

TWELFTH REPORT

COMMITTEE ON PUBLIC UNDERTAKINGS

(1986-87)

(EIGHTH LOK SABHA)

**OIL AND NATURAL GAS COMMISSION—
HEAD OFFICE, SURVEY AND EXPLORATION
(MINISTRY OF PETROLEUM AND NATURAL GAS)**



*Presented to Lok Sabha on 21-8-1986
Laid in Rajya Sabha on 21-8-1986*

**LOK SABHA SECRETARIAT
NEW DELHI**

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.. COMMITTEE ON PUBLIC UNDERTAKINGS
(1986-87)

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Shri K. Ramamurthy

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(iv)

SECRETARIAT

1. Shri N. N. Mehra—*Joint Secretary*
2. Shri S. S. Chawla—*Chief Financial Committee Officer.*
3. Shri G. S. Bhasin—*Senior Financial Committee Officer.*

INTRODUCTION

1. I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Twelfth Report on Oil and Natural Gas Commission—Head Office, Survey and Exploration.

2. The subject was examined by the Committee on Public Undertakings (1985-86). The Committee took evidence of the representatives of Oil and Natural Gas Commission on 23 and 24 September, 1985, 28 and 29 October, 1985, 10 and 11 February, 1986 and of Ministry of Petroleum and Natural Gas on 12, 13 and 14 March, 1986. The Committee, however, could not finalise their Report due to paucity of time.

3. The Committee on Public Undertakings (1986-87) considered and adopted the Report at their sitting held on 11 August, 1986.

4. The Committee feel obliged to the members of the Committee on Public Undertakings (1985-86) for the useful work done by them in taking evidence and sifting information which forms the basis of this Report.

5. The Committee wish to express their thanks to the Ministry of Petroleum and Natural Gas and Oil and Natural Gas Commission for placing before them the material and information they wanted in connection with examination of the Commission. They also wish to thank in particular the representatives of the Ministry of Petroleum and Natural Gas and the Oil and Natural Gas Commission who appeared for evidence and assisted the Committee by placing their considered views before the Committee.

NEW DELHI;
August 18, 1986
Sravana 27, 1908 (S)

K. RAMAMURTHY,
Chairman,
Committee on Public Undertakings.

CHAPTER I

OBJECTIVES AND OBLIGATIONS

A. Objectives and Obligations

1.1 According to the guidelines issued by Bureau of Public Enterprises in 1970, 1979 and in 1983, each public undertaking is required to formulate a statement of objectives and obligations. This statement should *inter alia* lay down the broad principles for determining the precise financial and economic obligations of the undertakings in matters such as creation of various reserves, the extent to which enterprises should undertake the responsibility of self-financing, the anticipated returns on the capital employed etc. These micro objectives are required to be specifically approved by the Administrative Ministry.

1.2 The Committee enquired whether objectives and obligations of ONGC had been formulated and got approved in terms of BPE guidelines. From the information furnished by ONGC after evidence it is noticed that ONGC had formulated their long term objectives and forwarded the same to the Ministry. During course of evidence of the representatives of the Ministry the Committee wanted to know when the objectives of ONGC were received in the Ministry from ONGC and when these were approved by the Ministry. The Secretary, Ministry of Petroleum and Natural Gas stated as follows:—

“The Ministry asked for the statement of objectives on 18-6-1983. ONGC replied in two parts. They replied in July 1983 and also in October, 1983 saying that their objectives are already there and that we may refer to certain papers to see the objectives and obligations. We referred these papers to BPE to know whether it is on the basis of guidelines issued by Bureau of Public Enterprises. The reply came on 2-4-1985.”

1.3 When asked about the specific date on which reference was made to BPE, Secretary stated that it was transmitted to BPE on 2-3-1985. The Committee further pointed out that ONGC had submitted their objectives in 1983 to the Ministry and enquired as to why the Ministry took about 1½ years' time to submit them to BPE.

The Ministry of Petroleum and Natural Gas stated in a written note furnished after the evidence as follows:—

“This Ministry wrote to the Chief Executives of all the Public Sector Undertakings under its administrative control (including ONGC) on 18th June, 1983 to forward to the Ministry a statement of objectives and obligations of the concerned Public Sector Undertakings.

In response to the above mentioned letter of the Ministry, the ONGC wrote two letters dated 28th July, 1983 and 12th October, 1983 mentioning that the Commission need not draw up any Statement of Objectives and Obligations in view of the following:—

- (i) The Statement of Objectives and Reasons for ONGC is given in the preamble to the ONGC Act, 1959; and
 - (ii) That the functions of the Commission which are itself the Objectives are enshrined in article 14 of the ONGC Act, 1959.
2. The ONGC have been indicating their objectives in the Annual Reports of the Commission starting from 1982-83. The Commission had thus already prepared the Statement of Objectives. These objectives were examined in consultation with the then Bureau of Public Enterprises (Ministry of Finance). This Ministry made the reference to Bureau of Public Enterprises, in this regard, on March 2, 1985. The concurrence of the BPE was received on April 2, 1985. No separate reference to the Ministry of Finance was made since the Bureau of Public Enterprises was part of the Finance Ministry.”

B. Corporate Plan

1.4 ONGC prepared a draft 20 year perspective plan for exploration and exploitation of petroleum for the period 1985—2005 in 1983. On a direction from Working Group on Petroleum for formulating 7th Five Year Plan. the perspective plan was revised in January, 1985. ONGC also prepared a 10 year plan covering Seventh and Eighth Five Year Plans. During course of evidence of the representatives of ONGC, the Committee pointed out that in terms of BPE guidelines issued in 1974, Corporate Plan of each undertaking was to be formally ratified by the administrative Ministry and before granting such formal ratification, the administrative Ministry should obtain the formal concurrence of the Ministry of Finance

(Bureau of Public Enterprises) and the Planning Commission. Asked whether ONGC had drawn up any Corporate Plan, Chairman, ONGC replied as follows:—

“On the basis of 20 year conceptual plan, we made a ten year operative plan. It is a question of terminology. We have not used the word ‘corporate plan’. But there is a ten year plan. We are covering the Seventh Plan and the Eighth Plan. Our plan is always for ten years. That is corporate plan. It covers every ingredient man-power, physical and financial targets. They are all indicated.”

1.5 In reply to a further query of the Committee as to whether the 20 year and 10 year plans of ONGC had been approved in terms of BPE guidelines, the witness stated:—

“Basically we first made the conceptual long-term plan which covers the corporate plan also. Our corporate plan is going to be ready in another just 6 months time.”

1.6 During course of examination of the Ministry, the Committee wanted to know the latest position in regard to finalisation of the Corporate Plan of ONGC. The Ministry of Petroleum and Natural Gas replied in a note as follows:—

“The Corporate Planning Division of the ONGC had prepared a long-term plan for the period 1980-90 entitled “Plan frame of Accelerated Exploration and Exploitation 1980—90”. This was submitted to this Ministry in April, 1982. This was considered in inter-Ministerial meeting with representatives of Planning Commission on 20th April, 1983 and 28th April, 1983. The exploration programme for the 5 year period upto 1987 was approved. Thereafter ONGC submitted a 20 year Perspective Plan in February, 1985. Since the projections in the 20-year Perspective Plan were dependent on the physical and financial programme approved for the 7th Five Year Plan, ONGC indicated that a long-range Corporate Plan will be submitted to the Government after the 7th Plan is approved. The 7th Five Year Plan has now been finalised; the ONGC are working out the detailed physical programme whereafter the Corporate Plan would be finalised.”

1.7 The Committee on Public Undertakings in their 91st Report (Seventh Lok Sabha) on Bharat Petroleum Corporation Ltd. had

pointed out that Oil Companies had no uniform approach to Corporate Plan. The Committee had emphasised that the Ministry should evolve a common approach to corporate Plans for the Oil Companies. In their reply (22-8-1984) the Ministry informed the Committee that all the public sector undertakings under the Administrative control of Department of Petroleum have been requested to prepare Corporate Plans of their organisations and submit the same to the Department for formal ratification|approval at the earliest.

1.8 Asked about the latest position in regard to implementation of the above recommendation of the Committee, the Ministry of Petroleum and Natural Gas informed the Committee in a written note as follows:—

“In pursuance of the instructions issued in this regard by the Ministry, Indian Oil Corporation, Lubrizol India Ltd., Hindustan Petroleum Corporation Ltd. Madras Refineries Ltd. and EIL have submitted their Corporate plans to Government. They are in different stages of examination and in some cases Government have asked them to revise the Corporate Plan on the basis of the clarifications given by Government.

Bharat Petroleum Corporation has sought certain clarifications before they could prepare their corporate plan. ONGC is working out their detailed physical programme on the basis of the approved seventh five year plan whereafter corporate plan would be finalised. The Board of Directors of Cochin Refineries have recently directed the Management to prepare a corporate plan and put it up at the earliest. The other organisations are being pursued to submit their corporate plans to Government quickly.”

1.9 During course of evidence of the representatives of the Ministry, the Committee pointed out that undertakings under the Petroleum Ministry had not finalised their corporate plans. To this Secretary, Ministry of Petroleum and Natural Gas replied as follows:—

“I am sorry, it is not a happy position. It should have been expedited. We are now doing our best to expedite it. We have written to the oil companies requesting them to formulate their corporate plans very soon. We will expedite everything.”

1.10 Asked when the Ministry would be able to approve the corporate plans of all the undertakings under their administrative control, the Secretary stated that they would do it in about three months time.

1.11 The Committee note that in terms of Bureau of Public Enterprises guidelines issued in 1970, 1979 and 1983 each public undertaking was required to formulate with the specific approval of the administrative Ministry, a statement of objectives and obligations which should inter alia, lay down the broad principles for determining the precise financial and economic obligations of the undertakings in the matter of creation of various reserves, responsibility of self-financing, the anticipated return on capital employed etc. However, the Committee find that Ministry of Petroleum asked the undertakings under their administrative control to frame their objectives only in June, 1983. No action seems to have been taken on the guidelines issued by BPE earlier in 1970 and 1979. This is highly regrettable. Taking note of the statement made by the Petroleum Secretary that corporate Plans of all the undertakings under his Ministry would be finalised in about three months, the Committee would like to be informed whether all the undertakings under the administrative control of Ministry of Petroleum have since formulated their micro objectives in terms of the BPE guidelines.

1.12 The Committee do not find any justification in the reply given by ONGC to the Ministry in July and October 1983 that they need not frame their objectives as their objectives were given in the preamble to ONGC Act and their functions as mentioned in Section 14 of the ONGC Act 1959 were the objectives. The Committee need hardly point out that the functions and objectives mentioned in ONGC Act are worded rather too generally while objectives and obligations to be framed under BPE guidelines are required to spell out specifically the broad principles for creation of various reserves, responsibility of self-financing, the anticipated return on capital employed and other matters. These objectives when clearly spelt out provide basic parameters for evaluating the performance of the undertakings and taking timely remedial measures, wherever necessary. The Committee would like that the micro objectives of ONGC should be clearly spelt out and laid before Parliament within three months.

1.13 The Committee note that even though the Bureau of Public Enterprises had issued guidelines as far back as in 1974 to the effect that each Undertaking was required to prepare a Corporate Plan with formal ratification/approval by the administrative Ministry,

the Ministry of Petroleum undertook to pursue the matter only after the Committee on Public Undertakings (1983-84) had brought out in their 91st Report on Bharat Petroleum Corporation Ltd. that oil companies had no uniform approach to corporate plan and had recommended that all undertakings should prepare their Corporate Plans with formal ratification/approval by the Ministry. The Committee are unhappy to find that even after a lapse of about two years, the Corporate Plans of most of the undertakings including ONGC are yet to be finalised. The Committee would urge that Ministry of Petroleum should fix responsibility for this sorry state of affairs. The Committee must stress once again that Corporate Plans of all undertakings under their administrative control must be finalised without further delay as they feel that this would not only help individual undertaking to achieve their long term objectives but also the Ministry would have an overall view of the production and requirements of petroleum and related products in the country.

1.14 The Corporate Plan for ONGC, the details for which were reportedly being worked out should be finalised early and laid before Parliament immediately and in any case before the end of 1986.

CHAPTER II

HEAD OFFICE

A. Manpower Resources

2.1 The total manpower strength in ONGC was 41591 at the end of March, 1985. The following table shows the sanctioned and actual staff strength at Head Office of ONGC during the years 1981 to 1985:

Year	Sanctioned	Actual
1981	1990	1826
1982	2152	1916
1983	2414	2126
1984	2541	2306
1985	2662	2530

2.2 During the course of examination of ONGC the Committee pointed out that staff strength at Head Office increased from 1826 in 1981 to 2530 in 1985 and enquired whether this steep increase in manpower was justified. ONGC replied in a written note as follows:—

“A comparative study of the overall increase in manpower from 1981 to 1985 indicates 47 per cent increase in manpower in the Commission. As against this, the per cent of increase in Headquarters in 38 per cent. This has been necessitated on account of expanding exploration and exploitation activities in different areas of operation. The increase in the Headquarter establishment is justified and is due to the fact that as a result of overall expanding activities in the Commission there has been corresponding increase in work relating to planning, provisioning, budgeting, monitoring, control, etc. The expansion in activities also involve procurement of imported equipment in increasing quantities thereby requiring a stronger Material Management set-up at the Headquarters. However, as a result of the Reorganisation of the Commission

efforts are being made to reposition the personnel from Headquarters to Regions to reduce the strength at Headquarters."

2.3 During evidence, Chairman, ONGC also informed the Committee as follows:—

"In the reorganisation, we are having a very close look at the headquarters and there is possibility of 30 per cent of our people moving out in the operational areas."

2.4 The Committee further pointed out that the actual staff strength at Head Office was less than the sanctioned strength and enquired whether that had any adverse effect on the working of ONGC. ONGC replied in a written note as follows:—

"The required strength of staff is fixed after systematic work-study in accordance with the well recognised industrial engineering practice. There had been no adverse effect on the efficiency of work as a result of deliberated measures taken to control the manpower at the headquarters. Extensive use of computerisation has also helped in maintaining the standard of efficiency."

2.5 In reply to a question whether there was any plan for expansion of Head Office, ONGC replied in a written note:

"No further expansion of Headquarters is intended. In line with the re-organised set up with centralised policy making and decentralised administration, the staff is progressively being shifted to the regions where operational activities are increasing. For improving the administrative efficiency and increasing productivity and also in line with the recognised norms, it is proposed to keep the strength at the Headquarters to the minimum level."

2.6 The Committee also wanted to know whether any scientific study had been undertaken in the ONGC to determine the staff strength at Head Office after the introduction of reorganisation scheme. Member (Personnel), ONGC stated during evidence:—

"Following the reorganisation of the Commission, we have now compiled the data regarding staff available with each business group, not only the staff relating to the particular discipline but also staff belonging to other disciplines and posted with them.

As far as executives are concerned, by a well-deployed transfer plan, we have brought out impressive reduction and more reduction will follow this year and next year. We have also appointed a consultant (Foundation for Organisation Research) to give an independent and objective assessment of manpower norms *vis-a-vis* what happens elsewhere in the world. It is a very novel kind of process consultancy. They will also tell us how we can go about adopting the new norms during the period of consultancy itself. The period of consultancy is 8 months and we signed it only the other day."

2.7 Asked about the terms of reference for the study team, he stated:

"The terms of reference are that they should totally work out the manpower planning system and should study the like organisations, if there are any, and determine what kind of norms should be adopted and how they would compare with international norms. The time is three months for the first report and we have estimated that it may take about two months for the Commission to make up their mind and submit the report and five months more for the implementation of the project. As far as the FORE is concerned, the total time would be eight months plus two months which would be required for discussion. The consultation fee agreed upon is Rs. 2.6 lakhs."

2.8 When asked about the capability of the study team, Chairman, ONGC stated during evidence that FORE was not a profit making, body and it was headed by Mr. Billimoria, ex-SAIL Chairman. He further added:—

"There are lot of eminent people like Mr. Billimoria associated with this body. It comprises of very eminent people like persons from the Indian Administration, Indian Institute of Management etc. It has a legal entity. We have also seen that the money which they normally charge, as compared to other organisations is just minimum. Earlier they had carried out a study of our own recruitment and promotion rules and done a very satisfactory work. They have been carrying out similar studies for Neyveli Lignite Corporation."

2.9 The Committee also wanted to know whether before entering into contract with FORE for manpower study other agencies like

National Productivity Council or Staff Administrative College, Hyderabad were also considered. Member (Personnel) stated:

"We have been inter-acting with the Government for quite some time. Initially we wanted to give the work to an international company, but then, in the discussion with the Government we decided to give it to one of the Indian parties, particularly to those who are not really interested in profit making. We have a lot of association with NPC. They are conducting some training programmes. We did think of the Administrative Staff College, Hyderabad. Subsequently we stated that we would give it to FORE on certain conditions, namely, the Director would associate himself with various well-known organisations etc."

B. Overhead expenditure

2.10 The following table shows the wage bill, maintenance expenses and other establishment expenses at Head Office during the years 1980-81 to 1984-85:—

Sl. No.	Particulars	Rs. (Crores)				
		Years				
		1980-81	1981-82	1982-83	1983-84	1984-85
1	Wage bill at Head Office	3.23	3.66	5.11	7.11	8.24
2	Maintenance expenses Head Office	0.11	0.19	0.44	0.55	0.50
3	Other establishment expenses at Head Office including T.A. in India	1.03	2.21	3.46	3.67	4.16
4	T.A. in India	0.19	0.27	0.45	0.68	0.72

It is seen from the above that the wage bill increased from Rs. 3.23 crores in 1980-81 to Rs. 8.24 crores in 1984-85. The maintenance expenses increased from Rs. 0.11 crores in 1980-81 to Rs. 0.50 crore in 1984-85. Similarly other establishment expenses at Head Office increased from Rs. 1.03 crores in 1980-81 to Rs. 4.16 crores in 1984-85.

2.11 Asked about the reasons for steep increase in wage bill, ONGC advanced the following reasons:

1. Increase in average DA from Rs. 275.25 per month per employee in 1980-81 to Rs. 573.00 in 1984-85.

2. Pay revision of officers and staff. Pay revision of officers, effective from 1st August, 1982 was implemented in May, 1983 and pay revision of staff was effective from 1-4-83.
3. Increase in manpower from 1826 in 1981 to 2530 in 1985.
4. Adoption of rationalised promotion system which in its initial stages has led to more than normal promotions to clear back log.

2.12 Elaborating the reasons further, Chairman, ONGC stated during evidence: —

“Basically, the increase is as a result of the increase in wages, D.A. and also in terms of manpower. We are carrying out a detailed analysis of the manpower and are trying to send as many people as possible from the headquarters to the regions and projects to make the working effective and to reduce the cost at the headquarters.”

2.13 When pointed out by the Committee that the increase in wage bill was more as compared to increase in D.A. and other items, Chairman, ONGC stated as follows:—

“Sir, the point you are making is very relevant and let me admit it at the outset that we ourselves are not very happy. We are trying to carry out a very detailed analysis of every individual's work, and will take necessary measures to reduce the manpower in the headquarters. We are aware of this weakness, but in terms of the increase over a period, it is in line with the increase in the profitability of the Commission, in terms of the activities of the Commission, in terms of the revenues of the Commission, the increase in manpower has not been in line with the increase in the other activities. But, still, I must admit, as a Chairman, that this is one of the areas which we have identified as an area which needs to be under focus continuously at this moment.”

