Report should have included the time schedule; but if for any reason, these were not included, the company should have the same immediately prepared. Delay in this regard is apt to conceal any avoidable procrastination on the part of construction agencies, including suppliers of working drawings, equipment etc.
6	21	The Committee cannot appreciate the reason given by the IDPL that the Project estimates of 1961 were based on inadequate data. The estimates were prepared by the IDPL itself and such items like deputation of Soviet Experts and training of Indian technicians in Russia should not have been left out. Such unrealistic estimates tend to give a distorted picture of the

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		Project and make it difficult for Government to apportion the Plan expenditure particularly when variations is estimates occur to the extent of over 58 per cent. The Committee regret to note the preparation of such unrealistic estimates. The Committee would draw the attention of the Government to their suggestions in the Thirteenth Report of the Committee on Management and Administration of Public Undertakings (para 149-150). They would add that the source material for the relevant data on which estimates are prepared should also be indicated so that in case variations occur later, the exact reasons can be pin-pointed.
7	23-24	There has been considerable delay in the preparation and sanctioning of the project estimates. Estimates should be prepared in time and sent to Government for approval before the expenditure is actually incurred. "Estimates" should be understood in its literal sense and should not be equated to actuals after the money has been spent. The Government should also on their part ensure that there is no avoidable delay by the undertaking or the Ministry in attending to them. Delays in preparing and sanctioning of estimates have been noticed in other Undertakings also (e.g. the Indian Oil Corporation and the Hindustan Steel Ltd). The Government should lay down clear instructions in this regard. The sanctioning of estimates is an inviolable part of financial control and sanction should invariably precede the expenditure and not follow it. As for the present case, the Board of Directors of the IDPL should finalise the estimates and send them to Government for approval if it has not already been done.
8	28	The Chairman, IDPL, informed the Committee that in the case of Hyderabad Project, the company would attempt to improve its profitability over a period of time by improving in technology, larger degree of formulations and by introducing some additional items. The Secretary of the Ministry of Petroleum & Chemicals, in his evidence before the Committee, was more optimistic over the working result of Hyderabad Project. He stated that it was likely to earn a profit of Rs. 57 lakhs per annum. Thus, conflict-

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		ing opinions on the profitability of the Project are being held by the company and the Government. This matter requires looking into. The Committee hope that estimates of profitability will be worked out soon. At any rate, the working of this factory should be carefully watched and it should be ensured that all possible measures are taken so that losses do not occur.
9	32	The Committee are not convinced by the reasons advanced for the wide disparity in the estimated cost of production in 1961 and the latest estimates particularly in the case of Rishikesh Plant, where it had risen by more than 70 per cent. The estimates of cost of production were stated to have been prepared in 1961 with a view to help the Government to take a basic decision about the desirability of setting up the Plants. Such figures should be realistic and not based on inadequate, insufficient and incorrect data. The fact that the Rishikesh Plant would still leave a margin of profit, is no justification for deflecting from this principle.
10	35	The Government should have kept a closer watch over the rise in the estimated cost of production. The company should have also specifically brought this fact to the notice of the Government. The Committee recommend that Government should lay down a procedure whereby the undertakings keep Government informed of substantial increases of this nature.
11	36	The Company should try and obtain figures of costs of production in Russia and other foreign countries and also that of Indian manufacturers and compare them with their own. Such comparison would enable the Company to know how the cost of production stands *vis-a-vis* others and enable them to reduce them where the comparison is unfavourable.
12	40	In accordance with the aims of a welfare State, all the modern life-saving drugs should be made available within the reach of ordinary people. It should, therefore, be one of the objectives of the IDPL to bring these mdicines to the public at reasonable prices. This being so, it would not be justifiable for the IDPL to continue to base its prices on the existing market rates. Due to lack of experience there might be some justi-

