C.P.U. NO. 887

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SECOND REPORT

COMMITTEE ON PUBLIC UNDERTAKINGS

(2004 - 2005)

(FOURTEENTH LOK SABHA)

OIL EXPLORATION – DOMESTIC AND OVERSEAS PROJECTS

MINISTRY OF PETROLEUM & NATURAL GAS

Presented to Lok Sabha on 22.12.2004

Laid in Rajya Sabha on 22.12.2004

LOK SABHA SECRETARIAT

NEW DELHI

December 2004/Agrahayana 1926 (S)

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COMPOSITION OF COMMITTEE ON PUBLIC UNDERTAKINGS
(2004 – 2005)

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Shri Rupchand Pal

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3. Shri Gurudas Dasgupta
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1.	Shri John Joseph	Additional Secretary
2.	Shri S. Bal Shekar	Director
3.	Shri N C Gupta	Under Secretary
4.	**Shri H. Ram Prakash**	Committee Officer

INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Second Report on Oil Exploration – Domestic and Overseas Projects.

2. The Committee took evidence of the representatives of Oil and Natural Gas Corporation Ltd., ONGC Videsh Ltd., Oil India Ltd. on 30th September, 2004 and 22nd November, 2004. The Committee took evidence of the representatives of the Ministry of Petroleum and Natural Gas also on 22nd November, 2004. Above all the Committee held informal discussions with the officials of Hindustan Petroleum Corporation Ltd. at Hyderabad on 16th October, 2004, Indian Oil Corporation Ltd., at Chennai on 18th October, 2004 and Bharat Petroleum Corporation Ltd. at Kolkata on 19th October, 2004. The Committee also sought a note from GAIL (India) Limited on the subject.

3. The Committee on Public Undertakings (2004-05) considered and adopted the Report at their sitting held on 20th December, 2004.

4. The Committee wish to express their thanks to the Ministry of Petroleum and Natural Gas, Oil and Natural Gas Corporation Ltd., ONGC Videsh Ltd., Oil India Ltd., Hindustan Petroleum Corporation Ltd., Bharat Petroleum Corporation Ltd., Indian Oil Corporation Ltd. and GAIL (India) Ltd. for placing before them the material and information they wanted in connection with examination of the subject. They also wish to thank in particular the representatives of the Ministry of Petroleum and Natural Gas, Oil & Natural Gas Corporation Ltd., ONGC Videsh Ltd. and Oil India Limited who gave evidence and placed their considered views before the Committee.

5. They would also like to place on record their sense of deep appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

New Delhi
20 December, 2004
29 Agrahayana, 1926(S)

RUPCHAND PAL
CHAIRMAN
COMMITTEE ON PUBLIC UNDERTAKINGS

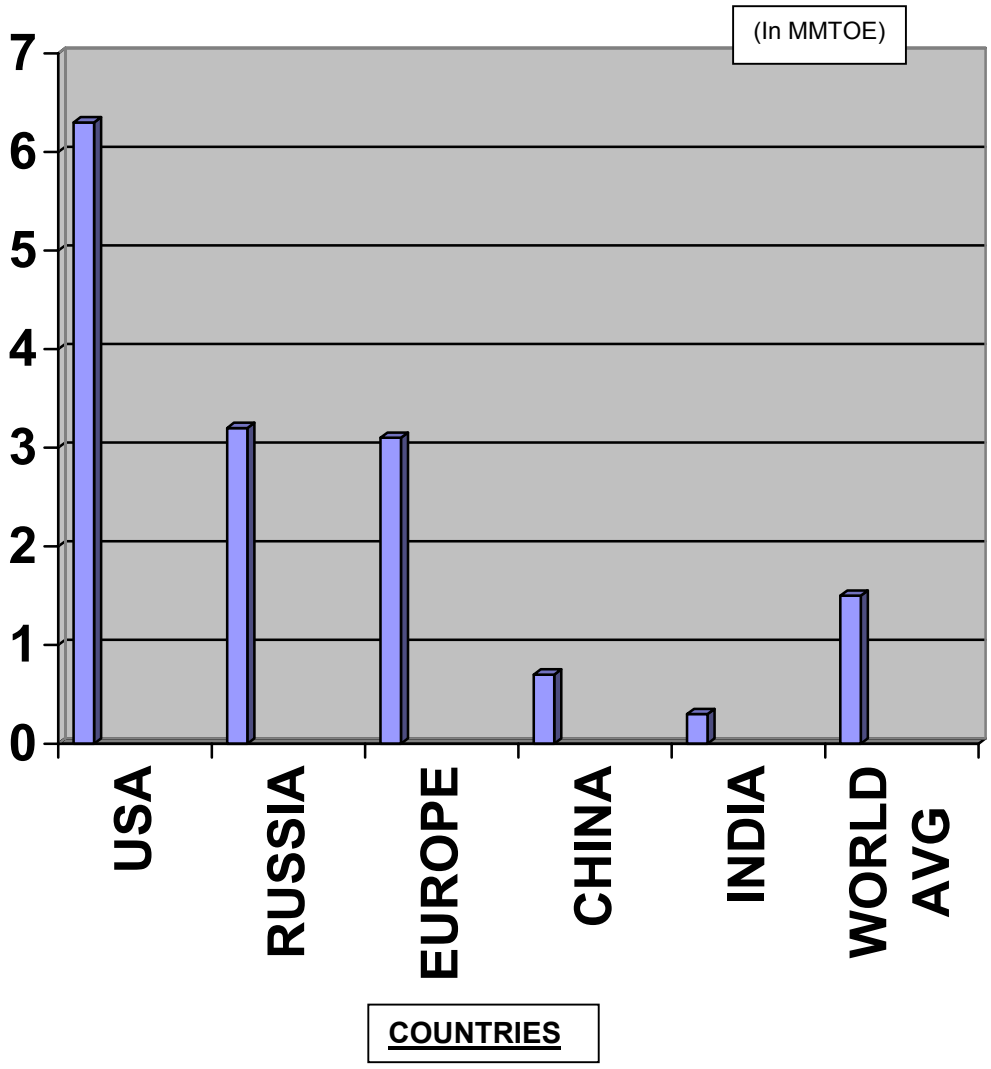
PART I

CHAPTER I

INTRODUCTION

Economic development has been associated the world over with increased use of energy and consequent increase in productivity. The current levels of per capita energy consumption in India are extremely low as compared to rest of the world, as can be seen from the chart given below:-

PER CAPITA ENERGY CONSUMPTION



1.2 Per capita consumption of primary energy and Hydrocarbon reveals that India is among the lowest in consumption of hydrocarbon in terms of kilogram of oil equivalent as is evident from the following figures :-

Per capita consumption of Energy vis-à-vis Hydrocarbons

(in Kg of oil equivalent)

Country / Region	Primary Energy	Hydro-carbons
World	1454	927
India	285	113
China	688	169
Pakistan	264	231
Bangaladesh	81	80
Japan	3962	2520
U.K.	3856	2719
Germany	4102	2539

(Source : British Petroleum Statistics – 1998)

1.3 As India's giant economy revs up, its thirst for oil is expected to grow 4% every year for the next 20 odd years compared to about 2% for rest of the world. This will make us along with China, US and Japan one of the largest energy consumers globally. Meanwhile, imported oil is expected to jump to 85% of total consumption from today's 70%. So India's role and clout is likely to increase dramatically in global energy markets.