2.14 As regards the increase in maintenance and T.A. expenditure, ONGC stated that increase in maintenance expenditure was on account of—

1. Higher prices both for labour and material.
2. Ageing of buildings which are now more than 20 years old.

3. Maintenance of additional buildings.
4. Hard surfacing of land, construction of temporary parking space for employee's vehicles.
5. Increase in the expenditure on maintenance of residential colonies, children parks etc.
6. Increase in the expenditure on postage, telegrams, telex, wireless, telephones in view of increased activity.
7. Increase in expenditure on computer charges.
8. Increase in expenditure on education like grants to schools etc.

T.A. in India has increased due to—

1. Stepping up of fares.
2. Requirement of more travel arising out of increased activity.

2.15 The Committee enquired about economy measures taken by ONGC to restrict the overhead expenditure. Chairman, ONGC stated during evidence as follows:—

“We are perhaps one of the very few organisations who were focussing the attention on economy measures, not today but for the last couple of years. In all the review meetings, we focussed our attention to the controllable expenditure to reduce the costs both in terms of educating the people and keeping the focus on them. For example, even from various regions, we enquire as to how much has been spent on TA/DA, on stationery, on entertainment, on transport and on various other controllable items. This year we have imposed a cut of 20 per cent, on controllable expenditure that is part of the non-plan expenditure. We have been monitoring it at the highest level, that is, at the Chairman's level, that conscious of our economy measures. Each member has been asked to form an economy cell under him so that the focus is kept on the economy.”

2.16. Asked about the real impact of economy measures taken by ONGC, he stated:

“That activities are expanding. So, in absolute terms, expenditure will go up. But when you talk in terms of effecting economy, I would say that we have been able to reduce

it from 5 per cent to 10 per cent."

He also added:—

"Qualitatively, the Commission has initiated a number of measures to improve our operation. Previously, we hardly had any training. Today, we are spending about Rs. 4 crores on training. For training, people have to move all over the country. Qualitatively, the improvement which has taken place cannot be really quantified, but it will give you the results later. This is an area which deserves a lot of more attention which we are giving today *i.e.* how to reduce expenses both in terms of headquarters people and in terms of overhead."

2.17. In this connection ONGC further stated in a subsequent note as follows:—

"As a result of Chairman's instructions to bring about economy all round, the increasing trend in the overhead expenditure at headquarter during the first six months of 1985-86 ending September 30, 1985 has been checked. During the period 1984-85, the total expenditure on overheads at headquarter was Rs. 13.62 crores. Against this, the expenditure during the first six months of the current year 1985-86 is Rs. 5.90 crores. It is evident that the increasing trend has been checked. However, the results of economy would be more evident in the later part of the year."

2.18. The Committee further wanted to know whether in view of rapid increase in travelling allowance of ONGC, it would have been better if the head office of ONGC was located at Bombay or some other central place instead of Dehradun. The Chairman, ONGC replied during evidence as follows:—

"It really has no relation because we are exploring all over the country and, the three production centres are presently in Gujarat, Assam and Bombay. They are widely dispersed. It has really no relevance with the location of the present Headquarters. Headquarters should be as far away as possible. Travelling expenditure is on the increase because of the cost of travel—increase in the air fares. It has been increasing almost every year. Same is the case with regard to the Railway fares. Our activities have increased almost by more than 300 per cent. So, we

will have to move forward. Unless the people move forward, they cannot give support to the people in the front, we are trying to shift as many people as possible from the headquarters. We are presently getting rid of 20 per cent people from the Headquarters."

C. Payment of Overtime Allowance and Incentive Schemes

2.19. The amount of overtime paid to staff at headquarters from 1981 to 1985 was as follows:—

Year	Rs./lakhs
1980-81	4.03
1981-82	5.06
1982-83	6.90
1983-84	6.32
1984-85	7.77

2.20 During course of evidence of the representatives of ONGC, the Committee pointed out that overtime allowance at Head office increased from Rs. 4.03 lakhs in 1980-81 to Rs. 7.77 lakhs in 1984-85. Asked about the measures taken to reduce the overtime allowance, Chairman, ONGC stated:—

"I personally believed that overtime has to be cut down and we are trying to cut it down."

2.21 The Committee also wanted to know whether any incentive scheme was in operation in ONGC to enhance the productivity of manpower whereby overtime could be reduced. Chairman, ONGC replied:

"Particularly for the clerical staff, we will have to devise some method, though we have productivity link incentive scheme. But these people are covered by group incentive. We will look at it. I think it is a very good point."

2.22 ONGC further stated in written reply furnished subsequently that suggestions have been taken note of and would be examined with reference to its legal, administrative and financial implications.

2.23 The Committee find that actual staff strength at ONGC Head Office increased from 1826 in 1981 to 2530 in 1985. ONGC has stated

that on account of expanding exploration and exploitation activities there has been corresponding increase in work relating to planning budgeting, control, etc. at Head Office. The Committee were also informed that as a result of implementation of reorganisation scheme efforts were being made to shift many persons from Head Office to regions where operational activities were increasing and there was possibility of reducing the manpower at Head Office by 30 per cent. According to the Committee, this is a step in the right direction and ONGC should complete this exercise as early as possible.

2.24 The Committee note that ONGC has appointed M/s. Foundation for Organisation Research (FORE) as consultants to give an objective and independent assessment of total manpower requirements/norms in the Commission. The report of the consultants was still awaited. The Committee recommend that since the total staff strength of ONGC is over 40,000, the deployment of the staff strength in various field/Head Office should be in such a manner as to ensure optimal utilisation of manpower resources. The Committee would also watch with interest the outcome of the recommendations of the consultants and the action taken by ONGC on their report.

2.25 The Committee's examination of establishment overheads of Head Office of ONGC has revealed that there has been manifold increase in wage bill, maintenance expenses and other establishment expenses including travelling allowance during 1980-81 to 1984-85. The wage bill increased from Rs. 3.23 crores in 1980-81 to Rs. 8.24 crores in 1984-85. The maintenance expenses increased from Rs. 0.11 crores in 1980-81 to Rs. 0.50 crores in 1984-85. Similarly, other establishment expenses including travelling allowance increased from Rs. 1.03 crores in 1980-81 to Rs. 4.16 crores in 1984-85. The Committee are concerned to note that there has been a four-fold increase in the establishment expenses over a period of 5 years. The Committee desire that this abnormal increase in the establishment expenses should be critically analysed with a view to effect economy.

2.26 ONGC paid overtime allowance to the tune of Rs. 4.03 lakhs, 5.06 lakhs, 6.9 lakhs, 6.32 lakhs and Rs. 7.77 lakhs during the years 1981 to 1985 year-wise. The Committee feel concerned over the steady increase in the payments of over-time allowance particularly in view of the fact that ONGC itself feel that manpower strength at Head Office was more than the requirements and about 30 per cent of the total staff was being shifted to the regions/operational areas with a view to ensure proper utilisation of manpower. Chairman, ONGC was candid in his admission that overtime has to be cut down.

The Committee would like to be informed about the concrete measures taken and results achieved in this direction. The Committee also recommend that as agreed to by the Chairman, during evidence, ONGC should introduce immediately a suitable incentive scheme for increasing the productivity of manpower in the organisation.

CHAPTER III

SURVEY AND EXPLORATION

A. Role of ONGC and OIL

3.1 The Committee wanted to know as to what specific role had been assigned to ONGC in the matter of exploration of oil in the country. The Ministry stated in a written reply as follows:—

“Section 14 of the Oil & Natural Gas Commission Act, 1959 describes the role of the Commission in planning, promoting, organising and implementing the programmes for development of petroleum resources. Sub-section (2) (a) states in particular that the Commission may take such steps as it thinks fit for carrying out geological and geophysical surveys for exploration of petroleum. However, ONGC is not the sole agency for exploration. Under the Petroleum and Natural Gas Rules, 1959, the agencies have to take Petroleum Exploration Licences (PEL). The ONGC have been granted PEL in Assam and other areas and Oil India Ltd. has been allowed to work in Rajasthan, Andamans, Orissa etc. The ONGC has the larger responsibility. The two organisations take up programmes as settled in Annual Plans for exploration.”

3.2 OIL had been permitted by the Government to take up exploratory drilling for oil in the off-shore areas of Andamans and Nicobar Islands, where ONGC had already done considerable survey work. During the course of examination of ONGC, the Committee wanted to know the reasons for the working of the national agencies in one area. Member (Exploration) of ONGC stated during evidence as follows:—

“Oil India applied for a PEL (Petroleum Exploration Licences) in Andamans and Nicobar and when we pointed out that we were already working there, the Government of India wanted that we should sit together and demarcate areas which could go to the Oil India. The remaining areas could then remain with us. This had been done.”

3.3. The Committee enquired whether ONGC was not fully equipped to undertake the survey and exploration activities on their own in Andaman & Nicobar Islands. ONGC stated in a written reply that they were fully equipped to undertake exploration activities in that area and the circumstances under which the area was allocated to OIL was the result of the policy of the Government. Elaborating it further, Chairman, ONGC, stated during evidence as follows:—

“Government of India has been trying to give more work to the Oil India.....ONGC had done work in the Andaman and our people felt that we had taken a holiday for some time to reassess and to get ready to go with bigger thrust into that area. So, instead of losing the whole area we thought of giving some area to the Oil India and keep the rest of the area with us because our people also had a sentimental attachment for having worked there before and were better equipped to do the work with speed. We said that they should decide what area we should give to them and what we should retain with us. So, we mutually decided and agreed to that.”

3.4. In the same context, the Secretary petroleum stated during evidence:—

“In Andamans, there are some signs of hydrocarbon and no commercial quantities have been proved. In an effort to use the complementary facilities of Oil India and ONGC, a demarcation of areas was made. Oil India was initially a private company and later, it became a public limited company. In 1984, it was decided that Oil India should not confine itself only to the remote areas and deal with ageing and very old oil fields, where production is not likely to increase very much and we have to put in more investment; and in order to use the technical manpower of Oil India, we could use them to explore certain other parts of India. This was done mainly to more optimum utilizations of the two national companies so that we can expedite the process of exploration in category 2 basins.”

3.5. Asked about the need for assigning the work to OIL, he stated:

“Oil exploration in India covers sedimentary basins over a large area. It has not been possible for ONGC to cover all the areas.”

3.6 The Committee further enquired whether working of ONGC and OIL in the same area was justified and conducive to economy. Chairman ONGC stated during evidence as follows:—

“It is always better if one company is doing exploration. For example in Rajasthan OIL is operating and we are also operating. Optimisation of the national resources can be done by one agency.”

3.7 Chairman ONGC agreed to the suggestion of the Committee that basin-wise work would be better for better utilisation of resources. He stated:—

“I am entirely with you that the work being done by two agencies in the same basins is not a very optimal way of doing the work.”

He further added:—

“You allocate some money to Oil India and some to ONGC. As the hon. Member very rightly pointed out, we are operating in the same area. Of course, you can draw a line both geologically and otherwise but the resources are from the same national kitty. Personally I will say that this is not the best way of doing the work.”

3.8 In reply to a question whether competition between the two organisations was desirable for achieving better results, the witness stated:—

“Competition is always good, provided it is real competition.”

3.9 The Committee wanted to know whether close coordination existed between ONGC and OIL in the matter of transfer of technology between these two organisations. Chairman, ONGC stated:—

“This is done more on commercial basis. We do not give anything without charge.”

3.10 On being pointed out by the Committee that two organisations could share their R & D achievements, the witness stated:—

“We feel that as a national company it is our duty to help OIL India. That is why in all our training programmes we are inviting them to join and this, I think is a very generous attitude. Secondly, whatever R & D we have, we advertise it and we make use of it at a cost. Of course,

we cannot allow commercial interest to be lost. So, I think that approach, in any case, must remain. Whatever you have gained through your efforts, you must charge for that."

He added:

"The transfer of technology from one organisation to the other should be without any secrets and that we are certainly ensuring. At a cost everything is being done. Very recently we have given them some consultancy even from the Institute of Reservoir Studies."

3.11 The Committee pointed out that at present ONGC is engaged in production of oil and gas besides survey and exploration activities and survey and exploration in itself is an important function. On enquiry whether it would not be better for ONGC to concentrate on survey and exploration and leave the production aspect to some other organisation or create some separate subsidiary units of the ONGC for its major activities, ONGC stated in a written reply as follows:—

"Survey and exploration together with production functions constitute the integral system of oil companies' operations and are inter-related. From operational point of view these are related in the sense that data obtained during production stages help in remodelling the exploration programmes. An integrated evaluation of the data is carried out continuously.

From the financial aspects, no oil company can survive merely on exploration ventures as these are highly expensive, probabilistic, risky and need huge funds. The expenditure on exploration ventures are met through the funds out of production.

Throughout the world Oil Companies go in for exploration ventures either on contract basis i.e. lump sum payments or on production sharing basis meaning thereby that in the event of success the company has to get a share of production. No company can afford to undertake exploration ventures alone. However, as a result of recent re-organisation, the concept of business groups has been introduced by which specialised groups have been put together. The next step could be to have subsidiary companies under Holding Company concept."

3.12 In this connection Chairman, ONGC stated during evidence:—

“What is really required is that in this country you should have specialised groups working on four different activities—exploration, drilling, technical services and production—all under the umbrella of a holding company so that you have the allocation of funds and everything under one control and not under the Government. There should, be one national oil company dealing with exploration, production, refining, marketing, everything. That is how the international companies are operating. There is no point in having two companies exploring because your resources are coming from the same kitty.”

3.13 In regard to a suggestion of the Committee to make the ONGC an apex body for oil exploration in the country, Chairman, ONGC stated:—

“I agree with you that within the country ONGC should be the apex body for the exploration and for the overall activities because we have the best expertise with us. We are proud to say that we have the best scientists of the world. Today we have been able to get consultancy work against international competition abroad and we are able to give a lot of help to OIL India.”

3.14 During the course of examination of the Ministry, the Committee enquired whether any coordination existed between ONGC and OIL in the matter of survey and exploration activities. Secretary, Ministry of Petroleum and Natural Gas stated as follows:—

“The Member (Exploration) of ONGC is on the Board of Directors of Oil India Ltd. All Oil India Exploration schemes are taken to the Board and the Member (exploration) has an opportunity to study it. This is at the higher level. At the lower level also, geo-physicists and geo-scientists of the two organisations are in touch with each other to exchange information for the benefit of each other's drilling.”

3.15 In reply to a specific question as to whether the satellite communication facilities were shared by ONGC and OIL, Ministry replied in a written note that these facilities were not shared by the two organisations at present.

3.16 The Committee further enquired whether there was any co-ordination committee to monitor the coordination work between ONGC and Oil India Ltd., Secretary stated:—

“Only two organisations are involved and they are coordinating at various levels. We thought, there is no need to have a formal Committee.”

However, he added:—

“We can consider it.”

3.17 Asked whether Ministry made any comparative analysis of performance of ONGC and OIL, Secretary replied:—

“It is difficult to compare the two. Firstly because ONGC operates in divergent areas. ONGC explores in a wider variety of areas and in a wider variety of geological conditions. Oil India is exploring in Assam area. Only recently, they have started in other area. The comparison is not very easy because exploration efficiency depends on the geological conditions under which exploration would take place. Both have adjoining areas in Andaman. Oil India is starting its well now. ONGC has not yet started it after they suspended their drilling. They have also some programme which will be started in the course of the next year.”

He further added:

“We are trying to evolve parameters to the extent possible. It is difficult to evolve objective parameters which will put both the companies on comparable basis. Therefore, we have to fragment it into regional areas. This is one of the reasons why with the reorganisation of ONGC we have suggested that regional units should have separate costing and separate accounting so that if we have eastern region of ONGC in Assam, the costing of that region will be different from the costing of another region. This is what they are now trying to evolve because the ONGC's costing is national average cost. We are trying to work towards that kind of a comparison as soon as regional formation arrangements come through.”

3.18 The Committee further pointed out that at present both Oil India and ONGC were doing the exploratory work as well producing oil. Similarly while some oil companies were doing refining work, some others were doing marketing of petroleum products. Asked

about the views of the Ministry for formation of a single national oil company (Holding Company) doing all work from exploration to marketing, Secretary Petroleum stated as follows:—

“It is our view that holding company would not be an appropriate form of organisation. We are seeking to have more autonomy at the regional level. That will give better results.”

3.19 On being pointed that some countries were having only single oil company in their countries, Secretary stated:—

“It is a fact that large foreign companies do the exploration, production and refining of the crude oil. But those are all private commercial companies. They have no investigation machinery of their own. They are not national oil companies. Under their terms of operation the large companies refine their own oil and take their share of profits. Most of the companies are doing the exploration, but it is only a question of intensity and the oil surpluses available with them. In the Arab and Middle-East countries also the international companies try to maximise their production but they are all experts in commercial operations. They have started refining oil long ago and are experts in exploration of crude oil. Because of their economic and political influence in the Middle-East, they thought that one way of maximising profit was by getting crude at cheaper rates and selling the refined products at higher rates. But such a thing is not available in the case of national companies. There are other companies which are only in the process of setting up of refineries. Even in the Middle-East, though these companies have their refineries, the national organisations have taken over those refineries.”

3.20 When asked as to whether the two oil companies were working in competition to achieve better results, the Secretary Petroleum replied as follows:—

“The Indian Oil industry is not operating in a competitive situation. The price of crude oil produced by the Indian oil companies, is administered. The price at which it is sold is also administered. In this situation, it is not possible to measure the efficiency with reference to the profitability when they are not in competitive situations.”

3.21 At present ONGC and Oil India Ltd. are the two national agencies engaged in exploration and exploitation of hydrocarbon resources in the country. Under the Petroleum and Natural Gas Rules, 1959, the agencies engaged in exploration and exploitation of hydrocarbon resources have to take Petroleum Exploration Licences (PEL) from the Government. Thus the Government can, through the procedure of giving petroleum exploration licences, demarcate areas for exploration between the two agencies in a systematic way to avoid overlapping or duplication of efforts. However, no effort seems to have been made by the Government to allocate specific areas to the two agencies in a rational manner.

3.22 The Committee were surprised to find that Oil India Ltd. had been permitted by the Government to take up exploratory drilling for oil in the off-shore areas of Andaman and Nicobar Islands, where ONGC had already done considerable survey work. Similarly in Rajasthan and other areas both ONGC and OIL are carrying out survey and exploration activities. The working of two national agencies in the same area cannot be conducive to optimal utilisation of limited national resources. When two agencies operate in the same area using the same type of equipment there is always wasteful movement of machinery and equipment and even the infrastructural facilities have unavoidably to be duplicated. The Committee feel that with a view to optimise utilisation of scarce national resources, the two agencies should not be allowed to work in the same basin. As far as possible the work relating to survey and exploration should be allocated to ONGC & OIL in separate basins.

3.23 The Committee are constrained to note that even though Member (Exploration) of ONGC is on the Board of Oil India Ltd. no meaningful coordination exists between the two national agencies. Transfer of technology between ONGC and OIL is done basically on commercial lines. Even the communication satellite facilities are not being shared by these two companies. At present there is no Co-ordination Committee to coordinate the activities of ONGC and OIL. The Committee feel that coordination between the two is a must in the national interest and accordingly recommend that there should be a Co-ordination Committee having representatives of Ministry of Petroleum and Natural Gas, ONGC and OIL to ensure better coordination of the activities of these two agencies and exchange of ideas for proper exploration and exploitation of hydrocarbon resources in the country.

