C.P.U. No. 279

COMMITTEE ON PUBLIC UNDERTAKINGS (1974-75)

(FIFTH LOK SABHA)

SIXTY-FIFTH REPORT

Action taken by Government on the recommendations contained in the Fifty Second Report of the Committee on Public Undertakings (Fifth Lok Sabha)

INDIAN OIL CORPORATION LIMITED (REFINERIES DIVISION EXCLUDING PIPE LINE SECTION)

Ministry of Petroleum And Chemicals

(Department of Petroleum)

LOK SABHA SECRETARIAT
NEW DELHI

April, 1975/Vaisakha, 1897 (S)

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Sixty-Fifth Report (Fifth Lok Sabha) of the Committee on Public Undertakings on Action Taken by Government on the recommendations contained in their Fifty-second Report (Fifth Lok Sabha) on Indian Oil Corporation Ltd. (Refineries Division excluding Pipeline Section).

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(1974-75)

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Shri K. S. Bhalla—*Senior Financial Committee Officer.*

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

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(1974-75)

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} *Members*

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

INTRODUCTION

I, the Chairman, Committee on Public Undertakings, having been authorised by the Committee to submit the Report on their behalf, present this Sixty-fifth Report on the Action Taken by Government on the recommendations contained in the Fifty-Second Report of the Committee on Public Undertakings (Fifth Lok Sabha) on Indian Oil Corporation Ltd. (Refineries Division excluding Pipelines Section).

2. The Fifty-Second Report of the Committee on Public Undertakings (Fifth Lok Sabha) on Indian Oil Corporation Ltd. (Refineries Division excluding Pipelines Section) was presented to Lok Sabha on the 29th April, 1974. The replies of Government to all the 48 recommendations contained in the Report were received by the 27th February, 1975. Further information was called for in respect of recommendations at serial Nos. 1, 5, 14, 15, 17, 18, 21, 22, 24, 31 and 46. The requisite information was received from the Ministry by the 9th April, 1975.

3. The replies of Government were considered by the Committee at their sitting held on the 18th April, 1975 and the Chairman was authorised to finalise the report and present the same to the Parliament.

4. The Report has been devided into the following five Chapters :—

(i) Report.

(ii) Recommendations that have been accepted by Government.

(iii) Recommendations which the Committee do not desire to pursue in view of the Government's replies.

(iv) Recommendations in respect of which replies of Government have not been accepted by the Committee.

(v) Recommendations in respect of which final replies of Government are still awaited.

5. An analysis of the action taken by Government on the recommendations contained in the Sixty-Fifth Report of the Committee is given in Appendix II. It would be observed, therefrom that out of the total number of recommendations made in the Report, 48 per cent have been accepted by Government. The Committee do not desire to pursue 25 per cent of the recommendations in view of Government's replies. Replies of Govern-

ment in respect of 17 per cent recommendations have not been accepted by the Committee. Final replies of Government in respect of 10 per cent of the recommendations are still awaited.

NEW DELHI;
April 25, 1975.
Vaisakha 5, 1897 (*Saka*).

NAWAL KISHORE SHARMA,
Chairman,
Committee on Public Undertakings.

CHAPTER I

REPORT

A. UTILISATION OF CAPACITY OF ATMOSPHERE UNIT III

Recommendations Serial Nos. 1 and 2, Paragraphs 2.17, 2.23 and 2.32

The Committee on Public Undertakings (1973-74) noted that the Atmospheric Unit III at Barauni was approved by Government on the basis of an assurance given by ONGC that additional crude would be available from Rudrasagar and Lakwa oil fields and the presumption that it would be transported through the Oil India Ltd. pipeline from Moran to Barauni by upgrading its capacity and by expanding the crude oil conditioning plant at Moran. Although the Unit was commissioned in January, 1969, it had to remain idle/underutilised for want of indigenous crude as no reasonable agreement could be reached between the ONGC and the Oil India Ltd. regarding the tariff for transportation of ONGC crude through the crude oil pipeline of Oil India Ltd. Only an interim agreement between ONGC and Oil India Ltd. could be reached in March, 1971 after protracted negotiations lasting for more than 4 years. When the negotiations were still going on, the Government decided in December, 1969 to set up a new refinery in Assam to process the Assam crude and to permit the Barauni Refinery to secure crude for its third unit from other sources including import. As a result, the utilisation of the available capacity was held up and modifications were proposed to be made in the refinery for processing imported crude at an estimated cost of Rs. 7.7 crores and a new pipeline was required to be laid from Haldia to Rajbandh at a cost of Rs. 6 crores. Meanwhile, processing of the imported crude in the unit was started from December, 1972 and it could process 5 to 7 lakh tonnes per annum after minor modifications. From December, 1972 to 31st March, 1973, 1.3 lakh tonnes of imported crude had been processed in this unit.

The Committee expressed their regret that because of the delay in arriving at a decision about the tariff for transportation of crude through the Oil India Pipeline, the Atmospheric Unit III which was commissioned as early as January, 1969 had to be kept idle or under-utilised, resulting in a national loss of the order of Rs. 6 crores per annum in terms of foreign exchange and Rs. 17 lakhs per annum on account of interest and depreciation charges alone. The loss would be more if the cost on account of personnel was also added. The under-utilisation of the Unit had also affected the working of the Kerosene Treating Unit and the consequential

revenue loss was stated to be of the order of Rs. 15 lakhs during the period 1969-70 to 1972-73. The Committee were informed that as the quantum of imported crude increased the Kerosene Treating Unit 1 which was in operation would become progressively underutilised.

It was admitted during evidence that the Barauni Unit could have been planned or a more diverse quality and wide range of crude than was done. The Committee felt that had this been done, the Corporation would not have been faced with such a situation as indicated above.

The Committee took a serious view of the huge loss suffered by the Government/Corporation as a result of taking up the expansion of the Barauni Refinery first on the basis of indigenous crude and later switching over to imported crude.

The Committee recommended that the entire matter should be thoroughly investigated by a high level Committee so that the shortcomings/lapses at different stages were pin-pointed to obviate such costly lapse in future.

In their reply the Ministry have stated as follows:—

"Towards the end of November, 1966, ONGC took up with OIL the question of transportation of its crude through OIL's pipeline. After discussion between the ONGC and OIL the broad outlines of the project were settled. ONGC wanted OIL to increase the pipeline capacity for transportation of crude from Moran to Barauni upto 1 million tonnes per annum. Preliminary investigations carried out by OIL indicated that this would require additional pumping capacity from Moran down to Barauni and facilities for conditioning additional supplies of crude at Moran.

As the basis of charges demanded by OIL was not clear, Government decided to appoint a Committee presided over by Chief Cost Accounts Officer to work out and arrive at a reasonable schedule acceptable to both the parties. While this group was examining the tariff question, by July, 1968, ONGC had laid a pipeline linking Lakwa oil field to the pipeline station at Moran. The transportation of ONGC crude through OIL pipeline commenced on 20th August, 1968.

The Group under the Chairmanship of Shri Krishnan submitted its report in April, 1969. With the divergence of views on basic issues, the Committee failed to reach unanimity. In

view of the divergence of views held by the representatives of ONGC and OIL, further consultations with both the organisations became necessary before the Ministry could formulate a proposal which would be reasonable and acceptable to both the parties.

Considering the complexity of the problem and divergence of the views between the OIL and ONGC, the time taken in arriving at a compromise cannot be regarded as unduly long. In any case, it did not affect the transportation of ONGC crude through the pipeline which commenced on 20th August, 1968 and continued uninterrupted. In view of the decision to construct a new refinery in Assam, the question of expanding the capacity of the OIL pipeline to supply an additional one million tonne crude to Barauni Refinery was not pursued at that stage. Marginal increases in the capacity of the pipeline were achieved by changing the plungers. The amount of ONGC crude transported through OIL Pipeline during the 3 years from 1970—72, is indicated below:

1970	1,68,097	Tonnes
1971	2,91,568	Tonnes
1972	3,71,555	Tonnes

It will be seen from the above that though discussions went on between OIL and ONGC with regard to tariff for transportation of ONGC's crude by OIL, these discussions did not prevent transportation of available ONGC's crude through the OIL India Limited's pipeline."

It has been further stated that:

"With the decision of Government in December, 1969 to locate additional refining capacity in Assam, it became necessary to obtain crude from other sources for processing in the third unit of Barauni Refinery. This also meant utilisation of the pipeline between Barauni and Haldia for transport of crude, Tankages had to be created both at Haldia and Barauni for receipt of crude and subsidiary products pipeline had to be constructed from Haldia to Rajbandh to facilitate product movement to Haldia.

Since the refinery was constructed for processing sweet crude, attempt was made to locate imported sweet crude. The Minas crude of Indonesia which is sulphurless was thought of, but it was found to be highly waxy and could not be pumped through the pipeline from Haldia to Barauni. This crude was therefore rejected. A new sweet South-East Australian crude was also considered but the cost even in 1970 was $2 per barrel and transportation cost was not less than 50 cents per barrel. Sweet crude from North Africa was also considered but rejected because of high FOB and CIF costs.

The possibility of supplying processed synthetic crude from Kuwait was also considered but Kuwait could supply this type of crude only by 1973 and wanted a 10 year contract for supply of synthetic crude and fuel oil.

Processing of imported crudes like Aghajari, Rostam and Murban was also considered. In the case of Aghajari and Rostam crudes, secondary processing facilities like hydrocracker appeared necessary and investment on the refinery was estimated to be about Rs. 17 crores with a foreign exchange component of 40 to 50 per cent. In the case of Murban crude, investment was estimated around Rs. 2 crores.

The Ministry have now stated that in November, 1970, it was decided to modify the refinery to process imported high sulphur crude. Investment approval of the modification was given in June, 1971.

In view of increased availability of indigenous Assam crude it has now been decided that the Barauni Refinery will operate at its full capacity of 3 million tonnes on indigenous crude only. The scheme for modification of the Barauni Refinery which was in its preliminary stages has, therefore, been given up. Expansion of the OIL INDIA pipeline up to Barauni is being taken up to enable the pipeline to carry enough indigenous crude to Barauni and to enable it to operate at its full capacity. With increased quantities of indigenous crude processed in the refinery, the utilisation of the KTUs will also improve. The adverse factors affecting the profitability of the refinery in processing imported crude will also get eliminated with the processing of larger quantities of indigenous crude."

The Committee enquired about the total expenditure incurred on the modification of the Barauni Refinery, during 1971 to 1974. It has been

stated that the actual expenditure incurred on the project during this period is Rs. 42 lakhs.*

In paragraph 2.32 of the 52nd Report Committee on Public Undertakings observed that the delay in coming to a final decision on the implementation of Government's decision regarding the setting-up of the additional capacity in Assam had resulted not only in non-utilisation of the capacity available in the Barauni Refinery and the processing of the available indigenous crude in Assam but also delayed the creation of additional capacity in the public sector.

In their reply Ministry have stated that the de'ay in implementing the decision was because the issues involved were quite complex and needed detailed consideration.

With regard to the utilisation of available capacity, in the Barauni Refinery Ministry have stated as follows:—

> "However, it was not possible during this period to utilise the extra capacity available in the Barauni Refinery because for carrying crude to Barauni, Substantial investments were needed not only for establishing a crude oil conditioning plant but also additional pumps on the pipeline to expand the pipeline capacity. With the decision to set up the Bongaigaon Refinery, such investments to enable Barauni to process additional 1 million tonne of indigenous crude were not considered economically justified at that stage."

It has been added that:

> "In view of the above, Government consider that the investigation by a high level Committee as recommended is not necessary."

The Committee are informed that while a Committee appointed by Government was examining the tariff question with regard to transportation of crude through the OIL pipeline by July, 1968, ONGC had laid a pipeline linking lakwa oil field to the pipeline station at Moran. The transportation of ONGC crude through OIL pipeline commenced on 20th August, 1968. It has been held that the time taken in arriving at a compromise did not affect the transportation of crude. The Committee, however, find that as against the capacity of 10 lakh tonnes per annum the estimated quantity of Assam crude processed in Atmospheric Unit III

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*At the time of factual verification of the Ministry in their O. M. No. 15-37012/8/75-OR-I dated 23-4-1975 havestated that IOC have intimated that the infructuous expenditure is Rs. 34·73 lakhs while the toal expenditure is Rs. 42 lakhs.

was only 0.24 lakh tonnes, 1.6 lakhs tonnes and 1.20 tonnes during the years 1969-70, 1971-72 and 1972-73 (upto November, 1972) respectively. The utilisation of capacity during 1970-71 was nil. In this connection, the Ministry have stated that it was not possible to utilise the entire capacity available in the Barauni Refinery because for carrying crude to Barauni, substantial investments were needed not only for establishing a crude oil conditioning plant but also additional pumps on the pipeline to expand the pipeline capacity. With the decision to set up the Bongaigaon refinery such investments to enable the Barauni to process additional 1 million tonne of indegenous crude were not considered economically justified at that stage. As regards delay in processing of imported crude it has been stated that since the refinery was constructed for processing sweet crude, attempts were made to locate imported sweet crude. In November, 1970, it was, however, decided to modify the refinery to process imported high sulphur crude. It has been stated that an expenditure of Rs. 42 lakhs has already been incurred in carrying out modifications in the refinery in order to process imported crude. An expenditure of Rs. 34.73 lakhs is stated to be infructuous. It has now been decided to switch back to processing of indigenous crude because of the increased availability of Assam Crude. The scheme regarding modification has, therefore, been given up.

The Committee regret to observe that the frequent changes in the decision of Government/Corporation with regard to the type of crude to be processed and delays in taking decisions at various stages have not only resulted in under-utilisation of Barauni Refinery but rendered the expenditure on modification already done to the extent of Rs. 34.73 lakhs infructuous. The Committee are not sure that as a result of the latest decision to process indigenous crude further modification may not be required necessitating additional expenditure on this account. The Committee therefore reiterate that all aspects relating to under-utilisation of Barauni Refinery since the commissioning of Atmospheric Unit III including the total loss on account of such under-utilisation and expenditure on modifications, should be thoroughly investigated so that shortcomings/ lapses at different stages are pinpointed to obviate such costly lapses in future.

B. HALDIA REFINERY—PROJECT ESTIMATES

(Recommendation Serial No. 4)

The Committee on Public Undertakings (1973-74) took a serious view of the fact that Government proceeded with the setting up of the Haldia Refinery without preparation of a Project Report and without a

precise idea as to what the project would ultimately cost. It was only in January, 1970 that the Corporation prepared detailed estimates of cost for Rs. 71.44 crores. The estimates were, however, revised to Rs. 67.51 crores, and sent to Government in September, 1970. Government approved the Project cost estimates of Rs. 67.50 crores only in July, 1972 *i.e.* after a lapse of about two years.

The Committee were informed that the revised estimates as approved by Government were not final and the project cost would go up due to delay in the Commissioning of the Refinery, and the extent of revision would be worked out only after the completion of the project. The Committee stressed that revised estimates of the project should not be treated as a mere completion report but should serve as an instrument of financial control. The Committee, therefore, recommended that the Corporation/Government should finalise the revised estimate of the project without any further delay. The Committee also stressed that the implication of the increased capital investment on the economics of the Project should be critically gone into and brought to the notice of Parliament as recommended by the Committee in paragraph 2.20 of their Thirty-Ninth Report (Fifth Lok Sabha).

In reply it has been stated that as against the revised cost estimates of Rs. 67.50 crores till 31st March, 1974, an amount of Rs. 63.88 crores has been spent on the project and an expenditure upto an amount of Rs. 71.73 crores was expected to be incurred till 31st March, 1975. The fuel sector of the refinery had been commissioned and the lube sector was expected to be completed by end of 1975 IOC would approach the Government with revised cost estimates if the estimated cost exceeded 10 per cent of the revised cost estimats alrady approved.

With regard to the Committee's observation that the implication of the increased capital investment on the economics of the project should be critically gone into and brought to the notice of Parliament as recommended by the Committee in paragraph 2.20 of their 39th Report on Pyrites, Phosphates and Chemicals Ltd. it has been stated that this recommendation (para 2.20) was separately under consideration by the Department of Fertilizers and Chemicals in consultation with the Ministry of Finance.

The Committee were informed by the Ministry on 27th February, 1975 that as against the revised cost estimates for Rs. 67.50 crores an amount of Rs 63 88 crores has been spent on the Haldia project unto 31st March, 1974 and an amount of Rs. 71.73 was expected to be incurred till 31st March, 1975. The Committee reiterate that the Corporation should finalise the revised estimates of the project without delay.

Government should also critically analyse the reasons for increase in the cost estimates and the effect of such increase on the profitability of the project.

In this connection, the Committee would like to invite the attention of Government to their recommendtaion in paragraph 3 of their Forty-Eighth Report on the Action Taken by Government on the recommendations contained in their Thirty-ninth Report on Pyrites, Phosphates and Chemicals Ltd. and reiterate that the implication of the increased capital investment on the economics of the Project should be critically brought to the notice of Parliament.

C. KEROSENE TREATING UNIT—BARAUNI REFINERY

(Recommendation Serial No. 20)

The Committee on Public Undertakings (1973-74) found that the Kerosene Treating Unit II which was set up at a cost of Rs. 1.24 crores in December, 1965 was practically idle since its commissioning except for 93 days in 1968-69 and 80 days in 1969-70 when kerosene Treating Unit I was shut down. Government, however, expected that this could be utilised when Atmospheric Unit II went on stream. Even after Atmospheric Unit III started processing imported crude, Kerosene Treating Unit II could not be operated as the kerosene obtained from the Middle East Crude did not require sulphur dioxide extraction. It was, therefore, decided to utilise Kerosene Treating Unit II in the Bongaigaon Refinery which was expected to be commissioned by 1976 and the cost of dismantling and installing the unit at Bongaigaon Refinery was to be Rs. 25 lakhs.

The Committee felt perturbed that the Kerosene Treating Unit II was set up at a cost of Rs. 1.24 crores without proper planning and without a proper assessment of the feed stock that would be available for processing, thus resulting in unnecessary locking up of capital for almost 11 years ti'l the commissioning of Bangaigaon refinery.

The Committee recommended that the matter should be thoroughly investigated with a view to fixing responsibility for the huge loss suffered by the Refinery.

The Committee also found that though the Kerosene Treating Unit I was stated to have an in-built capacity over and above its designed capacity, its utilisation was only of the order of 68.7 per cent and 75.6 per cent during 1966-67 and 1968-69 respectively. The utilisation during 1969-70 to 1972-73, however, ranged from 106 per cent to 132 per cent.

The utilisation in 1970-71 was as high as 132 per cent. The Committee desired that the actual in-built capacity of the Unit should be properly assessed so as to enable the Refinery to utilise it to the maximum and to correctly evaluate the performance.

In their reply the Ministry have stated that at the time the kerosene treating units were designed, it was expected that most of the straight run kerosene from crude oil distillation as well as kerosene fraction from the coking unit would be treated in these units for the production of superior kerosene. When the Barauni refinery went on stream, it was found that the quantity of inferior kerosene feedstock that could be processed in the Barauni Kerosene treating units was much less than the design capacity of the units.

It was not necessary to run the kerosene treating unit at Barauni to full capacity for processing inferior kerosene into superior kerosene, as one of the units had sufficient capacity to process the feedstock available.

When imported crude was processed in Barauni and atmospheric unit III also started functioning, it was not necessary to operate the idle capacity of the KTU 2, because kerosene produced from Middle East crude did not require sulphur dioxide extraction. It has been added that it is now expected that Barauni's 3rd million unit would be operated on crude oil from Assam and at that time it is expected that the second KTU unit would also be utilised.

In regard to assessment of actual inbuilt capacity it has been stated that since the present conditions and operations of the kerosene treating unit are different any test runs to establish the inbuilt capacity of the units under design conditions may not be of much practical value.

The Committee have already recommended that the matter regarding the under-utilisation of the Barauni Refinery since the commissioning of Atmospheric Unit III should be thoroughly investigated. They reiterate that the under-utilisation of Kerosene Treating Unit II in so far as it was due to under-utilisation of Atmospheric Unit III should also be investigated in order to pinpoint the lapses.

The Committee also stress that the extent of utilisation of capacity of both the Kerosene Treating Units should be realistically assessed according to the present availability of crude so as to ensure their maximum utilisation.

D. LUBE OIL COMPLEX—BARAUNI REFINERY

(Recommendation Serial No. 22)

The Committee on Public Undertakings (1973-74) noted that though the Lube Oil Complex of the Barauni Refinery was originally designed to produce four Lube base stocks, it was not possible to produce all the 4 grades of oil because of defects in the crude vacuum unit due to defective design and certain additions were required in the plant. Consequently, the plant remained under-utilised from 1967-68 to 1969-70 resulting in a loss of about Rs. 50 lakhs during this period. The Committee were informed that rectification of defects was not carried out as it involved a huge amount of money and a long period of shut down. What was more surprising was the fact that the Corporation discover later that the 4 grades of oils planned to be produced were low grade oils and could not meet the specifications of the products which were in demand in the market. It was also found that Digboi Refinery had increased the production of oils which could meet the market demand. As a measure of diversification, the Corporation took up production of 800 pale lube oil in March, 1969. The Committee also noted that the compounding facilities for base stock of lubricating oil and additives created at a cost of Rs. 29 lakhs remained under-utilised as only one grade of oil was being produced which did not require blending.

The Committee took a serious view of this huge loss due to under utilisation of the Plant and the non-utilisation of facilities which in their opinion could have been avoided if the complex had been created after a detailed market survey of the demand for products and proper planning. The Committee recommended that the matter should be thoroughly investigated in order to fix responsibility for this serious lapse, and to devise suitable measures to ensure that such costly lapses do not recur.

In their reply the Ministry have stated that the factors leading to the under-utilisation of the Lube Oil Complex and non-utilisation of the blending facilities have been thoroughly investigated by a Technical Committee set up by IOC (Refineries Division).

According to the Technical Committee, the Market and Distribution Study conducted by well-known firm. Arthur D. Little Inc. of Campbridge, Massachusetts in behalf of M/s. Foster Wheeler Corporation, who were appointed as consultants to prepare a Technical and Economic Survey Report, had established the demand for Lubricating oils in India as 211,000 tons in 1957.

In March 1961 on the advice of the Russian specialists who had by that time completed the pilot plant studies, it was decided to manufacture

12,000 tonnes of motor oil and 34,000 tonnes of industrial (machine) oils in the complex.

As against the original schedule of 1964, the Lube Oil Complex came on stream towards the end of 1967 and by that time the situation had changed considerably. As against the expected production of 15,800 tonnes in 1961, the Digboi Refinery was producing at the rate of 64,000 tonnes of LVI oils in 1967-68, thus saturating the market particularly in the viscosity range available from Barauni. The Indian Oil Corporation had also entered into a collaboration agreement with Mobil and was selling over 100,000 tonnes of premium motor oils and industrial oils of international quality either imported as such or blended from the imported HVI lube base stocks and additives in the blending plants established at Bombay and Calcutta.* The Technical Committee has reviewed design/operation of the Lube Base stocks and has observed that a better vacuum column, designed to produce a higher viscosity stocks (as it was later done for the Lube India and Madras Refineries) could have served the purpose better as the demand for higher viscosity stocks is always more as compared to lower viscosity stocks.

The Committee has also observed that as the detailed project report prepared by the Russians did not envisage the receipt of any outside stock for blending with the base stocks produced in the refinery, no facilities were included for this purpose. Later on, it was realised that the inclusion of such facilities could have increased the flexibility of the refinery and

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*At the time of factual verification IOC in their letter No. A/GPU/Gen/73-74-VOLII dated 22-4-75 have stated as follows :—

The 1962-1963 agreements envisaged the import of finished products and import of base stocks and additives for local blending. Initially, both HVI and LVI base stocks were imported but when the Digboi Refinery increased its production capacity and Barauni started producing LVI base stocks, the import of LVI base stocks was restricted to only these stocks outside the viscosity range of Digboi and Barauni. IOBL was then blending under Mobil's agreement mainly premium oils using HVL base stocks not manufactured either by Digboi or Barauni. (Later when Lube India and MRL Lube plants came on stream, the import of HVI base stocks was also restricted.

The agreement with Mobil as revised in 1968 specifically provided for the use of any indigeneous base stocks manufactured in India by IOC or its affiliates from indigenous or imported crude oil and, any base stocks imported into India by reason of 'barter' or other arrangements concluded by or at the instance of Government of India.

Thus it was not the Mobil agreement which stood in the way of utilising the production from Barauni. It was the excess availability of the low viscosity (LVI) base stocks from Digboi and Barauni. The design of the Barauni Lube Plant envisagedthe production of 60 VI SAE 30 base stocks to the extent of 12,000 tonnes per year meant for production of motor oils, It was, however, realised that motor oils produced from such Barauni stocks would be slightly inferior to the premium quality motor oils manufactured with mobil technology from imported HVI stochs 90 VI and above since there was stiff competition with other international oil companies and the economies of production of 60 VI at Barauni was also not favourable, a decision to make only one stock of 800 pale of less than 30 VI ultimately proved to be the most optimum from cost of production point of view.

enab'ed it to produce finished lubricants readily acceptable by the market.

The Committee has attributed the main reasons for the under-utilisation of the Complex in the initial period to (1) design and operational problems at the refinery and 2) marketing problems.

The Technical Committee is however, of the opinion that 'since the refinery design was based on the market study specifically prepared by the well-known and experienced international firms namely Foster Wheelers and Arthur D. Little and the design itself was prepared by the USSR technical consultants, at a time when the indigenous experience available to Government in respect of lube oil refining and marketing was negligible, the factors that led to the under-utilisation of the lube complex and non-utilisation of the blending facilities could not have been fore seen and provided for. Hence, we are unable to assign the responsibility for the loss sustained on any individual or organisation." The Ministry have added that IOC has by now gained sufficient technical knowledge and experience and will, therefore, endeavour to adhere to sound principles of project engineering in future so that costly lapses as in the case of the setting up of the Lube Oil Complex at Barauni do not recur. Changing market conditions in respect of crude oil and products can, however, upset the production of any plant as it is not possible or advisable to introduce unlimited flexibility.