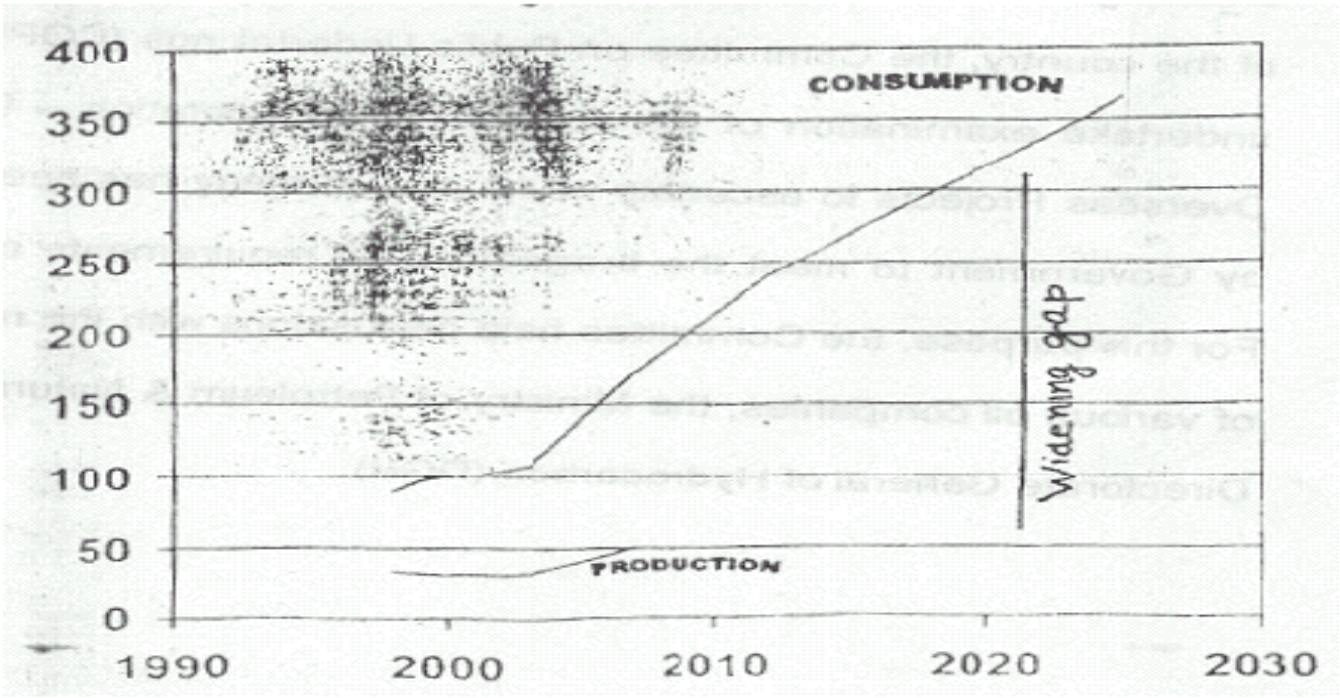
1.4 As per Hydrocarbon Vision 2025, the estimated energy supply mix in India for a period up to 2025 would be as under :-

Share of future energy supply in India (%)

					ar
98	55	35	7	2	1
02	50	32	15	2	1
07	50	32	15	2	1
11	53	30	14	2	1
25	50	25	20	2	3

1.5 From the above it is clear that by 2024-25, 25% of total energy needs of the country would be met by oil sector. Viewed in this context, it is imperative that production of oil should keep pace with oil consumption. The situation is however, just reverse.

1.6 Though, consumption of oil is increasing year after year, crude oil production has not kept pace with increasing demand as India is only meeting 30% of its total demand. The gap between production and consumption of crude oil is also likely to widen in the years to come, as can be seen from the chart given below:-



1.7 The widening gap between demand and supply of crude oil and soaring international oil prices have been casting a huge burden on the country's scarce foreign exchange reserves, as is evident from the figures given as under :-

The amount spent on import of crude oil during the period of 1999-00 to 2003-04 :-

Year	Quantity (TMT)	Value	
		Rs.(Crore)	US$ (Million)
2003-04 (Prov)	90434	83528	18268
2002-03	81989	76195	15759
2001-02	78706	60379	12635
2000-01	74097	65932	14403
1999-2000	57803	40028	9210

1.8 In view of country's rising need of oil demand, its adverse impact on foreign exchange reserves and resultant slowdown in economic growth of the country, the Committee on Public Undertakings (COPU) decided to undertake examination of the subject – Oil Exploration – Domestic and Overseas Projects to ascertain as to what strategy has been chalked out by Government to meet the burgeoning oil requirements of the country. For this purpose, the Committee held discussions with the representatives of various oil companies, the Ministry of Petroleum & Natural Gas and the Directorate General of Hydrocarbon (DGH).

1.9 At present, Oil and Natural Gas Corporation, ONGC Videsh Limited, Oil India Ltd., Indian Oil Corporation Ltd., Hindustan Petroleum Corporation Ltd. Bharat Petroleum Corporation Ltd. and GAIL (India) Limited are the 7 PSUs involved in the business of oil exploration in India and abroad coming under the purview of the Ministry of Petroleum & Natural Gas which is the nodal administrative agency of the Government.

B. HYDROCARBON RESERVES

World major sources of oil and natural gas

1.10 The major sources of oil and natural gas in the world are the Persian Gulf Region, Siberia, Central Asia, Northern Indian Ocean. In these regions, the oil rich countries like Saudi Arabia, Iraq, Iran, UAE, Kuwait are in the Gulf Region which constitute around 65% of world oil reserves. There are many countries in CIS region and African continent which have significant hydrocarbon reserves.

1.11 World oil reserves at the end of 2003 were 158.8 btoe (oil). Though global reserve of oil are significant to meet energy requirements for quite some time in foreseeable future, the distribution of reserves across the world is quite uneven, as can be seen from the details given below :-

WORLD OIL : PROVED RESERVES

		At end 2003
	Thousand million tonnes	Share of World Total
USA	4.2	2.70%
Canada	2.3	1.50%
Mexico	2.2	1.40%
Total North America	8.8	5.50%
Venezuela	10.8	6.80%
Other S. & Cent. America	3.3	2.10%
Total S. & Cent. America	14.1	8.90%
Kazakhstan	1.2	0.80%
Norway	1.4	0.90%
Russian Federation	9.6	6.00%
Other Europe & Eurasia	2.4	1.50%
Total Europe & Eurasia	14.6	9.20%
Iran	18.1	11.40%
Iraq	15.9	10.00%
Kuwait	13.3	8.40%
Oman	0.8	0.50%
Qatar	2.1	1.30%
Saudi Arabia	36.3	22.90%
Syria	0.3	0.20%
United Arab Emirates	13.5	8.50%
Other Middle East	0.1	0.10%

Total Middle East	100.5	63.30%
Algeria	1.6	1.00%
Angola	1.2	0.80%
Libya	5.0	3.10%
Nigeria	4.7	3.00%
Sudan	0.1	0.10%
Other Africa	1.5	0.90%
Total Africa	14.1	8.90%
Australia	0.6	0.40%
China	3.3	2.10%
India	0.8	0.50%
Indonesia	0.6	0.40%
Malaysia	0.6	0.30%
Vietnam	0.3	0.20%
Other Asia Pacific	0.4	0.30%
Total Asia Pacific	6.6	4.20%
Total World	158.8	100.00%

C. Energy Security Policy

1.12 The Primary Energy requirement of the country (Data Source: BP Statistical Review of World Energy / June, 2004) during the last five years was as under:-

(Million tonnes of equivalent {mtoe})

Year	Primary energy requirement
2003	345.3
2002	338.0
2001	324.2
2000	320.4
1999	304.0

1.13 Also, the energy demand is expected to grow at the rate of 4.1% over next two decades. As per the note furnished by the Ministry, the primary energy demand will be 780 mtoe in 2020 from 345.3 mtoe in 2003.

1.14 On supply side, India's energy requirement is mainly met by fossil fuels i.e. oil, gas and coal. As per a note furnished by Ministry of Petroleum and Natural Gas, India will be required to get 730 mtoe of energy by 2020 from the fossil fuels.

1.15 Asked as to what steps were contemplated to meet the future energy requirements of country, the Ministry of Petroleum & Natural Gas in their note stated that the way to fulfill

the shortage is mainly the import of oil and gas, as is practiced currently. However, initiatives in the following direction will improve energy security and self sufficiency.

1. Getting piped gas from Middle East as well as from the East and displace oil by gas wherever possible.

2. Establishing CBM as a source of energy.

3. The high efficiency technologies like IGCC preferably with UCG should be adopted to cleaner and environmentally friendly green and efficient energy generation.

4. Crash program for using thorium based nuclear energy. Research and development activities on HTTR are currently undertaken. India has huge Thorium reserves. (About 300,000 tonnes). One tonne of thorium is equivalent to 3 mtoe of oil in energy terms.

1.16 To a question as to whether Ministry of Petroleum and Natural Gas has framed any Energy Security Policy for improving self sufficiency and taking care the energy security needs of the country, Ministry of Petroleum and Natural Gas in their reply stated as under:

> "The issue of energy security policy – an integrated approach is under discussions and is being coordinated by Planning Commission. Also a Standing Committee of Group of Ministers Chaired by Minister of Power has been constituted to study and formulate energy policy including implementation aspect."

CHAPTER - II

A. Historical background of oil exploration in India – Present and Future Scenario

2.1 The exploration of hydrocarbon in India commenced in the 1860s. Sub surface oil exploration activities started in the dense jungles of Assam in North-East India. The first commercial discovery of crude oil in the country was, however, made in 1889 at Digboi by Assam Railways & Trading Company Limited (AR&T Co. Ltd.), a registered company of London in 1881, with objectives to explore the rich natural resources of Upper Assam. A new company known as Assam Oil Company (AOC) was formed in 1899 with a capital of pound 310,000 to take over `the petroleum interests of the AR&T Co. Ltd.'