3.24 From the information made available to the Committee, it is seen that the Minister of Petroleum in one of the performance review

meetings mentioned that ONGC and Oil India Ltd. were being maintained as separate undertakings for oil exploration with a view to ensure competition between the two. The Committee were, however, surprised to know from the Secretary, Ministry of Petroleum and Natural Gas that at present it was not possible to compare the performance of ONGC with OIL, as no objective parameters have been evolved so far to make a comparative study of the performance of ONGC and OIL. The Committee are of the view that such comparative evaluation would be useful to both the organisations and hence, suitable parameters should be evolved without any further loss of time for proper comparison and evaluation.

B. Sedimentary Basins—Exploration Strategy

3.25 Oil is generally found in sedimentary rocks. Based on age of sediments and other geologic elements, it has been possible to identify 26 sedimentary basins in India. These together occupy a surface area of about 1.72 million sq. kms. of which about 0.38 million sq. kms. lie offshore.

3.26 On the basis of data collected through years of exploration in various basins, all these basins have been classified in the following categories:—

Category-I: Proved petroliferous basins with commercial production of hydrocarbons (1. Cambay, 2. Upper Assam Platform, 3. Bombay Offshore).

Category-II: Sedimentary basins with known occurrence of hydrocarbons but from which no commercial production has yet been established. (4. Krishna-Godavari, 5. Cauvery, 6. Andamans, 7. Rajasthan, 8. Himalayan Foothills and Ganga Valley, 9. Assam-Arakan field belt, 10. Bengal and 11. Kutch-Saurashtra).

Category-III: Sedimentary basins in which significant shows of hydrocarbons have not yet been found but which on general geological considerations are considered to be prospective (12. Kerala-Lakshadweep and 13. Mahanadi).

Category-IV: Poorly explored frontier basins with uncertain prospects but which on analogy with geologically similar hydrocarbon producing of the world may be prospective. As many as 8 basins listed below fall in this category [14. Pranhita-Godavari (Gondwana), 15. Damodar (Gondwana), 16. Vindhyan, 17. Karewa, 18. Narmada,

19. South Rewa (including Son-Satpura, Mahanadi Garden). 20. Tectonized Zones of Himalayas, 21. Deccan Syneclise].

The remaining 5 basins (22. Cuddapah, 23. Bhima, 24. Kalgudi, 25. Bastar and 26. Chattisgarh) contain rocks more than a thousand million years old and are not considered to be prospective because of low organic content and high degree of metamorphism of the sediments. These are not, in the present level of knowledge of oil generation and accumulation, considered prospective. However, if abiogenic origin of some hydrocarbons is established, these five basins may be of interest.

3.27 ONGC has stated that systematic, continuous exploratory work has been carried out by ONGC in 19 sedimentary basins and some preliminary investigative work has been carried out in the remaining 2 basins where either technological|technical or logistic problems exist or where the prospectivity itself is not considered high enough to merit immediate attention. It has been further stated that some of the basins have been better or well explored while others have remained somewhat less or poorly explored, although none of the prospective basins have been left unexplored.

3.28 During the course of examination of the ONGC, the Committee pointed out that the scale of exploratory effort varied in different basins and ONGC was mainly concentrating its exploratory work only in highly prospective basins viz. Cambay and Upper Assam and wanted to know the criteria adopted for selecting areas for survey and exploration. ONGC stated in a written reply as follows:—

“The Commission has upto now carried out systematic exploratory work in 19 of the 26 sedimentary basins of India. Of the remaining 7 basins, 5 are considered to have very poor prospectivity and the remaining two where some investigative work has been carried out have either technological|technical or logistic problems and are also not considered to merit immediate attention. The quantum of exploration done in any basin depends upon its prospectivity and is guided among others by the following:—

- (a) thickness of sedimentary column and age of sediments.
- (b) the environments of deposition of various rock units constituting the sedimentary column.

- (c) availability of source rocks and their levels of maturation.
- (d) availability of suitable structures, reservoir & cap rocks for entrapment of hydrocarbons as well as conduits of migration into such traps after oil and or gas have been generated by thermo-catalysis of the organic matter in the source rocks, and
- (e) direct|indirect evidences of oil and|or gas by way of surface seeps, shows, mud-volcanoes, presence of certain chemical constituents in groundwater, etc.

The scale and intensity of the exploratory effort of ONGC have been guided mainly by the above considerations. During the formative years of the Commission, exploration was initiated in most of the basins simultaneously. However, as more information became available, a judicious deployment of exploratory effort became imperative and some selected basins where hydrocarbons had been discovered warranted intensive exploration."

3.29 Shri K. D. Malaviya Committee for review of ONGC had noted that out of 1.6 million square kms. of sedimentary area in the country, about 3,62,000 sq. kms. were amenable to geological mapping, the rest being covered by thick alluvium or water. The latter has to be geophysically surveyed. According to that Committee only 1,25,563 sq. kms. had been geologically mapped and seismic profiles had been shot along a total of 81,807 line kms.

3.30 The Committee wanted to know to what extent the sedimentary area had been surveyed, particularly in the context of observations of Malaviya Committee. ONGC stated in a written reply that as against the quantum of geological and geophysical surveys indicated by K. D. Malaviya Committee, ONGC upto 1-1-1985 had carried out the following work in the field of conducting survey for oil and gas:—

Geological Surveys

(i) Reconnaissance	84,005 sq. kms.
(ii) Detailed and semi-detailed surveys	209,210 sq. kms.
(iii) Traversing	23,533 kms.

Geophysical Surveys

(i) Gravity and Magnetic	6,99,807 (stations)
(ii) Reflection Seismic Surveys.	3,50,021 kms.
(iii) Refraction Seismic Surveys.	16,054.

3.31 Member (Exploration) of ONGC also informed the Committee during evidence that of the areas which were amenable to geological mapping identified by the Malaviya Committee, 81 per cent had been covered.

3.32 The Committee enquired whether the whole country had been systematically surveyed to locate the hydrocarbon resources in the country. Member (Exploration) of ONGC stated during evidence as follows:—

“The answer is ‘yes’. We have carried out geological surveys in all the sedimentary basins which are of interest except a part of Mizoram which we have not been able to cover because of the disturbed conditions. We have covered this area by photogeology.”

He further stated:—

“Demarcation of the sedimentary basins from non-sedimentary basins has already been done. Geological surveys of India has, in its about 100 years of existence mapped these areas. Thereafter, we came into the picture. We have carried out aero-magnetic surveys by carrying a magnetometer in an aircraft across certain traverse lines. This survey indicates in a fairly qualitative manner the total thickness of sediments.”

He further added:—

“The technology of seismic surveys has advanced so much that you can get much more information by seismic surveys than you were able to get 15 years back. In that case, we re-shoot an area where we could not get much information except by very extensive drilling which is 100 times costlier. There is no finality to exploratory work as such.”

3.33 Asked whether ONGC had undertaken any independent survey, the witness replied:—

“The outlines of the sedimentary basins have been mapped by the Geological Survey of India because they do the mapping of whole of India. We ourselves do the detailing to the extent that is necessary and feasible.”

3.34 The Committee further enquired whether all the sedimentary basins have been identified in the country and whether it had

been established that there were no other basins except the 26 already identified. Member (Exploration) stated as follows:—

“There are no more sedimentary basins. It (survey) has been carried on from 1858 onwards. The sedimentary basins have been demarcated. There are no more of them. And it is not necessary to undertake any more exercise for that.”

3.35. It also came out during evidence that the last basin was identified in 1920. The Committee enquired whether ONGC had adequate technology or some foreign technology was required to be imported for proper exploration of all the sedimentary basins in the country. Chairman, ONGC stated as follows:—

“We have to agree that till date there is no method by which we can do direct detection of hydrocarbons. The technology has been progressively getting updated. In fact certain areas which were surveyed 10 to 15 years ago with a different type of equipment had to be resurveyed. For example, even in Himachal Pradesh some new areas are to be re-surveyed, again with the new equipment. Technology is getting upgraded with the ultimate concept of direct detection. Today we have bigger reserves in the fields which we had discovered earlier. Today there is no technology available which can literally photograph all that is available. The gap between us and the international world is not very much in this field.”

3.36 Regarding the need for completing the survey work in all sedimentary basins, ONGC stated in a written note that “The surveys will be intensified in a phased manner in the next 20 years for which a plan has already been drawn up. It is hoped to complete systematic surveying of all these basins during this period unless the R & D efforts or advancement in technology in the next two decades warrant re-survey of some of the basins/areas with accent on acquisition of different set of parameters.”

3.37. When asked whether the systematic resurvey would be completed within next 20 years as planned, Chairman, ONGC stated:—

“It is a question of how much resources are available at a particular point of time when new technology emerges. It will be completed within the next 20 years. If new technology comes, then re-survey may be required and in that case, 20 years may not be sufficient.”

3.38. The basin-wise details of prognosticated hydrocarbon resources and corresponding inplace geological reserves as established upto 1-1-1985 are indicated below:—

Basin	Prognosticated resources of hydrocarbons (MMt)	Inplace geological reserves of hydrocarbons Oil & Oil Equivalent of Gas. (MMt)
1	2	3
Cambay	890	578.29
Bombay Off-shore	7390	2590.85
Upper Assam	890	380.58
Assam-Arakan	1870	35.86
Krishna-Godavari	760	19.32
Cauvery	370	6.10
Andaman	300	0.70
Bengal	1390	..
Kutch	550	38.33
Saurashtra	220	..
Himalayan Foot-Hills & Ganga Valley	370	—
Jaisalmer (W.Rajasthan)	90	1.4
Kerala-Konkan	300	—
	15390 MMt	3651.43 MMt
	or	or
	15.39 billion tonnes.	3.651 billion tonnes.

3.39. The Committee have been informed by ONGC that they have been making efforts to progressively increase the tempo of exploratory activities. However, in the VIth Plan which was formulated in the wake of the energy crisis, particular emphasis has been laid on accelerating the exploration in order to convert the estimated hydrocarbon resources into geological reserves as fast as possible and to increase the indigenous production to meet the growing requirements of petroleum and petroleum products. The VIIth

Five Year Plan envisages to further step up the exploratory surveys and drilling. In the period that follows i.e. 1960 onwards, it is expected that the tempo of exploratory activity would be further stepped up.

3.40. During the course of examination of ONGC, the Committee pointed out that only less than 1/4 of the hydrocarbon resources had been converted into inplace geological reserves. Asked about its reasons, ONGC stated in a written reply as follows:—

“The basic objective of exploration is to convert potential hydrocarbon resources into proved geological reserves. However, oil exploration includes large elements of risk and uncertainty and success has no linear relationship with the exploratory efforts. In this business large success is followed by smaller success and even failures. Only sustained efforts and perseverance in following the long term goals ultimately yield commensurate results. The barrels of recoverable oil discovered per metre of exploratory drilling is 2930 BBL against 2.32 of USA, 16.98 of Canada, 2.87 of Brazil, 167 of Mexico and 62 Norway, 31 UK and 207 Nigeria. Our success ratio is 1 to 3 against 1 to 5 International average.

This calls for much higher investment and accelerated exploration activity to convert the balance prognosticated reserve into geological inplace reserve.”

3.41. In this connection, Chairman, ONGC also stated during evidence:—

“This is a game where we can take a scientific gamble and we make probabilistic data and mathematical models. The output is almost cyclic; every 10 to 12 years there is a large discovery. There is no direct relation between the input and output in the field of conversion of prognosticated reserves into inplace geological reserves.”

3.42 Asked whether ONGC had formulated any strategy for proper exploration of all sedimentary basins, the Chairman, ONGC stated:—

“We have still to carry out approximately 75 per cent of the work. There is a tremendous amount of work still to

be done, and there is an urgency to accelerate our exploration activities. There is need to intensify our exploration in the known-hydrocarbon provinces and to extend our activities to those basins where very little work has been done so far. The exploration is a scientific gamble. While we can be sure of the input, we cannot be sure of the output. Like any other game, if you extend your risk to many areas, the chances of success are better. The known hydrocarbon provinces are low-risk but are also low rewarding. Our strategy is very aggressive exploration in the non-hydrocarbon areas. We are going to drill in Himachal Pradesh and J & K and are likely to take up drilling in Kerala and West Bengal offshore. We have started drilling in Andamans from April this year. There is a tremendous potential within the country and a lot more effort has to be directed towards the exploration in this country."

He also added:—

"Work has been done in various degrees, in various sedimentary basins out of 26, 13 were considered to be prospective where major thrust had been given. We have given importance to all sedimentary basins taking into account the prognosticated reserves. So no area is being neglected. Our one important strategy is to find oil and gas quickly. And for that a very very aggressive strategy has been very well planned."

3.43. As regards the steps taken to convert more and more areas of hydrocarbon prognosticated reserves into inplace geological reserves, Member (Exploration) ONGC stated during evidence as follows:—

"We will increase the exploratory activities in the Seventh Five Year Plan period and subsequently. So, how to distribute the total requirement has been worked out on the basis of geological knowledge, we possess of each sedimentary basin. Where the information is of low level, there we shall intensify drilling, where we know there are oil bearing areas, we will follow lead which has already been established and look for similar accumulation, where deeper layer has not been explored we shall continue probing and obtain information from deeper

layers. So the total effort is a sort of mixture of different activities depending on the state of geological knowledge of each basin."

3.44. In this connection ONGC further stated in a note as follows:—

"In the Seventh Plan, acceleration in the exploratory efforts is planned. Simultaneous intensification of exploration in the known oil producing basins such as Cambay, Upper Assam and Bombay Offshore Basins and extensive exploration in the other basins where little or no hydrocarbon reserves have been established so far, have been planned in the Seventh Five Year Plan as well as in 20 year Perspective Plan upto 2005. An optimal mix of intensification of exploration in low-risk low reward areas and extension of exploration in the high risk high reward areas is expected to lead to larger quantum of conversion of resources to reserves."

3.45. As regards the specific steps taken for getting more and more oil in the shortest possible time, ONGC in a written note furnished after the evidence, indicated the following steps proposed to be taken:

1. Convert possible (C2 category) reserves to probable (C1 category) reserves by delineation drilling and extensive testing.
2. Drill infill wells for improving rate of withdrawal.
3. Enunciate and initiate pilot EOR (Enhanced Oil Recovery Technology) to be converted to operating EOR to increase productivity of the wells and increase recovery from the reserves.
4. Reduce percentage of idle wells by better work-over operations.
5. Intensify the exploratory efforts in Category 1 basin and distribute exploratory efforts extensively over the different objectives in the category II and III basins, and follow up the leads established along favourable trends, so as to have atleast 15:1 reserves to production ratio for projected withdrawal rate.

6. Increase drilling speed to reduce time between release of location and acquisition of data for evaluation, delineation and production.
7. Reduce elapsed time for surface installation, for production including production from enhanced recovery schemes.

3.46. When enquired about the results achieved after introducing the new enhanced oil recovery techniques, Chairman, ONGC stated as follows:—

“The moment you discover oil, you try to exploit it by primary method of recovery. By that you can extract oil upto 15—20 per cent. If you want to extract more oil, then you have to use other methods of recovery, that come under the purview of enhanced oil recovery techniques. In the ONGC, we have taken up nine pilot scheme and certain techniques have been introduced....The moment you bring in enhanced oil recovery techniques, you may raise it 30 per cent. For Bombay we have recently thought of infill platform. By this the recovery is going to increase upto 30 per cent. Various methods are being thought of all the time and we are one of the few countries which are giving major thrust to this question. But there are certain fields which can achieve as much as 80 per cent recovery also.”

3.47 Asked whether any efforts were being made to locate oil in regions hitherto unexplored, ONGC replied in a written note as follows:—

“Out of the 26 sedimentary basins, 5 basins do not merit exploration. Out of the remaining 21 sedimentary basins two viz. Deccan syncline, and the tectonized zone of Himalayas have low prospectivity. However, in order to gain more sub-surface information below the Deccan Trap, ONGC is making efforts in collaboration with NGRI, Hyderabad, for carrying out Deep Seismic Sounding survey in selected parts of Deccan syncline. Surveys are also planned in the tectonized zone of Himalayas.”

3.48 On enquiry about the surveys undertaken during the last 3 years, ONGC informed that “during the last three years surveys have been conducted in the following 13 sedimentary basins: Bombay,

Offshore, Cambay, Upper Assam, Cauvery, Krishna-Godavari, Andaman, Bengal, Assam-Arakan, Himalayan foothills and Ganga Valley, Western Rajasthan, Kutch-Saurashtra and Kerala-Konkan."

3.49 The Committee further enquired whether any time bound programme had been fixed for all basins. Chairman, ONGC stated during evidence:—

"For every basin we have a time bound programme and that is then translated into financial outlay. Without time bound programme we cannot do anything."

3.50 In reply to another question a representative of ONGC informed the Committee during evidence that at present the ratio of geological reserves to the prognosticated reserves was 23 per cent and by the end of Seventh Five Year Plan it would be 33 per cent.

3.51 The Committee further enquired about the results of the new exploration and production strategy. Chairman, ONGC stated during evidence:—

"We have made more than 80 strikes since the Bombay High and we have worked out a new strategy that all these finds must be put into production on shore and off shore. Firstly, it will help us to get additional oil and secondly it will enable us to get more data and to carry out reserved estimates quickly. Gandhar find was made in 1984 and after that, we have pushed in and mobilised two more rigs in the period and three wells have been already drilled and we find that the reserve are approximately 100 million tonnes both oil and oil equivalent of gas and the specific gravity of the oil is as good as the best one we had in Ankleswar. After Bombay High, the next big field was Ankleswar and this field is going to be big, if not bigger than Ankleswar. We have accelerated our activities in the area. The whole area is becoming very highly prospective. We are going to start early production from this field some time before July. It may be even much earlier than July. That is the target which has been given to our people and we feel that this field might be able to give us oil to the tune of about 2 million tonnes a year. But this will all depend on the working out of a technological scheme for which action has already been taken."

About the other areas he stated:

"There are other finds which are put on early production system because the moment you start producing, you get

more data. A bigger thrust is given. You will shortly be hearing oil production being started from the Kaveri Basin also. I can tell you the approximate date, the 5th of this month."

3.52 The Committee also pointed out that recently there was fall in oil prices in international market and wanted to know its impact on the exploration strategy of ONGC. Chairman ONGC stated during evidence:

"Talking about the oil sector as a whole, we are placed in a very favourable condition. Firstly, the import bill of oil will be reduced. Secondly, the prices of equipments, services and materials for the oil sector would further come down. They are already at a very low level as compared to 1981 and in some cases the prices were as low as 50 per cent. Today is the best climate for us to carry out exploration at the lowest cost. The position may not remain so after 3 or 4 years. It is the best condition for us to further push the exploration activities."

3.53 During the course of examination of the Ministry, the Committee enquired whether Government had formulated any strategy for proper exploration of all sedimentary basins and for converting more prognosticated reserves into in-place geological reserves. The Ministry stated in a written note as follows:—

"The need for intensification of exploration has been recognised. The exploration is carried out as per the programmes drawn in the Five Year Plans and the Annual Plans having full regard to the above need. The main features of the strategy that is being currently followed are:

- (i) Intensification of exploratory surveys and drilling in the Category-I sedimentary basins;
- (ii) Extending and suitably stepping up the tempo of exploration in the Category II & III basins; and
- (iii) Selecting relatively more suitable basins, amongst Category-IV basins, for acquisition of additional data by means of surveys and parametric drilling so as to make these basins amenable to analysis for prospectivity determination."