The Committee regret to note that there has been delay of about 3 years in the setting up of the lube oil complex in the Barauni Refinery. As against the original Schedule of 1964 the complex came on stream towards the end of 1967.

The Technical Committee which was set up to go into the factors leading to the under-utilisation of the Lube Oil Complex has stated that by the time the Lube Oil Complex was ready the situation had changed considerably. As against the expected production of 15,800 tonnes in 1961, the Digboi Refinery was producing at the rate of 64,000 tonnes of LVI oils in 1967-68, thus saturating the market particularly in the viscosity range available for Barauni. The Indian Oil Corporation had also entered into a collaboration agreement with Mobil and was selling over 100,000 tonnes of premium motor oils and industrial oil of international quality either imported or blended from the imported HVI lube base stock.

The Technical Committee has attributed the main reasons for the under-utilisation of the complex in the initial period to (i) designs and operational problems at the refinery and (ii) marketing problems. As regards design/ operation of the lube base stocks the Committee has observed that a better vocuum column, designed to produce a higher-vis-

cosity stocks could have served the purpose better as the demand for higher viscosity stocks is always more as compared to lower viscosity oil. The market study was prepared by a U.K. firm and design was prepared by the USSR Technical Consultants. It has been held that at that time the indigenous experience available to Government in respect of lube oil refinery and marketing was negligible. and therefore the factors that to under-utilisation of lube complex and non-utilisation of blending facilities could not have been foreseen.

The Committee feel that at least in regard to market survey total dependence on a foreign firm should have been avoided and Indian expertise should have been associated with such studies. The Committee hope that with the knowledge and experience now gained by the Corporation such lapses will not recur in future.

E. UTILISATION OF THE BITUMAN UNIT

(Recommendation Serial No. 23)

The Committee on Public Undertakings (1973-74) observed that the Bituman Unit of the Barauni Refinery was set up in November, 1966 at capital cost of Rs. 1 crore, without proper investigation whether bitumen suitable for plains could be produced from Naharkatiya food stock. Neither the Indian Standards Institute nor the Central Road Research Institute were consulted in the matter. The Committee were surprised that the ISI specifications already available for producing bitumen with Middle East crude were blindly adopted as a guide for producing bitumen from Assam crude. The result was that the unit remained idle/under-utilised since its inception. Even after carrying out modifications in 1968 at a cost of sabot Rs. 4 lakhs, the Unit could not be started as it could not produce bitumen suitable for road work in plains Efforts to produce bitumen of grades other than those envisaged in the Project Report could also not succeed as production of bitumen of these grades proved to be uneconomical. The restricted non-operation of the Unit resulted in a loss of about Rs. 1 crore. The economics of producing bitumen in the Barauni Refinery also indicated that so long as there was spare capacity in the Coking Unit, the manufacture of bitumen would always be a losing proposition. The operation of the unit even at its rated capacity would result in a net loss of Rs. 30 lakhs per annum. The Committee took a serious view of the defective planning in the setting up of this Unit.

The Committee were informed that it was proposed to restart the Unit using residues from imported crude after carrying out modifications at a cost of Rs. 40 lakhs which was likely to be completed by 1975.

The Committee recommended that the entire matter regarding the setting up of Bitumen Unit at Barauni Refinery should be investigated by a high level Committee in order to pinpoint the lapses and fix responsibility for the huge loss suffered by the Corporation.

The Committee also desired to be informed of the concrete measures taken to obviate recurrence of such costly lapses in the investment and tying up of collaboration arrangements.

In their reply the Ministry have stated as follows:

"At the time the 2 million tonnes stage of Barauni Refinery was designed, it was considered prudent to include the production of bitumen at this refinery on considerations of demand and the profitability of this product.

In petroleum industry the specifications of products are generally governed by the standards formulated/published by the National Standards Institutions and it is the normal practice to adopt these national standards for the design of the refineries. As already explained to the Committee, IOC and the Russian designers were not aware that the bitumen meeting ISI specifications would fail in performance. The failure of Barauni Bitumen was an exceptional case and came to knowledge only during actual field application. For this exceptional situation it is felt that even a reference to Indian Standards Institution and or to Central Road Research Institute might not have helped in the matter since the problem was neither known nor anticipated at that stage since there was no known failure like that.

In 1968 modifications were carried out to the Bitumen Unit at Barauni Refinery after discussions with the High Power Soviet Delegation and as a result of these modifications bitumen was produced which met ISI specifications. The economics of bitumen production was very favourable at the project stage at the price structure prevailing at that time, and the refineries at that time were putting in every effort to maximise bitumen production. Subsequently the price structure as modified by the Government became unfavourable changing the entire economics of Bitumen production and it was profitable even to process the feed stock in the Coking Unit instead of Bitumen production. The unfavourable price structure, low demand of bitumen from Barauni and the tie-up of phenol extract which was being used for production of Bitumen (so as to meet the ISI specifications), as carbon black feed-stock were the main factors influencing the decision to keep this unit shut down.

In 1972 a proposal was made for receipt of imported crude at Barauni so that the full capacity of the Barauni Refinery could be utilised in the absence of sufficient availability of indigenous crude. With the receipt of imported crude at Barauni it would have been technically feasible to produce bitumen in the Barauni Refinery and all efforts were directed for carrying out necessary modifications in the Bitumen Unit at a cost of about Rs. 40 lakhs for the production of bitumen based on imported crude feed stock. The expenditure incurred in carrying out the modification was, however, Rs. 25,000 only.

The proposed modifications to the Bitumen Unit at Barauni, based on imported crude, were, however, subsequently dropped consequent on the assessment of ONGC made in February 74 indicating the availability of sufficient indigenous crude to sustain the 3 million tonnes capacity of Barauni Refinery. IOC are, therefore, presently considering the possibility of utilising the equipment of Bitumen Unit for other purposes."

It has been added that—

"At the time of planning Barauni Refinery, Indian Oil Corporation (Indian Refineries Ltd.) was a very small organisation which was just coming up. Neither the company had the laboratory facilities to conduct investigations regarding the quality of crude oil for producing various products nor there were such specialised institutes such as IIP at that time. At present while planning the processing of new crude oils, IOC makes its own preliminary evaluation if necessary, in its own laboratories in the various refineries and before making final decision matters are invariably referred to specialised institutes such as IIP for detailed lab. evaluation. IIP today is in a position to do detail-of evaluation work on crude oil and its products. Over and above this, IOC is also establishing Research and Development Centre exclusively to meet its own requirements.

It would appear that at the time of planning and desiging of the Bitumen Unit, there was a lack of technological expertise which resulted in non-utilisation of the capacity of the Unit and the consequent loss suffered by the Corporation. The constitution of a high level Committee at this stage to enquire into the setting up of the Bitumen Unit at Barauni Refinery may not, therefore, yield any useful results."

The Committee are not convinced with the argument advanced by the Ministry in regard to the setting up of the Bitumen Unit on the basis of ISI specifications already available for producing bitumen with Middle East

crude. It has been stated that "in petroleum industry the specifications of products are generally governed by the standards formulated/published by the National Standards Institutions and it is the normal practice to adopt these national standards for the design of the refineries." The Committee regret to observe that ISI specifications were blindly adopted as a guide for producing bitumen from Assam Crude without going into the merits/quality of crude with the result that the unit failed in its performance. The Committee are not convinced that even a reference to Indian Standards Institution and or to Cenral Road Research Institute might not have helped in the matter.

It has also been stated that "at the time of planning and designing of the Bitumen Unit, there was a lack of technological expertise which resulted in non-utilisation of the capacity of the Bitumen Unit and consequent loss suffered by the Corporation". The Committee feel that this is too general a statement and the specific reasons and lapses can be known only if the matter is thoroughly investigated by the Technical Committee. The Committee therefore reiterate that the entire matter regarding the setting up of Bitumen Unit at Barauni Refinery should be investigated.

The Committee are informed that the proposed modifications to the Bitumen Unit based on imported crude have now been dropped consequent upon the availability of sufficient indigenous crude to sustain the 3 million tonnes capacity of the Barauni Refinery after incurring an expenditure of Rs. 25,000 for carrying out the modifications.

The Committee regret to observe that the expenditure on modifications has also proved infructuous and has added to the loss. The Committee would like to be informed about the action taken in regard to utilisation of equipment of the Bitumen Unit for other purposes.

F. AGREEMENT WITH FOREIGN SUPPLIERS—GUJARAT REFINERY

Recommendation (Serial No. 39)

The Committee on Public Undertakings (1973-74) found that a contract was signed with USSR suppliers for supply of equipment and materials weighing 15,350 tonnes for the setting up of the Gujarat Refinery. Subsequently, 204.196 tonnes were deleted from the supply schedule of the contract in terms of the protocol dated 9th October, 1964, as these materials were available from indigenous sources. The Committee also note that the protocol was silent about the possible reduction in the contract price in the case of deletion of the quantity from the contracted supply.

The Committee expressed their regret that though the supplies under the protocol were completed as early as 1966, it was only in February, 1970 after a lapse of six years from the date of protocol that a claim for Rs. 15.76 lakhs was preferred against the foreign suppliers on account of the value of deleted items weighing 204.196 tonnes (Rs. 10.92 lakhs) and also for defective materials and other causes (Rs. 4.84 lakhs). This claim had not been accepted by the suppliers. The Committee were also surprised that the management had not sought the assistance of Government for the recovery of the claim inspite of the long delay in the settlement of the claim by the foreign suppliers.

The Committee were informed that the suppliers had agreed to re-examine the matter. The Committee desired that the matter should be pursued vigorously with a view to effecting an early settlement of the claim.

In their reply the Ministry have stated that "since the contract supplies were completed some time in 1966 and the last invoice from Soviet Suppliers received in October 1967, the details of various claims could be worked out by Refinery Engineers only by June, 1968. Thereafter, the entire case had to be examined in detail in consultation with the Accounts at Gujarat Refinery. Since the work involved considerable amount of calculations and examinatoin of records, the comprehensive note could be prepared only by June, 1969. Immediately thereafter in September, 1969 the details of the claims were handed over to the then GM of Gujarat Refinery, who was visiting Moscow, for discussions with the Soviet Suppliers. During these discussions at Moscow, the Soviet indicated that they would not be prepared to consider IOC's claims unless these are supported by relevant documents in light of the various agreements and protocols signed in the past by them with the Gujarat Refinery management. In light of the above discussions all the transactions relating to supplies made by Soviet Suppliers vis-a-vis contract conditions were reconsidered by Gujarat Refinery and a formal claim was raised with the Soviet Suppliers in February, 1970.

Indian Oil Corporation have been making persistent demands both in writing as well as during several discussions with the Senior Soviet representatives, the last one being made in May, 1974, for the settlement of their above claim. Soviet suppliers had agreed to consider the claim and indicate their views in course of time. However, the final decision of the Soviet authorities has yet to be received. As suggested by the Committee, IOC are pursuing the matter with the Soviet suppliers with a view to early settlement of the claim."

It has been added that as the Soviet suppliers are considering IOC's claim, IOC have not sought assistance of the Government.

The Committee are surprised that I.O.C. have not sought the help of the Ministry even though the matter was pending from February, 1970. The Committee find that the Soviet suppliers had agreed to consider the claims and indicate their view in course of time. The Committee recommend that the matter should be pursued vigorously at the Government level in order to bring about early settlement of the claim.

G. MANPOWER ANALYSIS

Recommendation (Serial No. 46)

The Committee on Public Undertakings (1973-74) found that the number of men in position in the Gauhati, Barauni and Gujarat Refineries as on 31st March, 1973 were 116 per cent, 105 per cent and 31 per cent more than that indicated in the respective Detailed Project Reports of these Refineries. They also noted that on 31st March, 1973 about a thousand persons were in excess of the strength fixed by the Management themselves for the three Refineries.

The Committee felt that surplus construction staff should be gainfully employed in other projects under construction. The Committee recommended that the Government/Corporation should undertake a review of the staff strength in all the three refineries and identify the staff in excess of requirement, and make concerted efforts to absorb the surplus staff gainfully in other Central or State Projects that were coming up in the area.

In reply the Ministry have stated that the staff position in all the three refineries is being kept under constant review by the IOC and the surplus staff is being identified from time to time. Industrial Engineers posted in each of the refineries have been entrusted with this work. The efforts made to get the surplus staff of the IOC refineries absorbed in other Central or State Projects that are coming up in the area have not met with success because of the desire of the local Government's to increase employment opportunities in their area to the maximum extent possible and the reluctance on the part of the employees of IOC to shift to other organisations because of the better service conditions in IOC. IOC are making efforts to reduce the surplus staff by adopting a policy of non-recruitment to categories where there is surplus staff. By a process of attrition, there is likely to be progressive reduction in the surplus staff. It has been added that efforts are being made to get the construction staff of the Haldia Refinery rendered surplus on account of completion of the

project, employed in the construction of the fertilizer plant which is coming up at Haldia.

The Committee enquired if Government/Corporation had undertaken a review of the staff strength in all the three refineries in order to identify the staff in excess of requirement and what was the actual requirement of staff according to the realistic and scientific studies made and what was the extent of staff in excess of requirement. It has been stated by the Ministry that the reviews of the staff strength were carried out in each Refinery by the Efficiency Research Team of the Marketing Division of the Corporation. Thereafter the requirements were reviewed by the Industrial Engineers from time to time.

The Efficiency Research Team of the Marketing Division of IOC reviewed the manpower requirement of the Gauhati Refinery in 1968-69, Barauni Refinery in 1968 and Gujarat Refinery first in 1968 and then in 1971. Recently the National Productivity Council has been approached for undertaking a manpower study in the Barauni Refinery and they have already conducted a preliminary survey for the purpose.

The actual requirements of the staff according to the realistic and scientific studies made in each Refinery and the present strength is stated to be as under:—

Unit	Assessed requirement	No. in position as on 30-9-1974	No. in excess
Gauhati	1069	1250	181
Barauni	2087	2759	672
Gujarat	1343	1484	141

IOC have been able to reduce the surplus staff in the last about 4½ years to the extent of 300 in all by way of normal attrition.

Asked about the figures of surplus staff in the three refineries year-wise and the extra expenditure involved on this account, it has been stated that "the information required pertains to the earlier years and IOC have to collect it from their units, it is taking time. The urgency of the matter has, however, been stressed on IOC".

The Committee find that the Efficiency Research Team of Marketing Division of IOC reviewed the manpower requirement of the Gauhati

Refinery in 1968-69, Barauni Refinery in 1968 and Gujarat Refinery in 1968 and then in 1971. Thereafter no comprehensive review has been undertaken as suggested by the Committee. Recently the National Productivity Council has been approached for undertaking a manpower study in the Barauni Refinery and they have conducted a preliminary survey for the purpose. The Committee recommend that the Government/Corporation should expedite the review of the staff strength in all the three refineries in order to identify the staff in excess of requirement.

It has been stated that the efforts made to get the surplus staff of the IOC refineries absorbed in other Central or State Projects that are coming up in the area have not met with success because of the desire of the local Governments to increase employment opportunities in their area to the maximum extent possible. The Committee recommend that the Ministry should take up the matter with the State Governments concerned and pursuade them to absorb the surplus staff so as to reduce the overhead expenditure of the refineries.

H. RECOMMENDATIONS SERIAL NOS. 5, 15, 17, 18 AND 24

(i) Haldia Refinery—Delay in Construction (Serial No. 5)

The Committee on Public Undertakings (1973-74) recommended that Government should thoroughly investigate the matter regarding delay in the construction of the Haldia Refinery so as to identify the factors which continued to impede the completion of the Project. Ministry have stated that the investigation was entrusted to Adviser (Refineries), Ministry of Petroleum and Chemicals on 14th November, 1974. The enquiry is in quite and advanced stage and it is likely to be completed by 23rd April, 1975.

(ii) Delay in the supply of storage vessels by M/s. Triveni Structurals Ltd. (Serial No. 15)

The Committee on Public Undertakings (1973-74) recommended that Government should analyse the causes for delay in the setting up of the Project for the manufacture of LPG at Gauhati Refinery. Ministry have stated that the investigation was entrusted to Adviser (Production), Bureau of Public Enterprises on 30th November, 1974. The investigation is likely to be completed by 30th April, 1975.

(iii) Delay in the Establishment of Facilities (Serial No. 17)

The Committee on Public Undertakings (1973-74) recommended that Government should analyse the causes for delay at various stages regarding delay in establishment of facilities for reducing loss on account of

movement, spillage, leakage, dipping errors in the course of loading from the tanks to tank wagons and tank lorries. Ministry have stated that the investigation was entrused to Adviser (Refineries), Ministry of Petroleum and Chemicals on 14th November, 1974. The investigation is likely to be completed by 9th May, 1975.

(iv) Project Estimates—Barauni Refinery (Serial No. 18)

The Committee recommended that the responsibility for delay in finalising the estimates of the Barauni Refinery should be fixed. Ministry have stated that the investigation was entrusted to Adviser (Production) Bureau of Public Enterprises on 14th November, 1974 and is likely to be completed. by 30th April, 1975.

(v) Coke calcination plant—Barauni Refinery (Serial No. 24)

The Committee on Public Undertakings (1973-74) recommended that the reasons for delay in the completion and defective working after commissioning of the Coke Calcination Plant of the Barauni Refinery should be thoroughly investigated so as to pinpoint lapses and in order to fix responsibility for the huge loss.

Ministry have stated that the investigation was entrusted to Adviser (Production), Bureau of Public Enterprises on 12th November, 1974. The investigation is likely to be completed shortly.

The Committee regret to note that although their Fifty-Second Report (Fifth Lok Sabha) on Indian Oil Corporation (Refineries Division Excluding Pipeline Section) was presented to Parliament on the 29th April, 1974, the investigations in respect of recommendations at Serial Nos. 5, 15, 17, 18 and 24 were entrusted only in November, 1974 i.e. after a lapse of more than 6 months. The investigations are stated to be still in progress. The Committee recommend that the investigations should be finalised as per schedules indicated by the Ministry and the Committee/ Parliament informed about the results of investigations and the action taken by Government on the findings as soon as the reports of the investigating officers are finalised.

CHAPTER II

RECOMMENDATIONS THAT HAVE BEEN ACCEPTED BY GOVERNMENT

Recommendation (Serial No. 6)

The Committee note that the Fourth Five Year Plan envisaged an increase in the Refining capacity in the public sector from 8.25 million tonnes to 17.55 million tonnes per annum. They, however, find that for one reason or other none of the schemes envisaged in the Fourth Five Year Plan could be fully implemented, with the result that the refining capacity likely to be available by the end of the Fourth Plan would be only 13.25 million tonnes per annum. The Committee have already recommended elsewhere in this Report that the delays in commissioning of the Haldia and Bongaigaon Refineries and the under-utilisation of Barauni Refinery should be investigated by Government. The Committee hope that Government/Corporation would profit from their past experience and have an integrated approach in drawing up schemes for expansion of refining capacity in the Fifth Five Year Plan keeping in view the availability of indigenous and imported crude.

(Paragraph 4.12)

Reply of Government*

At the time of formulation of the draft Fifth Five Year Plan, a programme for expansion of refining capacity was drawn up based on the projection of demand for petroleum products during the Fifth Five Year Plan. Subsequently, however, in view of the drastic changes in the world crude supply and price situation and the extremely high foreign exchange cost of imported crude oil and limited availability of foreign exchange, the optimum refining capacity to be achieved in the Fifth Five Year Plan is being re-examined. This re-examination is related to the level of consumption of petroleum products, extent of substitution of petroleum energy by other resources of energy etc. Pending this reconsideration, apart from the Mathura Refinery, Koyali Refinery expansion and Bongaigaon Refinery, which would together add 10 million tonnes per annum of refining capacity, no new schemes for addition to refining capacity

*Reply not not vetted by Government.

during the Fifth Five Year Plan are under consideration by the Government. As suggested by the Committee, schemes for expansion of refining capacity during the Fifth Five Year Plan would be taken up keeping in view the availability of indigenous crude and our ability to import oil from abroad.

[Ministry of Petroleum & Chemicals, O.M. No. IS-54012/3/74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 8)

The Committee are surprised to note that though the area of 480.22 acres had been acquired by State Government of Assam and handed over to the Refinery during December, 1959, and February, 1964, the deed of conveyance for land has not been executed so far. Earlier in November, 1959, it was decided that the State Government of Assam would be allowed to have financial participation in the Refinery to the extent of the actual expenditure on the acquisition of land. In July, 1962, it was decided that the financial participation should be limited to 15 per cent of the equity capital investment in the refinery and the first issue of shares should be adjusted towards the cost of land and balance subscribed in cash. However, in July, 1969 Government, took the decision that the Central Ministries should desist from approaching the State Government for provision of land and services free of cost or at concessional rates for Central Projects. The Committee regret to note that there has been an inordinate delay of over 14 years even in clinching the issues for settlement and even now the State Government have not paid the cost of development of land. The Committee recommend that Government should take more serious measures and settle the issues with the State Government without any further delay.

(Paragraph 5.11)

Reply of Government

The decision of the Government that IOC should bear the cost of acquisition of land as well as of its development and that there would be no equity participation by the Assam Government in the Indian Oil Corporation had been communicated to the Assam Government in July, 1974. The deed of conveyance for the land will be executed as soon as the State Government's concurrence is received and payment would accordingly be male by the IOC to them towards the cost of acquisition of the land. The matter has been vigorously pursued with the State Government earlier and has now been taken up at the highest level.

[Ministry of Petroleum & Chemicals, O.M. No. IS-54012/3/74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 9)

The Committee note that though according to agreement with foreign collaborators, the Refinery was to be commissioned by October, 1961, there had been delays ranging from two to six months in the actual completion of various units resulting in overstay of the foreign technicians. Consequently, there has been an increase in the cost of technical assistance from Rs. 28.57 lakhs to Rs. 39.21 lakhs. The Committee regret to note that there had been a delay of over ten months in preferring the claim for reimbursement of extra expenses and the first claim to the tune of Rs. 7 lakhs was preferred only in February, 1963. The Committee were informed that even after protracted correspondence and discussions, an agreement was reached with the collaborators only in August, 1964. The Committee find that after this agreement the Corporation had taken further period of two years to revise their claim and prefer it.

The Committee view with concern the inordinate delay on the part of the Management both in preferring the claim and subsequently revising it. Even after a lapse of seven years, the claim is stated to be pending decision and settlement. The Committee recommend that the reasons for this inordinate delay at several stages should be investigated and responsibility fixed. The Committee would like that the question of settlement of the revised claim should be vigorously pursued so as not to lose more time.

(Paragraphs 5.18 to 5.19)

Reply of Government

Indian Oil Corporation has since investigated the reasons for the delay in preferring the claim for reimbursement of extra expenses on account of the overstay of the Rumanian experts at Gauhati Refinery. The position briefly is that a final programme was drawn up during the visit of Mr. Tinus Marcel, Director of the State /Institute for Refineries Designing, to India in November, December, 1961 and accepted by the Indian Refineries Ltd. According to this programme, the Crude Distillation Unit was to be commissioned on 25th December, 1961, the Kerosene Treating Unit on 10th February, 1962 and the Coking Unit on 15th February, 1962. Based on these dates, a programme for a team of Rumanian Experts required for the testing/commissioning of the Refinery units was also drawn up providing for 53 exports covering 286 man-months. According to this programme, all the Rumanian experts would have left India progressively after completing their assignments at the Refinery by 31st May, 1962. Whereas the Crude Distillation Unit was commissioned as scheduled, delays however, occurred in the commissioning of the Kerosene Refining and Coking Units. As already explained

to the Committee, these delays were, in the main due to the shortage of certain materials of Rumanian supply, such as G.I. Pipes, metal cladding etc. which had to be made up from indigenous sources at the last moment and the delay in the arrival of some Rumanian equipment, e.g. pumps for reduced crude circulation and for coke cutting. These did not arrive at the site till 12th February, 1962. The erection of these pumps was, therefore, delayed and resulted in consequential delays in certain pipe connections, electrical connections and insulation work on the pipelines. In view of these difficulties, the time schedule for starting up of these two units could not be achieved and it was only in the last week of March and early April, 1962 that the units were able to go into operation. Further due to certain mechanical troubles in the kerosene refining unit, it became necessary to carry out certain repairs/modifications with the help of the Rumanian technicians and it was only on 3rd November, 1962 that this unit was finally started. Therefore, formal handing over and taking over charge certificates in respect of Gauhati Refinery were signed between M/s. Industrial Export of Rumania and erstwhile Indian Refineries Ltd. on 16th November, 1962. The last group of Rumanian specialists deputed to Gauhati for start-up/commissioning assistance and for carrying out repairs and modifications left for Rumania in December, 1962. Therefore, after verifying the arrival/departure dates of the Rumanian specialists and also the excess man-months covered by them, the first claim amounting to Rs. 7,20,430 was preferred by IRL on M/s. Industrial export on 28th February, 1963.

Though there was no avoidable delay in regard to preferring the claim of Rs. 7 lakhs in February, 1963 for reimbursement of extra expenditure, yet it took some time for verification of claims by the General Manager, Gauhati Refinery between September, 1964 to June, 1965, arising out of discussion the Chairman, IRL had with the Chairman, Industrial-export on 6th and 7th August, 1964. The delay between June, 1965 to October, 1966, when revised final claim was raised, arose due to points raised by General Manager, Gauhati Refinery in regard to the average period which should be taken for the receipt of the materials. (The average period taken for the receipt of the materials, was four to five months as against the 45 days which was taken as a basis for programme of construction and erection. It is a fact that this delay in preferring the revised claim could have been minimised to some extent.