2.2 By arrangement with the AR&T Co. Ltd., the Burmah Oil Company (BOC) of U.K. who was at that time operating in Burma across the Patkai Hills took over the operation of AOC in 1921. BOC/AOC continued development of Digboi oil field and intensified exploration activities. In 1953, the first oil discovery of independent India was made at Nahorkatiya near Digboi and then at Moran in 1956.

2.3 In 1955, Oil and Natural Gas Division of the Ministry of Natural Resources, came into existence and the division became a Directorate and later a Commission in 1956 set up by an Act of Parliament to explore and exploit the hydrocarbon reserves in Indian sedimentary basins.

2.4 Oil India Private Ltd. was incorporated on February 18, 1959 for the purpose of development and production of the discovered prospects of Nahorkatiya and Moran and to increase the pace of exploration in the North-East India. By a subsequent agreement on 27 July, 1961, the Government of India and BOC transformed OIL to a Joint Venture Company (JVC) with equal partnership.

2.5 On 14 October 1981, OIL became a wholly owned GOI enterprise by taking over BOC's 50% equity and the management of Digboi oilfields changed hands from the erstwhile AOC to OIL.

B. Agencies involved in exploration and production of crude oil in India and abroad

2.6 Besides ONGC and OIL, the following Central and State PSUs who were hitherto engaged in Gas distribution and downstream activities viz. refining and marketing have also made forays into production and exploration activities:-

a) GAIL (India) Ltd.

b) IOC

c) Gujarat State Petroleum Corporation Ltd. (Gujarat State Government Undertaking)

d) Hindustan Petroleum Corporation Ltd.

e) Bharat Petroleum Corporation Ltd.

2.7 Following Indian and foreign private companies are engaged in the work of exploration and production of crude oil :-

1. Private Companies :

(a) Indian Companies :

i) Videocon Petroleum Ltd.
ii) Reliance Industries Ltd.
iii) Hindustan Oil Exploration Company
iv) Selan Exploration Technologies
v) Geo Enpro Ltd.
vi) Assam Company Ltd.
vii) Tata Petrodyne Ltd.
viii) Essar Oil Ltd.
ix) Hydrocarbon Resources Development Co. (Pvt.) Ltd.
x) Interlink Petroleum
xi) Jubilant Enpro Pvt. Ltd.
xii) Phoenix Overseas Ltd.
xiii) Enpro Finance Ltd.
xiv) Prize Petroleum Company Ltd.

(b) Foreign Companies

i) British Gas Exploration & Production India Ltd. (subsidiary of BG Energy Holdings Ltd. U.K.)
ii) Cairn Energy Cambay B.V. Netherlands (subsidiary of Cairn Energy Plc., U.K.)
iii) Cairn Energy Gujarat B.V. Netherlands (subsidiary of Cairn Energy Plc., U.K.)
iv) Cairn Energy West Bengal B.V. Netherlands (subsidiary of Cairn Energy Plc., U.K.)
v) Cairn Energy India Pty. Ltd. (subsidiary of Cairn Energy Plc., U.K.)
vi) Canoro Resources Ltd. Canada
vii) Premier Oil (Eastern India) B.V.
viii) Energy Equity India Pty. Ltd. (subsidiary of Energy Equity Resources Ltd., Australia)
ix) Geo Global Resources Inc. Canada
x) Geo-Petrol International Inc. France
xi) Hardy Exploration & Production India Inc. (subsidiary of Hardy Oil & Gas Ltd., U.K.)
xii) Heramec Ltd.
xiii) Joshi Technologies Inc. USA
xiv) Mosbacher India LLC
xv) Niko Resources Limited, Canada
xvi) OAO, Gazprom, Russia
xvii) Okland International LDC, USA

xviii) Ravva Oil (Singapore) Pte. Ltd. (subsidiary of Marubeni Corporation, Japan)
xix) Tullow India Operations Ltd. (subsidiary of Tullow Oil Plc. Ireland)

Indian companies operating in overseas E&P activities are :-

a) ONGC Videsh Ltd (OVL)

b) OIL

c) IOC

d) GAIL

Private Company

RIL

C. ROLE OF MINISTRY OF PETROLEUM & NATURAL GAS

2.8 The Ministry of Petroleum & Natural Gas is inter-alia concerned with exploration and production of oil.

2.9 Exploration Division headed by Joint Secretary (Exploration) in the Ministry of Petroleum & Natural Gas inter-alia supervises and coordinates the work of organisations concerned with exploration and production of crude oil.

D. DIRECTORATE GENERAL OF HYDROCARBONS (DGH)

2.10 The Government by Resolution in 1993 established, Directorate General of Hydrocarbons under the administrative control of the Ministry of Petroleum & Natural Gas with the objective to promote sound management of the Indian petroleum and Natural gas resources having a balanced regard for the environment, safety and technological and

economic aspects of the petroleum activities. DGH has been assigned following functions and responsibilities :-

- To provide technical advice to the Ministry of Petroleum and Natural Gas on issues relevant to the exploration and optimal exploitation of hydrocarbons in the country and on the strategy of taking up exploration and exploitation of oil and gas reserves abroad by the national companies;

- To review the exploration programmes of companies operating under Petroleum Exploration Licenses granted under the Oilfields (Regulation and Development) Act, 1948 and the Petroleum and Natural Gas Rules, 1959 with a view to advising government on the adequacy of these programmes;

- To reassess the hydrocarbon reserves discovered and estimated by the operating companies in discussion with them;

- To advise the Government on offering of acreage for exploration to companies as well as matters relating to relinquishment of acreage by companies

- To review the development plans for commercial discoveries of hydrocarbon reserves proposed by the operating companies and advise government on the adequacy of such plans and the exploitation rates proposed and matters relating thereto;

- To review and audit concurrently the management of petroleum reservoirs by operating companies and advise on any mid course correction required to ensure sound reservoir management practices in line with the optimal exploitation of reserves and the conservation of petroleum resources;

- To regulate the preservation, upkeep and storage of data and samples pertaining to petroleum exploration, drilling, production of reservoirs, etc. and to cause the preparation of data packages for acreage on offer to companies.

- To advise Government on the laying down of safety norms and framing regulations on safety in oilfield operations, prescribe pollution control measures and assist in inspection and periodic safety audit

- All other matters incidental thereto and such other functions as may be assigned by Government from time to time.

Organisational set up of DGH

2.11 Directorate General of Hydrocarbons is headed by Director General of Hydrocarbons. It has various Groups/Departments which are headed by the respective Department Heads. The main Departments in DGH are :

1. Geology and Geophysics Studies Group
2. Geophysical Operations Group
3. Data Management Group
4. New Exploration Licensing Policy (NELP) and CBM Group
5. Contract Finance Group

6. Legal Matters Group
7. Reservoir Engineering Group
8. Production Engineering Group
9. Gas Hydrates Group
10. Safety Group
11. Environment Group
12. Drilling Engineering Group
13. Support services Like Administration, Finance & Accounts, Material Management, Essentiality Certificates

2.12 The manpower for DGH is drawn from the various PSUs, mainly ONGC and OIL, on deputation. The manpower is experienced and expert in their respective fields.

2.13 Administrative aspects of functioning of DGH are taken care of by an Administrative Council set up by the Ministry of Petroleum and Natural Gas. The Administrative Council decides about the establishment and budget matters of DGH and also takes periodical review of the functioning of DGH. The Administrative Council is headed by the Secretary (PNG) and has the following composition:

1. Secretary, MOP&NG	Chairman
2. Additional Secretary, MOP&NG	Member
3. JS&FA, MOP&NG	Member
4. JS(E), MOP&NG	Member
5. DG, DGH	Member-Convener

2.14 There is an Advisory Council for DGH established as per the Government Resolution. The Council advises on the technical matters / scientific projects to be carried

out by DGH within the terms of Government resolution and also advises on technical issues and related work programme of companies including JV partners. Council examines the annual budgets, major technical studies and annual work programme of DGH. The advisory Council has the following members at present :

1. Dr. A.B. Das Gupta — Chairman
2. Dr. Hari Naryan — Member
3. D.R. Gadekar — Member
4. Dr. Ravi Shankar — Member
5. Sh. V.K. Sibal-DG(DGH) — Member Secretary

2.15 On the activities undertaken / being undertaken by DGH, the Ministry of Petroleum & Natural Gas in their note stated as under :-

DGH is carrying out its functions and responsibility as per the terms of resolution and as assigned by the Ministry from time to time. The main activities include evaluation process of various exploration and field development bidding rounds and recommendations to Government, implementation of NELP, opening up new / unexplored areas for exploration, review of reservoir performance of major fields, contract management of various exploration blocks and discovered field awarded to private / J.V. companies review of exploitation and exploration activities of operating companies, monitoring of safety and environment aspect and other related activities. Details of various activities carried out by DGH are as under :

i) <u>OPENING UP OF AREAS</u>

Almost $^{2}/_{3}$ of the country's sedimentary area still remains either unexplored or poorly explored. In order to open up these areas for future exploration, DGH has undertaken several projects to cover these areas through Reconnaitory