3.54 The Committee have been informed that based on age of sediments and other geological elements, it has been possible to identify 26 sedimentary basins in the country. These together occupy a surface area of about 1.72 million sq. kms, of which about 0.36 million sq. kms. lie onshore. Of these 26 basins, 5 contain rocks more than a thousand million years old. They are, therefore, not considered to be prospective. The remaining 21 basins have been categorised under four categories viz. (i) proved petroliferous basins with commercial production of hydrocarbons, (ii) basins with known occurrence of hydrocarbons but from which no commercial production has yet been established (iii) basins in which significant shows of hydrocarbons have not yet been found but which on general geological considerations are considered to be prospective and (iv) poorly explored frontier basins with uncertain prospects but which on analogy with geologically similar hydrocarbons producing basins of the world may be prospective.

3.55 The Committee find that out of 26 sedimentary basins only 3 basins falling in category I have been extensively explored. Another 10 basins falling in categories II and III, which were considered of immediate interest have been taken up for hydrocarbon exploration. The rest of the 13 basins remain completely unexplored or are very poorly explored. The exploratory effort has thus been restricted to some selected basins where hydrocarbons had been discovered and warranted intensive exploration. Such a selective approach was perhaps justified in the context of the oil crises faced in early seventies when the production of indigenous crude was an overriding priority. The situation has now undergone a change and there is need for adopting an aggressive strategy for accelerated exploration of all the basins with a view to locate and develop new oil and gas resources. The aim of oil exploration efforts now should be not only to discover oil accumulations but also to establish that a certain basin or its part has no commercial oil potential. This would imply that each sedimentary basin should be methodically examined for which suitable strategy may have to be thought of.

3.56 The sedimentary basins were identified by the Geological Survey of India from 1858 onwards and the last basin was identified in 1920. The Committee have been informed that with the change of technology some areas need to be re-surveyed. The Committee are surprised to learn from Chairman, ONGC that systematic resurvey would not be completed even within next 20 years if there were some changes in technology or the resource constraint was there. As some basins were demarcated more than 100 years ago and the technology of seismic surveys has advanced considerably the Committee feel that

it should be possible to find ways and means to re-survey in a phased manner the whole country systematically with a view to establish conclusively with the help of the latest technology that there is no other sedimentary basin of interest...

3.57 The basic objective of exploration is to convert potential hydrocarbon resources into proven inplace geological reserves. According to ONGC, the total prognosticated hydrocarbon resources in the country as on 1-1-1985 were 15.39 billion tonnes. As against this only 3.651 billion tonnes have been converted into in place geological reserves of hydrocarbons (i.e. oil and oil equivalent of gas). Thus less than 25 per cent of India's ultimate theoretical oil and gas potential has been counted as proven. India is thus grossly under-explored for oil and gas. The Chairman, ONGC stated before the Committee that they have yet to carry out 75 per cent of the work and the task involved was tremendous. The Committee are also informed that as a result of increase in exploratory efforts the ratio of geological in place reserves would increase to 33 per cent at the end of Seventh Five Year Plan as against the present ratio of 23 per cent. The Committee feel that there is a need for further increasing the exploratory efforts to augment the prognosticated hydrocarbon resources as well as in place geological reserves of hydrocarbons and to keep a scientific ratio between the two. For this, the Committee would recommend that a time bound programme should be chalked out for all the basins and progress of work should be monitored on regular basis.

3.58 With the recent steep fall in oil prices in international market the exploration strategy has to be reviewed. The Committee feel that opinions may be divided on whether production should be stepped up in a situation where imported oil is cheap but there can be no two opinions on the need for sustained exploration. As pointed out by the Chairman, ONGC the prices of services and materials for the oil sector have come down considerably and in some cases the prices were as low as 50 per cent. This was, therefore, the best time to carry out exploration at the lowest cost. The Committee desire that the entire strategy for exploration should be reviewed in its proper perspective and efforts to locate and develop new oil and gas reserves should be maximised in the current plan period so that there will be an increase in domestic availability at the start of the next plan.

C. Overall Achievements of ONGC

3.59 Cumulative achievements (since inception upto 1-1-85) of ONGC in respect of survey and exploration activities are as follows:—

Surveys	Achievements
<i>Onshore (Party years)</i>	
1. Geological	412
2. Gravity Magnetic	201
3. Seismic	649
<i>Offshore</i>	
4. Seismic (000'LK)	229
<i>Exploratory Drilling</i>	
1. <i>Onshore</i>	
(a) Rig Years	564.67
(b) Metrage ('000')	2471.6
(c) Wells	1087
2. <i>Offshore</i>	
(a) Rig Years	36.19
(b) Metrage ('000')	417.3
(c) Wells	159

3.60 Referring to the above statistics, the Committee wanted to know whether ONGC was satisfied about its achievements over the last 25 years. In this connection ONGC stated in a written note as follows:—

"The achievements of ONGC over the last 25 years are very impressive. We have been able to strike oil/gas in areas which had been abandoned by the multinationals. Based on the geological consideration and the resources available from time to time, the volume of work carried out and the area covered during last 25 years by exploratory surveys is considered quite satisfactory. However, ONGC has been increasing its activities continuously and has also inducted latest available technology. Larger quantum of seismic surveys both Onshore and Offshore have been

planned during Seventh Five Year Plan to meet the requirements of conversion of resources to reserves and meet the production targets."

3.61 During evidence, the Committee pointed out that in view of the vastness of the country and work still to be done the achievements of ONGC over a period of 25 years could not be considered to be very impressive. To this Chairman, ONGC replied:

"As far as the balance of work which is required to be done is concerned, there is still 75 per cent work more to be done. So, that way you can say that it is not impressive."

3.62 The Committee enquired as to how success ratio of exploratory efforts of ONGC compared with the other countries. ONGC informed in a written note that the barrels of recoverable oil discovered per meter of exploratory drilling by ONGC is 2930 BBL against 2.32 of USA, 16.98 of Canada, 2.87 of Brazil, 167 of Mexico, 62 of Norway, 31 of UK and 207 of Nigeria. ONGC further stated that their success ratio was 1 to 3 against 1 to 5 of international average.

3.63 The Committee further wanted to know the success ratio of gulf countries and other oil producing countries. Member (Exploration) ONGC stated during evidence as follows:—

"Sir, we are talking about exploratory index and not about actual production. If you are referring to Iraq, Saudi Arabia and other countries, fortunately, God has given them much. They just dig and find oil."

3.64 In regard to success ratio of other countries ONGC further furnished the following written information:

"A. Gulf countries	m ³ /m	in barrels
1. Abu Dhabi	699	5242
2. UAE	928	6960
3. Kuwait	2932	21990
4. Oman	349	2617

B. The 'success ratio' of some countries, which are better than the international average (1:5) of discovery is as under:—

Countries	Success Ratio
Canada	1: 2.5
Mexico	1: 3.6
Norway	1: 2.0
U.K.	1: 2.16
Italy	1: 2.7
Netherlands	1: 2.9
Egypt	1: 2.3
Nigeria	1: 2.4
Libya	1: 1.7
Angola	1: 4.5

C. Information regarding success ratio of USSR and China is not available."

3.65 The statistics of the actual work done, by ONGC during the last 25 years of its existence, in the matter of survey and exploration for oil in the country, do not at all make an impressive reading. This is particularly so when considered in the context of the vastness of the area to be covered and the resources employed. As admitted by the Chairman, ONGC only 25 per cent of the work has so far been done and 75 per cent of the work is yet to be accomplished. It is difficult to visualise how much time will be required to complete the entire work. The Committee cannot but emphasize the need for accelerating the exploration activities of ONGC so that the stupendous task ahead could be completed within the shortest possible time. There is no gainsaying the fact that for acceleration of the activities of ONGC adequate resources will have to be mobilised. There is also an immediate need to critically analyse the exploratory effort during the current plan for formulating future exploration strategy.

3.66 It is gratifying to note that the success ratio of exploratory efforts of ONGC compared well with the international average. Against the international average of 1 to 5 ONGC has been able to achieve a success ratio of 1 to 3. There are however a number of

countries whose success ratio is much better than that achieved by ONGC. Hence the effort should be to emulate the performance of the countries who have done better. The Committee wish that ONGC should take advantage of the latest technology and put in more concerted efforts in future to improve upon their own achievements.

D. Targets vis-a-vis Achievements during Sixth Plan

3.67 From the year-wise information furnished to the Committee for the years 1975-76 to 1984-85, it is noticed that achievements were generally less than the targets fixed for various activities of ONGC. The following table shows the targets and achievements of the Commission in various fields during the Sixth Year Plan (1980-81 to 1984-85):

Particulars	Targets (MTR)	Achievements
1. Surveys		
(a) Geological (PY)	60	54
(b) Gravity Magnetic (PY)	25	25
(c) Seismic		
Onshore	195	174
PY		
Offshore	120.50	115.7
Coverage ('000SLK)		
2. Exploratory Drilling		
(a) Rig Years (PY)	166.5	163.12
(b) Metrage ('000M)	987.4	847.83
(c) Wells (Nos.)	336	335
3. Developmental Drilling		
(a) Rig Years (PY)	89.50	77.64
(b) Metrage ('000M)	1206.30	981.22
(c) Wells (Nos.)	590	492
4. Production		
(a) Oil (MMT)	91.63	90.03
(b) Gas Supplies (MMm3)	1022	9088
(c) LPG ('000T)	676	671.30
5. Accretion of Geological Reserves (MMT)	700	894

3.66. The Commission advanced the following broad reasons for the shortfall in the achievements *vis-a-vis* targets:—

- (i) Local disturbances in Assam and North East.
- (ii) Delay in supply of rigs and spares from BHEL; operating troubles with these rigs.
- (iii) Land acquisition problems, rains and floods.
- (iv) Fishing/technical complications, *e.g.* unforeseen sub-sea conditions in Godavari off-shore.
- (v) Delays in supply of casings by local vendors (ITC).
- (vi) Non-availability of suitable contractors for surveys and drilling in spite of global tenders.
- (vii) Delay in completion of wells due to prolonged production testing, difficulty in drilling in deeper depths due to high pressure regimes.

3.69. Elaborating the reasons further, Member (Exploration) also stated during evidence:

“The shortfall in geological surveys for on shore (Party years) is due to inability to operate in Mizoram, Nagaland and other parts of northern-eastern belt like Tripura and other tribal areas, because of the tribal trouble. And the coverage of the surveys was, to be carried out of a planned target of party years about 27,435 sq. km. The actual coverage is 27,031 sq. km. which is 99 per cent of the target. Now, for the seismic survey we could not field as many parties as we wanted to field though we did field the targetted number of gravity-magnetic survey crews. Number of seismic crews is also not as much as we wanted to because there were delays in procurement of equipment for various reasons, we had to satisfy the Government and undertake re-tendering and so on. But the coverage on the ground, by the actual number of crews we could deploy is much more than the target we have planned. The actual coverage on thousand line kilometres was 53.74 while the plan target was 45.16, which is 19 per cent over the target. In off shore there was a slight shortfall of about one per cent.”

Chairman, ONGC also stated:

"I can mention some of the constraints briefly. In 1981-82 rigs were not available and we have to tender and re-tender. That situation improved after 1982 and during 1983, 1984 and 1985 we did not have this problem. Secondly, our procedures within as well as outside the Commission were also such that quick decisions were very difficult to take. We have to modify the procedure and now we do not have that problem also. The only problem that we have now is in regard to a little more freedom to operate, so that the Commission can take decisions quickly rather than going to the Government all the time."

3.70 Asked whether the above constraints still inhibit the Commission, ONGC stated in a written note that land acquisition problems and difficulty in drilling in deeper depths due to high pressure and temperature regimes still inhibit the ONGC. During evidence, Chairman, ONGC stated that "they have by and large overcome other constraints."

Regarding problems in deeper depths, he stated:

"We have to some extent overcome this problem. We have been quite successful in the recent drilling operation, but we will continue to keep a focus on this because it involves training and re-training of the people, the acquisition of the right type of equipment and monitoring of these operations. After reorganisation, this is receiving the desired attention."

3.71. The Committee further pointed out that the achievements were less than the target fixed. In this connection, Chairman, ONGC stated as follows:—

"One of the strategies we have been following in the ONGC is to set very very high targets, so that everybody strives to achieve something bigger than what he normally could. The alternative could be to set low targets and achieve more than 100 per cent. From my personal experience, I will tell you if we set very high targets and achieve 90 per cent we would be in a very happy situation. With others the tendency would be to set low

targets and then claim more than 100 per cent achievement."

3.72. In reply to a suggestion of the Committee that there was need for increasing the productivity for achieving the targets, Chairman, ONGC replied:—

"Our basic objective is that every year, 10 per cent increase in productivity should take place. We study the historical data regarding the work done in certain areas. Suppose a party working in Rajasthan has done some work in a year which is not good enough. We tell them that they have to show more results. If they say that they are some constraints, we try to eliminate them and fix a target which is a little higher than the previous year. Sometimes the Member (Exploration) fixes some target. The Chairman may think about another figure. Through this sort of pressure, there would be total optimisation. If you go by only normal methods, the targets would be much lower."

3.73. When pointed out by the Committee whether it would not be better to fix reasonable targets, Chairman, ONGC replied:

"With all types of constraints around us to get Government's clearance, Planning Commission's clearance, we have to really struggle hard to achieve the targets. Unless we set high targets we would be getting lost."

3.74. The Committee further pointed out that total expenditure on survey and exploration during 5th Five Year Plan was Rs. 393.05 crores as against the allocation of Rs. 359.37 crores. Similarly, total expenditure on survey and exploration activities during 6th Five Year Plan was Rs. 1312 crores against the allocation of Rs. 1473.12 crores. Asked about the non-utilization of funds available for survey and exploration activities, Chairman, ONGC stated as follows:—

"There was a shortfall in expenditure and the shortfall was a result of two things. One was the inability to spend as a result of certain procedures. Secondly the price came down which also helped us."

3.75. The Committee also wanted to know whether discoveries of oil/gas made during Sixth Plan were commercially viable. Chairman ONGC stated:

"I would say every one of them except some odd ones—is economically viable. You may say 2 or 3 per cent not viable in the sense that they are remotely located. Otherwise all our discoveries are economically viable. We have made 82 strikes or so discoveries, out of which 42 are already put in production and with regard to rest in the Seventh Plan we are making all our efforts to put them on production. The whole world is looking at our success ratio with great admiration."

3.76 It is a matter of concern to note that the achievements of ONGC during the Sixth Plan period were considerably below the planned targets. There have been slippages in practically all the major activities like surveys, exploratory drilling, development drilling and production of crude and gas. As a result of this the total expenditure on survey and exploration activities during the 6th Five Year Plan was Rs. 1312 crores against the allocation of Rs. 1473.12 crores. Thus an amount of Rs. 161 crores remained unutilised. This sounds a little ironical because on the one hand there is a prolonged tussle between ONGC and the Planning Commission for allotment of more resources and on the other ONGC is unable to fully utilise whatever is sanctioned. The Committee cannot but emphasise that the targets for which adequate budgetary provisions have been made should be kept up and met at all costs. In this context, the Committee will like to emphasise that the financial procedures which lead to delay in release of amounts sanctioned should be reviewed and streamlined. The Committee would also like ONGC to learn lessons from their past experience and see to it that the targets set down for the Seventh Plan are fully achieved and the funds allotted therefor do not remain unutilised and lapse.

3.77 It has been stated that the two main constraints which still inhibit ONGC in realising its plan targets are land acquisition problems and difficulty in drilling in deeper depths. The problem regarding land acquisition has been dealt with in the 8th Report of the Committee (1985-86) on Oil and Natural Gas Commission (Organisational Structure and Project Clearance). As regards the problem regarding drilling in deeper depths, the Committee recommend that

efforts should be made in R&D institutions of ONGC to overcome this problem and all out efforts should be made to achieve the target set for exploration and production.

E. Offshore Survey

3.78 The following table shows the offshore survey done during the last 3 years:

Year	Line Kms.
1982-83	27231
1983-84	19874
1984-85	23444

3.79 During the course of examination of ONGC, Committee wanted to know the reasons for reducing off-shore survey work during 1983-84 and 1984-85 as compared to 1982-83 particularly in view of the fact that after the discovery of Bombay High offshore in 1974 no major discovery had been found in offshore area. Member (Exploration) stated as follows:—

“This is the combination of three circumstances. One is the acquisition of the second seismic part vessel which has taken us longer than we anticipated. The second is total ban on processing seismic data abroad in respect of areas of interest. The third is delay in acquisition of large computer. Because of the delay in setting of the large computer system, the delay has been indefinite in the sense that every couple of months we were told that clearance from US would come very soon. We had thought that there was no point in going on increasing the quantum of seismic survey if we could not get the data process.”

3.80 In reply to a question as to whether earlier data were also still to be processed, he stated that even earlier data had not been processed. Some of the data was collected in 1981. Chairman, ONGC also stated in this connection that—

“It is not the capability that is wanting, but the capacity is less than the amount of data.”

3.81 Explaining the reasons for accumulation of data, ONGC stated in a note furnished subsequently that at the end of 1984-85

total backlog of seismic data was 34190.2 (offshore 30119 and land survey 4071.2). Out of this, 15,000 kms. are in areas which have been classified by Government of India as 'sensitive' in 1983. The remaining data not considered sensitive, is to be processed abroad, in view of the continuing uncertainty regarding the large computer. Deliberate decision was taken by ONGC to reduce additional data acquisition by seismic surveys in areas considered 'sensitive' by the Defence Ministry in view of the total ban on sending data from such areas abroad for processing.

3.82 Asked about the delay in installation of large size computer in ONGC, Ministry of Petroleum & Natural Gas stated in a written note that the proposal of ONGC to instal a large capacity computer at its KDMIPE, Dehra Dun, was approved by Government in August, 1983 at an estimated cost of Rs. 43.64 crores (foreign exchange component Rs. 12.43 crores). Subsequently, Department of Electronics placed letter of intent on M/s. IBM of USA on December 20, 1984 for the supply of 3083 JX3 computer system. The vendors were supposed to have obtained export licence from the Government of USA within 90 days of the placement of LOI. However, they have not been able to obtain the required export licence and have been seeking extension of time from time to time for this purpose. The last extension sought was upto January 31, 1986. In normal circumstances, the project should have been commissioned by mid 1985. This has got delayed on account of non-clearance of necessary export licence by the US Government. The matter was actively being pursued. The building was also ready.

3.83 In regard to latest position of acquisition of computer, Ministry further informed in a subsequent note as follows:—

"The Chairman of ONGC and the Ministry of Petroleum and Natural Gas have taken up the matter with the Department of Electronics to expedite the supply of the computer system. The Department of Electronics has informed (January, 1986) that the subject is being dealt with by the Ministry of External Affairs directly. Since the Ministry of External Affairs are dealing with the issue, it was not taken up at Minister's level in the Ministry of Petroleum and Natural Gas."

3.84 Asked about the present strategy for interpreting seismic data, Member (Exploration) stated during evidence as follows:—

"What we have done now is to dedicate the existing capacity only to this sensitive area so that the seismic tapes from

the non-sensitive area for which there is no great objection from the security point of view, can be sent abroad. So, we have increased the quantum of the sensitive area processing as compared to the past."

He added:

"We propose to instal a ship-board computer, and after we instal it, much of the processing can be done during data acquisition itself."