It is very difficult to pinpoint the responsility on any official for the delay in preferring the claim at this late stage. However, as a remedial measure, IOC are issuing instructions to their refineries that claims with the foreign firms and consultants should be preferred well in time and pursued vigorously and for this purpose they should maintain a proper progress register, which should be submitted to the General Manager/MD.

It may be mentioned that at no stage M/s. Industrial export, Rumania had indicated their unwillingness to consider the IOC's claim on account of timelag in its submission. The Corporation was dealing with another State Enterprise of the Government of Rumania and in view of the friendly relations between the two countries, it would not have been desirable to institute any judicial action for the recovery of the claim. The matter had, therefore, necessarily to be pursued through correspondence, discussions and diplomatic channels.

During his recent visit to Rumania in September, 1974 in connection with the meeting of the Indo-Rumanian Joint Commission, the Managing Director, IOC (R&P) availed of the opportunity of discussing this claim with the Counsellor of Petrom, successor of M/s. Industrial-export of Rumania. The Petrom have been seized of this matter all through and have shown their earnest desire to settle the claim early is borne out by the following reply received from them by IOC on 16th October, 1974:—

> "We think you would agree with us that this claim having as object an important amount of money has to be solved after more than 10 years from the commissioning of Gauhati Refinery which is smoothly running so that there were some problems we tried to overcome. Mention should be made that the settlement of your claim was permanently given our attention, PETROM's Board of Directors had reviewed it entirely and currently it is under final review of our relevant authorities. After completion of this stage, we will be able to solve that claim by a reasonable and acceptable solution for both parties concerned. In this respect we would let you know in writing our point of view."

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I dated 5th November, 1974]

Recommendation (Serial No. 10)

The Committee note that lower supply of crude oil unsteady and interrupted power supply from the Assam State Electricity Board, delay in the overhaul of the Refinery's generators, product upliftment difficulty at Siliguri and shut downs of Coking Unit causing ullage problem for reduced crude and shut down of product pipelines have been the main reasons for the shortfall in the utilisation of capacity of the Crude Distillation Unit. The Committee recommend that Government/Corporation should analyse these causes in detail in order to find out as to what extent these problems were avoidable in nature. The Committee have no doubt that had there been a proper scheduling for overhaul and advance planning many of the difficulties could have been avoided and shut downs

of the Coking Unit and product pipeline could have been reduced to the minimum. The Committee find that the crude throughout including slops and capacity utilisation were the highest during 1967-68. The Committee hope that in the light of the past experience, Government/Corporation would take appropriate steps to secure an uninterrupted supply of power either through the ASEB or by suitable alternate arrangements. The Committee need hardly stress that in view of the tight position of imported crude, Government should take concerted measures to sustain this high through put and ensure maximum utilisation of the Gauhati Refinery which is processing indigenous.

(Paragraph 5.31)

Reply of Government

The reasons for the shortfall in the utilisation of capacity of Crude Oil Distillation Unit of Gauhati Refinery as already submitted by the IOC to the Committee, have been summarised in paras 5.21 to to 5.27 of the Committee's Report. The causes for the delay have, however, again been analysed and the position is further elucidated as under:—

(i) Unsteady and interrupted power supply from Assam State Electricity Board

Since the major overhauls of IOC's Turbo generators were to start in April, 1970, the subject of obtaining regular and uninterrupted power supply from ASEB was discussed with Chief Engineer, ASEB in March, 1970 and followed up by correspondence at the highest level which finally resulted in ASEB's confirmation to supply IOC power to the extent of 3,000 KVA continuously as far as practicable so long as their generating station would permit.

(ii) **Product upliftment difficulty in Siliguri**

The product upliftment difficulty at Siliguri during July and August, 1970 and August and September, 1971 were due to the Railway strike and snapping of broadgauge Railway link across Farakka because of floods. This railway emergency was beyond IOC's control and unavoidable.

(iii) **Shutdown of the Coking Unit**

Down time of Coking Unit in the year 1970-71, 1971-72 and 1972-73 was 57 days, 44 days and 41½ days respectively as compared to 36½ days during 1967-68.

The higher down time was due to increase in the maintenance activities of Coking unit. A Central Service Organisation has been established and

it is expected that the service factors of the Refinery Units, including Coking Unit, will show improvement.

It is, also proposed to supply LSH's to ASEB's Chandrapur power station. Once the operation of this station (with LSH's as fuel) is stabilised IOC may hope for some relief, during Coking Unit emergencies, which in the past had created critical reduced crude ullage situation and led to reduction in crude throughput.

4. The Management of Gauhati Refinery has discussed power supply problems with ASEB and the following measures have been taken/planned with a view to improving the supply of power to the Refinery:—

(i) ASEB will supply power to Gauhati Refinery during maintenance/break-down of turbines and during the peak load periods. However, during the low load periods the Gauhati refinery will supply power to ASEB.

(ii) ASEB authorities have been approached for allotting priority for power supply to Gauhati Refinery in case of urgency. The rates have settled and the agreement is under negotiations.

(iii) ASEB has agreed to give one inter-connection line from Narangi which will help the refinery to overcome the difficulty in maintaining the present interconnection line passing through the congested residential areas.

5. The refinery is also following intensive maintenance of their own turbo sets in order to achieve the maximum output from these sets.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 26th October, 1974]

Recommendation (Serial No. 12)

The Committee find that the percentage of "gas" and "loss" together was more than that envisaged in the project design. The change in the product pattern from he original design has already resulted in a loss of Rs. 27.2 lakhs during the year 1966-67 to 1972-73 and there would also be a recurring loss of Rs. 10 lakhs per annum. The Committee recommend that the operation of the Unit should be so regulated that the production of gas is reduced to the minimum. They also recommend that Government/ Corporation should consider seriously the feasibility of coverting the gas as fuel for domestic consumption and avoid a recurring loss thereon.

(Paragraph 5.61)

Reply of Government

As recommended by the Committee, steps are being taken by the IOC to reduce the flaring of the gases. The steps that are being taken by which the flaring will be reduced almost to the minimum level are the following:—

(i) Trial supplies of LSHS have been made to Chandrapura Thermal Power Station of Assam State Electricity Board. When this power station starts uplifting LSHS regularly this will help to dispose of considerable quantities of coking fuel oil (as LSHS components) which has to be presently burnt in preference to gas. To the extent coking fuel is disposed of as LSHS, it will be possible to increase the utilisation of gas as own fuel in the refinery.

(ii) It is proposed to install additional facilities for recovery of about 4,000 tonnes per year of LPG) from the coking gases.

With the above measures, the utiliseation of gas in the refinery (as own fuel and in the production of LPG) will increase progressively and flaring of gas will get reduced. The balance refinery gases consist of components such as Methane, Ethane, Propane and Butane. Methane and Ethane cannot be bottled as LPG. Propane and Butane would be bottled as LPG to the maximum extent feasible as indicated above.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 27)

The Committee find that Kerosene Treating Unit I was designed to operate for a period of 330 days in a year. The operating efficiency in some of the years was extremely low. The unit remained idle for 134 days and under inspection and maintenance for 39 days during the year 1968-69. Lack of feed stock and shortage of sulphur dioxide have been cited as the reasons for remaining under maintenance/idle for longer period. The loss of revenue for shut down has been estimated at Rs. 10,000 per day.

The Committee further note the Unit had to be shut down for 52 days and 65 days during 1971-72 and 1972-73 respectively. While the shut down during 1971-72 was longer due to delay in taking up maintenance on account of emergency conditions, the Committee find that low inventory of Sulphur dioxide was the main cause for the shut down for 41 days during 1972-73. The loss of revenue during the period has been estimated at Rs. 7,000 per day.

The Committee fail to understand as to why the Corporation should not plan their requirement of sulphur dioxide well in advance and ensure the availability of adequate quantities thereof in time so that need for shut down due to shortage of sulphur dioxide and consequential loss of revenue is avoided. The Committee recommend that this matter should be gone into with a view to taking remedial action to avoid recurrence of such situation in future.

(Paragraph 6.126 to 6.128)

Reply of Government*

IOC have gone into the question of ensuring adequate availability of sulphur dioxide in time as recommended by the Committee and have taken the following action :—

(i) In addition to FACT, Alwaye, two more new sources of supply have been located at Bombay.

(ii) Since shortage of sylinders is one of the factors responsible for interruption in supply, larger number of cylinders have been procured.

(iii) In order to improve the turn round period of the cylinders between the source of supply and the refineries, the refineries have been advised to keep a strict watch on the movement of cylinders and to ensure that the empty cylinders are returned to the suppliers for refilling in the shortest possible time.

(iv) As a long term solution to the problem, a proposal has been made to the FCI to set up a sulphur dioxide recovery unit as part of their Sindri Unit for making sulphuric acid for meeting the requirements of Gauhati, Barauni and Bongaigaon Refineries. FCI have accepted the proposal and are now conducting studies for setting up the plant.

[Ministry of Petroleum & Chemicals, O.M. No. IS-54012/3/74.OR.I, dated 19th Oct. 1974].

Recommendation (Serial No. 28)

In a written note the Ministry have stated that the figures of consumption of utilities could not be precisel calculated in the absence of adequate metering system. It may be stated that the Designers have

*Reply not vetted by Audit.

provided a number of instruments for checking up of the utilities but these were not adequate for a complete balance. The action for procurement and installation of balance meters has already been taken up.

The Committee pointed out that the Coking Unit went into operation in October, 1964. They enquired as to why action in this regard could not be taken earlier. It has been stated that in the initial years, the efforts were directed towards stabilisation of the unit operations and optimisation of the products patterns so as to maximise the refinery throughout. Since the overall consumption of the utilities for the whole refinery was reasonably comparable to the designed norms, attention was not diverted towards rigorous control of the utilities in the individual unit. After the stabilisation of the refintry operations, this aspect is also being looked into and the action has been initiated after the establishment of the Technical Audit Cells.

The Committee find that the consumption of Chemicals and utilities in the Barauni Refinery has been widely varying from year to year without indicating any set pattern. The value of excess consumption of utilities in the Coking Unit during the six years ending 31st March, 1972 was about Rs. 13.87 lakhs. The Committee are surprised to find that though the Unit went into operation as far back as 1964 the management have not considered taking action to instal adequate metering equipments for regulating consumption of utilities and it is only now that the technical audit cell is stated to be going into the norms for consumption critically. The Committee recommend that the management should take steps to ensure that the metering equipment are installed without further delay.

The Committee need hardly emphasise the need for control on consumption of utilities with reference to norms in the interest of economising the processing cost.

The Committee also hope that the Technical Audit Cell would work out realistic norms for the consumption of utilities to enable the management to control the consumption with reference to such norms timely and to take suitable remedial measures to arrest excess consumption.

The Committee have already observed elsewhere in the Report that without any accurate system of recording the consumption of utilities it was not possible to make use of the system of costing as an instrument of control and also work out the processing cost on a realistic basis.

(Paragraphs 6.137 to 6.142)

Reply of Government

The figures on consumption of utilities as given include the consumption both during operation and during maintenance, whereas in the design, the consumption of utilities only during operations has been taken into consideration.

Necessary metering facilities have been provided for computing consumption of utilities in the Coking Unit. The Technical Audit Cell is studying and investigating the consumption pattern and norms for consumption of utilities will be fixed in the near future.

In other units also, the installation of necessary meters for accounting of steam, fuel and water has been completed.

The studies on the pattern of consumption of utilities in the various units are in progress and when sufficient data is collected, the norms for consumption of utilities will be reviewed.

[Ministry of Petroleum & Chemical O.M. No. IS.5412/3/74-OR-I, dated 19-10-74].

Recommendation (Serial No. 29)

The Committee regret to note that the finished products of the value of Rs. 25.36 lakhs were lost during 1966-67 to 1972-73 in the Barauni Refinery during storage and in the process of their loading from storage tanks to the tank wagons/lorries. The Committee are informed that by proper training, the Management are trying to reduce the losses due to dipping errors or accounting errors, spillages and overfilling. The Technical Audit Cell has also been asked to suggest ways and means to reduce the losses. The Committee fail to understand as to why Management could not have taken timely action to locate the defeciencies in the equipments to plug the loopholes. The Committee are of the opinion that if training programme had been initiated much in advance and schedules for maintenance drawn up and adhered to, the refinery would not have been forced with this huge loss. The Committee hope that with the measures now being taken, the loss of finished products during storage and also in the process of loading etc. would be reduced to the minimum. The Committee also recommend that the Refinery should with the assistance of Technical Audit Cell fix realistic norms for such losses and ensure that these norms are strictly adhered to.

(Paragraph 6.148)

Reply of Government

The Technical Audit Section in Barauni Refinery is studying the storage and loading losses to evolve further controls to ensure that the losses are always maintained within limits stipulated by the excise authorities. Some of the actions which have been initiated in this connection are given below:

1. Replacement of the existing loading valves with Ball valves.
2. Installation of Mechanical seals for the light oil product pumps.
3. Installation of double block valves on the tankages in phases to minimise migration of products.
4. Replacement of the existing fixed loading points with hoses for white oil by replacing them by loading arms with swivel joints.
5. Regular pump gland leakage survey.

As regards training, it may be stated that the staff were imparted training in the initial stages before putting them on the job. The training needs are reviewed from time to time and additional training arranged. Separate Training Department has also been established.

[Ministry of Petroleum & Chemical O.M. No. IS.5412/3/74-OR-I, dated 19-10-74].

Recommendation (Serial No. 30

The Committee note that the Refinery had to resort to flaring of gas to maintain a positive pressure in the Refinery and to prevent possibility of air mixing with fuel gas leading to explosive hazards. Moreover, there was the problem of disposal of reduced crude. The percentage of gas flared was to the extent of 43.1 per cent in 1966-67, 48.4 per cent in 1967-68, 34.2 per cent in 1968-69 and 20 per cent in 1969-70. In subsequent years it was less than 20 per cent. The Committee are given to understand that had the total gas produced (less the minimum quantity required for flaring) been used as fuel in the Refinery, fuel oil worth Rs. 1.56 crores could have been saved during the years 1966-67 to 1972-73. It was only in January, 1969 that study was made by the Refinery authorities which revealed that there was enough scope to increase the firing of gas in the power house. Thereafter steps were taken in 1971 for installing a pressure indicator with the electrical transmission at site and pressure recorder with low pressure signalling at the boiler control. The Committee were informed that the problem of disposal of king fuel oil/low sulphur heavy stocks has also since been over-

come and the flaring of gas has been reduced to the minimum. The Commitee are not happy about the failure of the Management to take action in time to instal the pressure gauge equipments, dispose of reduced crude in order to obviate loss on account of flaring of gas. The Committee recommend that the matter should be examined in depth with the assistance of Technical Audit Cell and in the light of the experience of Refineries elsewhere in order to reduce losses on account of flaring of gas to the absolute minimum.

The Committee would like to be informed of the concrete measures taken by Government/Corporation in pursuance of the above recommendation.

(Paragraph 6.156 and 6.157)

Reply to the Government

For a refinery of Barauni's size, a minimum quantity of 10—12 tonnes of gas is required to be sent to flare per day to maintain a positive pressure in the system and to keep the flare burning for avoiding the release of unburnt gases to the atmosphere. In the refineries which have coking units, wher the production of gas and its presure fluctuates periodically due to the nature of operations, the gas utilisation to the extent of above 85 per cent of gas production is considered quite a good utilisation.

The data on percentage of gas flared from 1966-67 to 1971-72 indicates considerable reduction in gas going to flare. The position in 1972-73 and 1973-74 was as follows:—

Year	% of gas flared to gas production
1972-73	18·4%
1973-74	15·2%

It would be noticed that the gas utilisation has been at a reasonably satisfactory level considering the nature of operations of Barauni Refinery with a Coking Unit.

However, Technical Audit Cell at Barauni Refinery has been initiating and implementing various action such as:

1. Keeping a periodic gasbalance and reporting to all concerned for timely and corective action, if any, in order to keep the flare loss at minimum.

2. Maximising the gas firing in the process Units and Thermal Power House Furnaces.

3. The pressure controler connecting the flare and gas heater is now being controlled from Coking Unit, Control room, whereas it was previously manually operated at site.

4. Improvement in coordination between Coking Unit and Thermal Power House for a gas firing.

With the above follow-up it is hoped that Barauni Refinery will be able to sustain gas utilisation at a satisfactory level.

(Ministry of P & C. OM No. IS.54012/3/74-OR-I, dated 19th October, 1974).

Recommendation (Serial No. 32)

The Committee find that the actual through out and the product pattern obtained in the Refinery were not the same as envisaged in the design of the Refinery as a result of which the Refinery suffered cumulative loss of about Rs. 635 lakhs during the period from 1966-67 to 1972-73. The loss would be much more if the losses on account of variances in capacities from the design are also taken into account. The Committee recommend that a technical committee should examine all aspects relating to the product-mix of the Barauni Refinery in order to suggest measures to reduce the losses due to variations in the product-pattern.

(Paragraph 6.169)

Reply to the Government

It has been decided to get technical assistance from the Soviet Union in the matter of reduction of refinery fuel and losses in the three IOC refineries particularly Barauni and Koyali which have been set up with collaboration from the Soviet Union. A team of five Soviet refinery experts has arrived in India on 9th September, 1974 and the team is currently studying and discussing measures for reducing refinery fuel and losses, improving the production pattern and other matters. Based on the recommendations of the Soviet team, IOC will take suitable action.

(Ministry of P & C. O.M. No. IS-54012/3/74-OR-I, dated 19th October, 1974)

Recommendation (Serial No. 33)

The Committee note that though the Project Report envisaged the potential of 50,400 tonnes of liquified petroleum gas per year from the

Atmospheric Vacuum Units I and II and 15,000 tonnes per year from the Coking Unit of the Barauni Refinery, no LPG was obtained from the Coking Unit due to unsteady operation of its stabilisation section. There was also delay of about one year in starting the production of LPG in Atmospheric vacuum Unit I due to non-availabilty of cylinders. The Committee also note that inspite of the gradual increase in the production of LPG from 239 tonnes in 1965-66 to 14,729 tonnes in 1972-73, it is still much short of the potential envisaged in the DPR. Production of off-specification LPG in the earlier years due to non-provision of caustic and water washing facilities for LPG, inadequate number of weigh scales and of filling points at LPG shed, frequent interruptions in the cylinder filling operations due to poor performance of weigh scales and leakages from filling guns and irregular off-take of filling cylinders and non-availability/short and interrupted supplies of LPG cylinders have been cited as the reasons for the shortfall in the production of LPG. The Committee are informed that corrective steps had been taken from time to time to solve these problems. It has, however, been stated that the production of LPG could have been increased if cylinder availability was better.

The Problem of non-availability/shortage of a particular type of steel required for LPG cylinders and the consequent shortfall in the production and marketing of LPG have been dealt with in the Report of the Committee on IOC (Marketing Division). The Committee desire that Government Corporation should take timely action in future about the procurement of steel either through indigenous sources or through imports to see that lack of cylinders does not depress production.

The Committee also hope that maximum possible production of LPG would be achieved in the IOC Refineries as low production of LPG means wastage of valuable gas in flaring, higher consumption and larger import of kerosene or crude which the country can ill-afford at present when it is faced with the oil crisis.

(Paragraph 6.180 to 6.182)

Reply of the Government*

Steps being taken to ensure adequate availability of cylinders and trusportation facilities for the marketing of LPG have already been explained in reply to recommendation No. 25 made by the Committee on Public Undertakings in their 49th Report on the Indian Oil Corporation (Marketing Divn.). As suggested by the Committee, efforts are being made continuously to improve the production of LPG from the refineries. The

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not votted by Audit.

production of LPG from crude distillation units is almost at the maximum level. Efforts are however, being made to see if the production can be improved further. In view of the rising demand for LPG, recovery of LPG from coker gases is also being planned and when these facilities are completed in about three years time, it would be possible to produce additional quantity of about 10,000 tonnes per year at Barauni.

It may also be pointed out in this connection that lower production of LPG may not always mean wastage of valuable gases in flaring. This is because all refineries need fuel for their operations and refinery furnaces are generally designed to burn gas as well as liquid fuels. This flexibility enables a refinery to burn gas (which cannot be bottled and sold as LPG) supplemented with liquid fuel. Some gas has also to be flared for reasons of safety. If LPG is not produced to the extent possible, the gases are used as refinery fuel which results in savings in the use of liquid fuel. It may also be submitted that while marketing of lower quantities of LPG would mean higher consumption and larger import of kerosene this may not necessarily mean additional import of crude because of savings in liquid fuel. Only if the refinery has some liquid which has no market and has to be used on priority and at the same time, there is not sufficient demand for LPG would LPG be flared and wasted.

(Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 28th December, 1974)

Recommendation (Serial No. 34)

The Committee find that the work of modernisation of the LPG bottle filling plant was entrused to M/s. Engineers India Limited in January, 1969. Though the work was scheduled to be completed in January, 1970, it was actually completed only in March, 1972, i.e. after more than two years during which period the essential facilities such as hydraulic testing, washing and painting of cylinders could not be provided. The Committee are surprised to note that the question of levying penalty on M/s. Engineers India Ltd., for the delay in the completion of the work is still under examination of IOC, even after a lapse of two years.

The Committee recommend that the reasons for the delay should be investigated by Government and the matter finalised wtihout any further delay.

(Paragraph 6.188 & 6.189)

Reply of the Government*

The Agreement between EIL and IOC for modernisation of the LPG Bottle Filling plant at Barauni Refinery provided for the completion of the plant upto the stage "ready for commissioning" by the 30th January, 1970, which was extended to the 31st May, 1970 due to inclusion/modifications of the facilities to cater for the third type of LPG Cylinders to be filled-in the same system. Indigenous portion of the plant was ready for commissioning by February, 1971 but the complete plant, including the imported portion, was ready for commissioning by December, 1971 only.

The delay of about one and a half years in the commissioning of the plant was mainly due to the following reasons:—

(i) The erection of the indigenous portion of the plant and the work relating to the wooden flooring suffered due to—

(a) labour problems faced by EIL sub-contractors at Barauni; and

(b) non-availability of the bonding material, namely, 'plastoloid' the only bonding material that could be applied without any heating process in the running chemical plant—due to the labour troubles in the manufacturers factory; and

(ii) setback in the delivery schedules of the imported items was also due to delay in the delivery of the imported LPG loading pumps by the foreign vendor.

3. The penalty clause for the delay in the commissioning of the plant, however, covered only the indigenous portion of the plant. Taking into account the extenuating circumstances in respect of the indigenous portion of the plant as also the fact that the whole plant could not be got ready for commissioning without completing the imported portion, both the IOC AND EIL have come to a negotiated settlement. It has been agreed that EIL will pay a penalty of Rs. 54,950/- to IOC for the delay in commissioning of the plant.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 23rd October, 1974]

Recommendation (Serial No. 35)

The Committee find that the Gujarat Refinery was designed for a capacity of 3 million tonnes per annum. The capacity has been increased to 4.3 million tonnes by bringing about operational changes and modi-

*Reply not vetted by Audit.

fications. The existing utilisation of capacity is, however, 3.8 million tonnes per year because ONGC is unable to supply the full quota of crude. The Committee recommend that ONGC should step up efforts to increase the supply of crude to the Refinery.

The Committee need hardly point out that any further expansion of the Refinery should be done only after fully ensuring the desired quota of indigenous/imported crude.

(Paragraph 7.7 & 7.8.)

Reply of the Government

The Oil & Natural Gas Commission are making their best efforts to increase production from their oil fields in Gujarat. From the estimate of production of crude oil from the Gujarat fields ONGC expect to be in a position to supply the full crude oil requirements of the Koyali Refinery from 1975-76. A vigorous programme has been taken up by the Commission to increase crude production from the North Gujarat fields.

As regards the Committee's observation that any further expansion of the refinery capacity should be done only after fully ensuring the desired quota of indigenous/imported crude, the position has already been explained in reply to recommendation Sl. No. 19.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 36)

The Committee note that 40 per cent of the Refinery's design drawings were prepared by Indian Engineers in collaboration with a small team of seven Russians, and the expansion of Gujarat and Barauni Refinery was done 100 per cent by the same organisation. The Refinery utilised about 60 per cent of equipment and materials from indigenous sources and about 75 per cent for the expansion to three million tonnes. The expansion of the Refinery to 7.3 million tonnes is being designed and built without foreign collaboration.

The Committee hope that Government/Corporation would emulate the example of Gujarat Refinery while planning and executing the expansion/creation of capacity in the country during the Fifth Five Year Plan.

(Paragraph 7.18 and 7.19)

Reply of the Government

The observations made by the Committee have been noted. Efforts are being made to utilise to the maximum extent possible the indigenous capabilities in the matter of design and engineering and supply of equipments and materials in the planning and execution of the refinery projects during Fifth Plan period. In the case of projects being executed under collaboration agreements (e.g. Mathura Refinery with Soviet collaboration) while every possible endeavour will be made for the maximum use of indigenous knowhow, fabrication capacities etc., the procurement of certain units and facilities of the Refinery for the preparation of Detailed Project Report and detailed working drawings and other services from abroad becomes inescapable.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 37)

The Committee note with satisfaction that the Corporation was able to effect a saving in the capital cost of the Refinery. The actual expenditure incurred by the Refinery for the two million tonnes capacity was 26.27 crores as against the project estimate of Rs. 30.99 crores. The actual expenditure on the expansion of Refinery from 2 million tonnes was Rs. 2.4 crores as against the estimate of Rs. 2.9 crores. The actual expenditure on the Udex Plant was Rs. 2.56 crores as against the project estimate of Rs. 2.69 crores.