Geoscientific Surveys in order to upgrade the geoscientific knowledge base so that these areas could be taken up for exploration in future. During the last several years, DGH has covered the entire Indian offshore areas through Satellite Gravity Surveys. DGH has also covered large parts of eastern offshore and Andaman offshore areas including deep water areas through Joint Venture Speculative Seismic and Gravity Magnetic Surveys.

ii) MONITORING OF ALL THE PETROLEUM EXPLORATION LICENSES IN THE COUNTRY

DGH monitors the technical and geological progress of work in each PEL block of the country on a quarterly basis, both for ONGC and OIL. Currently, 235 PELs are under review. This also consists of reviewing the exploration strategy being used, its modification due to results obtained, changes in inputs required, optimal use of facilities available with NOCs for work etc.

iii) CONTRACT MONITORING

Government of India has signed contracts for 29 discovered fields and 118 exploration blocks for exploration and development by Private/Joint sector. DGH is monitoring the execution and management of all these Production Sharing Contracts on behalf of Government of India. DGH personnel are the Government nominees as Chairman / Management Committee Members/Alternative Members in the management committee of each of these contracts. The task involves in-depth review of annual work programmes and budgets/ costs, project monitoring, independent reserve estimation, deciding the rate of flow of gas and oil from wells based on reservoir data, deciding commerciality of projects and review & approval of development plans and budgets. The main objective behind the financial and

technical monitoring is to maximize the value of assets and profit oil/gas of GOI arising from the operations.

iv) RESERVOIR MONITORING & RELATED ACTIVITIES

DGH is continuously monitoring the performance of petroleum reservoirs operated by the companies. DGH also advises on any mid course correction required to ensure sound reservoir management practices in line with the optimal exploitation of reserves. Review of hydrocarbon reserves estimated by the operating companies is being done by DGH. If required, DGH sponsors & carries out joint studies with R&D institutes to arrive at realistic assessments.

Bombay High Review

Government of India constituted a High Powered Committee headed by Dr. K. Narayanan and Director General, DGH as its Member Secretary to look into the reasons for shortfall in oil production including Western offshore fields and North Eastern Region.

The Report of the Committee covering Bombay High Field was submitted in which a number of recommendations were contained to further improve the reservoir management aspects. Another committee also under the chairmanship of Dr. Narayanan, was set up for preparing the monitorable action plan for implementing the recommendations of the High Powered Committee with Director General, DGH as the convener. The monitorable action plan, as submitted by the Committee, is being implemented by ONGC. The action plan of ONGC is monitored by DGH and a Quarterly Report is submitted to the Ministry on a regular basis.

The redevelopment plans of Mumbai High North & South are under implementation by ONGC. DGH is constantly monitoring the implementation of the redevelopment plans and progress of G&G and other studies suggested by DGH.

v) PRODUCTION MONITORING AND RELATED STUDIES

Production Group of DGH is monitoring the production activities of private / JV operated oil and gas producing fields and also associated in the evaluation of development plans from production engineering angle. The Group also evaluates the work programmes, production plans and budgets of production related activities including work-over jobs.

vi) GEOCHEMISTRY

DGH carries out studies in the area of petroleum geochemistry related to reservoir engineering and volumetric estimates of hydrocarbon resources. Some of the studies are :

a. Application of Reservoir Geochemistry in Panna Field,
b. Thermal Maturity Modeling to assess the thermal maturity of the source rocks in the deep water areas of the east coast , southern tip of India , Kerala Konkan and Cauvery basin.
c. Volumetric Estimates of Hydrocarbons Generated off the east coast of India and deepwater blocks offered under NELP.
d. Surface geochemical surveys for hydrocarbon exploration in Chambal Valley area of Vindhyan Basin. The sudy involved collection, analysis and interpretation of 350 soil samples.

vii) SAFETY & ENVIRONMENT MONITORING

DGH is responsible for monitoring of operations of all the Pvt/JV operators with regard to compliance with the statutory regulations and PSC terms for safe & environment friendly operations.

In terms of its assigned task, DGH carries out periodic safety & environment audits of the production installations, drilling rigs and bases from time to time. The recommendations made in the report are continuously monitored for compliance.

viii) METERING VALIDATION

DGH also attends periodic metering calibration & validation at various production installations from time to time as and when warranted.

ix) LOGGING

Well logs of all the exploration blocks are re-evaluated/re-assessed by DGH logging group for reserves estimation, presence of hydrocarbons in various zones etc. DGH advises contractor about model logs to be run for proper reserves estimation and development of the fields. During production phase, DGH advises operator about the need for special cased hole logs for reservoir depletion, water phase movement, oil/gas water contact etc.

x) Development of the first National E&P Database

The data pertaining to blocks offered in the previous Exploration Rounds and NELP Rounds is already maintained in the DGH.

DGH obtained an ADB grant of US$ 6.00 lakhs for providing consultancy on establishment of National E&P Database and Archive in India. Under the grant, a feasibility study was carried out to establish a National E&P Database and Archive.

A grant of US $ 3.00 lakhs from United States Trade & Development Agency was obtained for design of information flow system, modern data packages and suitable legal framework for India in the field of data management.

xi) LEGAL MATTERS AND ARBITRATION CASES

DGH handles the legal matters, disputes and arbitration matters arising out of Production Sharing Contracts.

xii) IMPLEMENTATION OF NELP

Carving of Blocks, Preparation of Data Packages, Basin Dockets and Bid Evaluation Work. DGH identified and carved out 124 blocks for offer under four rounds of NELP held so far. As already mentioned all the 12-deepwater blocks offered under NELP were identified as a result of DGH surveys detailed above. Other blocks were carved out after incorporating additional inputs in the form of either new data or reprocessing & reinterpretation of old data & its integration. DGH also prepared dockets and data packages.

After the bid closing dates all the bids were technically & financially evaluated by DGH and recommendations submitted to Ministry.

After the finalisation of awards by Government of India DGH was involved in contract negotiations with successful bidders.

xiii) Scanning and Digitization of data and material for an international Web Site

DGH digitized the entire information contained in data packages of all the Blocks offered under NELP-II, NELP-III and NELP-IV and information dockets of relevant basins. The entire data was made available on CD Roms / Exabyte tapes. A web site was operated with data prepared by DGH for all the blocks under NELP.

xiv) Presentation of oil and gas data at national and international forums

DGH keeps the oil companies informed about the new geological prospects emerging in the country. For this, DGH makes regular presentations in India at all the important conferences / meetings. Moreover, DGH has been regularly presenting the prospectivity of the Indian basins at several international forums like AAPS, SEG, WPC etc

xv) EVALUATION OF BIDS PRIOR TO NELP

DGH made the technical and financial evaluation of all the bids received under VI & VII exploration bidding rounds, JV speculative surveys rounds and second rounds of discovered fields. Recommendations for award of blocks were made to MOP&NG.

xvi) TECHNICAL GUIDELINES

DGH has prepared detailed technical guidelines for the upstream sector operations in the following areas in line with international practices. The guidelines were meant for private / JV companies for their follow up. The areas were :

(i) Exploratory Driling
(ii) Storage of course
(iii) Geophysical surveys
(iv) Reservoir Management of fields
(v) Storage of field and processed seismic tapes

xvii) PEL AND ML MAP OF INDIA

A complete map indicating all the Petroleum Exploration Licences (PELs) and Mining Leases (MLs) has prepared in DGH along with details of all the existing PELs and MLs. This information was not available earlier in a consolidated form anywhere. This information is being published in the book on Petroleum Exploration and Production Activities in India brought out by

DGH beginning 1996-97. The book printed by DGH contained all the other relevant information concerning upstream activities of all the companies operating in India.

xviii) INSTITUTIONAL CO-OPERATION

The Directorate General of Hydrocarbons (DGH) obtained an outright grant (outside the normal aid programme of Norwegian Govt.) and entered into an Institutional Co-operation Programme with the Norwegian Petroleum Directorate (NPD) for exchange of expertise in the field of petroleum exploration and production needed by a regulatory body. This project was established through a bilateral agreement, between DGH and NPD.