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		fication for the Company to base its prices on the existing market rates in the beginning but it should, within a year or so of commencement of production, take steps to reduce the selling prices to a reasonable level.
13	41	The Committee suggest that there should be a pooled price for the antibiotics produced in the Pimpri and Rishikesh factories and the prices of the antibiotics should be reduced. This would not present any difficulty if the two factories are under a Common Management, as suggested in para 60.
14	42	The Rishikesh and Pimpri Plants should keep abreast of changes in production technology in the manufacture of antibiotics taking place in foreign countries, and introduce them in their factories. Thereby they can bring down the cost of production of antibiotics and make them available to the public at cheaper rates.
15	43	As in the case of drugs, it should be the aim of the Management to see that these surgical instruments are made available to surgeons and hospitals at reasonable prices. The pricing should be based on a cost plus basis and every effort should be made to keep the costs down.
16	45	The Company has not, so far, taken a final decision regarding the marketing of its products. In fact, in the case of Rishikesh and Hyderabad projects, the Company was still at the stage of a market survey. Marketing is a very important matter and as the factories will be going into full production shortly, it is necessary that the Company formulate the policy in regard to the marketing of its products at a very early date.
17	46	While welcoming the decision to sell the products of Rishikesh and Hyderabad Projects in bulk to buyers directly, the Committee would recommend that the IDPL should appoint its own agents instead of selling through the existing whole-sellers only.
18	47	All Government Hospitals should obtain their purchases of drugs and medicines directly from Government-owned factories instead of through private selling agents. This would keep the

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		prices down at which the hospitals, would receive their supplies and also prevent adulteration of medicines at an intermediate level.
19	49-50	The Soviet team of Experts who visited the country in 1956 had laid special stress on the necessity to have a proper research organisation in the country in order to successfully achieve the programme of creating indigenous production of essential drugs and vitamins. In this connection they had suggested entrusting various problems relating to manufacture of synthetic drugs to the Fuel Research Institute, Dhanbad, Central Food Technological Institute, Mysore and School of Tropical Medicine, Calcutta. Further they had also recommended establishment of closer contact between Research Pharmaceutical Institutes of this country and Russia. It has not been possible for the Committee to enquire in detail about the progress of research in each of these lines, but from the information placed before them, they gathered that sufficient stress on research facilities has not been given by the Government of India and the Company. As correctly pointed out by the Russian Experts it is necessary to conduct fundamental research in case the country is to produce drugs based on vegetable and animal raw material available in this country. A proper scheme for research should be planned after consulting all the known authorities on the subject in the country. The laboratories attached to the Rishikesh and Hyderabad Plants should also be manned by competent and senior scientists who should try to evolve drugs and antibiotics based on vegetable and animal raw materials of Indian origin. The country possesses a great tradition in the field of Ayurveda which has specialised in the use of medicinal plants for curative purposes. It might be profitable to do research on these plants and synthesise their properties into drugs and medicines. Unless raw materials of Indian origin are used, our dependence on foreign manufacturers will not cease.
20	51-52	The Report of the Indian Pharmaceutical Delegation (1964) high-lighted the importance attached to the pilot plant studies in almost all

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		the factories visited by them in Europe, U. K. and U. S. A. Experimental work conducted in these Plants help in determining the possibility of adopting a laboratory process on Plant scale. In the case of synthetic drugs, two general types are in use. In one type the Plant is designed for the study of a specific product. After the study is over, the Plant is dismantled. The other type is installed as a fixed set up and it is used for studies of a variety of process and products. The principles enunciated by the Delegation will no doubt be adopted in the laboratories attached to the Plants.
21	53	The Committee recommend that the research work at the laboratories of the Hindustan Antibiotics, Pimpri, the Central Drug Research Institute, Lucknow and the Rishikesh Plant should be properly co-ordinated. The work should be done under the supervision and guidance of one authority who should direct the various research projects, both of fundamental and applied nature.
22	54	New and better antibiotic drugs are being produced through advancement of technology. It is necessary to keep abreast of the latest developments in the field so that this country can catch up with the developments taking place elsewhere. It is here that the laboratory and the pilot plant at the Rishikesh Project can play a vital role.
23	55	The Hyderabad Plant should see that its laboratory gives due importance to these two aspects of the research work. Being the Plant with the largest product mix, it is necessary that its research work should also be more broad-based and extensive. The Plant should also maintain coordination with the Fuel Research Institute, Dhanbad, the Central Food Technological Research Institute, Mysore and the School of Tropical Medicine, Calcutta, as also the Research Institutes in foreign countries.
24	57	As the research work is more of an applied nature, adequate equipment necessary for the purpose should be provided. It would also be