(Paragraph 7.24)

Reply of the Government

The appreciation made by the Committee regarding IOC's effecting saving in the capital cost of the Refinery has been noted.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 23rd October, 1974]

Recommendation (Serial No. 38)

The Committee find that the concept of staff and line function was introduced in the Gujarat Refinery about 3½ years ago. The new concept of 'Technical Audit' has also been introduced in this Refinery. As a result of proper inspection and prevention maintenance, consumption of utilities, fuels and chemicals have been reduced thereby increasing the yield and reducing the processing cost.

While the Committee appreciate the steps taken by the Gujarat Refinery they hope that similar steps would be taken in the other IOC refineries in order to bring about improvement in operating efficiency and effect economics in costs.

(Paragraph 7.26 and 7.27)

Reply of the Government

Action in pursuance of the observation made by the Committee is being taken by the Indian Oil Corporation. Note explaining the position in this behalf furnished by the IOC is enclosed.

[Ministry of Petroleum & Chemicals, O.M. No. IS. 54012/3/74-OR-I, dated 19th October, 1974.]

Note from IOC

The Concept of staff and line function was introduced in Gujarat Refinery in April, 1968 when the Technical Services Department was formed to perform staff function by grouping together other Departments like process Engineering. Development work like process Engineering, Import Substitution, Project Design & Drawing Offices, Inspection for preventive maintenance being essentially a staff function was separated from Maintenance Department and brought under the Technical Services Department so that it becomes more effective.

Although, some work in connection with heat economy was earlier done by Process Engineering Group in May, 1969, the concept of Technical Audit as an independent function as part of Technical Services was first introduced in Gujarat Refinery for achieving reduction in the consumption of fuel, utilities, chemicals, Hydrocarbon losses, etc. as well as for optimising yield pattern for higher profitability.

The Technical Services Department in Barauni and Gauhati Refineries was subsequently formed on similar pattern of staff-line function. Likewise Technical Audit Cell as part of Technical Services was formed in these Refineries in June, 1972 and has been actively carrying out its function outlined above. Some result achieved by technical Auditing in Barauni Refinery is given below:—

	1972-73	1973-74
Product recovery wt. % on crude	90·95	91·75
Fuel Consumption wt. % on crude	7·59	7·10

Similar actions have been initiated in Gauhati refinery. The result could be positively evaluated only after the completion of the installation of necessary meters as well as after the upliftment of LSHS started for Chandrapura Power Station. Inspection also after being made into staff function has been funchtioning in all the Refineries much more effectively towards improvement of service factor of various processing units.

Over and above, these staff functions have been further strengthened by forming Central Services Organisation (CSO) and Technical Audit Cell at Head Office of Refineries Division since May, 1972. While CSO caters towards activities like improvement of Maintenance inspection, corrosion control and Materials' Selection in order to improve service factors of Refineries, Technical Audit Cell is engaged in further stepping up this activity in the Refineries in order to achieve goals of energy conservation and higher profitability.

Recommendation (Serial No. 40)

The Committee find that there has been delay of 3 to 12 months in the completion of the various units of the Gujarat Refinery due to delay in the supply of equipment and detailed working drawing by the collaborators. The delay was also stated to be due to occasional strike by the workers of the contractors.

The Committee reiterate their earlier recommendation in paragraph 122 of their 36th Report (3rd Lok Sabha) that the delay in the execution of schemes regarding creation/expansion of refinery capacity in the country should be avoided at all costs so that import of petroleum products involving huge amount of foreign exchange is reduced to the minimum.

(Paragraphs 7.45 & 7.46)

Reply of Government

The observations of the Committee have been noted, and all efforts will be made to avoid such delays in future.

[Ministry of Petroleum & Chemicals, O.M. No. IS. 54012/3/74-OR-I, dated 19th October, 1974.]

Recommendation (Serial No. 41)

The Committee find that the Udex Plant of the Gujarat Refinery was originally scheduled to be completed by December, 1967. It was however, actually completed in December, 1968. There has been an initial delay of 9 months as the bank guarantee already issued to ONGC had to be transferred in favour of IOC and the import licence had to be revalidated, consequent on the transfer of the Refinery from ONGC to IOC. The date of

contract with the Italian firm was accordingly shifted from December, 1964 to September, 1965. There had also been a delay of one year in supplying of the basic data by the owners to the contractors (3 months) in the delivery of purchase specification and equipment (6 months) and in the delivery of drawings and specifications (3 months).

The Committee are not happy over such administrative delays which had resulted in delay in the erection and commissioning of the Plant. They hope that such delays would be avoided in future.

(Paragraphs 7.53 & 7.54)

Reply of the Government

The observations of the Committee have been brought to the notice of the IOC, and have been noted by them.

[Ministry of Petroleum & Chemicals, O.M. No. IS. 54012/3/74-OR-I, dated 19th October, 1974.]

Recommendation (Serial No. 42)

The Committee note that the Udex Plant was set up on the assumption that the Caprolacum Plant of Gujarat State Fertiliser Corporation, the Hindustan Organic Chemicals and two or three other industries would be able to absorb aromatic chemicals such as Benzene, Toluene, etc. But the establishment of Caprolactum Plant and the Hindustan Organic Chemicals was very much delayed. The increased Benzene production in the Steel Plants further reduced the sale of Benzene from the Udex plant. As a result the plant could achieve only 26 per cent of the rated capacity during 1969-70. It has, however, gradually improved its performance during the subsequent years. During 1970-71, 1971-72 and 1972-73 it achieved 47.22 per cent, 67.27 per cent and 87.21 per cent of its rated capacity.

The Committee feel that the erection and commissioning of the Udex Plant should have been coordinated with the establishment of factories consuming Benzene and Toluene, so that there might be an assured market for the products of the Plant;

The Committee are informed that the Management have in hand a scheme to expand the capacity by 25 per cent. The Committee hope that the Corporation would profit by their experience and ensure adequate markets for Benzene and Toluene before undertaking the expansion scheme.

(Paragraphs 7.65 to 7.67)

Reply of Government*

The setting up of the Udex Plant at the Koyali Refinery and the Caprolactum Plant at GSFC were considered at about the same time. While the Udex Plant of the Koyali Refinery was completed and commissioned in 1968, GSFC's caprolatum plant got delayed largely due to the problems with the collaborators.

Koyali Refinery has now been successful in raising the production capacity of the Udex Plant to 44,000 tonnes of Benzene and 17,000 tonnes of Toluene per year as against the designed level of 33,000 tonnes of Benzene and 14,000 tonnes of Toluene. The increased production of Benzene and Toluene has been achieved at a very small cost. As regards the market for Benzene, at present the demand for Benzene is more than the supply. In fact, the supplies are being regulated by the Ministry and except for pesticides and drug raw materials, supplies are being restricted to 80 per cent of the demand. GSFO is not yet operating its full capacity and when it does, the shortages are likely to increase. The position of supply being less than the demand is expected to continue for some more years and, therefore, market for increased production of Benzene from the Koyali refinery would be no problem.

As regards Toluene, there is a surplus at present in the domestic market and the demand for the Indian Oil Corporation is only to the extent of about 10,000 tonnes per year as against their production capacity of 17,000 tonnes. Efforts are being made for export of Toluene which is surplus to the requirements in the country.

[Ministry of Petroleum & Chemicals, O.M. No. IS-54012/3/74.OR.I, dated 19th Oct. 1974].

Recommendation (Serial No. 43)

The Committee note that Gujarat Refinery has been able to achieve a higher percentage of yield than envisaged in the Detailed Project Report by certain steps like economy in the usage of own fuel, reduction of power, steam and water and effecting control by technical auditing, utilisation of more and more gas as own fuel resulting in less flare, watching and controlling the losses arising at various points during storage, handling, loading operation, etc. The Committee recommend that the Corporation should consider taking similar measures in the other refineries also so as to improve the operating efficiency and effect economy.

(Paragraph 7.89)

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*Reply not vetted by Audit.

Reply of Government

Gujarat Refinery has done considerable amount of work through the activities of the Technical Audit Cell towards reducing the consumption of fuel and utilities. The experience gained in the Gujarat Refinery is now being utilised in the other refineries also. Technical Audit Cells have been set up in all the three refineries. These work under the guidance of the Technical Audit Cell at the head office. Many steps which proved very useful in the Gujarat Refinery are being adopted in the other two refineries with suitable modifications where necessary. These measures have further improved the recovery of finished products in the Barauni Refinery during the last two years. The recovery of finished products during 1972-73 was 90.95 per cent and during 1973-74, 91.74 per cent. It may also be stated that the recovery of finished products at Barauni has been considerably higher than the design norms from 1968-69 onwards.

The improvement in the recovery of finished products is largely attributable to the reduction in consumption of the fuel and utilities and reduction in hydro-carbon loss. In the Gauhati Refinery also, action has been initiated to reduce consumption of fuel and utilities.

[Ministry of P & C O.M. No. IS.54012/3/74-OR-I, dated 19-10-74].

Recommendation (Serial No. 44)

The Committee find that the profitability of the three refineries varied widely from year to year. In some years the fluctuations in the working results are quite disconcerting. Gauhati Refinery suffered a loss of Rs. 23.76 lakhs during 1970-71 as against a profit of Rs. 68.13 lakhs during the previous year. Lower throughout, fixation of higher price for crude due to adoption of medium range tanker freight rates, import of power from the Assam Electricity Board due to capital maintenance of refinery's own turbo-generators are stated to be the reasons for the lose during 1970-71. During 1971-72 and 1972-73 the Refinery made a profit of Rs. 37.87 lakhs and Rs. 72.78 lakhs respectively.

Barauni Refinery made a profit of Rs. 170.54 lakhs, Rs. 343.03 lakhs and Rs. 277.98 lakhs during the years 1970-71, 1971-72 and 1972-73 respectively. The decline in profit during 1972-73 as compared to 1971-72 was due to higher price paid for the imported crude.

Gujarat Refinery made a profit of Rs. 168.34 lakhs, Rs. 725.43 lakhs and Rs. 643.31 lakhs during the years 1970-71, 1971-72 and 1972-73 respectively. The shortfall in profits during 1970-71 was due to liability

of Rs. 245 lakhs towards increases in the price of crude oil arising out of an award by the Arbitrator.

The Committee also find that the expenditure per tonne of crude processed in Gauhati and Barauni Refineries was much higher than in Gujarat Refinery. In case of Gauhati Refinery it was Rs. 41.65, Rs. 35.60 and Rs. 37.78 during the years 1970-71, 1971-72 and 1972-73 respectively and for Barauni it was Rs. 34.41, Rs. 33.96 and Rs. 35.02 respectively as against Rs. 12.92, Rs. 12.37 and Rs. 13.73 respectively for the Gujarat Refinery. The operating cost in the Gauhati and Barauni Refineries was also much higher than the Gujarat Refinery. As against the operating cost of Rs. 1,118 per 100 tonnes of crude processed in the Gujarat Refinery during 1972-73, the operating cost in the Gauhati and Barauni Refineries was Rs. 3,573 and Rs. 3,403 respectively. The recovery of products in the Gauhati and Barauni Refineries was 90 and 91 tonnes as compared to 92.5 tonnes in Gujarat Refinery. The yield in the ESSO, Burmah Shell and Caltex Refineries was 95.0, 93.8 and 91.5 tonnes respectively.

It has been stated that there are several factors which vitiate comparison between different refineries with regard to profitability as it was dependent upon several variable factors such as location and capacity of the Refinery, quality of crude processed, capacity utilisation and the price of crude, etc. The Management have, however, admitted that there is need for making lot of improvement in the working of the IOC refineries and that it would take a few more years for the IOC refineries to come to the standard of refineries in the private sector. The Committee are informed that a Central Service Organisation has been set up to give advice on ways and means to improve the services and a Technical Audit Cell is examining the consumption pattern of various fuels, chemicals and utilities in order to fix norms for the different Units in the refineries. The Committee hope that with the assistance of the Technical Audit Cell and Central Service Organisation, it would be possible to effect economies in operating costs, attain maximum recovery and increase the profitability of the refineries in the coming years.

(Paragraphs 8.22 to 8.26)

Reply of the Government

The observations made by the Committee have been noted by IOC and they are continuing their efforts to improve the performance and profitability of their refineries.

[Ministry of P. & C. O.M. No. IS.54012/3/74-OR-I, dated 19-10-74]

Recommendation (Serial No. 45)

The Committee find that during the years 1966-67 to 1972-73, the value of the stores held in stock varied between 29 to 39 months consumption, 24 to 50 months consumption and 9 to 34 months consumption in the Gauhati, Barauni and Gujarat Refineries respectively. Purchases have also been in excess of the consumption of stores judged from their value. The Committee find that maximum and minimum limits have been fixed only for 645 items out of 9,978 items in Gauhati, 7,329 items out of 16,406 in Barauni and 5,204 items out of 11,086 items in Gujarat. The Committee regret to note that even now the construction materials have not been completely segregated from those required for operation and that surplus stores worth Rs. 54 lakhs are still being carried by the refineries. Physical verification of stores was not done in the three refineries according to the prescribed procedures. Though such a verification is required to be done annually, it was not done at all in Barauni during 1970-71 and only 1.6 per cent of the work was done in 1972-73. The Committee are surprised to note that the management fixed norms for physical verification only in August, 1972 and the work of physical verification according to these norms is still in progress.

The Committee further note that although the Management decided to streamline the stores and purchase procedure in 1965 and the Controller of Stores and Purchases was entrusted with the task of compiling stores and procedure in October, 1965, it was only after three years in 1968 that a draft was produced and even after it was finalised in 1969, a firm of consultants appointed for streamlining the Materials Department at Barauni was asked to draw up a Purchase Policy and Procedure Manual. Though a draft manual was given by the consultants in September, 1970 this was finalised in January, 1973 and is now stated to be under the examination of Finance Director to whom it was referred to by the Board. The Committee feel concerned about the inordinate delay of over 8 years in evolving comprehensive stores and purchase procedure. The Committee recommend that the Manual should be finalised without any further delay and the entire procedure of Stores and Stock control should be streamlined, so as to prevent excessive purchases and obviate accumulation of surplus stores.

(Paragraphs 9.11 and 9.12)

Reply of Government*

A Committee on Inventory Control of the BPE had studied the

* At the time of factual verification Audit in their letter No. 365CA III/305-74 dated 23-4-1975 have stated that according to the verification conducted by the Principal Audit officer, total inventory held by Barauni & Gujarat Refineries represented 10-14 months and the months consumption.

working of Materials Department at Barauni Refinery and had suggested the following stock ceilings for different categories:—

Spares	Stock Ceiling
(i) Imported	12 to 14 months average.
(ii) Indigenous	9 months to be gradually reduced to 6 months.
Insurance Items	Items and quantities to be determined by a technical committee of the Plant.
Other Stores	Varying from one. to 18 months depending on the Lead time of the material.

The above norms have been accepted by the Management and the Refineries have also been advised to adopt these.

The total inventory held by the Gauhati, Barauni and Gujarat Refineries as at the end of the year 1973-74, excluding insurance spares and items related to work in progress, has now been reduced to about 19 months, 12 months and 10—14 months respectively based on average consumption.

The construction material intended for the various projects are categorised as such, on receipt, and are shown separately in the stores records.

Against the total surplus stores valued at Rs. 54 lakhs available with the Refineries as on 31st March, 1973, the value of surplus stores as on 31st March, 1974 was Rs. 44.26 lakhs. Out of this, materials valued at Rs. 9.2 lakhs are proposed to be retained for use in various jobs connected with the expansion of Gujarat Refinery as also at other units of IOC. For the balance materials the disposal action is in various stages of progress.

IOC have since finalised and brought into force the Purchase Procedure Manual. This Manual is very comprehensive and has streamlined the entire procedure of Stores and has Stock control so as to prevent excessive purchases and obviate accumulation of surplus stores.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 26-10-1974]

Recommendation (Serial No. 48)

The Committee note that the Internal Audit Department was reorganised in March, 1969 and the Board of Directors desired that important

points noticed by it should be brought to their notice from time to time. The Internal Audit was also expected to conduct a critical review of systems, procedures and operations of the refineries as a whole. The Committee are surprised to note that it was only in August, 1971 that important points were brought to the notice of the Board of Directors for the first time. A critical review of systems, procedures and operations of the Gauhati and Gujarat Refineries was conducted only in 1972-73. Critical review of production units and utilities in the Barauni Refinery was done during 1971-72 and that of LPG production and utilisation of Coke Calcination Plant was undertaken in 1972-73.

The Committee need hardly emphasise the importance of Internal Audit as one of the essential tools of management control. They, therefore, recommend that the Corporation should activise and strengthen the Internal Audit Cells in the refineries and make use of the reports of Internal Audit to set right the deficiencies, plug loopholes and cut out wastages in the various Units.

(Paragraphs 10.15 & 10.16)

Reply of Government

IOC have taken action to activise and strengthen Internal Audit Cells in the refineries so that the Internal Audit Reports could be made use of to set right the deficiencies, plug loopholes and cut out wastages in the various units.

[Ministry of Petroleum & Chemicals, O.M. No. IS. 54012/3/74-OR. I, dated 19-10-1874].

CHAPTER III

RECOMMENDATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF GOVERNMENT'S REPLIES

Recommendation (Serial No. 3)

The Committee find that one of the considerations for locating the Refinery at Haldia was the easier availability of land at low cost. The Committee were, however, informed that even when the decision to set up the Refinery was taken, land had already been acquired by the Calcutta Port Commissioner and the Corporation was faced with a *fait-accompli* to take over this land on a lease rent of Rs. 3.60 lakhs per year. The undertaking would thus be saddled by a recurring liability.

The Committee regret to note that although 335 acres of land was taken as early as 1969, no agreement stipulating terms and conditions of lease has so far been finalised. The Committee recommend that the Government/Corporation should take up the matter at the appropriate level with a view to finalise the agreement without further delay.

The Committee understand that one other consideration for locating the Refinery at Haldia was the easier availability of fresh water from the tube wells. The Committee find that this benefit has also not been actually realised. The Site Selection Committee had assumed that each tube-well would yield one million gallon of fresh water per day, and this assumption was stated to be based on the assessment made by the Ground Water Division of the Geological Survey of India. The Committee are surprised to note that Geological Survey of India had, however, indicated in 1969 that half of the area in which the Refinery was to be located would hardly have any suitable acquifer for yielding water while the remaining half might yield 0.5 million gallons per day per tube well sunk in that area.

The Committee recommend that the matter regarding conflicting assessments made by the Geological Survey of India may be investigated in order to fix responsibility and avoid recurrence of such wrong assumptions in the framing of project details.

(Paragraphs 3.11 to 3.14)

Reply of the Government*

In consultation with the Calcutta Port Commissioners, IOC prepared a draft lease deed stipulating the terms and conditions of the lease for the land acquired for the Haldia Refinery Project. The draft lease deed had been mutually agreed upon except for one clause to which IOC suggested certain amendments. These amendments have been accepted by the Calcutta Port Commissioners. Calcutta Port Commissioners, however, have to get approval of the Ministry of Shipping & Transport to the amendments before the deed could be finally executed. This matter has been taken up with the Ministry of Shipping and Transport and the deed is expected to be executed shortly.

Regarding the differences in assessments about the yield of tube wells, the matter has been examined in detail in consultation with the IOC. The question of availability of water for Haldia Industrial Complex was jointly examined as early as in 1963 by the Calcutta Metropolitan Plan Organisation, the Irrigation and Waterways Directorate of Government of West Bengal, the Calcutta Port Commissioners and the Geological Survey of India. In 1964, the Site Selection Committee expected a yield of one million gallons per dey from a 10" diameter tube well based on the data which was collected earlier by the Calcutta Port Commissioners and the Government of West Bengal in association with the GSI. This expectation of the Site Selection Committee, however, was subject to confirmation after detailed investigations were carried out. The Committee also observed that tube wells will not be able to meet the total fresh water requirements of about 40 to 45,000 MGPD required for the township, the Port and various industries and other sources will have to be found. Detailed investigations were carried out by the GSI between December, 1967 and June, 1969. Their findings were reported in February, 1970 which indicated that a well could yield 40 45,000 gallons per hour at a pumping level of 22 to 25 meters below land surface on continuous pumping for 12 hours.

In the 'Water Supply Technical Feasibility Report" on Haldia Industrial Complex issued by the Irrigation and Waterways Directorate in June, 1970 which is considered to be the final one for all matters related to water supply in Haldia Industrial Complex, it has been mentioned as follows:—

> "According to Geological Survey of India report, expected yield of each tubewell would be about 40 to 45 thousand gallons per hour at 10 metres to 22 meters draw down. Such a draw down is considered to be high and for the present it is proposed to be kept limited to about 5 metres only as recommended by the Central Board of Irrigation and Power based on extensive

*Reply not vetted by Audit.

studies of yield from tube wells in Uttar Pradesh and Punjab. For the estimate purpose, average yield from each tubewell has been adopted as 25,000 gallons per hour. Assuming 16 hours of pumping per day the yield from each tubewell would be about 0.40 MGD with a draw down of about 5 metres".

From the above facts it will be seen that the assessment made by the Site Selection Committee for the Haldia Refinery Project about the availabiliy of sub-soil fresh water was based on the broad assumptions made at that time on the basis of available data. But the actual yield of tube wells could be assessed only after some exploratory drilling and the tests of wells were conducted which is a process involving sometime. In June, 1970, the special committee formed by the Government of West Bengal comprising of the Adviser Irrigation and Water-ways Deptt. and the Calcutta Port Commissioners by way of caution recommended, from the operational point of view the pumping at the rate of 25,000 gallons per hour only with a draw down of about 5 metres. This recommendation was made taking into consideration that the over development of the ground water may cause land subsidence and salt water encroachment requiring further lowering of pumping level. In the light of the facts mentioned above, it does not appear that there was any contradiction in the assessments made regarding the water potential in the area. It is, therefore, considered that no further investigation into this matter is necessary. It may also be stated that the entire water requirements of the Haldia Refinery are presently being met only from the tube wells sunk at the refinery site.

[Min. of P & C O.M. No. IS-54012/3/74-OR-I, dated 28. 12. 74].

Recommendation (Serial No. 7)

The Committee find that the private sector refineries have increased their capacity from 8.25 million tonnes per annum to 10.30 million tonnes per annum. The Committee were informed that this increased capacity is being utilised for getting the crude oil supplied by IOC processed and the products taken over by IOC for marketing. It has been admitted that had the Haldia Refinery been ready as scheduled and the Koyali Refinery had its pipeline, the Indian Oil Corporation would not have gone to the private sector companies for refining their crude.

The Estimates Committee (1967-68) in their Fiftieth Report on 'Petroleum and Petroleum Products' had earlier expressed their doubt whether the capacity of these private sector refineries could be increased with minor modifications and improvements unless the additional capacity was contemleted and built into the original plant and equipment itself. They recommended that Government should immediately evolve a suitable machinery to ensure that no industrial unit was able to increase its licensed

capacity in that manner without prior approval of the Government. The Committee regret to note that in spite of this recommendation of the Estimates Committee and inspite of Government's own categorial assurance, the Government have not investigated into the matter. They are surprised to find that refineries have created a further capacity of more than 25 per cent and are operating at levels higher than those licenced for. The Committee recommend that the Government should make a detailed and thorough investigation without any further delay.

The Committee note that Government claim that they have been able to increase the refining capacity of the existing refineries by debottle necking, changing operating conditions etc., in the Koyali, Cochin and Madras Refineries. The Committee, however, find that the percentage of increase achieved in those refineries is much less compared to the increase in the capacity achieved by the private refineries. The Committee recommend that Government/Corporation should give the highest priority to this aspect of increasing the refining capacities in the public sector refineries by revamping and debottlenecking etc. so as to achieve maximum results.

(Paragraphs 4.24 to 4.26)

Reply of Government*

The reasons for the delay in the commissioning of the Haldia Refinery have been separately submitted to the Committee on Public Undertakings. Therewas no proposal to lay a crude oil pipeline to the Koyali Refinery to carry imported crude during the Fourth Five Year Plan because there was expectation of increased indigenous crude oil from the ONGC's oil fields in Gujarat.

With regard to the creation of excess refining capacity by the three private sector coastal refineries, the ESSO Refinery has already come into the Public sector in March, 1974 with the acquisition of majority shares by Government in ESSO's operation in India. Negotiations are in progress with Burmah-Shell and Caltex also and these companies are also likely to come under the public sector in the near future. Irrespective of the capacity of the refineries, the operating levels of all the refineries operating on imported crude are fully regulated and controlled by Government through control over foreign exchange releases for import of crude oil. From 1974 onwards in view of very steep increase in the prices of imported crude oil and limited availability of foreign exchange, many of the refineries processing imported crude oil are operating well below their normal operating levels. The surplus capacity created by the Oil Companies is, therefore used by the Government only when required in the national interest.

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*Reply not vetted by Audit.

In the situation when there was inadequate refining capacity in the public sector, keeping in view the better product pattern that may be obtained from the private refineries, and the advantages in importing crude oil instead of products, in the over all national interest the excess refining capacity available with private sector was utilised by Government to process crude oil supplied by IOC. In this connection attention is invited to the discussions in the Rajya Sabha on Starred Question No. 313 on the 6th August, 1973. The then Minister of Petroleum and Chemicals made certain observations and these are quoted below:—

> "....Therefore, we have taken steps to utilise all the unutilised capacity in the interest of the people to meet the expanded demands of the petroleum products. I suppose it has strengthened the Indian economy.
>
> .....We utilised this in the interest of the people and there is no point in punishing the people who helped us in strenghtening our economy".