A grant of NOK 3 million (Rs. 1.8 crore) was obtained from NORAD for the programme. First phase of the programme was completed in April, 1996. Phase-II of the programme began in September, 1996. Under this programme, two of the Director Generals of NPD visited India. Also, several NPD experts visited India for 3 years to impart training to DGH officers. Several DGH officers visited Norwegian offshore for hands-on training on resource management, regulatory framework and other technical and safety aspects.

xix) ALTERNATE HYDROCARBON ENERGY SOURCES

DGH has identified the following unconventional sources of hydrocarbon energy for development :

- Coal Bed Methane
- Gas Hydrates

Coal Bed Methane

- DGH has been involved in framing CBM policy in India. The policy was got approved from the Cabinet in 1997. Subsequently, DGH in consultation with CMPDI identified several blocks (23 so far) in various coal bearing areas in Gondwana & tertiary coal belts for CBM exploration & exploitation. Of these, 3 blocks were awarded by the Govt. on nomination basis and the remaining 7 blocks were offered under CBM-I global bidding round and 9 blocks were offered under CBM II round DGH has also estimated CBM resources of these blocks. Data packages & information dockets have also been prepared for these blocks.

GAS HYDRATES

In order to keep up with technological development, with an ultimate objective to harness methane gas from gas hydrates at commercial scale, National Gas Hydrate Programme was constituted in 1997 and subsequently on the recommendations of DGH it was decided by the Government to reconstitute the implementing mechanism. As a result Steering and Technical Committees of NGHP were reconstituted in October 2000. Based upon the review of seismic data by the Technical Committee, two areas in Indian waters, one along East Coast & another on West Coast have been identified as " Model Laboratory Areas" for further R&D work. Road Map has been

prepared for the two areas. Technical Committee of NGHP is headed by DG (H) and all the technical activities of all the scientific projects under National Gas Hydrate Programme (NGHP) are coordinated by DGH.

Meetings of the NGHP Technical Committee are held every quarter and Agenda Notes for Steering Committee are submitted as indicated by Ministry. The NGHP is functioning as per the Road Map prepared by DGH and approved by the Steering Committee headed by Secretary (P&NG). During 2004-05 about 10 sites are to be drilled /cored in East and West Coasts and Andaman deep waters. Onboard analysis of the core data will be done, followed by analysis in detail by various national international agencies. Resource estimation for these areas will be followed. Tendering process for hiring a ship for coring the gas hydrate locations is in progress.

xx) <u>ESSENTIALLY CERTIFICATES (EC)</u>

DGH issues Essentiality Certificates, which enable the Pvt. / JV contractor to import goods at zero customs duty required for petroleum operations in India under PSCs and also in connection with petroleum operations under PELs & MLs issued or renewed after 1st April 1999 for the National Oil Companies. This work was transferred to DGH from OIDB in 1994. The work involves a lot of time & effort as each & every item is required to be examined and its inventory / record is maintained in DGH, so that, customs authorities and DGH can check as to where these items were used.

xxi) REVIEW OF ORD ACT & PNG RULES

DGH was involved in the review exercise of P&NG Rules 1959. In addition , DGH actively contributes in amendments to the Mines Act,1952 and the Oil Mines regulation Act, 1984 etc.

xxii) WORKSHOPS / SEMINARS

One of the functions of DGH is to introduce new technologies / work studies in the country and disseminate information to the oil industry. In this context, DGH has organised / conducted about 16 International / national Workshops and Seminars during the last several years on the following aspects : International petroleum contracts ,Draft for improved PSC Terms for India, Safety Management System in Upstream Petroleum Sector, Monitoring of Exploration Activities, Petroleum Resource Data Management, Monitoring of Development Planning and Operation Activities, Management of Petroleum Reservoirs, CRINE Cost Reduction Initiative, Role of Regulatory Bodies and E&P companies in Data Management, International Conference on Deep Water Technology, Offshore Safety Legislation – The HSE, UK Perspective ,Negotiations, Coal Bed Methane

These workshops/seminars were organized in cooperation with Commonwealth Secretariat London, Norwegian Experts from NPD, PETRAD, Norway DTI, UK, US Department of Energy

Following activities are planned to be carried out by DGH :

1. The surveys planned by DGH for opening up hitherto unexplored/poorly explored the sedimentary basins of India

2. About 20 exploration blocks are planned to be offered under forth coming fifth round of NELP

3. About 7 CBM blocks have been identified for offer under CBM III bidding

4. About 10 locations are planned to be drilled/cored for establishing the Gas Hydrate resources in East and West Coast and Andman deep waters.

5. All other activities related with administration/monitoring of Production Sharing Contracts

DISPUTES PERTAINING TO PSC OF OIL FIELDS

2.16 DGH handles the legal matters, disputes and arbitration matters arising out of Production Sharing Contracts (PSC). Asked as to how many cases of dispute amongst Union Government / National / Private / International oil companies pertaining to PSC of oil fields have been filed in courts / arbitration Tribunal in India and abroad and their status, the Ministry of Petroleum & natural Gas in their note furnished to Committee stated as under :-

2.17 As of now, 6 arbitration and 5 court cases are in progress due to various disputes related with Production Sharing Contracts. The details of the cases is given below:

A. ARBITRATION CASES

(i) HOEC, MIL v/s. ONGC, Union of India

Arbitration Case between Hindustan Oil Exploration Company (HOEC) & Maftlal Industries Limited (MIL) Vs. Union of India (UOI) & Oil & Natural Gas Corporation (ONGC) under PSC for exploration block GN-ON-90/3 regarding claim of the contractor for Force Mejure condition in the block and encashment of Bank Guarantee by ONGC.

Present Status: Oral evidence of the witnesses of claimants is being recorded. Next hearing in the case is fixed for 2nd & 3rd Feb. 2005.

(ii) Niko Resources Ltd. & GSPC v/s. Union of India

Arbitration case between NIKO Resources Ltd. (NRL), Gujarat State Petroleum Corporation Ltd.(GSPC) Vs Union of India under Hazira PSC regarding cost recovery of 36" pipeline of 14km length from Hazira to Mora village.

Present Status: Oral evidence of the witnesses of claimants and Respondent has been completed. Now case is scheduled for final arguments on 18th & 19 Dec 2004.

(iii)Videocon Petroleum Ltd. v/s. Union of India (Case No.1)

Arbitration Case No.1 between Videocon Petroleum Ltd. (VPL) against Union of India under Ravva PSC regarding due date of payment of profit petroleum to GOI and interest on delayed payments.

Present Status: The case was finally argued and Arbitral Tribunal has passed the interim award which is in favour of UOI rejecting the claim of VPL that there is no due date for payment of Profit Petroleum of GOI. Arbitral Tribunal has orally clarified that this award is final but called as interim award because one of the issue of payment of interest is linked with case no. 3 of VPL.

(iv) Videocon Petroleum Ltd. v/s. Union of India (Case No.2)

Arbitration Case No.2 between Videocon Petroleum Ltd. (VPL) against Union of India (UOI) under Ravva PSC regarding Debanture Trust Deed (DTD) entered into between VPL and IDBI & other Financial Institutions for raising a loan of Rs. 990 Crore under Ravva PSC by mortgaing entire Ravva oil and gas field.

Present Status: The case has been argued by both the Parties before the Arbitral Tribunal. Written submissions to be filed by the parties. Thereafter Arbitral Tribunal will publish the Award.

(v) Videocon Petroleum Ltd. v/s. Union of India (Case No.3)

Arbitration Case No.3 between Videocon Petroleum Ltd. (VPL) against Union of India (UOI) under Ravva PSC regarding calculation of Post Tax Rate of Return (PTRR) w.r.t. ONGC carry, sinking fund, dividend, tax, inventory, advance and deposits etc.

Present Status: Arguments from both the sides are over. Written submissions have been filed by the parties. The award by the Tribunal is awaited.

(vi) Cairn Energy (India) Pty. Ltd. v/s. Union of India

Arbitration Case between Cairn Energy (India) Pty. Ltd. (CEIL) and Ravva Oil (Singapore) Pte Ltd. (ROS) and Union of India under Ravva PSC regarding calculation of Post Tax Rate of Return (PTRR) w.r.t. ONGC carry, sinking fund, PTRR calculation on single or aggregate basis, dividend tax, inventory, advance and deposits etc.

Present Status: Arbitral Tribunal has published the Award on 12.10.2004 and out of six issues four have been decided in favour of GOI. The issues that have been decided against GOI are 'ONGC Carry' and 'Advances & Deposits'.

B. COURT CASES

(i) HOEC v/s. MIL, UOI & ONGC

Arbitration petition No.44 of 2002 filed by M/s HOEC against Mafatlal Industry Ltd. (MIL), UOI and ONGC before Gujarat High Court praying to appoint Mr. Justice B.J. Divan (Retd.) as arbitrator or any other arbitrator as may be suggested by leave of this Hon'ble court by the counsel of the petitioner i.e. HOEC at the time of hearing to enter upon and decide the dispute between the HOEC & MIL for a claim made by HOEC against MIL for a sum of Rs. 50,00,903.20 arising out from the paid PSC dt. 29.3.93 & JOA dt. 15.3.96 in respect to Exploration Block GN-ON-90/3.