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		useful for the Design and Development Unit of the Plant to obtain suggestions for modifications of instruments from the surgeons who actually use such instruments. If this liaison with eminent surgeons is properly carried out, very useful results in this field can be achieved.
25	58	The Committee feel it would be appropriate for Ministry of Health to be in charge of the IDPL. projects, because they had to plan the the entire health programme of the country including the requirements and supply of drugs and surgical instruments. The Ministry of Petroleum and Chemicals has, at present, necessarily to consult the Ministry of Health at each stage in regard to the development of the industry in the public sector. By placing the IDPL. under the Ministry of Health, the consultations would be direct instead of through an intermediary.
26	60	As regards merging the Hindustan Antibiotics factory and the Rishikesh factory, there is no doubt that by having a common management, a common Research and Development Unit and a common Sales Organisation, considerable economy can be effected. The difficulty about maintaining secrecy of production methods does not appear to be unsurmountable. It will perhaps have to be observed so long as foreign experts are there. Once they are gone the management of the factories in the public sector could be combined.
27	61	The Committee agree that the consideration that it would facilitate consultations with M|s Technoexport, the Technical Consultancy of the N.I.D.C., the D.G.S.&D., the D.G.T.D. and the Drug Controller if the Headquarters of the Company remained in New Delhi, is vital during the formative stage of the Company. Once the factories have been established, there would be no occasion for any large-scale consultation with the authorities mentioned above. Thereafter the Headquarters of the Company should be shifted to Hyderabad which apart from being central, would atleast be nearer to two plants.
28	64	The personnel requirements of the three Projects should have been finalised earlier and the work load of various categories of staff fixed

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		with a view to determine the exact number of persons required in various sections of the factories. To arrive at these norms of work loads, due consultation should have taken place with the Soviet authorities. After having fixed the personnel requirements, efforts should have been made to recruit the necessary staff and commence their training so that they may be in position by the time the factories were commissioned. The Directors should immediately finalise the personnel requirements of the factories. Once the decision has been taken in regard to the number of staff to be employed in each category in each factory, that figure should be adhered to. Surplus staff exists in many factories in the Public Sector and the IDPL should curb such a tendency in their own factories.
29	66-67	It was stated that a large number of people were on deputation because in the beginning, the Company had to borrow experienced people to get the work going. Since the factories have almost started production, the deputationists should now be given an option to remain with the Company or return to their parent offices. It would not be desirable to keep large number of deputationists, especially on non-technical posts which apart from being more expensive, is not conducive to efficiency, as the deputationists keep looking to their parent offices for betterment of their prospects. The Committee noticed in this connection that a number of junior staff like peons, drivers, typists, Junior Assistants etc. were on deputation. While it might be necessary to get experienced staff for a new project, it does not appear justifiable to get peons, drivers and typists on deputation, as they are available in the market.
30	70	Much progress does not appear to have been made in the setting up of ancillary industries both at Rishikesh as well as Hyderabad. Whereas the plants would soon go into production, the ancillary industries are yet at the stage of 'licences'. Further, in the case of Rishikesh Project the ancillary industries so far licensed are only of the post production type. The Company should immediately take up the matter of setting up of the industries expeditiously with

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		the respective State Governments. In case private enterprise is not forthcoming, the Company should enter into firm contracts with outside suppliers to ensure that the production programme does not suffer because of the delay in establishing ancillary industries.
31	72	The Committee feel that dependence on foreign manufacturers for the supply of spare parts is extremely unsatisfactory specially as the production technology is constantly changing, thereby resulting in changes in the equipment. The Company should persuade the Soviet Party and the other East European Suppliers to give the drawings of all the spare parts of the equipment so that they could be fabricated in the country.
32	74	The progress made in setting up of the repair and mechanical shops is not satisfactory. Whereas these shops should have been set up before the construction of the plant, they are going to be set up now. These mechanical shops could be equipped to manufacture spare parts also.
33	79	It was stated in regard to soyabean, an important raw material which is required in substantial quantities that certain samples grown in the Kangra valley and Dehra Dun had been sent to Soviet Russia for analysis with a view to find out their suitability. This is a matter which should have been taken up three or four years ago. If the local variety was unsuitable, the right variety could have been introduced from abroad. This would have ensured that by the time factory went into production all the soyabean required would be available in the country. Similarly, it would have been possible to obtain items like potato starch, lactose etc. from indigenous sources. Steps should be taken immediately to investigate the possibilities of producing in the country all the thirty-two raw materials which have now to be imported.
34	80	74. The possibility of using tapioca which is pre-eminently starch, as a raw material in the preparation of antibiotics should be examined. This is a field which is probably untapped so far and if research could be conducted success-