In the light of the observations made by the former Minister on the question of surplus capacity of the private sector refineries and in the present changed context, there does not appear to be any need for a detailed and thorough investigation with regard to the creation of higher capacities by these refineries. An investigation would also require considerable time and effort as these refineries were designed by foreign contractors in their design offices abroad. Unless the calculations and drawings of the original process units are available, it will not be possible to estimate the capacity originally bulit. For the subsequent expansion also, it would be necessary to obtain the relevant data. If the company show their inability to locate these data and drawings the investment will not lead to any definite conclusions. As these refineries were built about 20 years ago, all the data may no longer be available or may be available only partially. It is, therefore, considered that an investigation into the matter at this stage may not yield any useful results.

The observation of the Committee that highest priority should be given to increasing the refining capacity in the public sector by revamping, debottlenecking etc. has been noted for guidance. This is a continuing process and the management of the public refineries have been advised to keep in view the Committee's observations and take suitable action for increasing the refining capacity. It would, however, be noted that in view of the present price level of imported crude oil and the foreign erchange constraints being faced by the country referred to already, supply of adequate quantities of imported crude oil to the refineries so as to operate them even at their normal levels is becoming increasingly difficult.

Recommendation (Serial No. 11)

The Committee find that the utilisation of capacity of the Kerosene Refining Unit was only 18.90 per cent, 31.84 per cent, 12.61 per cent, 19.33 per cent, 30.2 per cent; 27.2 per cent, and 53.3 per cent of the designed capacity during the years 1966-67, 1967-68, 1968-69, 1969-70, 1970-71; 1971-72 and 1972-73 respectively. The shortfall in the utilisation of capacity was stated to be due to substantial change in the quality of crude resulting in lower percentage of kerosene production than that assumed at the time of designing the plant. Moreover coke kerosene from the Coking Unit could not be spared for processing in this Unit as the same was required to be blended into diesel oil and fuel oil. The Committee also note that the Unit could not be run continuously on account of problems of corrosion and low inventory of Sulpher dioxide. The Committee are unable to appreciate as to why it is not possible for the Corporation to locate the sources of supply of Sulpher Dioxide in time and take action well in advance to arrange for the supply of Sulpher dioxide.

The Committee were also informed that the inferior kerosene had a market and it could be produced without using the Kerosene Treating Unit. During the earlier years also there was the problem of finding a market for iomex.

From the foregoing, the Committee are led to the conclusion that the Kerosene Refining Unit was set up without assessing the quality and quantity of inputs that would be available for processing in this Unit and without carrying out a detailed market survey for its product yield. The Committee regret to note that variation in the product yield compared to the yield envisaged in the Technical Project Report resulted in the loss of revenue to the extent of Rs. 35.57 lakhs during the years 1966-67 to 1972-73.

The Committee recommend that Government should enquire into the circumstances leading to the setting up of this Unit without proper planning and a detailed market survey. The Committee hope that at least now, in the light of the past experience, the Management would take advance action to ensure the availability of adequate quantity of Sulpher dioxide required for the operation of the Unit and avoid recurrence of problems like Corrosion etc. so as to ensure continuity in operating the Unit and achieving maximum output of the installed capacity.

(Paragraphs 5.48 to 5.51)

Reply of the Government*

At the time the kerosene treating unit was designed, it was expected that most of the straight run kerosene from crude oil distillation as well as kerosene fraction from the coking unit would be treated in the unit for the production of superior kerosene. When Gauhati refinery went on stream, it was found that the quantity of inferior kerosene feedstock that could be processed in the Gauhati kerosene treating unit was much less than the design capacity of the unit because of the following reasons:

(a) Production of less kerosene from the crude oil because of change in crude quality;

(b) it became necessary to blend most of the coker kerosene with diesel oil fractions to meet the specifications for high speed diesel oil;

(c) the product price at that time was such that the net realisation on account of sales of superior kerosene and iomex which are products from kerosene treating unit, was less than the price for the feedstock if it could be sold as inferior kerosene;

(d) whereas there was little market for iomex at that time, there was still a market for inferior kerosene and therefore there was no particular reason to process all the inferior kerosene into superior kerosene;

(e) lowering of smoke point of superior kerosene by the ISI (25mm to 20mm) from January 1968 onwards.

For the above mentioned reasons, it was not necessary to run the kerosene treating unit at Gauhati to full capacity for processing inferior kerosene into superior kerosene.

In view of this, Government are of the view that a further investigation into the matter is not necessary.

The requirements of Sulphur Dioxide in respect of the Kerosene Treating Unit at Gauhati and Barauni are about 60 tonnes per month. The steps which have since been taken by IOC to ensure regular supplies of this chemical to these refineries are as under:—

(i) The fixation of two new suppliers at Bombay since early 1972 has considerably improved the supply position of SO_2.

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*Reply not vetted by Audit.

(ii) 41 Nos. SO cylinders have since been obtained from U.K. firm and put in circulation for transporting SO_2 to the refineries.

(iii) In order to improve the turn-round period of the cylinders the Refineries have been advised to keep a strict watch on the movement of cylinders and to ensure that the empty cylinders are returned to the suppliers for refilling in the shortest possible time.

(iv) A proposal has been made to FCI for setting up a SO_2 plant at their Sindri Unit for meeting the SO_2 requirements of Gauhati, Barauni and Bongaigaon refineries. FCI have accepted the proposal and are now conducting studies for setting up this project.

IOC has also taken verious remedial steps to meet the problems of corrosion, by reducing the water content in the Sulphur dioxide within 0.04 to 0.05 per cent by the Fisher Method which is considered to be very safe; and replacing with stainless steel intervals of the columns, the tube bundles in the reboiler, chillers, discharge line and drain line. The caustic suction lines & fittings have been replaced with PVC pipes.

(Ministry of P & C O.M. No. IS-54012|3|74-OR-I, dated 23.12.1974)

Recommendation (Serial No. 13)

The Committee find that an agreement was entered into with M|s. India Carbon Ltd. (ICL) in June, 1961 for the sale of Raw Petroleum Coke (RPC) ex-Gauhati. The Agreement did not contain any penalty clause in order to protect the interest of the Corporation in the case of non-movement of RPC by ICL. On several occasions the firm failed to clear the stock of coke in time with the result that large quantities of coke remained with the Refinery.

The Committee further note that as per agreement, the Corporation was to make RPC available at the Refinery Coke yard and the party was to uplift the product from the Cokeyard at their expense. The Refinery's railway track, was, however, linked up with the track leading from the Refinery Cokeyard to ICL's plant to enable ICL to load wagons and haul the product to their factory, M/s. India Carbon Ltd. made use of the track but no recovery was made from the firm for using the track. The amount not recovered for the period upto March, 1970 was Rs. 2.50 laks.

The Committee are surprised to note that even whi'e renewing the agreement in 1969 no provision was made for the recovery of railway siding charges and M|s. India Carbon Ltd. continued to enjoy the facility

free of cost. According to the Management the existing under-recoveries to the extent of 50 paise per metric tonne continued to be incurred. The Committee are further informed that it was not possible to work out the manufacturing cost of raw petroleum coke. The pricing was based on the economies of 'law of supply and demand'. Government had also not fixed any price for the raw petroleum coke as had been done in the case of bulk refined petroleum products. Thus the Corporation was free to negotiate the price from time to time on an *ad hoc* basis. The Committee are surprised to find that the price of coke was not even linked up with the price of crude. There was no clause in the agreement with M|s. India Carbon Ltd. for the sale of coke-ex-Gauhati to provide for the increase in the price of this commodity during the pendency of the agreement.

Although the price of coke-ex-Barauni has been fixed at Rs. 260 per metric tonne, the sale of coke-ex-Gauhati continued to be at the rate of Rs. 165 per metric tonne upto December, 1973 as per the agreement signed in 1969. Notional price differential on quantities sold to ICL ex-Gauhati has been calculated at Rs. 30 lakhs.

The Committee view with concern the manner in which the agreement for the sale of raw petroleum coke from Gauhati Refinery was finalised with M|s. India Carbon Ltd. They therefore, recommend that the whole matter regarding the sale of coke to M|s. India Carbon Ltd., ex-Gauhati should be thoroughly investigated in order to fix responsibility for the huge loss suffered by the Corporation.

The Committee further recommend that the price of coke should be realistically fixed by Corporation keeping in view the current increase in crude price and also the latest demand pattern.*

(Paragraphs 5.76 to 5.80)

Reply of Government

At the time of finalising the agreement with ICL in 1961, ICL's Calcination plant at Gauhati was the only big outlet for RPC produced at Assam Oil Company's refinery at Digboi as well as IOC's refinery at Gauhati. IOC was, therefore, not in a strong position to persuade ICL to accept incorporation of a penalty clause at the time of signing the

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* At the time of factual verification the Indian Oil Corporation have stated as follows:—

"The Corporation has since conducted negotiations with M/s. India Carbon Ltd. and they have agreed to pay revised price of Rs. 845 per M. T. with effect from 1-1-74 to match the enhanced crude price of US 8·48 BBL. This price is also applicable to cock being sold from Barauni and the price is subject to revision on the basis of crude, price. The firm has agreed to the revised price in spite of a fixed price agreement up to June, 1974. This will bring to the Corporation additional revenue of over a crore of rupees."

Agreement in 1961. However, the penalty clause was incorporated while renewing the agreement in June, 1969.

As regards recovery of railway siding charges, the following points are to be noted:

(1) siding charges is paid by IOC to the Railways for RPC movement ex-Gauhati to ICL's plant.

(2) The wagons as well as the shunter used for the movement of RPC from Gauhati Refinery to ICL's plant are owned by ICL. Whenever ICL had to use IOC's shunter (in the event of breakdown of their own shunter), ICL had paid to IOC the haulage charges at the rates demanded by IOC. Therefore what was demanded from ICL at the time of renewal of agreement in 1969 was the maintenance charges in respect of railway track at Gauhati Refinery.

If IOC had insisted on ICL to uplift RPC ex-their coke yard then ICL would have done so with the help of manual labour and trucks. This would have resulted in delayed movement of coke. Any delay in upliftment of coke by ICL would have affected operation of the coking unit and thereby the refinery operations especially as the holding capacity for RPC in the refinery was limited. In view of the above points, even at the time of renewing the agreement in 1969, a decision was taken not to insist on recovery of the railway siding charges and instead ask for an increase in the cranage charge which was conceded by the party.

The whole matter regarding the sale of raw petroleum coke to India Carbon Ltd. ex-Gauhati has since been fully investigated by IOC through a Committee specifically appointed for the purpose of sale of coke ex-Barauni and Gauhati. After investigation the Corporation has come to the conclusion that in the circumstances obtaining at that time, the best possible deal had been secured by IOC from ICL. The Chairman, IOC is satisfied that the Corporation has sustained no loss on account of this sale and, therefore, the question of fixing responsibility on any person does not arise.

As regards fixation of the price of coke realistically, the action taken by IOC has already been incorporated in the foot note to the recommendation of para 5.77. Since the price of raw petroleum coke has been revised to correspond to the enhanced crude price of $8.48 per bbl and there is also provision for increasing the price with revision in crude price, it

can be considered that the price of raw petroleum coke has now been realistically fixed.

(Ministry of P & C. O.M. No. IS 54012/3/74-OR-I, dated 26-10-74)

Recommendation (Serial No. 14)

The Committee note the wide variations in the consumption of utilities from year to year. One of the reasons is stated to be that utilities for production have not been separated from those for maintenance.

The Committee are surprised to find that though the Refinery went on stream in December, 1961, the Management had not installed meters to ascertain and keep a check over the actual consumption of utilities in the different units.

The Committee fail to understand as to why this important aspect was overlooked all along. The Committee stress that the process of installation of meters in the Refineries should be expedited. Norms for various processes had also not been fixed. The Committee need hardly emphasise that without an accurate system of recording the consumption of utilities, it is not possible to make use of the system of costing as an instrument of control and also work out the processing cost on a realistic basis. The Committee also urge that the technical auditing should be intensified so that there should be an effective control on consumption of utilities. The Committee urge that there should be a proper assessment of the consumption of utilities on production and maintenance and determination of costs on a scientific and accurate basis.

(Paragraphs 5.91 to 5.94)

Reply of the Government

The installation of adequate number of meters is being vigorously pursued by Gauhati Refinery. Fixation of norms for consumption of utilities will be taken up after these meters are installed and requisite studies completed.

As regards the kerosene Refining Unit, adequate meters have been installed and now it is possible to compute the consumption of utilities regularly.

As already stated and recorded in para 5.88 of the report, it is not possible to segregate the consumption of utilities for production and for maintenance precisely.

The reasons for this difficulty are as follows:—

1. If utility for maintenance is withdrawn during normal operation of the Unit, it is difficult to segregate from the totalizer of the unit, the utility consumed during normal operation and during the period when both operations and maintenance were carried out. The withdrawal of utilities for maintenance is taken from any point depending upon the area of the maintenance. The withdrawal of utility at this particular point may be only once in a year or even less frequent. It is not possible and economical to provide meters at each and every such location.

2. When maintenance is carried out, the rate of consumption of utilities is often so high that generally meters are not in position to register the rate of consumption as well as the quantity. This applies to the period during the start up and shut down of the unit.

However, as recommended by the Committee, Technical Audit Cells in IOC have been asked to examine the possibility of devising measures which would at least give approximate consumption of utilities for the maintenance purposes for a qualitative guidance.

[Ministry of Petroleum & Chemicals O.M. No. IS.54012/3/74-OR-I, dated 19th October, 1974]

Further Information called for by the Committee

(a) It has been stated that the installation of adequate number of meters is being vigorously pursued by Gauhati Refinery. What progress has been made in this direction?

(b) It has been stated it is not possible to segregate the consumption if utilities for production and for maintainance precisely. How is costing of operation/maintenance being done? Whether any norms have been fixed? If so, what is the actual consumption as against norms fixed?

[Lok Sabha Secretariat O.M. No. 16-PU/74, dated 16th December, 1974]

Reply of Government

(a) For consumption of utilities flow meters have been installed at all consuming points. Integrators have also been installed at certain locations. The refinery management is planning to install some more integrators for more accurate gas balancing and measurement of the utilities.

(b) In regard to accounting of utilities separately for operation and for maintenance, it is submitted that consumption of power in the maintenance work-shop is accounted for separately in all IOC's refineries. The consumption of other utilities in the workshops is not substantial. These costs go into the cost of workshop expenditure. So far as accounting of utilities in the process units are concerned, the supply utilities for operation as well as for maintenance purposes is being made from the same source of supply to the units as a result of which the specific determination of quantity of utilities consumed for maintenance and for operation separately cannot be made. Further, normally in a process costing situation as is being followed in the refineries (the situation of utilisation of utilities being more or less similar), since the maintenance cost of the unit also form part of the process cost of the unit in the Process Cost Sheets, the presentation of the total cost of Utilities consumed both for operation as well as maintenance of the unit does not affect the total process cost. The norms presently fixed and the actuals there against for 1973-74 are given below:—

Unit	Utilities	Norms fixed	Actual during 1973-74
Distillation	(1) Water	500 m^3/hr. Winter 600 m^3/ hr. Summer	462·5 m^3 hr.
	(2) Steam	5·5 MT per hour	5·3 M.T. per hr.
	(3) Power	65 M. W.	65 M.W.
Kerosene Refining	(1) Water	1000 m^3/hr. Recup.	921·8 m^3/hr.
	(2) Steam	7·5 MT/hr.	6·27 MT/hr.
	(3) Power	600 K. W.	582·4 K.W.
Coking	(1) Water	400 m^3/hr. (Fresh) 700 m^3/hr. (recup)	352·2 m^3/hr. 886·9 m^3/hr.
	(2) Steam	8·00 MT/hr. without LPG) 10·OMT/hr (with LPG.)	6·4 MT/hr. (average)
	(3) Power	500 KW	448·1 K.W.

The norms now fixed take note of the total requirement both for operation and maintenance purposes.

[Ministry of Petroleum & Chemicals (Department of Petroleum) O.M. No. IS-54012/3/74-OR-I, dated 27th February, 1975]

Recommendation (Serial No. 16)

The Committee regret to note that the Refinery incurred a loss of more than a crore of rupees in the flaring of gas which could have otherwise been used as fuel. It is quite surprising that during the past 12 years, no market had been found for the coking fuel oil which was being used as fuel instead of gas in the Refinery.

The Committee would like to know as to why the economic feasibility of setting up a thermal power station utilising the coking fuel oil was not examined by Government earlier. They hope that with the setting up of the Chandrapur Thermal Power Station, the loss in the Refinery would be reduced to the minimum.

(Paragraphs 5.127 and 5.128)

Reply of Government

The general practice in a refinery is to burn as refinery fuel maximum quantities of surplus gas supplemented by liquid fuel. If, however, liquid fuel becomes surplus, it becomes necessary to dispose it of on priority by substituting part of the gas with liquid fuel and consequently flare the gas thus replaced.

As per the project report of Gauhati refinery the refinery was to utilise gas as refinery fuel supplemented with liquid fuel. The coker fuel was to be blended into regular grade furnace oil. However, during actual operation it was found that this product had very low carbon content and very high pour point and therefore the furnace oil produced by blending coker fuel oil could not meet the specifications of regular grade furnace oil. Efforts were made to find an alternate market or use for the coker fuel oil. Because of its high pour point and other characteristics it is necessary to have heated facilities for storage and transportation and these were not available. Efforts made with private parties for sale of coker fuel oil did not materialize. Therefore, in the initial stages the refinery had to use coker fuel oil in the refinery furnaces substituting some of the gas. Consequently, the surplus gas had to be flared.

The possibility of moving coker fuel oil to the Barauni Refinery for storage and subsequent disposal to the Barauni Thermal Power Station was considered; but even this scheme had to be shelved because of the long time required for fabrication of special wagons necessary for the movement of coker fuel oil, developing facilities for decanting, storage etc. A source for the disposal of coker fuel oil developed when the Chandrapur Thermal Power Station went on stream. This plant was originally planned to come on stream in the year 1971 but was actually commissioned only in 1973. Even after commissioning this plant has not

been able to accept this product due to technical difficulties. They are planning further trials after necessary modifications in the storage and piping system and it is expected that in the immediate future Chandrapur Thermal Power Station will start uplifting coker fuel oil.

The amount of gas flared has also been reduced because of production of LPG in the Gauhati Refinery.

As and when Chandrapur Thermal Power Station starts taking up coker fuel oil and the market for LPG from the Gauhati refinery increases, the loss to the refinery by way of burning coker fuel oil in the refinery furnaces and flaring of gas would be reduced to the minimum.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 5th November, 1974]

Recommendation (Serial No. 19)

The Committee have elsewhere in this Report dealt in detail the question of under-utilisation of the refining capacity at the Barauni Refinery. They would like to stress that all out efforts should be made to fully utilise, the available capacity in the Public Sector Refineries and the question of further expansion should be considered only after realistically assessing the availability of indigenous and imported crude and after a firm commitment therefor is made.

(Paragraph 6.19)

Reply of Government

The Committee's observations are noted. But it may be explained that international crude oil supply situation has undergone drastic changes during the last two to three years. From a buyers' market, the position has changed into a completely suppliers' market. Till the year 1970-71, refinery projects were being planned on the reasonable expectation that supply of crude oil would pose no problems. In the present changed context, refineries based on imported crude oil are being planned by and large alongwith assurances of long term crude supply. For the Mathura Refinery, for example, assurance has been obtained from the Government of Iraq regarding supply of crude oil for refinery. It is, however, not always possible to start refinery projects with complete and total assurance regarding crude supply because the world crude supply situation is undergoing rapid changes. The crude suppliers whether national oil companies or the major oil companies are unwilling to enter into long term supply contracts. In addition to availability, the question of price and the foreign exchange resources of the country for import of crude also add new dimensions to the problem.

With regard to refineries based on indigenous crude, refinery projects have been taken up after reasonable assurances are obtained from the organisations engaged in exploration and production of crude oil.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 19th October, 1974]

Recommendation (Serial No. 21)

The Committee find that after commissioning of the Coking Unit of the Barauni Refinery in October, 1964 it was discovered that it was not possible to produce furnace oil of the specifications laid down in the Detailed Project Report as a result of which major modifications had to be carried out in November-December, 1966 at a cost of Rs. 44.23 lakhs. Even after the modifications, there has been considerable shortfall in the actual yield as against the product yield envisaged in the Detailed Project Report. The loss due to shortfall amounted to Rs. 28 lakhs during 1966-67 to 1969-70. The Unit had to be operated at lower severity in order to restrict the production of gas so as to ensure higher consumption of reduced crude as fuel which otherwise posed a disposal problem. Even the reduced quantity of gas produced could not be utilised as fuel resulting in considerable loss to the Refinery.

The Committee feel that market facilities for reduced crude should have been developed in time so as to synchronise with production and thereby the huge loss to the Refinery avoided.

The Committee would like Corporation to make sure that gas and other by-products arising in this plant were put to maximum productive use and that the gas flared was absolutely an avoidable.

(Paragraphs 6.46 to 6.48)

Reply of Government

The detailed project report prepared by the Russians, does not envisage 'Reduced crude' as a fuel/product to be marketted. The residue from the atmospheric distillation of the crude is designed to be vacuum distilled and the various cuts from the vacuum Tower are to be further processed in the three downstream units namely Bitumen unit, Coking unit and the Lube oil complex. There was no question, therefore, at the project stage to explore the Market for reduced crude or LSHS. As such no storage/handling facilities were provided in the design.

The position however changed substantially, due to the design deficiencies in the Coking unit which required a major modification subse-

quently, unsuitability of the Bitumen produced by the Bitumen unit and the poor market for the grades of lube oil envisaged in the project report.

All these unexpected developments led to surplus reduced crude production in the refinery and it became necessary to explore alternate means of disposal. It was therefore decided to sell the reduced crude as a residual fuel. However, a long term availability forecast was difficult till 1969, due to the uncertainties in the operation of the downstream units as explained above.

It may also be mentioned that LSHS owing to its high pour point required special heating facilities at the storage, loading, transportation and also unloading stages. The customer therefore, needs time for providing the additional facilities and also assurances of long term availability. Due to these limitations the development of market becomes slow compared to the conventional heating fuels.

The gas is being utilised to the extent possible. Flare losses have since come down considerably.

Further Information called for by the Committee

It has been stated that flare losses have since come down considerably. What are the figures for flare loss during the last two years.

[Lok Sabha Secretariat O.M. No. 16-PU/74, dated 16th December, 1974]

Reply of Government

The figures of flare losses from 1971-72 as percentage on crude throughput are given below:

1971-72 .	0·80%
1972-73 .	0·70%
1973-74 .	0·48%
April 74-Sept. 74	0·34%

[Ministry of Petroleum & Chemicals (Department of Petroleum) O.M. No. IS-54012/3/74-OR-I, dated 27th February, 1975]

Recommendation (Serial No. 25)

The Committee note that the Barauni Refinery had to make a distress sale of Raw Petroleum coke at a price of Rs. 80/- per metric tonne to dispose of the large accumulated stock in the Refinery and no alternate

adequate market for the same could be found. The agreement entered into with M/s. India Carbon for a period of five years in 1966 was for the sale of lesser quantities of petroleum coke than what was produced. The Committee were informed that this was on account of the fact that the Coke Calcination Plant with a capacity of 60,000 tonnes per annum was proposed to be set up in the Barauni Refinery and to be completed in June, 1969. The plant, however, commenced production in June, 1972.

The Committee regret to note that on the one hand, the Corporation failed to find adequate market for raw petroleum coke, on the other hand the completion and commissioning of the Coke Calcination plant was delayed by about 3 years. The Committee have already commented earlier about the undue delay in the commissioning of the Coke Calcination Plant.

The Committee have also earlier commented about the sale of Raw Petroleum Coke to M/s. India Carbon Ltd. ex-Gauhati. They recommend that the distress sale of this product ex-Barauni and the total loss suffered by the Refinery as a result of fixation of much lower price for the product should also be thoroughly investigated in order to pinpoint the lapses, if any.

The Committee also stress that Corporation should see that the price of raw petroleum coke should be fixed realistically keeping in view the current rise in price of crude and the latest demand for the product.

(Paragraphs 6.109 to 6.112)

Reply of Government

The Coking Unit of the Barauni Refinery started operating from October, 1964. The indigenous demand of RPC by customers other than M/s. India Carbon Ltd. during the years 1965-66 and 1966-67 was negligible as compared to production and it was 20 to 30 per cent of the production in the subsequent years. The export possibilities were extremely limited and the prices offered were unattractive.

The whole matter regarding the sale of raw petroleum coke to M/s. Indi a Carbon Ltd. ex-Barauni has since been fully investigated by the IOC through a Committee specifically appointed for the purpose of investigating into the sale of coke ex-Gauhati and Barauni. After investigation, the Committee have come to the conclusion that taking into account:—

(a) the supply and demand position of RPC in the country:

(b) lack of export opportunities at reasonable price; and

(c) the problems which were being faced by the Barauni Refinery on account of accumulation of RPC, and particularly the threat of imminent closure of the Refinery which would have resulted in shortage of petroleum products and consequent foreign exchange drain in importing the finished products.

IOL provided the only outlet for the disposal of the accumulated stock and an agreement for the supply of 92,000 tons of petroleum coke was accordingly entered into between IOC and IOL in April, 1966.