In this petition no relief has been sought against ONGC and UOI.

Present Status: The case is pending for final hearing.

(ii) BGEPIL v/s. UOI AND GOVT. OF GUJARAT

The contractor of Panna-Mukta was not paying sale tax on gas produced from Panna-Mukta field and sold to GAIL with a plea that as per PSC definition, 'Delivery Point' means the upstream weld at the underwater connection between seller's pipeline and

ONGC's underwater gas transmission line which transports gas from the Bassein field to Hazira. The upstream weld is in offshore, outside Gujarat state. However, before gas is sold, it is processed by ONGC at its sweetening facility at Hazira and then gas is received by GAIL at Hazira, Gujarat. As per GOI the 'Delivery Point' is at Hazira, because as per PSC, contractor parties had agreed that GAIL shall receive the gas from Panna-Mukta at Hazira. Gujarat Govt. issued a show cause notice to BGEPIL, ONGC and RIL, the constituents of contractor and Directorate General of Hydrocarbons (DGH) regarding sale tax liability on natural gas from Panna- Mukta field sold to GAIL.

BGEPIL filed a special civil application in Ahmedabad High Court against the recovery proceedings initiated by Sale Tax Authorities of Gujarat and made Government of India as one of the respondent. Later on ONGC and RIL also joined in the petition.

Present Status: Case is pending for hearing before Gujarat High Court.

(iii) Cyanides & Chemicals Company v/s. Union of India

M/s Cyanides and Chemicals Company filed write petition in Ahmedabad High Court for restraining Niko Resources Ltd. from exploring gas from well Bheema, and to further ensure that the petitioners gas resources in ONGC well at Olpad is not depleted or affected or siphoned off by the digging of wells at Bheema. The petitioner further prays that during the pendency of this petition, it is necessary to do justice in the matter to the petitioner and therefore, Niko be directed to discontinue further exploration at Bheema or near about area, and be further directed to supply additional gas to the petitioner of 3000 cu. mts. of gas per day at the prices payable to the ONGC or GAIL by the petitioner of their existing supplies when required.

Present Status Case is pending for hearing

(iv) Mulla & Mulla, Craigic Blunt & Caroe v/s. EEIPL & Union of India

A Production Sharing Contract (PSC) dt. 6.10.1995 was signed between Government of India, Mosbacher India Ltd., Hindustan Oil Exploration Co. and Petrodyne Inc. Following defaults by Petrodyne Inc., Government of India forfeited the Participating Interest (PI) of PDI and transferred its interest to Energy Equity India Pty. Ltd. (EEIPL).

Later on, due to default in cash calls by EEIPL, certain disputes arose amongst the JV partners and MIL referred the matter to arbitration under Joint Operating Contract, wherein Government of India was not a party.

Pursuant to the award under JOA, MIL and HOEC requested the Government of India for assigning the PI of EEIPL to MIL and HOEC, which is pending for approval by the Govt.

Meanwhile Government of India received notice from the Bombay High Court restraining GOI from giving approval for the said assignment of PI under a suit filed by a law firm Mulla and Mulla against EEIPL for non-payment of their fees for earlier rendered professional services. After hearing arguments the Single Bench of Bombay High Court vacated the restraint order. Aggrieved by the same, the petitioner preferred appeal; before the Division Bench which was also dismissed by the Division Bench.

The petitioner filed Special Leave Petition before the Hon'ble Supreme Court wherein Govt. was again restrained from assigning PI of EEIPL to MIL & HOEC. However, during arguments MIL agreed to pay Rs. 25 lacs to Mulla & Mulla and the Hon'ble Court was pleased to vacate the stay order against the Govt. and Government of India, MIL & HOEC have been deleted from the array of defendants vide order dt. 15.10.2004.

Present Status Case will continue only against EEIPL.

(v) M Dr. Fereidum Fesharaki v/s. Union of India and DGH

M Dr. Fereidum Fesharaki has filed a civil suit no. 10 of 2002 which is renumberd as suit no. 152 of 2002 before the Distt. Court,Delhi against Union of India and DGH for recovery of Rs.1,97,718.66 .Dr Fesharaki was appointed as an arbitrator by M/s Cairn Energy in Ravva crude price determination case who was lator disqulified to act as an arbitrator by the Arbitral Tribunal in amajorty decision.Thereafter,Dr Fesharaki has sent his bill to DGH for remaining amount of US Doller 2206.40 after adjusting the initial deposit of US Doller 10 thousand made by the UOI with DR. Fesharakhi. The bill of Dr. Fesharaki for remaining amount could not be paid as the same was found exorbitant and also was not in line with agreed terms of the appointment of the Abitrators.Being aggrived,Dr. Fesharaki has filed the present suit praying interalia that a decree for a sum of Rs.1,97,718.66 be passed in favour of the plaintiff alongwith pendentelite and future interest at the rate of 24% Per Annum.

Present Status The Union Of India has filed its Written Statement and now the case is fixed for hearing.

CHAPTER - III

New Exploration Licensing Policy (NELP)

3.1 India today remains one of the least explored regions with well density per thousand sq. kms being among the lowest. To boost the level of exploration activity in the country so that new finds can be made and level of crude oil and gas produced may be increased, New Exploration Licensing Policy (NELP) was formulated by the Government of India in 1997 to boost the level of exploration activity both in on land and offshore including deep water in the country. NELP was operationalised in 1999. Salient features of NELP are as under :-

HIGHLIGHTS OF NELP

- Fiscal stability provision in the contract
- Finalisation of contract on the basis of Model Production Sharing Contract (MPSC)
- Petroleum tax guide is in place to facilitate investors
- Possibility of seismic option in the first phase of the exploration period
- NOC's to compete for acreages
- No payment of signature, discovery or production bonus
- No customs duty on imports required for petroleum operations
- No minimum expenditure commitment during the exploration period
- No mandatory state participation/carried interest by NOCs.
- Freedom to sell crude oil and natural gas in domestic market at market related prices
- Biddable cost recovery limit up to 100%
- Sharing of profit petroleum based on pre-tax investment multiple achieved and is biddable
- No cess on crude oil production

- Royalty payment on ad-valorem basis:

<u>for crude oil</u> :

- 12.5% for onland areas
- 10% for offshore areas

<u>for natural gas</u> :

- 10% for onland areas
- 10% for offshore areas

- Royalty for oil & gas in deep water areas (beyond 400m bathymetry)

- 5% for first seven years after commencement of commercial production

- Option to amortise exploration and drilling expenditures over a period of 10 years from first commercial production
- Contribution to site restoration fund fully deductible in same year for income tax purposes in accordance with Income-tax Act.
- Liberal depreciation and set off provisions for tax computation purposes.
- 7 years tax holiday from commencement of production
- Conciliation and Arbitration Act, 1996, which is based on UNCITRAL model is applicable.

i) <u>BID TERMS</u>

Companies would be required to bid for :

- Work programme commitment
- Profit petroleum share expected by the contractor at various levels of pre-tax multiple of investments
- Percentage of annual production sought to be allocated towards cost recovery

ii) BID EVALUATION CRITERIA

For NELP-IV the following evaluation criteria was adopted (which was made public in bid documents)

	Criteria	Weightages on a scale of 100 points	
		Shallow Offshore & Onland Areas	Deepwater blocks
a.	Technical capability	6	9
b.	Financial strength	4	6
c.	Work programme	60	55
d.	Fiscal package	30	30

To a question as how far the objectives under NELP had been achieved, the Ministry in their note stated as under :-

Considerable achievement have been made during NELP regime. Some of the salient achievements are summarized as under :-

- The total area under exploration in the country as on 1.8.2004 is about 0.99 million sq. km., of which 77% is under NELP (0.76 million sq. km.), 16% under nomination (0.16 million sq. km.) and 7% is under pre-NELP (0.07 million sq. km.). Of the 77% area under NELP, 63% of the area covers the deep waters through the innovative surveys of DGH.

- Thus NELP has tremendously increased the exploration coverage of Indian sedimentary basins.

- In the last four years, 90 PSC's were signed under the NELP regime as against 28 in the pre-NELP rounds in 10 years.

- There have been 19 new oil and gas discoveries by private / JV companies. Of these, 3 in Cambay, 12 in K.G. basin and 4 in shallow Mahanadi-North East Coast (NEC) offshore. The Mahanadi-NEC discoveries have helped raise its basinal status from Category-III to Category-II.

- Exploratory efforts have increased significantly under NELP. A total of 92048 LKM of 2D and 44732 Sq.Km. of 3D seismic survey has been carried out under NELP as compared to 24131 LKM of 2D and 3117 Sq. Km. of 3D under pre-NELP exploration blocks.