3.85 When asked as to by what time the shipboard computer was expected to come, witness stated that before December this year (1985).

3.86 Asked about the plan to process data in case ONGC did not get super computer, witness replied as follows:—

"One alternative is to develop some parties outside the ONGC, which we have done. One such party is in Bombay and one is in Jodhpur, and some others may also come up. The second alternative is to augment the capacity of the National Informatic Centre Computer. We have the right to use one shift there and that we are doing at present. The third alternative is to acquire medium-sized regional computers which we are almost in the process of finalising. Just today, the Russians would be here and it would be finalised."

3.87 When asked about the time likely to be taken for clearing the backlog, he stated that it would take two years. For quick disposal, he stated that alternative would be to get the process done in the middle-sized computers which they were installing in the five regional centres.

3.88 ONGC further informed in a written note that they have taken following steps to reduce back log of seismic data processing:

1. The use of NIC computer, New Delhi is extended upto March, 1986.
2. Demultiplexing is being done at EDP FMC, Delhi, Comptronix Bombay and TCA, Bombay.
3. Seismic data is being processed at INTERRA Exploration (India) Pvt. Ltd. Bombay.
4. Data considered by Government of India as non-sensitive is being sent abroad for processing.

5. Regional computers are being installed at Baroda, Calcutta and Bombay in the first phase and at Madras and Jorhat in the second phase.
6. Upgradation of the VAX system at Dehradun is being done.
7. Installation of onboard computer in ONGC's seismic vessel under acquisition.

3.89 The Committee find that in the matter of off-shore surveys also the drilling meterage has come down considerably in the last 3 years. From 27,231 line kms. in 1982-83, it has come down to 23,444 line kms. in 1984-85. The position was particularly bad in 1983-84 when the total meterage was only 19,874 line kms. According to ONGC this was the result of a deliberate policy to reduce the quantum of work as data collected earlier was still to be processed and there was a backlog of seismic data to the tune of 34,190 line kms. ONGC could not put forward any valid reason for the reduction in the quantum of work except the decision of the Defence Ministry to impose a total ban on sending data from 'sensitive' areas abroad for processing. The Committee feel that this is not a sufficient ground for reducing off-shore survey work particularly in view of the fact that after the discovery of Bombay High off-shore in 1975, no major discovery had been found in off-shore area.

The Committee find that one of the reasons given for the backlog of seismic data was the non-arrival of large capacity computer from USA. The proposal for large size computer was approved by Government in August, 1983 at a cost of Rs. 43.64 crores. As per the schedule, the computer should have been installed by mid 1985. Even though the building was ready, exporters have not been granted a license by USA Government so far. The Committee were informed that the matter was being pursued by the Ministry of External Affairs. The Committee are of the view that the matter should be taken up at the highest level so that a final view could be taken on the possibility of acquiring large computer from USA and some alternate arrangements could be thought of to meet the urgent requirements of ONGC if final response from USA was negative.

3.90 The interpretation of the data already gathered is an area in which the Committee feel that substantial improvement is needed and must be accelerated. The Committee would suggest that the backlog in respect of the processing of data should be quickly liquidated by using the facilities available with other organisations in the country or by getting it processed abroad. The Committee would like to be informed of the efforts made and results achieved in this direction within next six months.

F. Exploration by Foreign Companies

3.91. The Committee were informed by the Ministry that in July, 1980 Government approved of a two pronged approach to intensify the exploration and exploitation of hydrocarbons in the country. On the one hand, the two national oil companies viz. the Oil & Natural Gas Commission and Oil India Limited were asked to speed up their oil exploration programme to the maximum extent possible using the latest techniques for oil exploration and production. On the other hand, in order to supplement the maximum efforts of the national oil companies, it was decided to open certain selected blocks to foreign oil companies of repute for exploration and exploitation of hydrocarbons on mutually agreed terms.

3.92. The Secretary, Ministry of Petroleum and Natural Gas explained during evidence that the first round of offers was invited in July, 1980 and one block was offered to an American Company. They completed the work and did not find oil and withdrew. Some more blocks were offered to foreign companies in 1982. However, no offer was received and no further progress was made. Now 27 blocks were being offered to foreign companies in the third round.

3.93. In this connection in reply to a question, the Ministry of Petroleum informed the Lok Sabha on 30-7-1985 as follows:—

“In order to supplement the efforts of the two national companies (ONGC & OIL) engaged in the work of exploration and exploitation of oil, it was decided to invite foreign oil companies of repute to explore and exploit hydrocarbons in selected areas of the country. In the earlier two rounds of bidding for leasing of areas for oil exploration and production one block was awarded to Chevron of USA. The risk money was invested by the foreign contractor. Government is now considering the question of going in for a third round of bidding for leasing of areas for oil exploration and production. The details of the terms and conditions have not yet been finalised. In the event of oil discovery our dependence on imported crude will be reduced.”

3.94 Asked about the result of the contract entered into with Chevron of USA, ONGC informed that contract was signed in March, 1982 between Government of India and ONGC on one side and Chevron Oil Company and its constituents as contractor on

the other side. This company did exploration work in an assigned area Offshore 'Saurashtra Offshore, Block II'. The Company did survey and drilled 3 exploratory wells in that area between the period March, 1982 to March, 1985 and spent over US dollar 30 million. This expenditure was the risk money provided by the company. No amount was spent on exploration in that block either by ONGC or by Government of India. In view of no hydrocarbon finds, the Company terminated the contract on 25th March, 1985 as per the option available to it under the contract.

3.95. During course of evidence of the representatives of ONGC the Committee enquired whether ONGC could not undertake the whole work with the present level of technology and resources or there were some other considerations on which foreign companies were being invited for exploration of hydrocarbon resources in the country. In reply the Chairman, ONGC stated as follows:—

"It is not that local companies or indigenous companies are not capable of doing the work. It is not so. It is a question of time. It is a question of getting additional financial resources in time. Money spent on exploration is risk money. When somebody from abroad is willing to come and work here, there are certain advantages in that. Certain technology transfer takes place. Certain marginal additional resources come into the country. Our resources are limited. Even if you give a contract to three parties for three years, the total investment which must be coming into the country would be approximately 90 million dollars for three years, which is nothing when you compare it with the total plan outlay for exploration within the country itself. As far as technology is concerned it re-confirms what you are doing. When Chevron worked in Saurashtra, they brought a team of people with them; there was detailed seismic interpretation. We are proud to say that our efficiency was in some cases even better. We found that they are a little more systematic because of the latest gadgets available with them; we are trying to introduce various computers, various office equipments etc."

3.96. Asked whether ONGC was consulted by Government before taking a decision to invite foreign companies for exploration. Chairman, ONGC stated as follows:—

"The ONGC is taken into confidence right in the initial stages i.e. at the discussion stage; the Chairman, ONGC

the Chairman, Oil India are called. No area where we have already found oil goes to a foreign oil company. It is only areas where we have still to discover oil, are given."

3.97. Enquired about the main expected advantages in entrusting exploration work to foreign companies, he stated:

"If somebody is ready to put in his risk money here, it is an advantage. Another advantage is, it can accelerate to some extent our efforts on exploration. Thirdly, it does help us to compare ourselves with those companies, and a certain amount of technology transfer also takes place. So, there are various advantages. When you talk about expenditure or investment, it is about 90 million dollars. It is not much. But it does supplement our efforts. So, there is less pressure on our own resources to that extent. Also the data which get generated as a result of this also become our property. Even in China, they are going in a big way for exploration. In Indonesia, Malaysia, all over the world, this is the practice which is followed."

3.98. During the course of examination of the Ministry the Committee wanted to know as to why it was considered necessary to invite foreign companies for exploration purposes. The Ministry stated as follow:—

"Foreign oil companies are being invited to explore for hydrocarbons in India to supplement the efforts of ONGC & Oil. It gives the country an access to foreign risk capital. The arrangement would also ensure a profit oriented application of the latest technology by the foreign oil companies. It affords an opportunity for transfer of technology through work association. Geo-scientific data in the areas awarded is available to the National Oil companies free of cost."

3.99. The areas identified for exploration by foreign companies are 27 blocks in the offshore of Saurashtra and Kerala-Konkan basins in the Western Coast and Cauvery, Krishna-Godavari, Polar and Mahanadi basins on the Eastern Coast. Bids are expected to be invited shortly. The Secretary, Ministry of Petroleum & Natural Gas also stated during evidence that "the areas which are under exploration at present, have been excluded".

3.100. The Committee further wanted to know whether the policy regarding inviting the foreign companies for exploration work had been laid before the Houses of Parliament like other major policies of the Government. Secretary replied in the negative. However, he added that it was mentioned in reply to a question answered in Parliament.

3.101. Another agreement for exploration of oil and gas in Cambay and Cauvery was signed with USSR in May 1985. The identified areas and work programme finalised in February 1986 are as under:—

Cambay basin : (North of Mehsana Oil field in Patan, Tharad and Sanchor area)

Seismic surveys	. . . . .	3100 LKM
Drilling	. . . . .	38 wells (81,500 mts.)
Duration	. . . . .	1986—1992

Cauvery Basin : (Northern part)

Seismic surveys	. . . . .	4000 LKM
Drilling	. . . . .	37 wells (122,00 mts.)
Duration;	. . . . .	1986—1995

3.102. In regard to the progress made, the Ministry informed in a note that during discussions, the Soviet organisation agreed to submit the cost estimates by end of February, 1986. The payment would be on unit rate basis which would be incorporated in the contract for seismic survey and drilling. As the contract would be on turn-key basis, ONGC would not control the number of persons and the type and quality of equipment. The work would be conducted on contract basis and would be covered by Soviet credit to the tune of 70 per cent of the project cost. The contracts were yet to be negotiated and signed.

3.103 In order to supplement the efforts of the two national companies (ONGC & OIL) engaged in the work of exploration and exploitation of oil, Government decided to invite foreign oil companies of repute to explore and exploit hydrocarbons in selected areas of the country. In the earlier two rounds of biddings received in 1980 and 1982 for leasing of areas for oil exploration and production, one block was awarded to a USA Company namely Chevron in 1982. This Company did exploration work in an assigned area but as no hydrocarbons were found, the Company terminated the contract. The Committee have been informed that Government was going for a third round of bidding for leasing of areas for oil exploration for which 27 blocks in different basins have been earmarked. The terms and conditions for these contracts were reportedly being

finalised. The Committee are of the view that Parliament should have been taken into confidence while taking such an important decision. Even now, the Committee would like the Government to place before the Parliament a comprehensive policy statement of Government's oil policy with particular reference to the involvement of foreign oil companies and its approach to the exploration strategy for the future.

3.101 The Committee have reasons to believe that ONGC take unduly long time in handling tenders floated from time to time for various services and contracts. The delay, apart from causing avoidable embarrassment, has resulted in a setback to the exploration programme. To give a concrete instance, it may be mentioned that Government took the decision to involve private contractors in the onshore drilling programme on a selective basis in 1984. Based on this decision the ONGC issued an advertisement in February 1985 seeking to invite bids from the prospective bidders. Since then bids have been received and series of discussions held with the bidders but no decision could be taken on any of the bids as yet. The Secretary, Ministry of Petroleum also deposed before the Committee that there were procedural delays in ONGC also for which ONGC by October, 1985 had not been finalised till April, 1986, etc. He had stated that in some cases the quotations received by ONGC by October, 1985 had not been finalised till April, 1986. More-over apart from frequent changes in the norms and rules, the term and conditions are also frequently modified from one tender to another tender. This creates the suspicion that these frequent changes are made to add or to eliminate the tenderers. The Committee feel that there is scope for tightening up of procedures both in the Ministry and the ONGC with a view to reducing delays in the finalisation of tenders and quotations. The Committee would like to be apprised of the concrete action taken in this behalf within six months.

3.105 The Committee feel that Indian companies both in the public and private sectors should be encouraged to undertake exploration activities. If the Indian companies can be made to enter oil exploration in a big way, much of the leeway in the exploration actively can be made up quickly.

G. Cost of exploratory drilling

3.106 The following table shows the estimated/actual exploratory drilling cost for on-shore and off-shore drilling:—

Year	On-shore Exploratory Drilling	
	Revised estimates	Actual
	(Cost per metre) Rs.	Rs.
1982-83 .	6,538	5,360
1983-84 .	9,078	7,543
1984-85 .	10,647	9,581

Year	Off-shore Exploratory Drilling	
	Revised estimates	Actual
	(Cost per metre) Rs.	Rs.
1982-83 .	32,276	33,477
1983-84 .	27,007	33,843
1984-85 .	27,158	32,080

3.107 During the course of examination of ONGC, the Committee pointed out that the cost of on-shore exploratory drilling has increased from Rs. 5,360 per metre in 1982-83 to Rs. 9,581 in 1984-85. Asked about its reasons, ONGC stated in a written reply as follows:—

“Activities of ONGC have expanded very substantially during the last 3 years, the number of on-shore drilling rigs having increased from 38 on 1st April, 1982 to 53 on 1st April, 1985. In terms of the rigs deployed, we have expanded our activities in geological and logistical difficult areas with deeper prospects and high pressure and temperature in some of these cases. For example, on 1st April, 1982 only 7 rigs were deployed in areas other than Eastern and Western Regions and this number has steadily increased to 13 rigs on 31st March, 1985. This has contributed to increase in the cost per metre.

Other factors that have contributed to increase in the costs are:—

Manpower

Salary of officers and staff were revised and welfare activities like liberalised leave, fare assistance scheme were introduced.

Material cost

The cost of some of the materials increased substantially in 1981-82 and early 1982-83, the effect of which, taking into account lead time, was reflected in the cost of the years 1983-84 and partly in 1984-85. During this period, the conversion rate increased from Rs. 10.00 per US dollar to Rs. 13.00 per US dollar.

Average depth

Average depth of exploratory wells increased from 2136 metres in 1982-83 to 2579 metres in 1984-85, which contributed to increase in per metre cost.

Contract services

Expenditure on contract services increased substantially in 1984-85 due to induction of 2 rigs on contract and increasing need of logging services on contract.

Use of old rigs

During these years we continued to utilise very old rigs, which were required to be laid off quite some time back, due to delay in the delivery of the replacement rigs. This adversely affected the average performance.

Induction of new rigs

During 1984-85 some new rigs were inducted and due to teething trouble these rigs could not achieve their full potential which affected the overall performance.

Infrastructure

Infrastructure including manpower and common services are required to be created ahead of actual deployment of rigs and instead of being amortised over a long period such

expenditure is charged of during the year itself. This affects the cost of drilling. To overcome such problems we are having a relook at costing system so that expenditure could be charged equitably.

Prolonged and complicated wells

Due to diversion of our drilling activities in the more difficult areas certain wells are prone to develop complications and such wells take very long time to complete, resulting in the higher cost per metre of these wells which has an impact on the total exploratory drilling cost."

3.108 Regarding cost of exploratory drilling, Member (Finance) of ONGC explained during evidence as follows:—

"Just one single factor has contributed to this in the off-shore. The rate of exchange of foreign exchange contributed a very substantial amount and in 1984-85 our Indian rupee was depreciated by 30 per cent almost in that year. So that made all the difference in the foreign exchange. The earlier estimates were based on the previous rate of exchange and the actuals have gone up because of the higher exchange rate."

3.109. In this connection Chairman, ONGC also stated as follows:—

"We have lost Rs. 122 crores in 1984-85 just in revaluation of foreign exchange loans. You can just imagine the impact of this on an organisation like ours. About on-shore, the component of foreign exchange is comparatively much less. So, the impact there is much less."

Chairman, ONGC further added:—

"The deeper you go, the cost is more.....Depth of drilling depends on the geological objectives and would vary from basin to basin. With new geological concept, deeper wells may have to be drilled even in areas where earlier drilling was to lower depths."

3.110. Asked about the necessity of going for deeper depths, he stated:—

"With the new geological concepts you have to go deeper and deeper. Take the case of Himachal and Jammu. The depth of the wells there is 6000 to 7000 metres as

compared to half in other areas. The cost of drilling there will be very much high."

3.111. The Committee further pointed out that while there was steep increase in on-shore exploratory drilling cost, on the other hand there was marginal reduction, in off-shore exploratory drilling cost. Enquired about its reasons, Chairman, ONGC replied as follows:—

"Our costing system is slightly different in the case of on-shore and off-shore. That is why, a Committee has been appointed to do the rationalisation."

3.112. The Committee further pointed out that there were wide gaps between the revised estimates and actual cost and there was need for refining the budgeting process. To this Chairman, ONGC, replied as follows:—

"That is a fact. Action is already on in this respect."

3.113. The Committee further wanted to know as to how the exploratory drilling cost of ONGC compared to that of Oil India Ltd., Chairman, ONGC stated during evidence as follows:—

"The number of wells that Oil India drilled in 1984-85 was 9 exploratory wells with an average depth of 1988 meters and the average cost per meter is Rs. 9889. In the Eastern region which is contiguous area to Oil India, we completed 14 wells in that year. The average depth of the well was 3540 meters and the cost per meter comes to Rs. 7652."

3.114. Asked about the comparison of cost of exploration of ONGC with international oil companies, ONGC stated in a written reply as follows:—

	Recoverable Reserves (MMt)	Exploration Expenditure (Rs. crores)	Exploration cost during VI Plan	
			Cost	
			Rs./Tonne	\$/bbl.
On-shore	67	509	76	0.90
Off-shore	140	837	60	0.69
Total/average	207	1346	65	0.74

This compares favourable with the average exploration cost of \$9.62/barrel (1978-83) in case of 12 international oil companies.

<i>Cost of production of oil</i>	<i>Rs./tonne</i>	<i>\$/bbl</i>
Average cost of production of oil (1980-81)	686.57	7.53

The above production cost is comparable to \$11.80/bbl. average cost of 15 US companies."

3.115 The Committee note that the cost of onshore exploratory drilling increased from Rs. 5,360 per meter in 1982-83 to Rs. 9,581 per meter in 1984-85. However, during the same period the cost of offshore exploratory drilling showed marginal decline. The per meter cost of off-shore exploratory drilling was Rs. 33,477, Rs. 33,843 and Rs. 32,080 respectively during the years 1982-83, 1983-84 and 1984-85. In this regard various reasons like deployment of more rigs, increase in salary etc. of the staff, increase in material cost and drilling in deeper depths, etc. have been advanced by the ONGC. The Committee feel that since these reasons are common to off-shore drilling also, there does not seem to be any justification for the steep increase in cost of onshore exploratory drilling. The Committee recommend that this aspect should be gone into depth and concerted efforts should be made to effect the economy in the onshore drilling costs in particular. The Committee are of the firm view that this is certainly an area where ONGC can effect substantial economies.

3.116 The Committee were also informed by ONGC that the costing system was different for onshore and offshore drilling and a Committee had been constituted for rationalisation of costing systems. Similarly the Committee have noted that there were wide gaps between the revised estimates and actual cost of drilling in case of both onshore and offshore drilling during the last 3 years. Admittedly there was need for further refining of the budgeting process and necessary remedial action was stated to have been initiated in the matter. The Committee need hardly stress the importance of these aspects, viz. rationalisation of costing system and refinement of budgeting process. The Committee, therefore, recommend that ONGC should expedite action for strengthening the cost control system in the Commission.