Regarding price settlement the enquiry committee have stated that one has to look at the basis of price fixation under the Gauhati contract. IOL were getting coke from AOC Digboi and the price ex-Gauhati was fixed after taking into account the freight advantage to IOC. IOC Gauhati refinery is in close proximity of IOL plant and therefore, the price was stated to be fixed as AOC price and freight from Digboi to Gauhati. As stated earlier during the negotiations for sale ex-Barauni, IOL were prepared to pay a better price ex-Barauni provided IOC was prepared to enter into a long term agreement of 15 years. However, since IOC wanted only a short term arrangement it is conceivable that the negotiators had to agree to arrive at a price which would enable IOL to get the Barauni and Gauhati product at the same delivered price in their plant. It is also seen that while the price of RPC was fixed at Rs. 80/- per metric ton for 1966 & 1967, for the years 1968, 1969 and 1970 the agreement provided for the additional recovery equivalent to 50 per cent of the applicable railway freight between Gauhati and Barauni. Basically the decision to sell the product at a particular price will depend on the position of supply and demand. The price of RPC which is a non-formula product is not fixed by the Government. Therefore, the seller and the purchasers are left free to negotiate and arrive at an agreed price. The bargaining position of the two parties, their relative strengths and weaknesses would naturally play a crucial part in any such settlement. In retrospect considering the fact that IOC was not in a strong position at that time. IOC's having obtained a higher price for the years 1968, 1969 and 1970 could be considered as a good bargain.

The Chairman, IOC is satisfied that the sale has not resulted in any loss to IOC and, therefore, the question of fixing responsibility on any person does not arise.

As regards fixation of the price of coke realistically, the action taken by the IOC has already been incorporated in the foot note to the recommendation at para 5.77 and as indicated in reply to that recommendation (under serial No. 13). Since the price of raw petroleum coke has been revised to correspond to the enhanced crude price of 8.48 per bbl.

and there is also provision for increasing the price with revision to crude price, it can be considered that the price of raw petroleum coke has now been realistically fixed.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 26th October, 1974]

Recommendation (Serial No. 26)

The Committee find that according to the Project Report each of the Atmospheric Vacuum Units I & II and Atmospheric Unit III was to operate for 330 days per annum. The actual operating days during some of the years were much less than that provided in the Project Report. Atmospheric Vacuum Units I and II were under shut-down/ repair maintenance/idleness for 64 days and 40 days respectively during 1967-68, 35 days and 67 days respectively during 1968-69 and 84 days and 65 days respectively during 1969-70. Bottlenecks in the downstream Units such as the Coking Unit, Lube Oil Complex and Bitumen Unit, failure of equipment and utilities have been cited as the reasons for low level of operating efficiency.

The Committee regret to note that, due to deficiency in design in the transfer line of Atmospheric Unit I there was leakage and its replacement cost the Refinery Rs. 3.10 lakhs. The Committee recommend that the reasons for defect in design should be investigated in order to fix responsibility for the loss.

The Committee also recommend that the Central Service Organisation which has been formed in order to improve the service factor of the Refineries of IOC should go into the technical details in order to suggest measures to improve the operating efficiency of the Refinery.

The Committee further note that Atmospheric Unit III was operated for less number of days due to limited availability of crude. The Committee hope that with the processing of imported crude in the Barauni Refinery the operating efficiency of the Unit would improve.

(Paragraphs 6.115 to 6.118)

Reply of Government

The question of the failures of the transfer line of Atmospheric Unit 1, which necessitated its subsequent replacement at a cost of Rs. 3.10 lakh to the refinery, has been gone into in detail. The main reason for these failures is the defective design which did not fully take into account higher operating velocities in various sections of the transfer line. The adverse effect of higher velocities was accentuated by a poor geometry/

configuration of the piping system. Thus the piping, as per the design, was much under-sized causing, during operation, several leaks resulting in emergency shutdowns.

2. The leaks in the transfer line both in the vacuum side as well as atmospheric side of AVU-I caused a great deal of concern to the IOC Management and were communicated along with other major problems of Barauni Refinery to M/s. Neftechimpromexport, Moscow. Subsequently, a team of Soviet Specialists came to Barauni Refinery in February, 1968 when the Indian side pointed out the design deficiencies in the above transfer lines. After studying the problems, the Russian side recommended replacement of the transfer lines from 150 mm to 350 mm in the case of vacuum side and 150 mm to 300 mm in the case of atmospheric side. The very fact that the Russians have recommended changes in the size of the pipes clearly indicates their tacit acceptance of the defective design.

3. In continuation of the above discussions, further discussions were held in New Delhi in March, 1968 when the Russian side led by the first Deputy Minister for Oil Refining and Petro-chemical Industry of USSR, after a great deal of persuasion, agreed to supply the requisite length of piping material for replacement in the vacuum side only of AVUs free of cost.

4. Later on, Barauni Refinery, as per the Soviet Recommendations, replaced the piping from 150 mm to 300 mm of the atmospheric side and the cost of this replacement was, therefore, borne by the Refinery.

5. The Central Service Organisation has been advising the refineries for better maintenance through visits/discussion followed by investigation work at reputed laboratories. The measures so far suggested for improving the operating efficiency of Barauni Refinery are summarised in the note attached at Appendix to this reply.

6. It is true that the limited availability of crude had affected the operation of Atmospheric Unit III of the Barauni Refinery. The circumstances relating to the under-utilisation of the Barauni Refinery have been stated in reply to recommendation No. 1.

7. In view of increased availability of indigenous Assam crude, it has now been decided that the Barauni Refinery will operate at its full capacity of 3 million tonnes on indigenous crude only. The scheme for modification to the Barauni for processing imported crude, which was in its preliminary stages, has, therefore, been given up.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 13th January, 1975]

Recommendation (Serial No. 31)

The Committee take a serious note of the fact that although the Commission appointed by Government to go into the question of blaze in the river Ganga near Monghyr in March, 1968 due to accumulation of oil content of the effluent matter in the sandy part of the river bed beyond the discharge point, submitted their report in July, 1969, no final decision has yet been taken by Government/Corporation on the important recommendation made by Commission about discharge of effluent in the main stream of the River Ganges as it would involve heavy capital expenditure of over Rs. 1 crore. Indian Oil Corporation have instead improved the treatment of effluents before disposal so as to reduce the oil content to safe level. The Committee feel that the problem of pollution of the river should have been tackled with all seriousness in consultation with C.W.P.C. and all others concerned in the interest of health of the inhabitants of that area. The Committee would like to be informed of the final decision taken in the matter by Government and the progress made in implementation thereof, within six months.

(Paragraph 6.164)

Reply of Government

Indian Oil Corporation informed the Ministry in March, 1974 that the implementation of Recommendation No. 19 was examined in consultation with the Central Water and Power Commission. After such examination, IOC have come to the conclusion that none of the four alternatives suggested by the Commission of Inquiry was techno-economically feasible. It was also reported that the Refinery is taking other measures by which the oil content in the effluent is reduced and movement of the effluent in the mainstream is ensured. The Ministry requested IOC for confirmation that they are fully satisfied that the measures taken by them are adequate to prevent recurrence of pollution of the river and also to report that the Bihar State Health authorities are fully satisfied with the steps being taken by the IOC.

Indian Oil Corporation have been approaching the Bihar State Health authorities for obtaining their clearance but since the State Government has to get the proposal examined by different authorities, the grant of clearance is taking some time. IOC are, however, constantly in touch with the Bihar State authorities and are making efforts to obtain approval of the State Government as early as possible. After this is done, a final decision on this issue will be taken by the Government. It may, how-

ever, be added that the oil content in the effluent presently being discharged by the Refinery is well below the limits prescribed and there is no pollution of the river by the Refinery at present.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 10th October, 1974]

Further Information called for by the Committee

It has been stated that IOC have been approaching the Bihar State Health authorities for obtaining their clearance.

What are the reaction of the Bihar State Health authorities?

[Lok Sabha Secretariat O.M. No. 16-PU/74, dated 6th November, 1974]

Reply of Government

The Corporation are pursuing the matter with the State Government of Bihar, but the reply from the State Government is still awaited.

[Ministry of Petroleum & Chemicals (Department of Petroleum) O.M. No. IS-54012/3/74-OR-I, dated 9th April, 1975]

Recommendation (Serial No. 47)

The Committee find that about Rs. 218.80 lakhs had been paid as overtime in the three Refineries during the years 1967-68 to 1972-73. The overtime bill has shown a gradual increase during these years. During the year 1972-73 the percentage of overtime to salaries and wages was 13.45, 21.16 and 10.36 in the case of Gauhati, Barauni and Gujarat Refineries respectively.

The Committee are surprised that on the one hand the refineries are facing the problem of surplus staff, on the other hand overtime amounting to several lakhs of rupees is being paid to the employees. Although the Management stated in 1971 that efforts were being made to control the overtime to the minimum, yet the overtime bill goes on unabated.

The Committee need hardly stress that the overtime payments act as a disincentive to efficiency. They, therefore recommend that Management should adopt strict measures so as to keep the overtime bill to the minimum

and thereby reduce the expenses on overheads and economise in processing costs.

(Paragraphs 10.10 and 10.11)

Reply of Government

IOC is conscious of the growing incidence of overtime. All possible measures are being taken by the management to reduce the incidence of overtime. Some of the measures being taken are the following :—

1. The Industrial Engineers of all the refineries have been instructed to study the reasons for the high incidence of overtime and to recommend measures for bringing it down.

2. The General Manager of each refinery reviews the overtime figures every month with the Departmental heads to devise methods for reduction.

3. Work which is not of an urgent nature is postponed so as to avoid payment of overtime.

4. During the discussions between the management and the labour unions which are currently in progress for a long term wage settlement, the management has proposed to the union certain measures which are intended to reduce the incidence of over time.

While the management is taking a number of steps, it may also be pointed out that there have been cases where workers resist, sometimes violently, the measures for reduction of overtime. There have been instances where workers assaulted officers who took steps for avoiding overtime payment.

With regard to the observation of the Committee that on the one hand the refineries are facing the problem of surplus staff but on the other overtime payment is being made to the employees, the surpluses exist mainly in the category of un-skilled worker. Overtime is accounted for largely by shift workers of the maintenance department for items of work which cannot be done by the un-skilled workers.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 19-10-74].

CHAPTER IV

RECOMMENDATIONS IN RESPECT OF WHICH REPLIES OF GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE

Recommendation (Serial No. 1)

The Committee note that the Atmospheric Unit III at Barauni was approved by Government on the basis of an assurance given by ONGC that additional crude would be available from Rudrasagar and Lakwa oil fields and the presumption that it would be transported through the Oil India Ltd. pipeline from Barauni to Moran by upgrading its capacity and by expanding the crude oil conditioning plant at Moran. Although the Unit was commissioned in January, 1969, it had to remain idle/ underutilised for want of indigenous crude as no reasonable agreement could be reached between the ONGC and the Oil India Ltd. regarding the tariff for transportation of ONGC crude through the crude oil pipeline of Oil India Ltd. Only an interim agreement between ONGC and Oil India Ltd. could be reached in March, 1971 after protracted negotiations lasting for more than 4 years. When the negotiations were still going on, the Government decided in December, 1969 to set up a new refinery in Assam to process the Assam crude and to permit the Barauni Refinery to secure crude for its third unit from other sources including import. As a result, the utilisation of the available capacity was held up and modifications will have to be made in the refinery for processing imported crude at an estimated cost of Rs. 7.7 crores and a new pipeline would be required to be laid from Haldia to Rajbandh at a cost of Rs. 6 crores. Meanwhile processing of the imported crude in the unit had been started from December, 1972 and it could process 5 to 7 lakh tonnes per annum after minor modifications. From December, 1972 to 31st March, 1973, 1.3 lakh tonnes of imported crude had been processed in this unit.

The Committee regret to note that because of the delay in arriving at a decision about the tariff for transportation of crude through the Oil India Pipeline, the Atmospheric Unit III which was commissioned as early as January, 1969 had to be kept idle or under-utilised, resulting in a national loss of the order of Rs. 6 crores per annum in terms of foreign exchange and Rs. 17 lakhs per annum on account of interest and depreciation charges alone. The loss would be more if the cost on account

of personnel is also added. The under-utilisation of the Unit had also affected the working of the Kerosene Treating Unit and the consequential revenue loss is stated to be of the order of Rs. 15 lakhs during the period 1969-70 to 1972-73. The Committee were informed that as the quantum of imported crude increases, the Kerosene Treating Unit I which is at present in operation would become progressively under utilised.

The Committee were informed that as a result of the change over from indigenous to imported crude, there would be a recurring loss of Rs. 85 lakhs per annum on the assumption that the Corporation would be able to get LR-I tankers for transportation of imported crude and in case the existing arrangements for transporting imported crude continue, the Corporation would be losing another Rs. 540 lakhs per annum. The whole economics of utilisation of imported crude is stated to have been worked out taking the price of imported crude at US 2.38 dollars per barrel. The Committee need hardly point out that these economics are bound to be adversely affected because of the latest price spiral of the imported crude.

The Committee also regret to note that decision once taken about the expansion of the Barauni Refinery based on utilisation of indigenous crude from Assam was altered in favour of setting up of a new refinery in Assam and the decision taken to process crude from other sources including imported crude in the Barauni Refinery. The Committee fail to understand as to why the financial implications and economics of setting up a new refinery in Assam keeping the third installed unit of Barauni idle/under utilised had not been worked out before the decision to set up a new refinery in Assam was taken.

It was admitted during evidence that the Barauni Unit could have been planned on a more diverse quality and wide range of crude than was done. The Committee feel that had this been done, the Corporation would not have been faced with such a situation as indicated above.

The Committee take a serious view of the huge loss suffered by the Government/Corporation as a result of taking up the expansion of the Barauni Refinery first on the basis of indigenous crude and later switching over to imported crude.

The Committee recommend that the entire matter should be thoroughly investigated by a high level Committee so that the shortcomings/lapses at different stages are pin-pointed to obviate such costly lapses in future.

(Paragraphs 2.17 to 2.23)

Reply of Government

The circumstances relating to the under-utilisation of the Barauni Refinery, the decision to set up a Refinery at Bongaigaon, and the modifications to the Barauni Refinery for processing imported crude may be recapitulated.

Towards the end of November 1966, ONGC took up with OIL the question of transportation of its crude through OIL's pipeline. After discussion between the ONGC and OIL the broad outlines of the project were settled. ONGC wanted OIL to increase the pipeline capacity for transportation of crude from Moran to Barauni upto 1 million tonnes per annum. Preliminary investigations carried out by OIL indicated that this would require additional pumping capacity from Moran down to Barauni and facilities for conditioning additional supplies of crude at Moran.

As the basis of charges demanded by OIL was not clear, Government decided to appoint a Committee presided over by Chief Cost Accounts Officer to work out and arrive at a reasonable schedule acceptable to both the parties. While this group was examining the tariff question, by July 1968, ONGC had laid a pipeline linking Lakwa oil field to the pipeline station at Moran. The transportation of ONGC crude through OIL pipeline commenced on 20th August, 1968.

The Group under the Chairmanship of Shri Krishanan submitted its report in April 1969. With the divergence of views on basic issues, the Committee failed to reach unanimity. In view of the divergence of views held by the representatives of ONGC and OIL, further consultations with both the organisations became necessary before the Ministry could formulate a proposal which would be reasonable and acceptable to both the parties.

Considering the complexity of the problem and divergence of the views between the OIL and ONGC, the time taken in arriving at a compromise cannot be regarded as unduly long. In any case, it did not affect the transportation of ONGC crude through the pipeline which commenced on 20th August, 1968 and continued uninterrupted. In view of the decision to construct a new refinery in Assam, the question of expanding the capacity of the OIL pipeline to supply an additional one million tonne crude to Barauni Refinery was not pursued at that stage. Marginal increases in the capacity of the pipeline were achieved by changing the pluggers. The amount of ONGC crude transported through

OIL pipeline during the 3 years from 1970—72, is indicated below:

1970	1,68,097 tonnes
1971	2,91,568 „
1972	3,71,555 „

It will be seen from the above that though discussion went on between OIL and ONGC with regard to tariff for transportation of ONGC's crude by OIL, these discussions did not prevent transportation of available ONGC's crude through the Oil India Limited's pipeline.

Barauni has three distillation columns each with a capacity of 1 million tonnes of crude per year. The first unit of the Barauni Refinery went on stream in 1964 and the second stage was commissioned in 1966. The third million tonne unit of the refinery was commissioned in January, 1969.

The throughput of the Barauni Refinery from 1968 onwards is given below:

(Figures in '000 tonnes)

1968	1710·0
1969	2051·7
1970	2197·4
1971	2235·2
1972	2255·7

In view of the demand for setting up a third refinery in Assam based on indigenous crude, a Committee of Experts under the Chairmanship of Shri B. S. Negi was set up in April, 1969. The Committee gave its report in September, 1969. The Committee observed in its report that refining of crude oil for the production of conventional petroleum products is not the only optimum way of utilisation of crude oil, and processing of crude oil as a chemical feedstock for the production of aromatics ammonia and ethylene based petrochemicals also present attractive economic possibilities.

Following extract from the report of the Committee is relevant:

> "In the context, in particular, of utilising additional crude oil from Assam oilfields, these possibilities appear all the more attractive since

(a) the market for petroleum products from additional crude oil finds will by and large be in far-off areas *viz.* western Uttar Pradesh and beyond resulting in expensive transportation;

(b) there will be considerable unsatisfied demand for ammonia in West Bengal, North Bihar and Uttar Pradesh in the years to come;

(c) Aromatics, especially after conversion to high-priced DMT, cyclohexane, synthetic fibres, etc. will command good market and bear long haulage costs; and

(d) Aromatics and ethylene-based chemicals can become the nucleus for the development of economic activity for the ultimate production of consumer products; a conventional refinery by itself cannot generate such economic activity and increase employment potential."

Subsequently, the decision to locate additional refining capacity in Assam was announced by the Prime Minister in the Lok Sabha. On December 5, 1969, the Prime Minister made a statement in the Lok Sabha as follows:—

"There has been a general demand from Assam for the establishment of additional refining capacity in the public sector. The Government of India have always been anxious to promote the accelerated economic development of Assam and have therefore created Assam on a special basis in allocating Central assistance for its Plans. Government appointed an Expert Committee in April, 1969, in order to examine the techno-economic feasibility of locating additional refining capacity in Assam. On consideration of the report of this Committee, Government have not decided that the present refining capacity in Assam should be increased by a little over one million tonnes in the Fourth Plan period, either through expansion or the establishment of an additional refinery, as may be found economically feasible.

The Government of India also recognise the need to take measures for the industrialisation of Assam based among other factors, on its oil resources. Assam crude oil is rich in aromatics which provide the base for the development of petrochemicals. With the availability of adequate raw materials from the proposed increase in refining capacity, Government have also decided that an integrated DMT/Polyester fibre petrochemicals com-

plex should be established. Suitable provision for this refining-cum-petrochemical complex will be made in the Fourth Plan now under finalisation."

It would thus be seen that the decision to locate additional refining capacity in Assam was taken on overall national considerations.

With the decision of Government in December, 1969 to locate additional refining capacity in Assam, it became necessary to obtain crude from other sources for processing in the third unit of Barauni Refinery. This also meant utilisation of the pipeline between Barauni and Haldia for transport of crude. Tankages had to be created both at Haldia and Barauni for receipt of crude, and subsidiary products pipeline had to be constructed from Haldia to Rajbundh to facilitate product movement to Haldia.

Since the refinery was constructed for processing sweet crude, attempt was made to locate imported sweet crude. The Minas crude of Indonesia which is sulphurless was thought of, but it was found to be highly waxy and could not be pumped through the pipeline from Haldia to Barauni. This crude was therefore rejected. A new sweet South-East Australian crude was also considered but the cost even in 1970 was $2 per bbl. and transportation cost was not less than 50 cents per bbl. Sweet crude from North Africa was also considered but rejected because of high FOB and CIF costs.

The possibility of supplying processed synthetic crude from Kuwait was also considered but Kuwait could supply this type of crude only by 1973 and wanted a 10 year contract for supply of synthetic crude and fuel oil.

Processing of imported crudes like Aghajari, Rostam and Murban was also considered. In the case of Aghajari and Rostam crudes, secondary processing facilities like hydrocracker appeared necessary and investment on the refinery was estimated to be about Rs. 17 crores with a foreign exchange component of 40 to 50 per cent. In the case of Murban crude, investment was estimated around Rs. 2 crores.

In November, 1970, it was decided to modify the refinery to process imported high sulphur crude. Investment approval to the modification was given in June, 1971.

In view of increased availability of indigenous Assam crude it has now been decided that the Barauni Refinery will operate at its full capacity of 3 million tonnes on indigenous crude only. The scheme for modification of the Barauni Refinery which was in its preliminary stages has, therefore, been given up. Expansion of the OIL INDIA pipeline upto Barauni is

being taken up to enable the pipeline to carry enough indigenous crude to Barauni and to enable it to operate at its full capacity. With increased quantities of indigenous crude processed in the refinery, the utilisation of the KTUs will also improve. The adverse factors affecting the profitability of the refinery in processing imported crude will also get eliminated with the processing of larger quantities of indigenous crude.

In view of the above, Government consider that the investigation by a high level Committee as recommended is not necessary.

[Ministry of Petroleum & Chemicals O.M. No. IS. 54012|3|74-OR-1, dated 23rd December, 1974]

Further Information called for by the Committee

(a) What is the total expenditure incurred on the modification of the Barauni Refinery during 1971 to 1974?

(b) What is the extent of utilisation of Kerosene Treating Units at present?

[Lok Sabha Secretariat O.M. No. 16-PU/74, dated 11th February, 1975]

Reply of Government

(a) The actual expenditure incurred on the project during the period 1971 to 1974 is Rs. 42 lakhs.

(b) In the scheme for revamping/modification to the Barauni refinery to process imported crude, it was envisaged that one Kerosene Treating Unit at Barauni will be sufficient to process the available Straight Run Kerosenes. It was, therefore, decided to release the 2nd Kerosene Treating Unit for Bongaigaon Refinery Project.

In early 1974, a reassessment of the crude availability from ONGC's and OIL's fields in Assam indicated that adequate indigenous crude oil would be available for Barauni refinery to utilize 3 million tonnes installed capacity. In view of this development, the above decision to release Kerosene Treating Unit II for Bongaigaon on refinery was reviewed and it was considered necessary to retain this unit at Barauni refinery itself in view of the increased availability throughput level of 3 million tonnes of indigenous crude.

Action for reactivating Kerosene Treating Unit II at Barauni has therefore been initiated and it is expected that this unit will be commissioned in about a year's time. The quantity of the feed stock processed in KTU-I including quantity passed through the splitter Column of Kero-

sene Treating Unit No. II during 1973-74 (actual) and 1974-75 (estimated are given below):

	Feed to the Unit (tonnes)	% to the designed throughput on one KTU (270000 tonnes)	% to the installed capacity of one KTU (300000 tonnes)
1973-74	273533	101·3	91·2
1974-75	333000	122·2	110·0

[Ministry of Petroleum & Chemicals—(Department of Petroleum) O.M. No. IS-54012/3/74-OR-I, dated 9th April, 1975]

Recommendation (Serial No. 2)

The Committee find that though the Expert Committee constituted by Government to study and report on the techno-economic feasibility of locating the additional refining capacity in Assam had recommended in September, 1969, that it was not necessary to create additional refining capacity of the conventional type for processing the crude oil estimated to be available from Assam and that the processing of imported crude at Barauni would involve considerable cost, Government, in December, 1969 announced their decision to increase the refining capacity in Assam by one million tonnes either by building a new refinery or by expanding the existing refinery at Gauhati and the permit the Barauni Refinery to secure crude for its third unit from other sources including import. In October, 1970, Government decided to set up a one million tonnes refinery at Bongaigaon with a petro-chemical complex and the investment decision thereon was taken in March, 1972. The Committee are constrained to observe that the delay in coming to a final decision on the implementation of the Government's decision regarding the setting up of the additional capacity in Assam had resulted not only in non-utilisation of the capacity available in the Barauni Refinery and the processing of the available indigenous crude in Assam but also delayed the creation of additional refining capacity in the Public Sector. The Committee recommend that these aspects of delays should also be examined by the high level Committee suggested earlier for atmospheric Unit III of the Barauni Refinery so as to eliminate them in future.

(Paragraph 2.32)

Reply of Government

In reply to recommendation No. 1, the need for locating additional refining capacity in Assam in the overall national interest has already been stated.

After the Prime Minister's announcement in Parliament in December, 1969, discussions were held on the mode of implementation of the decision. A Working Group was constituted under the aegis of Chairman IOC assisted by Technical Experts of the Ministry, ONGC, OIL, IIP and IPCL. The Group considered the following alternatives for implementing the Government decision:—

(i) Establishment of a separate grass root refinery of 1 million tonne at any of the following typical locations:

(a) well-head

(b) Gauhati; and

(c) Bongaigaon.

(ii) Expansion of the Gauhati refinery from 0.75 m.t. per year to 1.75 m.t. per year.

(iii) Establishment of an integrated/DMT/Polyester Fibre Chemical Comples along with one of the above alternatives.

The Working Group submitted its report in June 1970. It found expansion of Gauhati Refinery the most preferable from the techno-economic angle. Government of Assam, however, suggested addition of down stream petrochemicals units which would have involved an outlay of about Rs. 300 crores. In view of the uncertainty regarding levels of crude supply within Assam, a revised study was undertaken, on overall considerations including not only the proposed refinery and DMT|Polyester Fibre|Chemical complex but also the expenditure which might have to be incurred by the Railways, the expenditure on the arrangement to carry crude and finished petroleum products, and the modifications of the Sindri Fertilizer plant based on RFO (LSHS) from the proposed refinery as feed-stock. This showed that the total investment would be minimum in case of a refinery at Bongaigaon. A new refinery at Bongaigaon was considered to be the best on over-all considerations because of the improvement in economics of Sindri Fertilizer Plant. Government of Assam accepted the proposal of a new 1 million tonne refinery at Bongaigaon with a DMT|POLYESTER Fibre Plant and Petrochemical Complex and LSHS as feed-stock for the Sindri Fertilizer Plant. Assam Government also suggested transportation of crude by inland water transportation of Brahmaputra.