- So far four rounds of NELP have been undertaken. Details of Committed work progamme and achievement in each of the exploration blocks under NELP was stated to be as under :-

	COMMITTED			**ACTUAL**		
	2D (GLK)	3D (Sq.Km)	Exploratory Wells(No)	2D (GLK)	3D (Sq.Km)	Exploratory Wells(No)
NELP-I	28334	11807	20	28030	18169	25
NELP-II	25315	10415	52	28253	11752	34
NELP-III	27590	16320	57	30165	8072	1
NELP-IV	16040	12655	45	5620	-	-

- The fifth round of NELP is likely to be announced by December, 2004. About 20 blocks have been carved out for offer under fifth round for NELP. The Blocks are identified based on re-interpretation of available geo-scientific data or by acquiring new / additional data by DGH in unexplored / poorly explored areas / basin and by evolving new geological models.

3.2 Asked to state the difficulties, if any being faced by ONGC and OIL in carrying out E&P activities due to present NELP and remedial measures to overcome them, ONGC in their note submitted following suggestions :-

a) More incentives for frontier basins.

b) More approving power to Management committee related to Phase extension, assignments etc.

c) Marginal fields require special incentives at post discovery stage to make them economically viable. Such incentives may be offered by the Government on its own initiative when the contractor is not able to declare a discovery as commercial discovery with the existing fiscal package.

3.3 The Committee also sought the views of other oil companies viz. IOC, BPCL, HPCL and GAIL who have also recently made forays into E&P activities on the pre□üsent NELP. Two companies viz. Indian Oil Corporation and GAIL pointed out the constraints being faced by them to pursue E&P activities and also suggested remedial measures as under :-

3.4 After the introduction of NELP offering improved terms and level playing opportunities to private companies at par with NOCs, the exploration activity in the country has increased. Few large/medium size discoveries have also been made recently. However, the desired level of participationy foreign companies is yet to be materialized. Hence, there is a need to undertake specific measures, which may result in attracting global companies to participate aggressively in future exploration in India. As one of the measures in this regard, Govt may consider offering blocks with greater hydrocarbon prospectivity in the forthcoming NELP rounds.

3.5 Some of the constraints experienced under previous NELP rounds and their remedial measures are enumerated below:

- Non-availability of the data of adjoining blocks at the time of data viewing of a particular block on offer by the Govt. for bidding.

Efforts should be to make available at least the key technical data of adjoining blocks in order to enable the interested bidder to have a better estimation of the hydrocarbon prospectivity of the block on offer.

- Non-availability or delay in availability of the technical data of the awarded block, which is not present in the data package of that block purchased by the company prior to bidding.

  Almost all the blocks offered under previous NELP rounds were previously under ONGC/OIL. The data package of a particular block may not always contain the entire technical data available with earlier operator. Therefore, to enable the new

entrant for better technical assessment of a block, it should be made mandatory for the previous operator to readily make available all the technical data of the block, not present in the data package, in a given timeframe.

- The requirement for Defense clearance for data processing abroad, particularly of offshore blocks, should be reduced to minimum.
- The Contractor should have the option to relinquish any part of the original contract area prior to the commencement of each contract year, during any of the Exploration Phases. This will save the Contractor from paying the license fee for that part of the contract area, which, in his opinion, is not of hydrocarbon interest, and such relinquished part will be back with the Government at the end of every contract year.
- The Government should have the option to take its entitlement to Profit Petroleum either in cash or in kind, and once the Government exercises its option, the same should continue for the entire period of the PSC. The right of the Government to vary its option every year may prevent the Contractor from realizing best value by sale of the petroleum as the available quantities may be undeterminable for long term sale and purchase contracts. Particularly in the case of natural gas, such flexible option may not be workable.
- As of now, E&P activities, though qualify for 7-year tax holiday from the date of commercial production, do not qualify for infrastructure project/industry status. Under Income Tax Act, 1961, infrastructure projects qualify for tax holiday u/s 80 IA and also have the option to choose the block of 10-year tax holiday out of 15 years, which is not necessarily linked to commencement of commercial production. In E&P projects, if 7-year tax holiday necessarily starts from commercial production, the advantage of tax holiday may be lost because of carried forward losses of the

previous years on account of large investment. Therefore, the Government should allow E&P projects to choose the block of 7-year tax holiday in line with infrastructure industry status.

- The price of natural gas, either in case of arms length sales or sales to an affiliate, should be market-determinable.
- The time period required for various Government/Management Committee approvals may be further reduced to expedite the whole process.

GAS AUTHORITY OF INDIA LTD (GAIL)

3.6 GAIL stated following limitation of NELP and remedy to remove them :-

Securing the statutory permissions from various government departments like Defence, Environment, Explosives are time consuming which sometimes result in time as well as cost overrun of projects. This constraint may be overcome if such applications are processed expeditiously by the concerned authorities.

Limitation: The effective date of a block awarded during bidding is considered from the grant of PEL. In grant of PEL for onland blocks, State Governments are involved. The process sometimes takes considerable time. Many expenses incurred before effective date are not cost recoverable. As a result substantial time is lost before the actual start of exploration work.

Remedy: Such constraints can be overcome if the NOC of PEL with respective State Government is taken during offer of NELP and PEL is granted in shortest possible time.

Limitation: The initial data provided by the government of India of a particular block to a particular operator is not shared to other operating parties in adjacent blocks even on payment basis. Some times such data becomes of critical importance and is required for operational reasons.

Remedy: Initial data is the property of the government of India and if the operating party of the block has not done any value addition to it, the data of critical importance should be shared.

3.7 Relevant provisions of Petroleum Regulation Board Bill and Gas Pipeline policy may also be included in future NELP rounds.

3.8 During evidence the Committee asked the representatives of National Oil Companies viz. ONGC and OIL to state as to whether the present provision of NELP were satisfactory or required any modification, in reply a representative of ONGC stated as under :-

> "We have represented to the Government that NELP awards are made on something called Minimum Work Programme (MWP). For ONGC, except where there has been environmental clearance delay or Defence Ministry clearance delay, we are hundred per cent plus on every block that we have taken. Someone else is not. We have represented to the Government that if blocks are awarded on MWP, and if MWP is not complied with, then the sanctity of award process itself is questioned. And then if we say that MWP is adjusted from this block to that, this goes against the basic principle of tendering or bidding. That is one thing which we have submitted to the Government. It is unfair. If we have bid three wells and somebody else have bid four wells, by all means four is more than three and they

should get the award. I have nothing to complain about. But having bid for four wells, not even one well is done and extensions are being given."

3.9 The Committee drew the attention of representatives of the Ministry of Petroleum & Natural Gas towards block allotment policy under NELP and asked the reasons for not imposing same conditions on private operators as applicable to public sector undertaking in awarding of blocks under NELP. In reply a representative of the Ministry of P&NG stated :-

> "……..pre NELP there were certain conditions which have been incorporated to make it attractive to private money. But with NELP, all these anomalies have been rectified. Today, as far as we know, there are no anomalies tilted in favour of private sector at the cost of the public sector. Today, all those imbalances and anomalies have been fully rectified. We will go through it again in the light of the observations of the Members of the Committee……."

3.10 When the question pertaining to the terms and conditions of NELP was put to representative of OIL, they stated that :-

> "We are pretty comfortable with the latest terms that have come in the NELP. But then we have seen one thing. Since we have been a party to different interactions of the Government with the industry on some of these issues, there are times that having got a block to start exploration, there are environmental issues because of which quite a bit to time gets lost. We can give you a specific example, though this is not on NELP Block. In Assam, near Digboi, there is a place called Jaipur. There is an exploration block which has been taken up by a particular company called Premier Oil Company, which is a British company. They are the operators and we are the partners. As luck would have it, after the block has been awarded to this consortium, where we are one of the partner, the Government of Assam in its wisdom decided that some portion within the block to be announced as what is called "Reserved Forest Area". Therefore, we are not allowed to operate there. That has created a lot of problems. We are taking it up with the Government of Assam, we have taken it up with the Ministry of Petroleum.
>
> We are hopeful that some solution would come through. If these kind of issues are sorted out earlier, that would help in getting the work done in as fast a manner as possible. Otherwise, I think, the Company feels comfortable with the NELP terms."

B SEDIMENTARY BASINS

3.11 Hydrocarbons (Oil & Gas) are generated and usually accumulated in sedimentary rocks. These are rocks that have been deposited in large water mass like lakes and seas, which form Sedimentary Basins. These sedimentary basins are therefore target areas for exploration in India.