CHAPTER IV

SELF SUFFICIENCY IN OIL

4.1 The following table shows the total production of crude oil in the country as well as the requirements at various intervals of time from 1947 to 1985:

Year	India's total Production of crude oil in million tonnes	India's requirement in million tonnes	Percentage self- sufficiency
1947	0.25	2.5	10
1949-50	0.30	3.17	9.46
1955-56	0.31	4.92	6.30
1960-61	0.40	8.5	4.8
1965-66	3.50	12.43	28
1970-71	6.80	19.30	35
1975-76	8.44	23.67	35.65
1980-81	10.5	22.26	47.54
1981-82	16.2	34.10	47.50
1982-83	20.8	36.39	57.15
1983-84	26.4	37.77	69.89
1984-85	28.99	40.0	73

4.2 The following table shows the targetted production vis-a-vis requirement of crude oil during Seventh Five Year Plan.

Year	Production of crude oil	Requirements/ Consumption of petroleum products	Shortfall
	(Million tonnes)	(Million tonnes)	(Million tonn)
1985-86	30.14	44.68	13.94
1986-87	31.08	47.71	16.63
1987-88	31.48	51.20	19.72
1988-89	31.91	54.55	22.64
1989-90	34.53	56.98	22.45
Total	159.14	254.52	95.38

4.3 The growth in demand for oil has been stated due to the industrialisation, economic development, growing population and raising the consumption level. It is seen from the above table that production of crude oil has been much below the country's total requirement. The gap between the production and requirement is bridged by import of crude oil from other countries.

4.4 The total imports of crude oil during Sixth Five Year Plan (1980—85) were of the order of Rs. 18,095 crores. The import of petroleum and petroleum products during the year 1985-86 were estimated at Rs. 4565 crores. Similarly, for the year 1986-87, the expected import bill on account of petroleum and related production is Rs. 4215 crores.

4.5 One of the key objectives of ONGC is to achieve self-sufficiency in oil. During the course of evidence of the representatives of ONGC, the Committee enquired as to what extent they have achieved their objective to take the country towards self-sufficiency in oil. Chairman, ONGC stated as follows:—

“In 1956 the total production in the country was 0.396 million tonnes against our consumption of 6.274 million tonnes and the percentage of self-sufficiency was about 6.31. In 1984-85, the total production is about 29 million tonnes against a consumption figure of approximately 41 million tonnes and our self-sufficiency is about 70 per cent (ONGC's contribution being 91 per cent). We have to do a lot more work and accelerate our exploration activities to get nearer to the goal of self-sufficiency in hydro-carbons and that is what we have done in the last couple of years. We have increased our capabilities both in terms of manpower, expertise and infrastructure and we are geared to take the country near the goal of self-sufficiency.”

4.6 In reply to a specific question about the period by which country could become self-reliant, he stated:—

“...We are taking desired steps to develop capability within the country and within ONGC. We are quite confident, provided the resources are allocated, that there is no reason why by the end of the century, we should not achieve self-sufficiency or near about self-sufficiency.”

4.7 On being pointed out by the Committee that there was a need for increasing the exploratory efforts to make the country self-

reliant in the matter of oil and related products, ONGC stated in a written note as follows:—

“Self-sufficiency being relative term is directly related with the demand pattern. During the last five years or VIth Plan there has been substantial bridging of the gap between supply and demand. This has mainly been due to increase in oil production by ONGC from 9.21 MMT in 1980-81 to 26.26 MMT in 1984-85 an increase of 185 per cent. This clearly shows our march towards the goal of self-sufficiency.

As on today, ONGC had built up sufficient infrastructure to augment its activities in a big way. A look on the proposed VIIth plan and 20 years perspective plan programme will indicate that our programmes are aimed at further increasing the production levels so as to minimise the gap between demand and production progressively to attain self sufficiency.

There is a need to further accelerate exploration activity.”

4.8 ONGC had indicated in their perspective plan that the demand of oil by end of 2005 would be 75 MMT as against the estimated production of 55 MMT. Asked about the steps taken for minimising the gap between demand and production, Chairman, ONGC stated as follows:—

“I share your concern...That raises the question of inputs. Exploration must be accelerated. We have various plans. We can explore all the sedimentary basins. We can do all these provided inputs are given. Regarding 7th Plan we made a projection to Planning Commission of nearly 17,000 crores; they reduced the work programme and they said they will give us approximately 12,000 crores. Finally they made allocation of 8852.67 crores. It is a question of continuous upgradation of reserves; finding new methods of production and so on. We have schemes by which we can go upto the production of 45 million tonnes by the end of the plan. Today with the allocation made to us we will be able to achieve nearly 31 million tonnes. Ultimately it is not the ONGC which has freedom to decide how much money should be allocated.”

4.9 Asked about the portion of the expected total production during the Seventh Plan which was to be produced by ONGC. ONGC in a written note stated as follows:—

“As per the draft VII Five Year Plan, ONGC was to produce 146.4 MMT of crude oil during the entire plan period. However, the production of crude oil envisaged during the plan as approved by the Govt. is 138.39 MMT. & 143.64 MMT as per planning Commission's approved work programme. The reduction is due to the reduced outlays sanctioned by the Government.”

4.10 During the course of examination of the Ministry, the Committee wanted to know the specific period by which Ministry proposed to achieve self-sufficiency. Secretary, Ministry of Petroleum and Natural Gas stated as follows:—

“Since exploration of oil is a probabilistic exercise it is not possible to indicate with any certainty that self-sufficiency can be attained. The ONGC themselves have been saying that finding oil is not directly proportional to the resources allocated. It is a probabilistic exercise. A lot of money may be spent and still no oil may be found. So, they say that if more money is given, they can explore and hope to find oil. We would not go so far as to say as the Chairman is reported to have said that if resources are provided, we can attain self-sufficiency. We cannot say anything with any amount of certainty. If resources are provided, more exploration can be done...People have explored for years together without finding oil. Later at some time they do find. There is an element of chance, there is an element of probability.”

4.11 In reply to a question regarding self-sufficiency, Minister of Petroleum and Natural Gas stated in Lok Sabha on 11-3-1986 as follows:—

“...During the last 18 months, the rate of growth of consumption of petroleum and petroleum products has been 7 per cent. ...While during the 6th Plan period in 1981-82 the degree of self-sufficiency involved was of the order of 13.6 per cent, at the end of the 6th Plan period, we reached a figure of 70 per cent. But the present projections are that this is going to decline, and by the year 1989-90. the degree of self-sufficiency may be down to 61 per cent or so.”

4.12 The Committee enquired about the reasons for fall in self-sufficiency during Seventh Five Year Plan. Secretary, Ministry of Petroleum Natural Gas stated:

"The increase in production is not able to match the increase in demand that is why percentage of self-sufficiency is going down."

He further explained:

"The demand has been put in the 7th Plan at 56.9 million tonnes. To meet this demand, we have had not only indigenous crude which goes into our refineries but also imported crude to feed our refineries. Over and above the refining capacity for crude, some petroleum product has to be imported. In the seventh plan period, if the demand as such grows at about 7 per cent per year, it means the average annual rate is about 3 million tonnes a year. Now, to meet this growth in demand every year of 3 million tonnes means the increase in domestic production of crude should also be at least 3 million tonnes. If we have to increase the efficiency, that is 70 per cent self-sufficiency which we have achieved, even to maintain that level, the increase in crude production per year will have to be 3 million tonnes. The production which has been estimated in the 7th plan works to about 34.5 million tonnes compared to the production at the end of the 6th plan. Since we are not able to catch up with the demand each year, the degree of self-sufficiency goes down in the 7th plan."

4.13 Asked whether the reasons for growing demand for petroleum and petroleum products have been examined, Secretary stated as follows:—

"Looking at the structure of the demand of petroleum products in the country, we should take into account three of four factors. One is, in the history of developing countries, economic development calls for additional inputs of energy. There is energy co-efficient of development. If you want 5 per cent growth in the economy, and if our energy co-efficient is 1.5 per cent the growth of energy requirement is 8 to 8.5 per cent to support a 5 per cent growth in the economy. We have had an analysis of the energy co-efficient of the Indian economy for the last 20 years. It varies from 1.4 per cent, 1.5 per cent to 1.6 per cent. If you take the lower rate of 1.4 per cent

and if you want our economy to grow at 5 per cent that itself put the additional demand to 7 per cent. A few years ago, the share of petroleum was 46 per cent, and now it is close to 52 per cent. If the total energy requirement grows up by 7 per cent, the oil demand obviously has to grow a little higher than 7 per cent. We have the demand in the agricultural sector, household sector, transport sector and industrial sector."

4.14 Asked about the steps taken for enhancing the domestic production to achieve the self-sufficiency, the Ministry stated in written note that a number of steps have been taken to increase the production of crude oil and move towards self-sufficiency; these include:

- (i) Intensification of exploration which may eventually lead to enhanced production;
- (ii) Intensification of workover operations;
- (iii) Use of enhanced recovery techniques;
- (iv) Induction of advanced technology; and
- (v) Conservation measures aimed to curb consumption.

4.15 Chairman, ONGC during evidence before the Committee suggested that to achieve self-sufficiency in oil there was need for a integrated energy policy in the country. In this connection he stated as follows:—

"Self-sufficiency is to be seen in the total perspective of the energy system as a whole. There are countries in the world like Sweden which do not have any hydro-carbon resources. But they have decided to move away from dependence on oil and they have given a big thrust to hydel, nuclear and other alternative sources of energy and they have achieved self-sufficiency in resources. Oil is only one of the components of energy sources. We have abundant resources of coal and hydel energy and only 15 to 16 per cent has been exploited so far. Through an integrated national energy plan if we can work out as to how we can switch over from one field of energy to another, the demand on oil front can be managed a little more effectively. If that is managed, as we have projected in our long term conceptual plan, we can achieve self-sufficiency by the end of this century."

He further added:—

“One of the objectives of the ONGC is to achieve self-sufficiency. The demand for the crude or for the hydro-carbon will increase with the economic development of the country. Of course, it is very essential that the country should have what we call an integrated energy plan. So, in the long run you can put as one of the objectives to move/away from dependency on oil so that you can switch over to other sources of energy and economise the use of petroleum product and conserve petroleum product. Once that integrated plan is there, we will be able to achieve self-sufficiency even much earlier, because there will be demand management of the crude.”

4.16 During the course of examination of the Ministry, the Committee wanted to know whether the Government have worked out any Integrated Energy Policy covering the availability of oil, coal, hydel resources and their utilisation, the Ministry informed in a written reply that the Government of India (Cabinet Secretariat) set up an Advisory Board on Energy on 21st March, 1983. The Board was entrusted the task of formulating an integrated energy policy. It has already made several recommendations in September, 1983 and February, 1984.

4.17 The Committee note that the production of crude oil increased from 10.5 million tonnes in 1980-81 to 28.99 million tonnes in 1984-85. The demand for oil in the country increased from 22.26 million tonnes to 40 million tonnes during the same period. A redeeming feature has been that the percentage of self-sufficiency has also increased from 32.54 in 1980-81 to 73 in 1984-85. The gap between the production and the total requirements is bridged by imports of crude oil from the other countries. The total imports of crude oil during Sixth Five Year Plan were of the order of Rs. 18,095 crores. During Seventh Five Year Plan also, there will be wide gap between the indigenous production and the requirement. The Committee feel dismayed to learn that as per the projections of the Seventh Five Year Plan, at the end of Seventh Plan the self-sufficiency ratio is likely to come down to 61 per cent from the present level of over 70 per cent. This would be on account of increase in demand being more than increase in the production. Thus, unless new sources of oil are discovered and exploited quickly, the country's dependency on imported oil will go up to alarming levels. In such a situation, the country has little option except to locate and develop new fields unless there is no constraint of foreign exchange available for imports. The Committee, therefore, recommend that concerted efforts

should be made to maintain at least the present level of the self-sufficiency ratio in the demand and production of oil if it is not possible to improve it further.

4.18 Chairman, ONGC informed the Committee during evidence that country could be self-reliant in the matter of oil and related products by the end of this century provided adequate resources were available for exploration/exploitation of hydrocarbon resources. On the contrary, the Secretary, Ministry of Petroleum and Natural Gas painted a very bleak picture before the Committee stating that since exploration of oil is a probabilistic exercise, it was not possible to indicate with any certainty that self-sufficiency could be achieved within a given time-frame. The Committee view with concern this lack of commitment on the part of the Ministry. Keeping in view the vital importance of availability of oil and oil products in the economy of the country, the Committee expect that the least the Government can do is to frame realistic targets to achieve self-reliance in the matter of oil and related products and somehow provide the necessary resources for the realisation of these targets. They cannot absolve themselves of the responsibility by merely stating that oil exploration was a probabilistic exercise. It is no doubt necessary that such a decision can be taken only at the highest level of the decision-making in the Government and the Committee would like the Ministry of Petroleum and Natural Gas to take this matter to the appropriate forum.

4.19 The Committee's examination has also revealed that the Government have not framed any integrated energy policy for the country taking into account all the energy sources like coal, hydel and other energy sectors. For this purpose, Government appointed an Advisory Body on Energy in March, 1983 for formulating an integrated energy policy. It is stated to have given several recommendations in September, 1983 and February, 1984. The Committee recommend that Government should examine these recommendations early and place before Parliament and integrated energy policy at the earliest. If necessary, some high powered committee could be appointed having some experts on it. The Committee would like to be informed of the action taken in this regard.

CHAPTER V

RESEARCH AND DEVELOPMENT

5.1 The research and development activities of ONGC are mainly conducted in their three research institutes, namely (i) KDM Institute of Petroleum Exploration (KDMIPE), Dehradun, (ii) Institute of Drilling Technology (IDT), Dehradun and (iii) Institute of Reservoir Studies, Ahmedabad. ONGC is also in process of setting up additional two institutes viz. Institute of Petroleum Technology and the Institute of Engineering and Ocean Technology both at Panvel, Bombay. The estimated cost of setting up of these two new institutions is Rs. 8 crores and Rs. 9.86 crores respectively and construction work was to begin in November, 1985.

5.2 The Committee enquired about the main achievements of the research institutes during the last 3 years. ONGC stated in a written note as follows:—

“The achievements during the last 3 years of KDMIPE & IDT are as under:

KDMIPE

- Estimation of reserves for the oil and gas in Indian sedimentary basins as on 1st Jan. for each year. Carried out basin & prospects evaluation in Category I & II basins. Prepared delineation plan for new discoveries. Carried out geological analysis; prepared exploration plan for each Sedimentary basin. The Institute has developed sedimentation models for deltas, reefs and turbidites fan deposits; Developed computerised reserves resource appraisal and exploration planning model & software model for techno-economic appraisal of prospects; 3D genetic simulation modelling of Cambay basin was carried out .
- Carried out Bio-stratigraphic and palaeo-environmental studies; geo-hisrory analysis, biomatic analysis, the land-sat imagery, photogeological studies of sedimentary basins.
- Carried out geo-chemical studies for various exploratory wells, besides the regional geological studies for deep continental shelf margin of Bombay offshore Region; Identified

an indigenous corrosion inhibitor suitable for wells for Bombay offshore. Developed methods for separation of sulphur compounds in crude oils.

- A resolution photo inclinometer for recording inclination and azimuth within well bore has been developed, and seeking patents in other countries are in progress.
- A method has been developed for pre-stack suppression of marine multiples using wave equation and mathematical model for secondary recovery of oil and applied to Bombay High field.
- Developed (i) a computer programme for gas distribution net work system with compressors & regulators, (ii) compaction model and its software to determine and sedimentation rate curves.
- Studies on water injection and stimulation job and PVT analysis carried out; software programmes were developed for production response by cyclic steam injection which utilized transient flow as well as steady state flow models. Studies on microbial degradation of crude oil were initiated to control oil spills.
- Prepared maps and dockets of onshore and offshore blocks in various sedimentary basins, completed consultancy services to Ceylon Petroleum Corporation Sri Lanka; A contract study on the Jurassic's of Abu Dhabi National Oil Company.

IDT

- Indepth study has been conducted on Pore Pressure in Tripura, West Bengal, Krishna Godavari and Cachar areas.
- Methodology has been developed for predicting the pore pressure while drilling. This will help in designing the casing policies for these areas.
- The Institute has synthesised mud cement additives and patents are being obtained for these. Efforts are also being made to commercialise these additives through private entrepreneurs. Five such chemicals have been synthesised. Presently these chemicals are being imported.

(a) Idex-Substitute for imported Resinex.

(b) Ferro Chrome Ligno-sulphonate-Substitute for imported FCLS.

(c) Substitute for imported water loss reducing agent Halad-9.

(d) Substitute of imported cement retarder HR-12.

(e) Substitute for imported friction reducer CFR-2.

- Designed Potassium Chloride-Potassium Lignite mud system for drilling high pressure wells in Rokhia. This was successfully used for drilling Rokhia well No. 1 upto a depth of 4322 meters.
- Developed low weight foam cement for use in low pressure reservoir.
- Developed instrument for measuring wettability of shales.
- Has laid down standard specifications for equipment used for drilling.
- In the Training Division a total of 415 Trainee Drillers have been imparted induction training and 562 officers of drilling discipline have been imparted refresher courses.
- The Institute has prepared the following manuals:
 - (i) Drilling Operations Manual
 - (ii) Well Control hand book.
 - (iii) Well Control Instructions Manual
 - (iv) H2S Safety Manual
 - (v) Pore Pressure Detection Manual."

5.3 In reply to a question about technological capability, ONGC has stated that during the last two decades, it has acquired considerable expertise in the field of oil exploration. In so far as onshore oil exploration is concerned, ONGC has become more or less self-sufficient and has been conducting the activities on their own. However, ONGC has been availing foreign expertise in certain selected areas in order to update the indigenous technology and to draw upon the experience of foreign oil companies in these fields. In the field of off-shore exploration also ONGC has gone a long way towards self-sufficiency. However, in view of rapid developments in technology in this area, ONGC has been going in for assistance from reputed foreign oil companies.

5.4 During the course of the evidence of the representatives of ONGC, the Committee pointed out that one of the key objectives of

ONGC was to achieve self-reliance in technology and wanted to know as to what extent this objective had been achieved by ONGC so far. Chairman, ONGC stated as follows:—

“To achieve this we have three institutions... We are setting up two more institutes for which nucleus has already been set up... We have more than twenty years’ experience, we have a very large number of highly trained and eminent geo-scientists and engineers. We will continue to update our technology. We carry out what we call a status report on technology every year which enables us to find out the gap between us and the outside the world and we continue to interact with various organisations both on the western side and eastern side and continue to get their assistance to fill up those technological gaps. We also export our technology to some of the neighbouring countries. So, it is a continuous process. No country can say it is totally self-reliant because all the time some of the technologies are getting developed.”

5.5 Explaining it further ONGC stated in a written note as follows:—

*“Self-reliance in technology:—*Upgradation and or self reliance in technology is a continuous process and ONGC has been striving hard to update and get the best technology available in the World. This has been accomplished through intensive training and association of our technical personnel within the country and abroad with foreign companies of repute. ONGC has today developed sufficient R&D back up to help bridge the technological gap. ONGC’s institutes are engaged in adaptative R&D to meet the current need of operations and will be able to gradually take up the high technology jobs itself.

Technological gaps in each operational area have been identified. The information on latest technologies are gathered by our scientists through the best literatures available and attending international seminars and conferences.

ONGC is also in the process of entering into Memorandum of Understanding with several oil companies of repute, the World over for exchange of the latest developments

in the fields of oil exploration and production. Collaborative research efforts are made with various universities and institutes of repute.