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		fully for its utilisation, it will be beneficial to the plant because tapioca is grown in abundance in the country.
35	84	It was stated that chlorotetracycline would be converted into titracycline by process of dechlorination and that assuming that DMCT replaced titracycline to an appreciable extent it was possible to switch production from one product to another. The Committee are not too sure if the problem is as simple as it is made out to be. It may not be advisable for the Company at this stage to change—product the mix because that might delay the commissioning of the project. But it is necessary to review the quantities to be produced under each item in the light of the survey at present being conducted. As soon as the result of the survey is known the change in product mix should be carried out without delay.
36	86	The designing of all the buildings should have been entrusted to the Indian Engineers. The Indian Engineers have designed factory buildings of a much more complicated nature in the public sector and this work in the Antibiotics Project could have been undertaken by them. The Committee would draw the attention of the Company to their recommendation (para 118 of the Eighth Report on Township and Factory Buildings).
37	88	It was stated that in the Rishikesh Project the contractors had to be changed due to slow progress and in the others because the quality of work was not found satisfactory. If only the right types of contractors had been chosen in the first instance this difficulty would not have arisen.
38	94-95	The IDPL did not have the information in regard to the number of intermediates required by them which would be taken up for production in the Hindustan Organic Chemicals Ltd. Being a matter of vital interest, the IDPL should normally have watched the progress in this regard. The company should take up this matter immediately with the Hindustan Organic

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		Chemicals Ltd., and induce them to produce its requirements. The Chairman, IDPL stated that the Hindustan Organic Chemicals Ltd., might manufacture some of the items only if they were able to obtain outside orders in addition to the IDPL's orders, as the requirements of the Hyderabad factory might not enable an economic production. This being so, it was all the more necessary for the IDPL to have taken up this matter with the Hindustan Organic Chemicals Ltd.
39	96	Early action is needed to determine the total requirements of the intermediates for all the pharmaceutical and drug factories and set up plants for producing them. The Committee realize that no country can be absolutely self-sufficient in all intermediates, but an import of Rs. 1·75 crores of intermediates by the IDPL alone is something which cannot be viewed with equanimity.
40	1 1	It is obvious that the demand for Vitamin 'C' in the country is far in excess of the existing production. In view of what was stated by the Indian and Soviet Experts in their Reports of 1956 and 1958, the Hyderabad Plant should have taken up the manufacture of this Vitamin from the beginning. The Committee hope that early steps will be taken to do so.
41	107	Since the profitability of the Synthetic Drugs Plant depends largely on formulations it would be worthwhile reviewing the formulation programme of the Plant both in terms of quantities and the varieties to be formulated. There should not be a multiplicity of formulations merely for the sake of earning larger profits but the factory should take up formulations found useful on clinical considerations or those that are widely prescribed by the medical profession. The Government might have this aspect examined by competent persons.
42	111	The Committee are of the view that the choice of the location of the Synthetic Drugs Project at Hyderabad was not a happy one because the disposal of effluents has created a very big problem for the factory. It will also involve incurring of

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		enormous expenditure which could have been avoided if the Drug Projects Location Committee of the Planning Commission had heeded the advice of the experts.
43	114	All the trouble and expenditure connected with the problem of effluents disposal could have been avoided if the factory had been located near the sea in which case the effluents could have been easily discharged into the sea. The Committee hope that the Company will soon find a permanent and cheaper solution to this problem. The Public Health Department of the Government of Andhra should also be associated with the final decision so that it does not lead to any public hazards.
44	115	The effluents are stated to contain high percentage of sulphuric acid and if it could be separated it could be used to prepare super phosphats, a valuable fertiliser. Research should be carried out in regard to this as its succees will influence the financial results of the factory.
45	120	It is necessary for the Company to be definite about obtaining the steel requirements particularly the exact date by which the steel mills will be able to effect supplies so that the Company could arrange for necessary imports during this period. The Ministry of Petroleum & Chemicals should take up this matter urgently with the Ministry of Iron and Steel to ensure that the required quantity and quality of steel is produced in India to meet the demands of the Madras factory.
46	124	It is clear, that Madras factory has made only a beginning both in terms of types of surgical instruments and their quantity and the production will touch only a fringe of the problem of indigenous manufacture of instruments required by the country. The Committee hope that after gaining experience the factory will be able to increase its production to satisfy the requirements of the country to a larger extent.
47	125	The Government should, in consonance with the policy of encouraging indigenous production of surgical instruments, give all possible assistance to small scale producers of surgical