In January 1971, it was decided to take an integrated view of the proposed refinery DMT|Polyester Fibre|Petrochemical complex in Assam, the proposed modernisation of the Sindri Fertilizer Plant and the proposed scheme for utilisation of imported crude and LSHS at Barauni. IOC prepared a feasibility report in May 1971 on the Bongaigaon refinery.

It was also considered that the transportation of ONGC's crude to Bongaigaon through the OIL Pipeline by expansion of capacity was the cheapest. On 10th March, 1972, sanction was given for setting up the Bongaigaon Refinery.

It would thus be seen that the delay in implementing the decision was because the issues involved were quite complex and needed detailed consideration.

However, it was not possible during this period to utilise the extra capacity available in the Barauni Refinery because for carrying crude to Barauni, substantial investments were needed not only for establishing a crude oil conditioning plant but also additional pumps on the pipeline to expand the pipeline capacity. With the decision to set up the Bongaigaon Refinery, such investments to enable Barauni to process additional 1 million tonne of indigenous crude were not considered economically justified at that stage.

In view of the above, Government do not consider it necessary to get these aspects of delay examined by a high level Committee.

[Ministry of P & C O.M. No. IS. 54012|3|74-OR-I, dated 23rd December, 1974]

Recommendation Serial No. 4

The Committee take a serious view of the fact that Government proceeded with the setting up of the Haldia Refinery without preparation of a Project Report and without a precise idea as to what the project would ultimately cost. The Committee fail to understand as to how Government could assume that the cost of Haldia Refinery would only vary to the extent of 5 per cent from the cost of Madras Refinery when the two projects were based on different collaboration and situated in different locations. The Committee find that Government authorised the Company (in 1969) to sanction individual works within an overall limit of Rs. 46 crores. It was only in January, 1970 the Corporation prepared detailed estimates of cost for Rs. 71.44 crores. These estimates were, however, revised to Rs. 67.51 crores, and sent to Government in September, 1970. The Committee find that Government approved the Project Cost estimates of Rs. 67.50 crores only in July, 1972 i.e., after a lapse of about two years. The Committee strongly deplore the delay in processing in the revised estimates and according sanction.

The Committee also view with concern that the Corporation was allowed to proceed with the work and incur expenditure thereon without the financial commitments having been properly sanctioned and approved. The Committee fail to understand as to how in the absence of a detailed estimates of cost, effective control and check of expenditure on the project

could be exercised. The Committee were informed that even now the revised estimates as approved by Government are not final and the project cost would go up due to delay in the Commissioning of the Refinery, and the extent of revision would be worked out only after the completion of the project. The Committee need hardly stress that revised estimates of the project should be treated as a mere completion report but should serve as an instrument of financial control. The Committee, therefore, recommend that the Corporation|Government should finalise the revised estimate of the project without any further delay. The Committee stress that the implication of the increased capital investment on the economics of the Project should be critically gone into and brought to the notice of Parliament as recommended by the Committee in paragraph 2.20 of their Thirty-Ninth Report (Fifth Lok Sabha). (Paras 3.24—3.26)

Reply of Government

As against the revised cost estimate of Rs. 67.50 crores, till 31st March, 74, an amount of Rs. 63.88 crores has been spent on the project an expenditure upto an amount of Rs. 71.73 crores is expected to be incurred till 31st March, 1975. The fuel sector of the refinery has been commissioned and the lube sector is expected to be completed by end 1975. IOC would approach the Government with revised cost estimates if the estimated cost exceeds 10 per cent of the revised cost estimates already approved.

With regard to the Committee's observation that the implication of the increased capital investment on the economics of the project should be critically gone into and brought to the notice of Parliament as recommended by the Committee in paragraph 2.20 of their 39th Report, on Pyrites, Phosphates and Chemicals Ltd. it is submitted that this recommendation (Para 2.20) is separately under consideration by the Deptt. of Fertilizers and Chemicals in consultation with the Ministry of Finance.

(Min. of P & C O.M. No. IS-54012|3|74-OR-I, dated 28.2.75).

Recommendation (Serial No. 20)

The Committee regret to note that the Kerosene Treating Unit II which was set up at a cost of Rs. 1.24 crores in December, 1965 was practically idle since its commissioning except for 93 days in 1968-69 and 80 days in 1969-70 when Kerosene Treating Unit I was shut down. Government, however, expected that this could be utilised when Atmospheric Unit III went on stream. Even after Atmospheric Unit III started processing imported crude, Kerosene Treating Unit II could not be operated as the kerosene obtained from the Middle East did not require sulphur dioxide extraction. It has now been decided to utilise Kerosene Treating Unit II in the Bongaigaon Refinery which is expected to be commissioned by 1976.

and the cost of dismantling and installing the unit at Bongaigaon Refinery would be Rs. 25 lakhs.

The Committee feel perturbed that the Kerosene Treating Unit II was set up at a cost of Rs. 1.24 crores without proper planning and without a proper assessment of the feed stock that would be available for processing thus resulting in unnecessary locking up of capital for almost 11 years till the Bongaigaon refinery would be commissioned.

The Committee recommend that this matter should be thoroughly investigated with a view to fixing responsibility for the huge loss suffered by the Refinery.

The Committee also find that though the Kerosene Treating Unit I was stated to have an in-built capacity over and above its designed capacity its utilisation was only of the order of 68.7 per cent and 75.6 per cent during 1966-67 and 1968-69 respectively. The utilisation during 1969-70 to 1972-73, however, ranged from 106 per cent to 132 per cent. The utilisation in 1970-71 was as high as 132 per cent. The Committee desire that the actual in-built capacity of the Unit should be properly assessed so as to enable the Refinery to utilise it to the maximum and to correctly evaluate the performance.

(Paragraphs 6.31 to 6.33)

Reply of Government

At the time the kerosene treating units were designed, it was expected that most of the straight run kerosene from crude oil distillation as well as kerosene fraction from the coking unit would be treated in these units for the production of superior kerosene. When the Barauni refinery sent on stream, it was found that the quantity of inferior kerosene feedstock that could be processed in the Barauni Kerosene treating units was much less than the design capacity of the units because of the following reasons:

(a) Production of less kerosene from the crude oil because of change in crude quality;

(b) It became necessary to blend most of the coker kerosene with diesel oil fractions to meet the specifications for high speed diesel oil;

(c) The product price at that time was such that the net realisation on account of sales of superior kerosene and iomex which are products from the kerosene treating unit, was less than the price for the feedstock if it could be sold as inferior kerosene;

(d) Whereas there was little market for iomex at that time there was still a market for inferior kerosene and therefore there was no particular reason to process all the inferior kerosene into superior kerosene.

(e) Lowering of smoke point of superior kerosene by the ISI (25 mm to 20 mm) from January 1968 onwards and lower production of ATF than designed meant lesser utilisation of the KTU.

For the above mentioned reasons, it was not necessary to run the kerosene treating unit at Barauni to full capacity for processing inferior kerosene into superior kerosene, as one of the units had sufficient capacity to process the feedstock available.

When imported crude was processed in Barauni and atmospheric unit III also started functioning, it was not necessary to operate the idle capacity of the KTU2, because kerosene produced from Middle East crude did not require sulphur dioxide extraction. It is now expected that Barauni's 3rd million unit would be operated on crude oil from Assam and at that time it is expected that the second KTU unit would also be utilised.

In view of this Government are of the view that a further investigation into the matter is not necessary. Since the present conditions and operations of the kerosene treating units are different, any test runs to establish the in-built capacity of the units under design conditions may not be of much practical value.

(Ministry of P & C O.M. No. IS. 54012|3|74-OR-I, dated 23.12.74)

Recommendation (Serial No. 22)

The Committee note that, though the Lube Oil Complex of the Barauni Refinery was originally designed to produce four Lube base stocks, it was not possible to produce all the 4 grades of oil because of defects in the crude vacuum unit due to defective design and certain additions are required in the plant. Consequently, the plant remained under-utilised from 1967-68 to 1969-70 resulting in a loss of about Rs. 50 lakhs during this period. The Committee were informed that rectification of defects was not carried out as it involved a huge amount of money and a long period of shut down. What is more surprising is the fact that the Corporation discovered later that the 4 grades of oils planned to be produced were low grade oils and could not meet the specifications of the products which were in demand in the market. It was also found that Digboi Refinery had increased the production of oils which could meet the market demand. As a measure of diversification, the Corporation took up production of

800 pale lube oil in March, 1969. Since 1970-71, the lube complex has achieved production more than the designed capacity.

The Committee also regret to note that the compounding facilities for base stock of lubricating oil and additives created at a cost of Rs. 29 lakhs remained under utilised as only one grade of oil was being produced which did not require blending. It has been stated that the equipments worth Rs. 19 lakhs are being utilised for handling phenol extract, slack wax and rubber processing oil.

The Committee take a serious view of this huge loss due to under-utilisation of the Plant and the non-utilisation of facilities which in their opinion could have been avoided if the complex had been created after a detailed market survey of the demand for products and proper planning. The Committee recommend that the matter should be thoroughly investigated in order to fix responsibility for this serious lapse, and to devise suitable meaure to ensure that such costly lapses do not recur.

(Paragraphs 6.59 to 6.61)

Reply of Government

The factors leading to the under-utilisation of the Lube Oil Complex and non-utilisation of the blending facilities have been thoroughly investigated by a Technical Committee set up by IOC (Refineries Division).

According to the Technical Committee, the Market and Distribution Study conducted by well-known firm, Arthur D. Little Inc. of Campbridge, Massachusetts on behalf of M|s. Foster Wheeler Corporation, who were appointed as consultants to prepare a Technical and Economic Survey Report, had established the demand for Indian lubricating oils as 211,000 tons in 1957 comprising 8.5 per cent axle oils (black oils), 38.4 per cent LVI oils used principally for industrial and marine use, 8.9 per cent MVI oils, and the remaining 44.2 per cent HVI oils. Based on a growth rate of about 10 per cent per year, the demand for lubricating oils was expected to reach 309,000 tons by 1961. It was estimated that 50 per cent of the demand or 150,000 tons could be satisfied by lubricating stocks produced from Naharkatiya crude. After taking into consideration the production of LVI lube oils from the Digboi refinery, the deficit was estimated at 133,500 tons on all-India basis and 48,500 tons in the Barauni supply area during 1961. It was, however, known that the quality of Naharkatiya crude was such that it could give only low viscosity index oils. Since the production from Digboi was meagre, all the HVI oil and most of the EVI lube base-stocks and finished products were being imported.

In March 1961 on the advice of the Russian specialists who had by that time completed the pilot plant studies, it was decided to manufacture 12,000 tonnes of motor oils and 34,000 tonnes of industrial (machine) oils in the complex. The manufacture of machine oils does not require any blending of additives but only viscosity blending to a minor extent. It was assumed that blending of the base oil components produced in the refinery with the additives indicated in the report would suffice to make acceptable quality motor oils and no outside base stocks would require to be blended therewith.

As against the original schedule of 1964, the Lube Oil Complex came on stream towards the end of 1967 and by that time the situation had changed considerably. As against the expected production of 15,800 tonnes in 1961, the Digboi refinery was producing at the rate of 64,000 tonnes of LVI oils in 1967-1968, thus saturating the market particularly in the viscosity range available from Barauni. The Indian Oil Corporation had also entered into a collaboration agreement with Mobil and was selling over 100,000 tonnes of premium motor oils and industrial oils of inter-national quality either imported as such or blended from the imported HVI lube base stocks and additives in the blending plants established at Bombay and Calcutta. The Technical Committee has reviewed design|operation of the Lube Base stocks and has observed that a better vacuum column, designed to produce a higher viscosity stocks (as it was later done for the Lube India and Madras Refineries) could have served the purpose better as the demand for higher viscosity stocks is always more as compared to lower viscosity stocks.

The Committee has also observed that as the detailed project report prepared by the Russians did not envisage the receipt of any outside stock for blending with the base stocks produced in the refinery, no facilities were included for this purpose. Later on, it was realised that the inclusion of such facilities could have increased the flexibility of the refinery and enabled it to produce finished lubricants readily acceptable by the market.

The Committee has attributed the main reasons for the under-utilisation of the Complex in the initial period to (1) design and operational problems at the refinery and (2) marketing problems. Mobil were not inclined to use the 60 VI Barauni base stocks in their premium motor oil branded products because in their opinion they were not of right quality for Mobil plants. Barauni also could not have made 60 VI stocks on a regular and consistent basis and used the blending facilities installed for the purpose of making motor oils in the refinery. When better HVI neutral base oils were available by end 1969 from Lube India and in early 1970 from MRL, there was no point in making

motor oils from the Barauni base stocks after incurring additional investment by way of facilities for receiving outside stocks. By this time, regular offtake of a single lube grade called 800 Pale Oil requiring no blending facilities had commenced and the refinery started achieving its rated capacity.

The Technical Committee is of the considered opinion that "since the refinery design was based on the market study specifically prepared by the well-known and experienced international firms namely Foster Wheelers and Arthur D. Little and the design itself was prepared by the USSR technical consultants, at a time when the indigenous experience available to Government in respect of lube oil refining and marketing was negligible, the factors that led to the under-utilisation of the lube complex and non-utilisation of the blending facilities could not have been foreseen and provided for. Hence, we are unable to assign the responsibility for the loss sustained on any individual or organisation."

The Chairman, IOC has endorsed the above findings of the Technical Committee.

IOC has by now gained sufficient technical knowledge and experience and will, therefore, endeavour to adhere to sound principles of project engineering in future so that costly lapses as in the case of the setting up of the Lube Oil Complex at Barauni do not recur. Changing market conditions in respect of crude oil and products can, however, upset the production of any plant as it is not possible or advisable to introduce unlimited flexibility.

[Ministry of Petroleum & Chemicals, O.M. No. IS 54012|3|74-OR-I, dated 22nd May, 1974]

Recommendation (Serial No. 23)

The Committee regret to note that the Bitumen Unit of the Barauni Refinery was set up in November, 1966 at capital cost of Rs. 1 crore, without proper investigation whether bitumen suitable for plains could be produced from Naharkatiya food stock. Neither the Indian Standards Institute nor the Central Road Research Institute were consulted in the matter. The Committee are surprised that the ISI specifications already available for producing bitumen with Middle East crude were blindly adopted as a guide for producing bitumen from Assam crude. The result was that the unit remained idle/under-utilised since its inception. Even after carrying out modifications in 1968 at a cost of about Rs. 4 lakhs, the Unit could not be started as it could not produce bitumen suitable for road work in plains. Efforts to produce bitumen of grades other than those envisaged in the Project Report could also not succeed as production of bitumen of these grades proved to be uneconomical. The restricted non-operation of the Unit resulted in a loss of about Rs. 1

crores. The economics of producing bitumen in the Barauni Refinery also indicated that so long as there is spare capacity in the Cocking Unit, the manufacture of bitumen would always be a losing proposition. The operation of the Unit even at its rated capacity would result in a net loss of Rs. 30 lakhs per annum. The Committee take a serious view of the detective planning in the setting up of this Unit.

The Committee also find that the Corporation imported 3000 tonnes of drum sheets and purchased 1026 tonnes of indigenous shoots for the fabrication of drums for bitumen. The Committee regret to observe that as the production of bitumen did not come up as anticipated, the fabrication of drums had to be kept in abeyance and 1900 tonnes of imported sheets had to be disposed of after about one year from the date of its purchase at a loss of Rs. 2.71 lakhs. The Corporation had also to incur a further loss of Rs. 7.12 lakhs upto 31st December, 1971 by way of interest charges and godown charges.

The Committee are informed that it is now proposed to restart the Unit using residues from imported crude after carrying out modifications at a cost of Rs. 40 lakhs which are likely to be completed by 1975. The Committee are surprised that modification would result in reduction of the existing capacity, though it is claimed that the margin of profit would be Rs. 2.33 lakhs. The Committee are not sure whether those economics of the Project would be realised particularly in the context of increase in the price of imported crude. The Committee would like Government to closely examine the economics of the proposed conversion to ensure that it is in the best interest of the Corporation and larger public interest before investing any further amounts.

The Committee recommend that the entire matter regarding the setting up of Bitumen Unit at Barauni Refinery should be investigated by a high level Committee in order to pinpoint the lapses and fix responsibility for the huge loss suffered by the Corporation.

The Committee would like to be informed of the concrete measures taken to obviate recurrence of such costly lapses in investment and tying up of collaboration arrangements.

(Paragraphs 6.83 to 6.87)

Reply of Government

At the time the 2 million tonnes stage of Barauni Refinery was designed, it was considered prudent to include the production of bitumen at this Refinery on considerations of demand and the profitability of this product.

In petroleum industry the specifications of products are generally governed by the standards formulated/published by the National Standards Institutions and it is the normal practice to adopt these national standards for the design of the refineries. As already explained to the Committee, IOC and the Russian designers were not aware that the bitumen meeting ISI specifications would fail in performance. The failure of Barauni bitumen was an exceptional case and came to knowledge only during actual field application. For this exceptional situation it is felt that even a reference to Indian Standards Institution and or to Central Road Research Institute might not have helped in the matter since the problem was neither known nor anticipated at that stage since there was no known failure like that.

In 1968 modifications were carried out to the Bitumen Unit at Barauni Refinery after discussions with the High Power Soviet Delegation and as a result of these modifications bitumen was produced which met ISI specifications. The economics of bitumen production was very favourable at the projetc stage at the price structure prevailing at that time, and refineries at that time were putting in every effort to maximise bitumen production. Subsequently the price structure as modified by the Government became unfavourable changing the entire economics of Bitumen production and it was profitable even to process the feed stock in the Coking Unit instead of Bitumen production. The unfavourable price structure, low demand of bitumen from Barauni and the tie-up of phenol extract which was being used for production of Bitumen (so as to meet the ISI specifications), as carbon black feedstock were the main factors influencing the decision to keep this unit shut down.

In 1972 a proposal was made for receipt of imported crude at Barauni so that the full capacity of the Barauni Refinery could be utilised in the absence of sufficient availability of indigenous crude. With the receipt of imported crude at Barauni it would have been technically feasible to produce bitumen in the Barauni Refinery and all efforts were directed for carrying out necessary modifications in the Bitumen Unit at a cost of about Rs. 40 lakhs for the production of bitumen based on imported crude feed stock. The expenditure incurred in carrying out the modification was, however, Rs. 25,000 only.

The proposed modifications to the Bitumen Unit at Barauni, based on imported crude, were, however, subsequently dropped consequent on the assessment of ONGC made in February, 1974 indicating the availability of sufficient indigenous crude to sustain the 3 million tonnes capacity of Barauni Refinery. IOC are, therefore, presently considering the possibility of utilising the equipment of Bitumen Unit for other purpose.

At the time of planning Barauni Refinery, Indian Oil Corporation (Indian Refineries Ltd.) was a very small organisation which was just coming up. Neither the Company had the laboratory facilities to conduct investigations regarding the quality of crude oil for producing various products nor there were such specialised institutes such as IIP at that time. At present while planning the processing of new crude oils, IOC makes its own preliminary evaluation if necessary, in its own laboratories in the various refineries and before making final decision matters are invariably referred to specialised institutes such as IIP for detailed laboratory evaluation. IIP today is in a position to do detailed evaluation work on crude oil and its products. Over and above this, IOC is also establishing Research and Development Centre exclusively to meet its own requirement.

It would appear that at the time of planning and designing of the Bitumen Unit, there was a lack of technological expertise which resulted in non-utilisation of the capacity of the Unit and the consequent loss suffered by the Corporation. The constitution of a high level Committee at this stage to enquire into the setting up of the Bitumen Unit at Barauni Refinery may not, therefore, yield any useful results.

[Ministry of Petroleum & Chemicals O.M. No. IS.54012/3/74-OR-I, dated 22nd November, 1974]

Recommendation (Serial No. 39)

The Committee find that a contract was signed with USSR suppliers for supply of equipment and materials weighing 15,350 tonnes for the setting up of the Gujarat Refinery. Subsequently, 204.196 tonnes were deleted from the supply schedule of the contract in terms of the protocol dated 9th October, 1974, as these materials were available from indigenous sources. The Committee also note that the protocol was silent about the possible reduction in the contract price in the case of deletion of the quantity from the contracted supply.

The Committee regret to note that though the supplies under the protocol were completed as early as 1966, it was only in February, 1970 after a lapse of six years from the date of protocol that a claim for Rs. 15.76 lakhs was preferred against the foreign suppliers on account of the value of deleted items weighing 204.196 tonnes (Rs. 10.92 lakhs) and also for defective materials and other causes (Rs. 4.84 lakhs). This claim has not been accepted by the suppliers so far. The Committee are also surprised that the management has not sought the assistance of Government for the recovery of the claim inspite of the long delay in the settlement of the claim by the foreign suppliers.

The Committee are now informed that the suppliers have agreed to re-examine the matter. The Committee desire that the matter should be pursued vigorously with a view to effecting an early settlement of the claim.

The Committee are informed that it was not possible to work out the quantity and value of Russian materials that might still be living in stock in the Refinery. The Committee fail to understand as to why the materials received under the agreement should not have been kept separately throughout. The Committee recommend that the matter should be investigated to fix responsibility for the lapses. The Committee should be informed of the action taken.

(Paragraphs 7.34 to 7.37)

Reply of Government

With regard to the Committee's observation regarding keeping the materials received under the agreement with the Soviet Organisation separately, the position has been examined in consultation with the IOC. Against the stipulated quantity of 15,146 M.T. of materials for the construction of the two million tonne refinery, a balance of 1,023 MT was left over. This material included pipes and pipe fittings of various sizes, valves of different sizes, electric cables, motors, instrumentation spares etc. All such material which was considered useful for the operational and maintenance needs of the refinery, was taken on charge along with other operational stores and spares. Other surpluses were segregated for disposal.

After the refinery was commissioned, the task of organising the stores to suit the operational requirements had to be taken up on an urgent basis. To start with, the job of preparing detailed classification and codification of various types of material was taken up in which each material was given a distinct code number according to its specification and its natural classification. As per the established norms of inventory management, one particular type of material was given one code only regardless of its source of supply. This was considered desirable to fix up minimum and maximum levels and studying the consumption pattern of each type of material. During construction period, IOC had received materials from different sources which was kept segregated from one another. To organise a proper system of inventory management, it was necessary to identify the material of one type scattered over different locations and to bring them on one location and under one material code number with physical accounts to be kept in a bin card corresponding to the said code number. This process of reorganisation was spread over two/three years period during which the material received from various sources of supply

was reorganised according to the codification scheme drawn for the operational requirements. During this process, the materials conforming to one code number but procured from different sources and under different contracts were grouped under one bin card.

During this period the refinery had to purchase different materials for operation and maintenance to the extent they were not available with the refinery out of the left over stocks. These purchases were made from the indigenous sources as well as from foreign sources. In certain areas import substitution programme was undertaken and spares were developed conforming to the code specifications serving the same end use as the corresponding foreign material. Therefore, in certain cases over a course of time, the stock of raw material consisted of items purchased from various sources as well as of items which were a part of the left over material after construction.

If a separate account for left-over materials received from different sources of supplies under different contracts was to be kept, this would have been possible only after a separate code number was given for the same type of material received under different contracts and these supplies were stored at different locations. If this method was adopted it would have resulted in multiciplity of bin cards and locations rendering the task of inventory management extremely difficult. In certain cases over stocking or stockouts might have also resulted. It is for this reason that separate coding and classification was maintained during the construction phase, but after the construction phase was over, all items of the same nomenclature and description were brought under the same code as well as location to introduce a proper system of inventory management. There has, therefore, been no lapse on the part of the refinery management.

With regard to the Committee's observation on the delay in the claim against the Soviet suppliers towards deleted items and the defective materials, the position is that since the contract supplies were completed some time in 1966 and the last invoice from Soviet Suppliers received in October, 1971, the details of various claims could be worked out by Refinery Engineers only by June, 1968. Thereafter, the entire case had to be examined in detail in consultation with the Accounts at Gujarat Refinery. Since the work involved considerable amount of calculations and examination of records, the comprehensive note could be prepared only by July, 1969. Immediately thereafter in September, 1969 the details of the claims were handed over to the then G.M. of Gujarat Refinery, who was visiting Moscow, the discussions with the Soviet Suppliers. During these discussions of Moscow, the Soviet Suppliers indicated that they would not be prepared to consider IOC's claims unless these are supported by relevant documents in light of the various agreements and

protocols signed in the past by them with the Gujarat Refinery management. In light of the above discussions all the transactions relating to supplies made by Soviet Suppliers *vis-a-vis* contract conditions were reconsidered by Gujarat Refinery and a formal claim was raised with the Soviet Suppliers in February, 1970.

However, as against the contracted price of Roubles 12,500,000, the payment released by the Gujarat Refinery on the basis of invoices received from the suppliers amounts to only Roubles 12,123,331.31 towards the supplies of 15,306.169 tonnes of equipment and materials actually received against the contractual quantity of 15,350 tonnes.

The suppliers had raised their last invoice for Roubles 36,185,42 in October, 1967 for the balance amount in terms of the contract. The payment of this invoice has not been released by IOC in view of their claim for Rs. 15.76 lakhs for deletion of 204.196 tonnes of equipment and materials from the contract, under the Protocol of 9th October, 1964 as well as against the defective equipment which had to be rectified by the Gujarat Refinery at their own cost.

Indian Oil Corporation have been making persistent demands both in writing as well as during several discussion with the Senior Soviet representatives, the last one being made in May, 1974, for the settlement of their above claim. Soviet suppliers had agreed to consider the claim and indicate their views in course of time. However, the final decision of the Soviet authorities has yet to be received. As suggested by the Committee, IOC are pursuing the matter with the Soviet Suppliers with a view to early settlement of the claim.