To further strengthen R&D and bridge the technological gap, two more institutes, namely, Institute of Production Technology and Institute of Engineering and Ocean Technology are being set up.

ONGC has been able to export its technology to neighbouring developing countries i.e. Abu Dhabi, Iraq, Tanzania, Sri Lanka."

5.6 Asked about the need for engaging a number of foreign companies for consultancy services, etc. Chairman, ONGC stated during evidence as follows:—

"One method that we have been following is that 80 per cent of our work in the R&D should be immediately useful to the regions in which the institutes are located. They are going to work as profit centres. Now, no country is self-reliant in technology. Somewhere or the other in the world you will find a lead coming up. We also prepare state-of-the-art reports in each Institute to find out the technology gap between us and others. We try to take a deliberate decision as to how to fill up that gap. Sometimes, we collaborate with some companies, sometimes individuals. We keep on sending our people and invite foreign experts through UNDP and others and interact to fill up technology gap. But I can say that we are as good as anybody else in the world. Our limitation is that we are unable to get inputs from foreign countries fast enough. For example, the computer ordered by us in November, 1984—actually indented for in July, 1982—has not been released by the American Government so far."

5.7 Asked about the system of interaction and collaboration between ONGC and foreign companies in respect of technology for survey & exploration, ONGC stated in a written note as follows:—

"When foreign companies are awarded contract for survey work, ONGC scientists are associated both during the data acquisition and data processing stages. Continuous

inter-action is established between the operators and the ONGC officers working in that area. These help the ONGC officers to understand the methodology and technology utilised by the companies."

5.8 Enquired about the forums on which Indian and foreign experts meet, ONGC replied:

"International conferences|symposia|seminars|Workshops are some of the forum where Indian and foreign experts meet. An Indo-Soviet collaborative project for seismic surveys in West Bengal has been in operation since 1982 and there is also an exclusive Soviet seismic party working there. The Indian and USSR scientists are intimately associated in the acquisition of the data and also during the time when the data are processed and interpreted in USSR. The interpretation reports are subsequently discussed in joint meetings conducted in India. There are also Russian experts working on specific interpretation projects in West Bengal, Assam and Western Region in which Indian Scientists are associated. The progress of their work is constantly reviewed and discussed in periodical meetings. Similarly the contract for development of Bombay High with CFP of France provided an opportunity to a large number of Indian and French experts to meet "

5.9 In this connection, Chairman, ONGC also stated during evidence:—

"We are going to have a memorandum of understanding and we will continue to have interactions in certain areas like horizontal drilling, productions of heavy oil, upgradation of heavy oils, drilling in deeper waters, enhanced oil recovery techniques etc."

5.10 In reply to a specific question of the Committee whether getting of consultancy services from foreign companies was due to inadequacy of R&D facilities at ONGC, Chairman, ONGC stated:—

"It is not because of that. Take for example the enhanced oil recovery technique. Those techniques have not been fully developed anywhere in the world and we have initiated nine pilot schemes in that area. We are putting in a lot of effort as compared to others."

5.11 About the capability of its R&D units, ONGC also stated in a note as follows:—

“As a result of the sustained R&D efforts, today ONGC has a high degree of expertise, professional competence and in house capabilities to carry out most of its operations independently. The organisations also has necessary infrastructure available for undertaking exploration ventures, job contracts and consultancy services in various fields of exploration and explanation of its own and jointly in third world countries.”

5.12 The Committee also wanted to know whether ONGC had any association with universities and institutions for technical education. Chairman, ONGC stated during evidence as follows:—

“This is a very good point Sir. We have very close interaction not only for training but also we are trying to form out R&D work there. We have closer interaction between ONGC as an industry with educational institutions. We have very close collaboration with the Dhanbad School of Mines, with Roorkey University, with IIT Bombay and IIT Madras and recently I have written to a large number of Vice-Chancellors of university and scientific bodies for a workshop which will be held either on 14th or 19th November. It is only to have more interaction with these educational institutions both for training as well as for R&D work.”

5.13 In reply to an another question, Chairman ONGC also informed the Committee during evidence that they were setting up regional laboratories for quicker processing facilities. He added:—

“We have conducted a study two and a half years back about setting up of regional centres and we are going to make an investment of approximately Rs. 300 crores on the laboratories being set up in the regions.”

5.14 On being asked by the Committee whether in addition to setting up of regional laboratories was any attempt made to decentralise the training programme to cover larger manpower of ONGC, Member (Personnel) of ONGC stated:—

“We have already done this by locating the staff training Institute, one each in Nazira, Baroda and Bombay.

Earlier, there was only one training institute in Dehradun and we had no training facilities of our staff there because it was mainly used for executive development and for the staff training we have now located three institutes and fourth is being contemplated in Kakinada. The Institute of Production Technology and the Institute of Ocean Engineering Technology both are located in Panvel, Bombay."

5.15 During the course of examination of the Ministry, the Committee wanted to know the views of the Ministry in regard to level of technology advancement in R&D units of ONGC. Secretary, Ministry of Petroleum and Natural Gas stated as follows:—

"We have set up a number of Institutes—Institute of Reservoir Studies, Institute of Drilling Technology, etc. and we are building up institutions by getting the best available assistance and technology transfer from outside. Our own people are getting trained better and better in these institutes. The quality of these institutes has been very well commented upon even by foreigners. Our people are up to date."

5.16 The Committee further enquired whether Ministry had any monitoring group or machinery for ascertaining the level of technology for survey and exploration available in the country and to what extent it was necessary to obtain from other countries. Secretary, Ministry of Petroleum and Natural Gas stated as follows:—

"We have an Advisory Committee of different scientists set up by the Ministry consisting of exploration experts in the country. ONGC is getting the best available technology in the world. For instance, in Bombay High, they have got the best experts in the world from a French Company to advise them on reservoir study of Bombay High."

5.17 In reply to a question whether ONGC was in a position to acquire best technology available in the world, the witness replied:

"ONGC may not have in their organisations today the technology but they certainly knew where the up to date technology is available in the world."

5.18 The Committee further wanted to know whether foreign companies were agreeable to part with their latest technology, Secretary, Ministry of Petroleum and Natural Gas stated:—

“There are certain techniques which are not available for purchase. If there are such techniques which are not available for purchase, there is nothing we can do about it. What-
ever, technology is available for purchase, we got the best.”

5.19 On being asked by the Committee whether the Ministry ensure that ONGC gets the latest technology from foreign companies, Secretary stated:—

“The technology employed for onshore is different from that of offshore. ONGC has been given the facility of importing latest equipment and latest technology, of course, subject to availability. But technology is one thing and technique is another. That is why, we want foreign companies to come and explore with us. The basic reason is to supplement the efforts of oil India and ONGC and thereby get not only latest technology but also the techniques of exploration.”

5.20 The Committee enquired about the annual budget of ONGC earmarked for R&D activities. ONGC stated in a written reply that 1.9 per cent of the total approved Seventh Plan outlay has been earmarked for R&D activities of the Commission.

5.21 During the course of evidence of the representatives of the Ministry, the Committee pointed out that the money allocated for R&D programme was less. Asked about the views of the Ministry in this regard, Secretary, Ministry of Petroleum and Natural Gas stated:—

“It is a question of resources available to the ONGC.”

He further added:—

“We have to take into account the share of R&D and exploration. We cannot have one at the cost of the other. The *inter se* allocation between R&D and production has to be done by the ONGC. We leave it to them to how much they want for R&D and how much for exploration. If they themselves want to spend more on R&D than on exploration, it is for them. But we think that while provision should be made for R&D, sufficient provision should also

be there for exploration activities so that we would be able to keep pace with the technological developments in the field."

5.22 The Committee also wanted to know the money spent on import of technical consultancy, machinery, spares, rigs, computers, etc. for survey and exploration activities during the years 1982-83, 1983-84 and 1984-85. ONGC replied in a written note as follows:—

"Separate foreign exchange figures for survey and exploration activities are not maintained. The total foreign exchange expenditure during the last 3 years was as follows:—

	(Rs. in crores)
1982-83	920
1983-84	982
1984-85	1189"

5.23 In this connection, Member (Finance) of ONGC also stated during evidence:—

"We do not keep figures on the basis of specifications relating to survey and exploration activities but on an overall basis. So, it would not be possible to bifurcate or break down those figures."

5.24 The research and development activities of ONGC are mainly conducted in their three institutes, viz. (i) KDM Institute of Petroleum Exploration, Dehradun, (ii) Institute of drilling Technology, Dehradun and (iii) Institute of Reservoir Studies, Ahmedabad, ONGC is also in the process of setting up two additional institutes viz. Institute of Petroleum Technology and Institute of Engineering and Ocean Technology both at Panvel, Bombay at the cost of Rs. 8 crores and Rs. 9.86 crores respectively. The construction work for these institutions was to begin in November, 1985. The Committee recommend that ONGC should adhere to the original schedule for completion of these institutions so that cost over-runs caused by delay in setting up the institute could be avoided. They need hardly stress the need for monitoring the project schedules on regular basis for timely completion of these institutes.

5.25 The Committee have been informed by ONGC that they have acquired considerable expertise in the field of oil exploration. In so far as on shore oil exploration is concerned, ONGC has become more

or less self-sufficient and has been conducting the activities on their own. However, ONGC has been availing of foreign expertise in certain selected areas in order to update the indigenous technology and to draw upon the experience of foreign oil companies in these fields. In the field of off-shore exploration also, ONGC is reported to have gone a long way towards self-sufficiency. However, in view of rapid developments in technology in this area, ONGC has been going in for assistance from reputed foreign oil companies. ONGC is also reported to have identified the technological gaps in each operational area. The acquisition of latest technology for filling up the gaps is done with continuous interaction with foreign companies through training and association of technical personnel, international conferences/symposia/seminars/workshops within the country and abroad. The Committee recommend that further efforts should be made for absorption of latest technology in ONGC in the field of survey, exploration and production of oil, which is very essential for achieving the goal of self-sufficiency in oil and related products in the country.

5.26 Even though ONGC has been maintaining that their technology was comparable to foreign companies and they were near the goal of self-reliance in this field the Committee are dismayed to learn that the foreign exchange spent by ONGC has been increasing year after year. Foreign exchange outgo on account of ONGC's activities increased from Rs. 920 crores in 1982-83 to Rs. 1189 crores in 1984-85. The Committee feel that more efforts are needed to indigenise all sorts of technology and tools for exploration and exploitation of hydrocarbon resources in the country so as to minimise the outgo of much needed foreign exchange. Vigorous efforts by R&D and therefore called for.

5.27 The Committee were informed by Chairman, ONGC that ONGC has been able to export its technology to neighbouring developing countries i.e. Abu Dhabi, Iraq, Tanzania and Sri Lanka. The Committee appreciate that this is a step in the right direction. The Committee need hardly emphasise that the exports of technology to other countries should be augmented to earn the foreign exchange and efforts should be made to achieve break-even point in balance of payments so far as ONGC's imports and exports are concerned.

5.28 The Committee note that only 1.9 per cent of ONGC's approved outlay of Seventh Five Year Plan has been earmarked for R&D activities. Since ONGC is a premier institution in the field of exploration and exploitation of hydrocarbon resources in the country, the Committee are of the view that sanctioned funds for R&D acti-

vities are inadequate and importance of R&D development should not be lost sight of. They, therefore, recommend that ways and means should be found to increase the funds for R&D activities of ONGC.

5.29 The Committee are surprised to know that ONGC do not maintain separate figures of foreign exchange expenditure incurred on import of technical consultancy, machinery, spares, rigs etc. required for survey and exploration activities. The Committee feel that such statistics are necessary to know the extent of yearly dependence of ONGC on foreign countries in the field of technology for survey and exploration and the Committee, therefore, recommend that ONGC should maintain an account of foreign exchange expenditure under different heads and it should also be clearly brought out in the annual reports of ONGC so as to enable the Parliament and public to have access to the vital facts.

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NEW DELHI

August 18, 1986.

Sravana 28, 1908 (Saka)

K. RAMAMURTHY,

Chairman,

Committee on Public Undertakings

APPENDIX

Statement of Conclusions/Recommendations of the Committee as Public undertakings contained in the Report.

S. Reference to No. Para No. in the Report		Conclusions/Recommendations
1	2	3
1	1.11	The Committee note that in terms of Bureau of Public Enterprises guidelines issued in 1970, 1979 and 1983 each public undertaking was required to formulate with the specific approval of the administrative Ministry, a statement of objectives and obligations which should <i>inter alia</i> , lay down the broad principles for determining the precise financial and economic obligations of the undertakings in the matter of creation of various reserves, responsibility of self-financing, the anticipated return on capital employed etc. However, the Committee find that Ministry of Petroleum asked the undertakings under their administrative control to frame their objectives only in June, 1983. No action seems to have been taken on the guidelines issued by BPE earlier in 1970 and 1979. This is highly regrettable. Taking note of the statement made by the Petroleum Secretary that corporate Plans of all the undertakings under his Ministry would be finalised in about three months, the Committee would like to be informed whether all the undertakings under the administrative control of Ministry of Petroleum have since formulated their micro objectives in terms of the BPE guidelines.
2	1.12	The Committee do not find any justification in the reply given by ONGC to the Ministry in July and October 1983 that they need not frame

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their objectives as their objectives were given in the preamble to ONGC Act and their functions as mentioned in Section 14 of the ONGC Act 1959 were the objectives. The Committee need hardly point out that the functions and objectives mentioned in ONGC Act are worded rather too generally while objectives and obligations to be framed under BPE guidelines are required to spell out specifically the broad principles for creation of various reserves, responsibility of self-financing, the anticipated return on capital employed and other matters. These objectives wherein clearly spelt out provide basic parameters for evaluating the performance of the undertakings and taking timely remedial measures, wherever necessary. The Committee would like that the micro objectives of ONGC should be clearly spelt out and laid before Parliament within three months.

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The Committee note that even though the Bureau of Public Enterprises had issued guidelines as far back as in 1974 to the effect that each Undertaking was required to prepare a Corporate Plan with formal ratification/approval by the administrative Ministry, the Ministry of Petroleum undertook to pursue the matters only after the Committee on Public Undertakings (1983-84) had brought out in their 91st Report on Bharat Petroleum Corporation Ltd. that oil companies had no uniform approach to corporate plan and had recommended that all undertakings should prepare their Corporate Plans with formal ratification/approval by the Ministry. The Committee are unhappy to find that even after a lapse of about two years, the Corporate Plans of most of the undertakings including ONGC are yet to be finalised. The Committee would urge that Ministry of Petroleum should fix responsibility for this sorry state of affairs. The Com-

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mittee must stress once again that Corporate Plans of all undertakings under their administrative control must be finalised without further delay as they feel that this would not only help individual undertaking to achieve their long term objectives but also the Ministry would have an overall view of the production and requirements of petroleum and related products in the country.

4 1.14 The Corporate Plan for ONGC, the details for which were reportedly being worked out should be finalised early and laid before Parliament immediately and in any case before the end of 1986.

5 2.23 The Committee find that actual staff strength at ONGC Head Office increased from 1826 in 1981 to 2530 in 1985. ONGC has stated that on account of expanding exploration and exploitation activities there has been corresponding increase in work relating to planning budgeting, control, etc. at Head Office. The Committee were also informed that as a result of implementation of reorganisation scheme efforts were being made to shift many persons from Head Office to regions where operational activities were increasing and there was possibility of reducing the manpower at Head Office by 30 per cent. According to the Committee, this is a step in the right direction and ONGC should complete this exercise as early as possible.

6 2.24 The Committee note that ONGC had appointed M/s. Foundation for Organisation Research (FORE) as consultants to give an objective and independent assessment of total manpower requirements/norms in the Commission. The report of the consultants was still awaited. The Committee recommend that since the total staff

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		<p>strength of ONGC, is over 40,000, the deployment of the staff strength in various field areas/ Head office should be in such a manner as to ensure optimal utilisation of manpower resources. The Committee would also watch with interest the outcome of the recommendations of the consultants and the action taken by ONGC on their report.</p>
7	2.25	<p>The Committee's examination of establishment overheads of Head Office of ONGC has revealed that there has been manifold increase in wage bill, maintenance expenses and other establishment expenses including travelling allowance during 1980-81 to 1984-85. The wage bill increased from Rs. 3.23 crores in 1980-81 to Rs. 8.24 crores in 1984-85. The maintenance expenses increased from Rs. 0.11 crores in 1980-81 to Rs. 0.50 crores in 1984-85. Similarly, other establishment expenses including travelling allowance increased from Rs. 1.03 crores in 1980-81 to Rs. 4.16 crores in 1984-85. The Committee are concerned to note that there has been a four fold increase in the establishment expenses over a period of 5 years. The Committee desire that this abnormal increase in the establishment expenses should be critically analysed with a view to effect economy.</p>
8	2.26	<p>ONGC paid overtime allowance to the tune of Rs. 4.03 lakhs, 5.06 lakhs, 6.9 lakhs, 6.32 lakhs and Rs. 7.77 lakhs during the years 1981 to 1985 year-wise. The Committee feel concerned over the steady increase in the payments of over-time allowance particularly in view of the fact that ONGC itself feel that manpower strength at Head Office was more than the requirements and about 30 per cent of the total staff was being shifted to the regions/operational areas with a view to ensure proper utilisation of manpower.</p>

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Chairman, ONGC was candid in his admission that overtime has to be cut down. The Committee would like to be informed about the concrete measures taken and results achieved in this direction. The Committee also recommend that as agreed to by the Chairman, during evidence, ONGC should introduce immediately a suitable incentive scheme for increasing the productivity of manpower in the organisation.

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3.21

At present ONGC and Oil India Ltd. are the two national agencies engaged in exploration and exploitation of hydrocarbon resources in the country. Under the Petroleum and Natural Gas Rules, 1959, the agencies engaged in exploration and exploitation of hydrocarbon resources have to take Petroleum Exploration Licences (PEL) from the Government. Thus the Government can, through the procedure of giving petroleum exploration licences, demarcate areas for exploration between the two agencies in a systematic way to avoid overlapping or duplication of efforts. However, no effort seems to have been made by the Government to allocate specific areas to the two agencies in a rational manner.