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		instruments and help them to produce instruments of good quality to meet shortage in the country. In fact, the small scale producers should be treated as complementary to the Madras factory and Government should apportion the production of various instruments between them so that the country's needs are adequately met and unhealthy competition avoided.
48	127	In view of shortage of surgical instruments it might be advisable to increase the capacity of the forging shops in the Surgical Instruments Plant in order to make surplus forgings so produced available to small scale producers of surgical instruments.
49	129	The input-output ratio for the Surgical Instruments factory appears to be on the high side. The Company should compare the input-output ratio of this factory with similar figures of factories in other countries with a view to increasing its productivity and bettering its capital-output ratio.
50	131	Since the Surgical Instruments Project is located in Madras city and the factory is well served by good public transport, it is perhaps not necessary to have a large township. The factory should economise on township during its expansion.
51	134	It is doubtful if the variations in the unit cost of construction of township in the Surgical Instruments Project exist to the extent of 50 per cent over the rates at Hyderabad. Nevertheless the matter requires looking into with a view to bringing down the future cost of construction.
52	137	The Committee had in in para 13 to 17 of their Thirteenth Report, on Management and Administration of Public Undertakings dealt with the faulty techno-economic study made in regard to the Phyto-Chemical Project. It is apparent that the infructuous expenditure amounting to Rs. 33.02 lakhs could have been avoided if a more careful assessment of the availability of raw materials had been undertaken.

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53	138	The Committee would draw attention to the recommendations made by the Soviet Experts who visited India in 1956 and 1958 regarding the very great necessity of producing drugs and medicines from Indian medicinal plants. With the abandonment of the Phyto-Chemical Project, a great possibility in this direction has been lost. The Government should further explore the possibilities of establishing a Phyto-Chemical Project in the public sector and exploit the large variety of flora in the country for the manufacture of life saving drugs and medicines.
54	140	The main intermediates for the production of synthetic caffein are Urea and Cyanomalonic ester. India already produces Urea and other intermediates are expected to be produced in the country in three or four years. The Synthetic Drugs Project, Hyderabad should examine the possibility of manufacturing synthetic caffeine in order to meet the needs of the country.
55	146	The Committee regret that in spite of the great importance of the Glandular Products project, practically nothing has been done even in regard to the preliminary research required before the setting up of the project. The Committee feel that either the research work has been entrusted to wrong hands or that the Institute is not taking the interest in the matter as it should. Government should examine the causes of the delay and ensure that the necessary investigations are carried out expeditiously.
56	147	Even after a loan of Rs. 9·52 crores was offered by the Soviet Union in April, 1958 it should not have taken four years for the Government to put the proposals for setting up the projects into concrete shape. Besides the delay in the initial stage, there had been some procrastination during the construction stage. Unlike most public undertakings, this Company's activities concerned the welfare of a very large proportion of the public and hence a sense of urgency which is apparant now should have been shown from the beginning.

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57	140	Out of the three projects of the company, only one has been commissioned so far. As such the Committee is not in a position to comment upon the operational efficiency of these projects. But the one disquieting feature of which the Company shall have to take care is the tendency towards rise in the estimated cost of production. The Committee was alarmed at the rise of about 70 per cent in the cost of production envisaged at Rishikesh. The Company and the Government should take appropriate action to bring it down.
58	150	The Government should also endeavour to set up projects for the preparation of Phyto-Chemicals and Glandular products, for which already some spade work has been done.

GMGIPND—LSI—2961 (Aii) LS—27-3-65—1240

Sl. No.	Name of Agent	Agency No.
27.	Bahree Brothers, 188, Lajpatrai Market, Delhi-6.	27
28.	Jayana Book Depot, Chapparwala Kuan, Karol Bagh, New Delhi.	66
29.	Oxfort Book & Stationery Company, Scindia House, Connaught Place, New Delhi.	69
30.	People's Publishing House, Rani Jhansi Road, New Delhi.	76
31.	The United Book Agency, 48, Amrit Kaur Market, Pahar Ganj, New Delhi.	88
32.	Hind Book House, 82, Janpath, New Delhi.	95
33.	Bookwell, 4, Sant Narankari Colony, Kingsway Camp, Delhi-9 . .	96
	MANIPUR	
34.	Shri N. Chaoba Singh, News Agent, Ramlal Paul High School annex Imphal . .	77
	AGENTS IN FORGEIGN COUNTRIES	
35.	The Secretary, Establishment Department, The High Commission of India, India House, Aldwych, London, W C. 2.	

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