As the Soviet suppliers are considering IOC's claim, IOC have not sought assistance of the Government.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012|3|74-OR-I, dated 13th January, 1975]

Recommendation (Serial No. 46)

The Committee find that the number of men in position in the Gauhati, Barauni and Gujarat Refineries as on 31st March, 1973 were 116 per cent, 105 per cent and 31 per cent more than that indicated in the respective Detailed Project Reports of these Refineries. They also note that on 31st March, 1973 about a thousand persons were in excess of the strength fixed by the Management themselves for the three Refineries. The Committee are informed that the norms indicated in the DPR's were not applicable as many of the items were not taken into account at the time of drafting of the DPR's. The refineries were faced with the problems such as absorption of workers engaged in the construction of the

project, implementation of arbitration awards etc. and even if the surplus staff is identified the retrenchment of such staff would poso serious problems.

In the opinion of the Committee, deployment of staff in excess of requirement only reduces the efficiency and increases the overheads. The Committee also feel that surplus construction staff should be gainfully employed in other projects under construction. The Committee recommend that the Government|Corporation should undertake a review of the staff strength in all the three refineries and identify the staff in excess of requirement, and make concreted efforts to absorb the surplus staff gainfully in other Central or State Projects that are coming up in the area.

(Paragraph 10.6)

Reply of Government

The staff position in all the three refineries is being kept under constant review by the IOC and the surplus staff is being identified from time to time. Industrial Engineers posted in each of the refineries have been entrusted with this work. The efforts made to got the surplus staff of the IOC refineries absorbed in other Central or State projects that are coming up in the area have not met with success because of the desire of the local Governments to increase employment opportunities in their area to the maximum extent possible and the reluctance on the part of the employees of IOC to shift to other organisations because of the better service conditions in IOC. IOC are making efforts to reduce the surplus staff by adopting a policy of non-recruitment to categories where there is surplus staff. By a process of attrition, there is likely to be progressive reduction in the surplus staff.

With regard to the Committee's observation that surplus construction staff should be gainfully employed in other projects under construction, efforts are being made to get the construction staff of the Haldia Refinery rendered surplus on account of completion of the project, employed in the construction of the fertilizer plant which is coming up at Haldia.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012|3|74-OR-I, dated 19th October, 1974]

Further Information called for by the Committee

The Committee on Public Undertakings recommended that Government|Corporation should undertake a review of the staff strength in all the three refineries and identify the staff in excess of requirement.

(a) Has any review been undetaken? If so, with what result?

(b) What is the actual requirement of staff according to the realistic & scientific studies made and what is the extent of staff in excess of requirement;

(c) What has been the result of steps taken to absorb the surplus staff elsewhere?

(Lok Sabha Secretariat O.M. No. 16-PU|74, dated 6th November, 1974)

Reply of Government

(a) The review of the staff strength were carried out in each Refinery by the Efficiency Research Team of the Marketing Division of the Corporation. Thereafter the requirements were reviewed by the Industrial Engineers from time to time.

The Efficiency Research Team of the Marketing Division of IOC reviewed the manpower requirement of the Gauhati Refinery in 1968-69, Barauni Refinery in 1968 and Gujarat Refinery first in 1968 and then in 1971. Recently the National Productivity Council has been approached for undertaking a manpower study in the Barauni Refinery and they have already conducted preliminary survey for the purpose.

(b) The actual requirements of the staff according to the realistic and scientific studies made in each Refinery and the present strength is as under:—

Unit	Assessed requirment	No. in position as on 30-9-1974	No. in Excess
Gauhati.	1069	1250	181
Barauni	2087	2759	672
Gujarat	1343	1484	141

(c) IOC's efforts to get the surplus staff of their refineries absorbed in other Central or State Projects that are coming up in the area have not met with success due to the reasons already explained in reply of the Government to C.P.Us. recommendation No. 46 forwarded to the Lok Sabha Secretariat *vide* Ministry of P. & C's O.M. No. IS. 54012/3/74-OR-I dated 19th October, 1974. However, inspite of such difficulties IOC have been able to reduce the surplus staff in the last about 4 1|2 years to the extent of 300 in all by way of normal attrition.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012|3|74-OR-I, dated 30th January, 1975]

Further Information Called for by the Committee

What are the figures of surplus staff in the three refineries year-wise and the extra expenditure involved in this account.

(Lok Sabha Secretariat O.M. No. 16-PU/74, dated 16th December, 1974(

Reply of Government

As the information required pertains to the earlier years and IOC have to collected it from their unit, it is taking time. The urgency of the matter has, however, been stressed on IOC and the Ministry expects to furnish the information shortly.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012|3|74-OR-I, dated 9th April, 1975]

CHAPTER V

Recommendation in respect of which Final Replies of Government are still awaited.

Recommendation (Serial No. 5)

The Committee find that as per the original time schedule proposed in August, 1967 the main Refinery was expected to be completed by the second half of 1970 and the Lube Oil Units by early 1971. The construction schedules have been revised several times. It is now expected that the fuel part of the Refinery would be completed by the middle of 1974 and the lube part of it by the end of 1974. The Committee regret to note that the construction of the Haldia Refinery has been delayed by about 4 years.

The Committee would like Government to thoroughly investigate the matter so as to identify the factors which continue to impede the completion of the Project so that the latest estimates for commissioning of the Refinery are adhered to.

The Committee need hardly stress that any further delay in the construction and commissioning of the Refinery would only accentuate the oil crisis in the country.

(Paragraphs 3.38 to 3.40)

Reply of Government

Government are conducting an investigation into the causes/factors causing the delay in the construction schedule of the Haldia Refinery Project. The result of the investigation will be communicated to the Committee shortly.

It may, however, be submitted here that the Fuel Sector of the refinery has already gone on trial runs with effect from the first week of September, 1974 and the Lube Sector of the refinery is expected to be commissioned by the middle of 1975.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012/3/74-OR-I, dated 23rd October, 1974]

Recommendation (Serial No. 15)

The Committee strongly deprecate the inordinate delay in the setting up of the project for the manufacture of Liquified Petroleum Gas (LPG) in the Gauhati Refinery. The Project which was initiated in June, 1964 was completed only now *i.e.* after about 9½ years. It took 2½ years for the Government to take a decision that LPG project need not be entrusted to the Rumanians but could be done by IOC. It took another year to decide that the work should be done departmentally instead of giving it to contractors. Order for the supply of vessels was placed with M|s. Triveni Structurals in June, 1968 after another six months, the scheduled date of delivery being 30th September, 1969. M|s. Triveni Structurals could not adhere to the schedule and the contract with them had to be cancelled in December, 1970.

M|s. Triveni Structurals conceded that they could not adhere to the scheduled dates of delivery but for further delay they laid the blame on the IOC who according to them could not arrange the inspection and testing of the storage vessels. IOC on the other hand blamed M|s. Triveni Structurals for having unilaterally changed the inspection authority without even informing them, thus violating the terms of the contract. Conflicting statements had been made by M|s. Triveni Structurals Ltd. and the IOC regarding the events leading to the cancellation of the contract.

The Committee regret to note the delay in the supply of vessels resulted in a loss not only to the Triveni Structurals Limited but to the refinery as during this period the efinery gases were being flared without converting into LPG. The LPG had to brought from Barauni Refinery and marketed in Assam area till the production of LPG at Gauhati Refinery started. Even after the cancellation of contract with M|s. Triveni Structurals it took almost 3 years for the completion of the project.

The Committee are concerned to note that the Government|Corporation have not found it necessary to calculate the loss suffered by the Refinery as a result of delay in the commencement of production of LPG.

The Committee recommend that Government should analyse the causes for delay in the setting up of the project with a view to fixing responsibility and in order to ensure that such lapses are avoided in future.

The Committee need hardly stress that the market for LPG should now be developed in the area and the management should step up production in order to meet the entire demand for the area.

(Paragraph Nos. 5.116 to 5.121)

Reply of Government

As recommended by the Committee, analysis of the causes for delay in the setting up of the project with a view to fixing responsibility and in order to ensure that such lapses are avoided in future is being made. Necessary action for getting the analysis made has been taken.

With regard to the recommendation regarding development of market for L.P.G. in the Gauhati area and stepping up of production, necessary action is being taken by the IOC.

With the commissioning of permanent facilities for LPG in the last quarter of 1973, Gauhati Refinery is in a position to produce about 4500 tonnes|year of LPG from the present quality of crude against which the present upliftments are of the order of 1400 tonnes|year. The Management has taken a number of measures and it is expected that the present potential of 4500 tonnes|year from Gauhati Refinery would be fully absorbed in about three years.

Facilities for recovering additional 4000 tonnes|year of LPG from coking gases are being put up. These facilities are expected to be ready in about three years' time.

The possibility of supplying LPG as a substitute for Tea Drier oil in the tea estates is also being examined by the IOC.

(Ministry of P&C O.M. No. IS. 54012|3|74-OR-I, dated 19th October, 1974]

Further Information Called for by the Committee

It has been stated that with regard to the recommendation regarding development of market for LPG in the Gauhati area and stepping up of production, necessary action is being taken by I.O.C.

What progress has been made so far in this direction? Please furnish the details of LPG Production, estimated demand, quantities sold during 1970-71 to 1973-74, year-wise.

(Lok Sabha Secretariat O.M. No. 16-UP|74, dated 16th December, 1974)

Reply of Government

The production and despatches of LPG ex-Gauhati Refinery from the year 1970-71, onwards is given below:

Year	Production	Despatches
		(Figures in tonnes)
1970-71 .	11	Nil
1971-72 . .	387	385
1972-73 .	771	766
1973-74	1161	1132

The production of LPG was regulated mainly as per cylinder availability and market demand in Gauhati fed area (Assam). There was paucity of cylinders. The position has since improved and thereafter, besides increasing the market in Assam LPG-ex-Gauhati Refinery is also being moved to Calcutta.

Estimated monthly production is 370 tonnes and the current upliftings are 250 tonnes per month, which includes 70 to 80 tonnes being transported to Calcutta. Free enrolment is being undertaken and there is no waiting list in Gauhati Fed areas. IOC have also planned entry into 14 now markets in Assam and surrounding states and by middle of 1976, it will be possible for IOC to sell the entire production of Gauhati in Gauhati fed markets only.

[Ministry of Petroleum & Chemicals O.M. No. IS-54012|3|74-OR-I, dated the 27th February, 1975]

Recommendation (Serial No. 17)

The Committee regret to note that the Gauhati Refinery had to incur loss of Rs. 33.28 lakhs during the years 1966-67 to 1972-73 on account of movement, spillage, leakage dipping errors in the course of loading from the tanks to tank wagons and tank lorries. There has been inordinate delay in the establishment of facilities for reducing this recurring loss. The Committee recommend that the Government should analyse the causes for delay at various stages and at various leve's with a view to fix responsibility.

The Committee would like to be informed as to what extent it has been possible to reduce the loss as a result of establishment of the facilities.

(Paragraphs 5.138 and 5.139)

Reply of Government

Government have instituted an enquiry to analyse the causes for delay in the establishment of facilities for reducing the loss on account of movement, spillage, leakage and dipping errors in the course of loading of products from the tanks to tank wagons and tank lorries at Gauhati Refinery. The result of the enquiry will be communicated to the Committee shortly.

The batch loading facilities at the Gauhati Refinery were commissioned in October/November, 1972. The loading losses of N.S. have come down as a result of the establishment of these facilities, as would be seen from the following figures :

Year	NS Loss (—) in MT	% Loss (—) on tank discharge
1972-73 .	(—) 297·20	(—) 1·16
1973-74 .	(—) 153.65	(—) 0·67
April '74 to June '74	(—) 9·407	(—) 0·21

[Min. of P & C O.M. No. IS-54012/3/74-OR-I, dated 28 10-1974]

Recommendation (Serial No. 18)

The Committee take a serious note of the fact that although the Barauni Refinery with two million tonnes capacity was commissioned for trial runs in July, 1964, the complete cost of the project has not yet been approved by the Government. Sanctions given upto June, 1952 to the extent of Rs. 32.46 crores have been accorded by Government to some of the constituents of the Project. Thereafter the estimates have been revised by the Corp. several times and the Corp. continued with the work on the Project in anticipation of Government's approval to the revised estimates. An amount of Rs. 46.63 crores has already been spent on the Project. The Committee are also informed that no feasibility report was prepared. It has been admitted by the Additional Secretary of the Ministry that the correct procedure was not allowed.

The Committee have been repeatedly emphasising in their *Reports that it is not correct to go ahead with the execution of a project without proper scrutiny of the feasibility report therefor and an appropriate sanction of the project estimate. The Committee need hardly stress that the revised estimates of the Project should not merely be a

*Please see Eighteenth and Thirty-Ninth Reports of the Committee on Public Undertakings (Fifth Lok Sabha).

completion report of the Project but should serve as an instrument of financial control. They, therefore, reiterate that the total commitments on a project should be prepared as realistically as possible in the beginning and should be available to Government and Parliament before a Project is approved. The Committee highly deplore the delay on the part of the Government/Corporation in finalising the estimates. They would like that the responsibility for the delay should be fixed. The Committee recommend that the revised estimates should be finalised without further delay.

The Committee also reiterate that the implications of the decreased capital investment on the economics of the Project should be critically gone into and brought to the notice of Parliament as recommended by the Committee in Paragraph 2.20 of their Thirty-Ninth Report (Fifth Lok Sabha).

(Paragraphs 6.10 to 6.12)

Reply of Government

Government have since finalised and sanctioned the final project cost estimates of Barauni Refinery for the 2 million tonnage capacity per annum.

Government have, however, initiated action to enquire into the causes for the delay in finalising the cost estimates of this project. The result of the enquiry will be intimated to the Committee shortly.

The question of preparation of total commitments on a project has already been examined and the decision of the Ministry of Finance communicated and incorporated in the Thirty-third Report of the Committee on Public Undertakings.

Government's reply to recommendation No. 6.12 regarding the implications of the increased capital investment on the economics of the project will be covered in reply to a similar recommendation contained in the para 3.26 (On Haldia Refinery) of the Report.

[Ministry of Petroleum & Chemicals, O.M. No. IS-54012/3/74-OR-I, dated 26th October, 1974]

Recommendation (Serial No. 24)

The Committee find that M/s. Engineers India Ltd. were entrusted with the task of design engineering, erection and commissioning of the coke Calination Plant at Barauni Refinery at a total cost of Rs. 55.70

lakhs. The Plant was scheduled to be completed by 6th May, 1970. It was, however, finally made over to IOC in June, 1972 after a delay of two years. The delay of one year was stated to be due to strike in the Plants where M/s. Engineers India Ltd. were getting the equipments manufactured. Another one year was taken in rectification of the defects noticed after the trial runs of the plant. The Committee are surprised to find that the agreement with M/s. Engineers India Ltd. did not even contain provision for levy of penalty for delay in completion of work. The Committee are informed that consequent on the delay the cost of the plant went up by Rs. 6.50 lakhs and profitability was reduced by about Rs. 70 lakhs due to delay in the completion and commissioning of the Plant and of a further amount of 27 lakhs due to shortfall in production during July, 1971 to February, 1972 on account of malfunctioning of the plant.

The Committee recommend that the reasons for delay in the completion of the plant and its defective working after commissioning should be thoroughly investigated so as to pinpoint lapses and in order to fix responsibility for the huge loss.

(Paragraphs 6.94 to 6.95)

Reply of Government

Government have initiated action to investigate the reasons for delay in the completion of the plant and its defective working after commissioning. The result of the investigation will be intimated to the Committee shortly.

[Min. of P & C O.M. No. IS.54012/3/74/OR-I, dated 23rd October, 1974]

Further information called for by the Committee in respect of Recommendations at Serial Nos. 5, 15, 17, 18 and 24

(i) **Serial No. 5**

It has been stated that Government are conducting an investigation into the causes|factors causing the delay in the construction schedule of Haldia Refinery Project.

What are the results of the investigation?

(ii) **Serial No. 15**

It has been stated that analysis of the causes for delay in the setting up of the project with a view to fixing responsibility and in order to ensure that such lapses are avoided in future is being made. Necessary action for getting the analysis made has been taken.

Whether the analysis has since been completed. If so, what are the results of analysis made?

(iii) **Serial No. 17**

It has been stated that Government have instituted an enquiry to analyse the causes for delay in the establishment of facilities.

What are the results of the enquiry?

(iv) **Serial No. 18**

It has been stated that Government have initiated action to enquire into the causes or the delay in finalising the cost estimates of the project.

What are the results of the enquiry?

(v) **Serial No. 24**

It has been stated that Government have initiated action to investigate the reasons for delay in the completion of the plant and its defective working after commissioning.

What are the results of investigation?

[Lok Sabha Sectt. O.M. No. 16-PU/74, dated 6th November, 1974]

Reply of Government

Serial No. 5—	Investigation into the causes/factors causing the delay in the construction schedule of the Haldia Refinery Project.	The investigation has been entrusted to Adviser (Refineries) in this Ministry. The result of the investigation will be communicated to the Committee on
Serial No. 15—	Ananlysis into the causes for delay in the setting up of the project for the manufacture of LPG at Gauhati Refinery.	An analysis as suggested by the committee is being made by Adviser (Production) Bureau of Public enterprises. The result of the analysis will be intimated as soon as the analysis is completed.
Serial No. 17—	Enquiry to analyse the causes for delay in the establishment of batch loading facilties at Gauhati Refinery.	The investigation has been entrusted to Adviser (Refineries) in this Ministry. The result of the investigation will be communicated to the Committee on receipt of the report.
Serial No. 18—	Enquiry into the delay in finalising the cost estimates for Barauni Refinery.	The investigation has been entrusted to Adviser (Production BPF and IOC have been asked to furnish full details of this case. The report is expected to be available in two months time.
Serial No. 24—	Investigation into the delay in the setting up of Coke Calcination Plant and its defective working after commissioning.	Adviser (Production) BPE has been appointed to conduct this investigation also. IOC and Engineers India Ltd. have been asked to furnish full details of this case to him. The report of the investigation is expected to be available in two months time.

[Min. of P & C Deptt. Petroleum O.M. No. 15-54012/3/74-OR-I, dated the 17th December, 1974]

Further Information Called for by the Committee in respect of recommendations at Serial Nos. 5, 15, 17, 18 and 24

(a) On what date the enquiries/investigations were initiated in respect of these recommendations?

(b) By what time the enquiries/investigations are likely to be completed?

(c) What are the reasons for delay in investigating the issues raised in these recommendations.

[Lok Sabha Secretariat O.M. No. 16-PU/74, dated the 21st March, 1975]

Further Reply of Government

OPPOSITION AS ON 9TH APRIL, 1975

Sl. No.	Recommendation No.	Subject in Brief	Date on which investigation entrusted to Officers	Present position of investigation
1	2	3	4	5
1.	Recommendation No. 5	Analysis of the causes for delay in the setting up of the project for the manufacture of LPG Unit at Gauhati Refinery.	Adviser (Prod.) Bureau of Public Enterprises 30-11-1974	For undertaking investigation Shri Bazle Karim Adviser (Production) B.P.F., needed relevant paper from the parties concerned. In all these investigations, clarifications and personal hearing of the concerned officers were necessary more than once. The investigating officer is making all efforts to complete the investigations with reference to recommendations No. 15 & 18 by the end of this month. It will be appreciated that the units being investigated are located for flung areas and papers to be examined are voluminous, which has naturally taken some time.
2.	Recommendation No. 18	Enquiry into the delay in finalising the cost estimates of the Barauni Refinery.	Adviser (Prod.) Bureau of Public Enterprises 14th November, 74	
3.	Recommendation No. 24	Investigation into the delay in the completion of the Coke Calcination Plant at Barauni Refinery by Engineers India Ltd. and its defective working after commissioning.	Adviser (Prod.) Bureau of Public Enterprises 12th November, 74	As regards recommendations No. 24, the investigating officer has called for the representatives of E.I.L. for some further clarifications/discussions and he expects to complete the investigations in this case also shortly.
4.	Recommendation No. 5	Investigation into causes/factors impeding construction schedule of Haldia Refinery Project.	Adviser (Refineries) Ministry of Petroleum & Chemicals 14-11-1974	The enquiry is in quite an advanced stage and it is likely to be completed in two weeks time as from 9-4-1975.

5. Recommendation No. 17	Enquiry to analyse the causes for the delay in the establishment of batch loading facilitirs at Gauhati Refinery.	Adviser (Refineries) Ministry of Petroleum & Chemicals. 14-11-74	The factual data on the setting up of the batch loading facilities at Gauhati Refinety was furnished to the Committee on Public Undertakings. The purpose of the Enquiry that has been instituted to analyse the causes for delay in the establishment of these facilities is to bring into light some new facts. This requires the study, screening and analysis of considerable data on the subject. This exercise is quite time consuming. However, the investigation is making progress and it is likely to be completed in month's time as from 9-4-1975. [Ministry of Petroleum & Chemicals, Deptt. of Petroleum O.M. No. IS-54072/3/74-OR-I dt. 9th August, 1975]

NEW DELHI,
April 25, 1975.
Vaisakha 5, 1897.

NAWAL KISHORE SHARMA,
Chairman,
Committee on Public Undertaking.

APPENDIX I

(*Vide* **Recommendation at Serial No. 26 F 69**)

ROLE OF THE CENTRAL SERVICE ORGANISATION FOR IMPROVING OPERATING EFFICIENCY OF THE REFINERIES OF IOC

IOC Refineries have been attaching considerable importance towards minimising downtime of processing units both scheduled and unscheduled by adopting techniques of preventive maintenance and maintenance planning and for this purpose each Refinery has an inspection agency which keeps a check on the equipments for better onstream factor. For strengthening Inspection IOC Management has made it as a Staff function separated from Maintenance Department and by bringing it under the Technical Services Department, it has started playing a more effective role towards improvement of service factor of Refineries by advising Maintenance corrective measures well before any Unit is down. This advice before hand helps in a timely material as well as manpower planning with the main aim of reducing downtime periods.

To strengthen this activity further, Central Services Organisation (CSO) was formed in May, 1972 for providing centralised expertise to our Refineries on maintenance/corrosion problems. During 2 years of existence, COS by familiarising itself with problems of Refineries has been advising the Refineries for better maintenance through visits/discussions followed by investigation work at reputed laboratories. Although the period of its existence is not too long for quantifying the results, some of the many measures so far suggested for improving the operating efficiency of Barauni Refinery are summarised as follows:—

An improved Inspection Recording system has been given whose implementation is in progress. This aims to give a complete documentation of each equipment of each Unit listing down details of repairs, etc. which are highly useful in forecasting performance and is a great aid in preventive maintenance. Advice has also been given for updating the existing Inspection library with additional technical standards and literature. Steps have also been taken for supplementing the existing tools and instruments with some more modern ones in order to strengthen onstream inspection activity which has a great bearing on service factor of the Refinery.

In Distillation Units AVU-I, AVU-II and AU-III, problems being similar, stress has been laid on avoidance of flame impingement on heater tubes so that there are no unscheduled shutdowns. To save tubes and heaters, provision of stainless steel sleeves in some top radiation tubes along with striplining of existing carbon steel return bend heaters with stainless steel have been suggested for corrosion protection. For improving the life of the transfer lines, suggestions have been made for modifications in configuration and removal of obstructions like gate valves at heater outlets for increasing transfer line life. Further measures like striplining of expanders/bends with stainless steel have been advised for corrosion/ erosion protection.

A better neutralisation system with caustic/liquid ammonia injection has been given for corrosion control in the overhead system.

In coking unit, stress has been laid on maintaining a proper control on flame impingement. During various scheduled shutdowns for decoking, a close inspection of heater tubes and fittings including convection bank tubes has been advised. Problems of kerosene Treating Unit are mostly due to presence of chlorides from water in CI-8-Reboiler S-27 system and it has been suggested to minimise the chloride content in this circuit for protection against corrosion. All flanged joints in S-2 service equipments in this Unit have been advised to be completely insulated to stop leaks so that corrosion on this account could be minimised whereas for S-20 condensers, new procedure for retubing has been given and use of galvanised steel tubes has been recommended. Antialigie paint for minimising fouling of tubesheets on S-20 condensers has been advised.

In Phenol Extraction Unit, corrosion/erosion has been found mainly at inlet ends of heater tubes where installation of stainless steel sleeves has been advised along with striplining of carbon steel return bends with stainless steel. With this protection from corrosion/erosion, the heater and the Unit are expected to have better run. The onstream factor will be further increased by resizing of transfer line from Heater P-2 to column K-5 for protection against corrosion/erosion.

In Coke Calcination Plant, the life of the refractory in the kiln and burner has been increased by advising on material, application technique and design modifications.

Measures have been suggested for prevention of dew point corrosion in boilers due to possible changeover to high sulphur fuel oil.

APPENDIX II

(*Vide* Para 5 of Introduction)

Analysis of Action Taken by Government on the recommendations contained in the 52nd Report of the Committee on Public Undertakings (Fifth Lok Sabha).

I	Recommendations that have been accepted by Government : Serial Nos. 6, 8, 9, 10, 12, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45 and 48	23
	Percentage to total	48%
II.	Recommendations that the Committee do not desire to pursue in view of Government replies :—	
	(Serial Nos. 3, 7, 11, 13, 14, 16, 19, 21, 25, 26, 31 and 47) . .	12
	Percentage to total . .	25%
III.	Recommendations in respect of which replies of Government have not been accepted by the Committee:—	
	(Serial Nos. 1, 2, 4, 20, 22, 23, 39 and 46) . . .	8
	Percentage to total	17%
IV.	Recommendations in respect of which final replies of concerned are still awaited —	
	(Serial Nos. 5, 15, 17, 18 and 24) .	5
	Percentage to total .	10%

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