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3.22

The Committee were surprised to find that Oil India Ltd. had been permitted by the Government to take up exploratory drilling for oil in the off-shore areas of Andaman and Nicobar Islands, where ONGC had already done considerable survey work. Similarly in Rajasthan and other areas both ONGC and OIL are carrying out survey and exploration activities. The working of two national agencies in the same area cannot be conducive to optional utilisation of limited national resources. When two agencies operate in the same area using the same type of equipment there is always wasteful movement of machinery and equipment and even the infrast-

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		<p>ructural facilitis have unavoidably to be duplicated. The Committee feel that with a view to optimise utilisation of scare national resources, the two agencies should not be allowed to work in the same basin. As far as possible the work relating to survey and exploration should be allocated to ONGC & OIL in separate basins.</p>
11	3.23	<p>The Committee are constrained to note that even though Member (Exploration) of ONGC is on the Board of Oil India Ltd. no meaningful coordination exists between the two national agencies. Transfer of technology between ONGC and OIL is done basically on commercial lines. Even the communication satellite facilities are not being shared by these two companies. At present there is no Coordination Committee to coordinate the activities of ONGC and OIL. The Committee feel that coordination between the two is a must in the national interest and accordingly recommend that there should be a Coordination Committee having representatives of Ministry of Petroleum and Natural Gas, ONGC and OIL to ensure better coordination of the activities of these two agencies and exchange of ideas for proper exploration and exploitation of hydrocarbon resources in the country.</p>
12	3.24	<p>From the information made available to the Committee, it is seen that the Minister of Petroleum in one of the performance review meetings mentioned that ONGC and Oil India Ltd. were being maintained as separate undertakings for oil exploration with a view to ensure competition between the two. The Committee were, however, surprised to know from the Secretary, Ministry of Petroleum and Natural Gas that at present it was not possible to compare the performance of ONGC with OIL as no objective parameters have been evolved so far to make a comparative study of the performance of ONGC and OIL. The Committee are of the view that such</p>

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		comparative evaluation would be useful to both the organisations and hence, suitable parameters should be evolved without any further loss of time for proper comparison and evaluation. t
13	3.54	<p>The Committee have been informed that based on age of sediments and other geological elements, it has been possible to identify 26 sedimentary basins in the country. These together occupy a surface area of about 1.72 millions sq. kms. of which about 0.38 million sq. kms. lie offshore. Of these 26 basins, 5 contain rocks more than a thousand million years old. They are, therefore, not considered to be prospective. The remaining 21 basins have been categorised under four categories viz. (i) proved petroliferous basins with commercial production of hydrocarbons, (ii) basins with known occurrence of hydrocarbons but from which no commercial production has yet been established, (iii) basins in which significant shows of hydrocarbons have not yet been found but which on general geological considerations are considered to be prospective and (iv) poorly explored frontier basins with uncertain prospects but which on analogy with geologically similar hydrocarbons producing basins of the world may be prospective. The Committee find that out of 26 sedimentary basins only 3 basins falling in category I have been extensively explored. Another 10 basins falling in categories II & III, which were considered of immediate interest have been taken up for hydrocarbon exploration. The rest of the 13 basins remain completely unexplored or are very poorly explored. The exploratory effort has thus been restricted to some selected basins where hydrocarbons had been discovered and warranted intensive exploration. Such a selective approach was perhaps justified in the context of the oil crises faced in early seventies when the produc-</p>

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tion of indigenous crude was an overriding priority. The situation has now undergone a change and there is need for adopting an aggressive strategy for accelerated exploration of all the basins with a view to locate and develop new oil and gas resources. The aim of oil exploration efforts now should be not only to discover oil accumulations but also to establish that a certain basin or its part has no commercial oil potential. This would imply that each sedimentary basin should be methodically examined for which suitable strategy may have to be thought of.

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3.56

The sedimentary basins were identified by the Geological Survey of India from 1858 onwards and the last basin was identified in 1920. The Committee have been informed that with the change of technology some areas need to be re-surveyed. The Committee are surprised to learn from Chairman, ONGC that systematic resurvey would not be completed even within next 20 years if there were some changes in technology or the resource constraint was there. As some basins were demarcated more than 100 years ago and the technology of seismic surveys has advanced considerably the Committee feel that it should be possible to find ways and means to re-survey in a phased manner the whole country systematically with a view to establish conclusively with the help of the latest technology that there is no other sedimentary basin of interest.

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3.57

The basic objective of exploration is to convert potential hydrocarbon resources into proven inplace geological reserves. According to ONGC, the total prognosticated hydrocarbon resources in the country as on 1-1-1985 were 15.39 billion tonnes. As against this only 3.651 billion tonnes have been converted into inplace geological reserves

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		<p>of hydrocarbons (i.e. oil and oil equivalent of gas). Thus less than 25 per cent of India's ultimate theoretical oil and gas potential has been counted as proven. India is thus grossly under-explored for oil and gas. The Chairman, ONGC stated before the Committee that they have yet to carry out 75 per cent of the work and the task involved was tremendous. The Committee are also informed that as a result of increase in exploratory efforts the ratio of geological inplace reserves would increase to 33 per cent at the end of Seventh Five Year Plan as against the present ratio of 23 per cent. The Committee feel that there is a need for further increasing the exploratory efforts to augment the prognosticated hydrocarbon resources as well as inplace geological reserves of hydrocarbons and to keep a scientific ratio between the two. For this, the Committee would recommend that a time bound programme should be chalked out for all the basins and progress of work should be monitored on regular basis.</p>
16	3.58	<p>With the recent steep fall in oil prices in international market the exploration strategy has to be reviewed. The Committee feel that opinion may be divided on whether production should be stepped up in a situation where imported oil is cheap but there can be no two opinions on the need for sustained exploration. As pointed out by the Chairman, ONGC the prices of services and materials for the oil sector have come down considerably and in some cases the prices were as low as 50 per cent. This was, therefore, the best time to carry out exploration at the lowest cost. The Committee desire that the entire strategy for exploration should be reviewed in its proper perspective and efforts to locate and develop new oil and gas reserves should be maximised in the current plan period so that there will be an increase in domestic availability at the start of the next plan.</p>

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17	3.65	<p>The statistics of the actual work done, by ONGC during the last 25 years of its existence, in the matter of survey and exploration for oil in the country, do not at all make an impressive reading. This is particularly so when considered in the context of the vastness of the area to be covered and the resources employed. As admitted by the Chairman, ONGC only 25 per cent of the work has so far been done and 75 per cent of the work is yet to be accomplished. It is difficult to visualise how much time will be required to complete the entire work. The Committee cannot but emphasize the need for accelerating the exploration activities of ONGC so that the stupendous task ahead could be completed within the shortest possible time. There is no gainsaying the fact that for acceleration of the activities of ONGC adequate resources will have to be mobilised. There is also an immediate need to critically analyse the exploratory effort during the current plan for formulating future exploration strategy.</p>
18	3.66	<p>It is gratifying to note that the success ratio of exploratory efforts of ONGC compared well with the international average. Against the international average of 1 to 5 ONGC has been able to achieve a success ratio of 1 to 3. There are however a number of countries whose success ratio is much better than that achieved by ONGC. Hence the effort should be to emulate the performance of the countries who have done better. The Committee wish that ONGC should take advantage of the latest technology and put in more concerted efforts in future to improve upon their own achievements.</p>
19	3.76	<p>It is a matter of concern to note that the achievements of ONGC during the Sixth Plan period were considerably below the planned targets. There have been slippages in practically all the major activities like surveys, exploratory</p>

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		<p>drilling, development drilling and production of crude and gas. As a result of this the total expenditure on survey and exploration activities during the 6th Five Year Plan was Rs. 1312 crores against the allocation of Rs. 1473.12 crores. Thus an amount of Rs. 161 crores remained unutilised. This sounds a little ironical because on the one hand there is a prolonged tussle between ONGC and the Planning Commission for allotment of more resources and on the other ONGC is unable to fully utilise whatever is sanctioned. The Committee cannot but emphasise that the targets for which adequate budgetary provisions have been made should be kept up and met at all costs. In this context, the Committee will like to emphasise that the financial procedures which lead delay in release of amounts sanctioned should be reviewed and streamlined. The Committee would also like ONGC to learn lessons from their past experience and see to it that the targets set down for the Seventh Plan are fully achieved and the funds allotted therefor do not remain unutilised and lapse.</p>
20	3.77	<p>It has been stated that the two main constraints which still inhibit ONGC in realising its plan targets are land acquisition problems and difficulty in drilling in deeper depths. The problem regarding land acquisition has been dealt with in the 8th Report of the Committee (1985-86) on Oil & Natural Gas Commission (Organisational Structure and Project Clearance). As regards the problem regarding drilling in deeper depths, the Committee recommend that efforts should be made in R&D institutions of ONGC to overcome this problem and all out efforts should be made to achieve the target set for exploration and production.</p>
21	3.89	<p>The Committee find that in the matter of offshore surveys also the drilling meterage has come</p>

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down considerably in the last 3 years. From 27,231 line kms. in 1982-83, it has come down to 23,444 line kms. in 1984-85. The position was particularly bad in 1983-84 when the total meterage was only 19,874 line kms. According to ONGC this was the result of a deliberate policy to reduce the quantum of work as data collected earlier was still to be processed and there was a backlog of seismic data to the tune of 34,190 line kms. ONGC could not put forward any valid reason for the reduction in the quantum of work except the decision of the Defence Ministry to impose a total ban on sending data from 'sensitive' areas abroad for processing. The Committee feel that this is not a sufficient ground for reducing off-shore survey work particularly in view of the fact that after the discovery of Bombay High off-shore in 1975, no major discovery had been found in off-shore areas. The Committee find that one of the reasons given for the backlog of seismic data was the non-arrival of large capacity computer from USA. The proposal for large size computer was approved by Government in August, 1983 at a cost of Rs. 43.64 crores. As per the schedule, the computer should have been installed by mid 1985. Even though the building was ready, exporters have not been granted a licence by USA Government so far. The Committee were informed that the matter was being pursued by the Ministry of External Affairs. The Committee are of the view that the matter should be taken up at the highest level so that a final view could be taken on the possibility of acquiring large computer from USA and some alternate arrangements could be thought of to meet the urgent requirements of ONGC if final response from USA was negative.

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22	3.90	<p>The interpretation of the data already gathered is an area in which the Committee feel that substantial improvement is needed and must be accelerated. The Committee would suggest that the backlog in respect of the processing of data should be quickly liquidated by using the facilities available with other organisations in the country or by getting it processed abroad. The Committee would like to be informed of the efforts made and results achieved in this direction within next six months.</p>
23	3.103	<p>In order to supplement the efforts of the two national companies (ONGC & OIL) engaged in the work of exploration and exploitation of oil, Government decided to invite foreign oil companies of repute to explore and exploit hydrocarbons in selected areas of the country. In the earlier two rounds of biddings received in 1980 and 1982 for leasing of areas for oil exploration and production, one block was awarded to a USA Company namely Chevron in 1982. This Company did exploration work in an assigned area but as no hydrocarbons were found, the Company terminated the contract. The Committee have been informed that Government was going for a third round of bidding for leasing of areas for oil exploration for which 27 blocks in different basins have been earmarked. The terms and conditions for these contracts were reportedly being finalised. The Committee are of the view that Parliament should have been taken into confidence while taking such an important decision. Even now, the Committee would like the Government to place before the Parliament a comprehensive policy statement of Government's oil policy with particular reference to the involvement of foreign oil companies and its approach to the exploration strategy for the future.</p>

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24	3.104	<p>The Committee have reasons to believe that ONGC take unduly long time in handling tenders floated from time to time for various services and contracts. The delay, apart from causing avoidable embarrassment, has resulted in a set-back to the exploration programme. To give a concrete instance, it may be mentioned that Government took the decision to involve private contractors in the on shore drilling programme on a selective basis in 1984. Based on this decision the ONGC issued an advertisement in February 1985 seeking to invite bids from the prospective bidders. Since then bids have been received and series of discussions held with the bidders but no decision could be taken on any of the bids as yet. The Secretary, Ministry of Petroleum also deposed before the Committee that there were procedural delays in ONGC also for which ONGC had to streamline their procedure for examination of tenders etc. He had stated that in some cases the quotations received by ONGC by October, 1985 had not been finalised till April, 1986. More-over apart from frequent changes in the norms and rules, the terms and conditions are also frequently modified from one tender to another tender. This creates the suspicion that these frequent changes are made to add or to eliminate the tenderers. The Committee feel that there is scope for tightening up of procedures both in the Ministry and the ONGC with a view to reducing delays in the finalisation of tenders and quotations. The Committee would like to be apprised of the concrete action taken in this behalf within six months.</p>
25	3.105	<p>The Committee feel that Indian companies both in the public and private sectors should be encouraged to undertake exploration activities. If the Indian companies can be made to enter</p>

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		oil exploration in a big way, much of the leeway in the exploration activities can be made up quickly.
26	3.115	The Committee note that the cost of onshore exploratory drilling increased from Rs. 5,360 per meter in 1982-83 to Rs. 9,581 per meter in 1984-85. However, during the same period the cost of off-shore exploratory drilling showed marginal decline. The per meter cost of off-shore exploratory drilling was Rs. 33,477, Rs. 33,843 and Rs. 32,080 respectively during the years 1982-83, 1983-84 and 1984-85. In this regard various reasons like deployment of more rigs, increase in salary etc. of the staff, increase in material cost and drilling in deeper depths, etc. have been advanced by the ONGC. The Committee feel that since these reasons are common to off-shore drilling also, there does not seem to be any justification for the steep increase in cost of on-shore exploratory drilling. The Committee recommend that this aspect should be gone into depth and concerted efforts should be made to effect the economy in the on-shore drilling costs in particular. The Committee are of the firm view that this is certainly an area where ONGC can effect substantial economies.
27	3.116	The Committee were also informed by ONGC that the costing system was different for on-shore and off-shore drilling and a Committee had been constituted for rationalisation of costing systems. Similarly the Committee have noted that there were wide gaps between the revised estimates and actual cost of drilling in case of both on-shore and off-shore drilling during the last 3 years. Admittedly there was need for further refining of the budgeting process and necessary remedial action was stated to have been initiated in the matter. The Committee

need hardly stress the importance of these aspects, viz. rationalisation of costing system and refinement of budgeting process. The Committee therefore, recommend that ONGC should expedite action for strengthening the cost control system in the Commission.

28 - 4.17

The Committee note that the production of crude oil increased from 10.5 million tonnes in 1980-81 to 28.99 million tonnes in 1984-85. The demand for oil in the country increased from 22.26 million tonnes to 40 million tonnes during the same period. A redeeming feature has been that the percentage of self-sufficiency has also increased from 32.54 in 1980-81 to 73 in 1984-85. The gap between the production and the total requirements is bridged by imports of crude oil from the other countries. The total imports of crude oil during Sixth Five Year Plan were of the order of Rs. 18,095 crores. During Seventh Five Year Plan also, there will be wide gap between the indigenous production and the requirement. The Committee feel dismayed to learn that as per the projections of the Seventh Five Year Plan, at the end of Seventh Plan the self-sufficiency ratio is likely to come down to 61 per cent from the present level of over 70 per cent. This would be on account of increase in demand being more than increase in the production. Thus, unless new sources of oil are discovered and exploited quickly, the country's dependence on imported oil will go up to alarming levels. In such a situation, the country has little option except to locate and develop new fields unless there is no constraint of foreign exchange available for imports. The Committee, therefore, recommend that concerted efforts should be made to maintain at least the present

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level of the self-sufficiency ratio in the demand and production of oil if it is not possible to improve it further.

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4.18

Chairman, ONGC informed the Committee during evidence that country could be self-reliant in the matter of oil and related products by the end of this century provided adequate resources were available for exploration/exploitation of hydrocarbon resources. On the contrary, the Secretary, Ministry of Petroleum and Natural Gas painted a very bleak picture before the Committee stating that since exploration of oil is a probabilistic exercise, it was not possible to indicate with any certainty that self-sufficiency could be achieved within a given time-frame. The Committee view with concern this lack of commitment on the part of the Ministry. Keeping in view the vital importance of availability of oil and oil products in the economy of the country, the Committee expect that the least the Government can do is to frame realistic targets to achieve self-reliance in the matter of oil and related products and somehow provide the necessary resources for the realisation of these targets. They cannot absolve themselves of the responsibility by merely stating that oil exploration was a probabilistic exercise. It is no doubt necessary that such a decision can be taken only at the highest level of the decision-making in the Government and the Committee would like the Ministry of Petroleum and Natural Gas to take this matter to the appropriate forum.

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4.19

The Committee's examination has also revealed that the Government have not framed any integrated energy policy for the country taking into account all the energy sources like coal, hydel and other energy sectors. For this purpose, Government appointed an Advisory Body on Energy in March, 1983 for formulating an integrated

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		energy policy. It is stated to have given several recommendations in September, 1983 and February, 1984. The Committee recommend that Government should examine these recommendations early and place before Parliament an integrated energy policy at the earliest. If necessary, some high powered committee could be appointed having some experts on it. The Committee would like to be informed of the action taken in this regard.
31	5.24	The research and development activities of ONGC are mainly conducted in their three institutes, viz. (i) KDM Institute of Petroleum Exploration, Dehradun; (ii) Institute of Drilling Technology, Dehradun; and (ii) Institute of Reservoir Studies, Ahmedabad. ONGC is also in the process of setting up two additional institutes viz. Institute of Petroleum Technology and Institute of Engineering and Ocean Technology both at Panvel, Bombay at the cost of Rs. 8 crores and Rs. 9.86 crores respectively. The construction work for these institutions was to begin in November, 1985. The Committee recommend that ONGC should adhere to the original schedule for completion of these institutions so that cost over-runs caused by delay in setting up the institute could be avoided. The need hardly stress the need for monitoring the project schedules on regular basis for timely completion of these institutes.
32	5.25	The Committee have been informed by ONGC that they have acquired considerable expertise in the field of oil exploration. In so far as on-shore oil exploration is concerned, ONGC has become more or less self-sufficient and has been conducting the activities on their own. However, ONGC has been availing of foreign expertise in certain selected areas in order to update the

indigenous technology and to draw upon the experience of foreign oil companies in these fields. In the field of off-shore exploration also, ONGC is reported to have gone a long way towards self-sufficiency. However, in view of rapid developments in technology in this area, ONGC has been going in for assistance from reputed foreign oil companies. ONGC is also reported to have identified the technological gaps in each operational area. The acquisition of latest technology for filling up the gaps is done with continuous interaction with foreign companies through training and association of technical personnel, international conferences, symposia, seminars, workshops within the country and abroad. The Committee recommend that further efforts should be made for absorption of latest technology in ONGC in the field of survey, exploration and production of oil, which is very essential for achieving the goal of self-sufficiency in oil and related products in the country.

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5.26

Even though ONGC has been maintaining that their technology was comparable to foreign companies and they were near the goal of self-reliance in this field the Committee are dismayed to learn that the foreign exchange spent by ONGC has been increasing year after year. Foreign exchange outgo on account of ONGC's activities increased from Rs. 920 crores in 1982-83 to Rs. 1189 crores in 1984-85. The Committee feel that more efforts are needed to indigenise all sorts of technology and tools for exploration and exploitation of hydrocarbon resources in the country so as to minimise the outgo of much needed foreign exchange. Vigorous efforts by R&D are therefore called for.

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The Committee were informed by Chairman, ONGC that ONGC has been able to export its

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technology to neighbouring developing countries i.e. Abu Dhabi, Iraq, Tanzania and Sri Lanka. The Committee appreciate that this is a step in the right direction. The Committee need hardly emphasise that the exports of technology to other countries should be augmented to earn the foreign exchange and efforts should be made to achieve break-even point in balance of payments so far as ONGC's imports and exports are concerned.

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5.28

The Committee note that only 1.9 per cent of ONGC's approved outlay of Seventh Five Year Plan has been earmarked for R&D activities. Since ONGC is a premier institution in the field of exploration and exploitation of hydrocarbon resources in the country, the Committee are of the view that sanctioned funds for R&D activities are inadequate and importance of R&D development should not be lost sight of. They, therefore, recommend that ways and means should be found to increase the funds for R&D activities of ONGC.

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5.29

The Committee are surprised to know that ONGC do not maintain separate figures of foreign exchange expenditure incurred on import of technical consultancy, machinery, spares, rigs etc. required for survey and exploration activities. The Committee feel that such statistics are necessary to know the extent of yearly dependence of ONGC on foreign countries in the field of technology for survey and exploration and the Committee, therefore, recommend that ONGC should maintain an account of foreign exchange expenditure under different heads and it should also be clearly brought out in the annual reports of ONGC so as to enable the Parliament and public to have access to the vital facts.