3.12 On the total number of sedimentary basins in the country, the potential of hydro carbon generation and accumulation in different sedimentary basins and their present status of exploration, the Ministry of Petroleum and Natural Gas in a note furnished to the Committee stated as under:-

> India has an endowment of twenty-six sedimentary basins, stretching over an area of 1.39 million sq. km. on land and 1.75 million sq. km. offshore, including the vast stretch of sediment laden area measuring 1.35 million sq. km. in deep water areas.

3.13 All these basinal areas including the deep water are prognosticated to hold about 28 billion tonnes of hydrocarbon resources. With the exploratory efforts expended in the on land and shallow water areas so far about 8 billion tonnes of the hydrocarbon resources have been proved to be geological in-place hydrocarbon volume.

3.14 These 26 basins are divided into four categories based on prospectivity perception. The four categories are :-

a) Cat. I Proved petroliferous basins with commercial production.

b) Cat. II Basins with known occurrence of hydro carbon but no commercial production

c) Cat. III Basins with no significant hydro carbon shows but assured prospective on geological consideration

d) Cat. IV Frontier basins with uncertain prospects

3.15 ONGC has carried out surface geological mapping of all these basins in last five decades followed by different campaigns of seismic survey in 19 basins. These 19 of the 26 sedimentary basins of India have been taken up for systematic exploration so far, with acquisition of seismic data and carrying out exploratory drilling. OIL has carried out exploration of hydrocarbons in the Mahanadi Offshore and Onshore areas in Orissa, North East Coast Offshore areas of Orissa, Andaman Offshore, Jaisalmer and Bikaner Nagaur Basins in Rajasthan, Ganga Valley Basin, U.P., and Saurashtra Offshore in addition to continuing its exploration for hydrocarbons in Upper Assam Basin.

3.16 Seven of these basins (Category I) viz. Cambay, Upper Assam, Assam Arakan Fold belt, Mumbai offshore, Krisna-Godavari, Cauvery and Jaisalmer have been upgraded to producing basins, which have witnessed intensification of exploratory activities with the aim of realising the basin potential and establishing additional play system which can yield substantial hydrocarbon accretion at less time and reduced cost. Currently these basins are being commercially exploited. These basins covering 16% of the total basinal area hold about 66% of the prognosticated resources of the country and account for almost entire hydrocarbon discovered so far. The exploratory efforts in proved petroliferous basins are being renewed with detailed prospectivity/play analysis for more resource conversion.

3.17 The non-producing basins which have received exploratory input thus far, include the teaser basins without commercial discovery viz., Andaman, Kutch and Bengal, and the basins without a hydrocarbon find viz. Ganga, Himalayan Foothills, Kerala-Konkan, Satpura, Vindhyan, Pranhita-Godavari, Karewa, Mahanadi and Saurashtra. These basins together are covering 28% of the total sedimentary area and holding about 9% of the Geological Resources of the country. Eluding success/ noncommercial finds have resulted in chequered exploration activities in these basins. The pause in exploration activities

between two cycles has been utilised for understanding basin potential and fine-tuning of model of exploration.

3.18 The basins like Bhima-Kaladgi, Cuddapah, Chattisgarh, Deccan Syneclise, Narmada and Spiti-Zanskar covering about 13% of the basinal area remain in the realm of knowledge building either due to the age of the sediments and/or due to geological complexity. Understanding of geotectonic evolution and associated attributes culminating in the Generation, Migration and Entrapment (GME) cycle in each of these basins is critical, prior to initiation of systematic exploratory input planning.

3.19 The deep-water areas of India accounting for about 43% of the total basinal area of the country is a frontier sector in terms of knowledge base. Preliminary estimates based on indirect means suggest Geological Resources of this sector to be of the order of about 7 billion tonnes i.e. about 25% of the total resources of the country.

3.20 Elaborating the efforts made and future strategy to explore hitherto unexplored basins, a representative of ONGC during his evidence before the Committee stated as under:-

> "We have totally categorized all the sedimentary basins which are 26 in numbers and four categories. There was only one basin in India which was on the oil map of the world. But today with the exploration strategy and the exploration which have been done by the ONGC, seven basins today are coming in the commercial production stage. Category-II basins are basins with the known occurrence of hydrocarbons, but non-commercial production. It means that we have carried out the exploration there. We have got the hydrocarbons there but the hydrocarbon finds are not in the commercial stage. Further exploration and the assessments in these basins are going on. They are mainly the Kutch and another area which fall in this category is the Andaman sector where we have discovered the gas. In the Kutch sector we have discovered the oil as well as gas. But today from the economic point of view those discoveries are not commercial. But the exploration in these two areas is going on and we envisage with the better interpretation and revisiting the data, we should be in a position to establish commercial production and bring these two basins also into the category-I.

Category-III are the basins with no significant hydrocarbon shows but assumed prospective on geological considerations. These are like the Himalayan foothills, Ganga Valley, Saushrashtra etc. We got non-commercial gas flows in Vindhyachal in Madhya Pradesh. It gave us about 3,000 cubic metres of gas but that was non-commercial. Similarly, in the Jawalamukhi, we got the gas, but that was non-commercial. Such basins are seven in numbers. In the Category IV, we have ten basins. Basically, some of these ten basins are, what we call in the geological parlance, made up of very old rocks equivalent to about 400 to 500 million years or even older. Today, in the country we have not yet found any hydrocarbon in these areas and a good number of these basins have not yet been visited from the point of view of geological analysis. But out of these ten basins, we have carried out the work in the six basins for the geological and potential evaluation."

3.21 Committee asked from Ministry of Petroleum and Natural Gas as to what steps were contemplated to appraise all sedimentary basins, and locate additional Hydrocarbon reserves. In reply, Ministry in their note stated as under:-

To assess and locate additional potential resources mainly in category III and IV basins and Deepwater areas, DGH is carrying out number of Geoscientific surveys either alone or in collaboration with reputed national / international companies. Government of India is awarding exploration blocks through NELP to accelerate the exploration in the country. As per India Hydrocarbon vision –2025, entire area i.e. about 3.14 million sq. km. of sedimentary basins is to be appraised by 2025 and 35% of the sedimentary area is to be appraised by the end of X Five year plan.

C HYDROCARBON VISION – 2025

3.22 Government of India formulated the `India Hydrocarbon Vision – 2025' which envisages total appraisal of the sedimentary basins of India by the year 2025.

3.23 Asked as to what steps were being taken to achieve the objective of Indian Hydrocarbon vision 2025, ONGC in their note stated as under:-

In order to fulfill the objectives of the Vision-2025, action plans have been drawn so as to achieve the following appraisal programme:

- 25% by 2005
- 50% by 2015
- 100% by 2025

3.24 Currently, more than 20% of the totally sedimentary basinal area of the Country has been appraised. With the implementation of the X-plan exploration programme (2002-07) by the various operators including ONGC, the exploration coverage will improve significantly and about 35% of the basinal areas are expected to be appraised.

3.25 ONGC has drawn its short, medium, and long term Exploration and Production strategy by envisaging exploration programme up to 2020. The X-plan exploration programme (2002-07) forms the short term strategy.

3.26 Knowledge building efforts are envisaged in the frontier basins/sectors so as to prepare them for risk investment, after understanding the GME cycle in these basins.

3.27 With the award of more number of blocks of NELP to the various companies, in the less explored areas including the vast deep water areas, the basin appraisal scenario is expected to improve significantly and the target as set in Vision-2025 document is expected to be achieved.

3.28 On the possibility of 100% appraisal of Indian sedimentary basins, by 2025 as envisaged in the Hydrocarbon Vision-2025, the Ministry of Petroleum and Natural Gas stated as under:-

> ……For realising the vision Government of India has formulated an accelerated action plan for the next 5 years, which include opening up of unexplored and poorly explored sedimentary areas including deep water areas.

CHAPTER – IV

SEISMIC SURVEY AND DRILLING DURING IX PLAN

ONGC

4.1 The Committee wanted to know about IX Plan State/Basin wise exploration programme of ONGC in seismic survey and drilling and actual achievements made vis-à-vis the targets laid. In reply, ONGC furnished following information :-

Statewise wise/ Basin wise Physical Inputs Expended During IX Plan

State/Basin	Planned Physical Inputs (PCR)			Physical Inputs Actuals		
	2D (GLK /LK)	3D (sq km)	Wells	2D (GLK/ LK)	3D (sq km)	Wells
Producing Basins						
Gujarat/Cambay	4000	383	219	5731	1692	247
Rajasthan/ Jaisalmer	1750		5	1362		7
Assam	2505	440	130	2364	1158	91
Nagaland						
Tripura	1010		22	635		19
Meghalaya				204		
Tamil Nadu		300	63	1535	777	104
Cauvery Offshore				2815		
Andhra Pradesh	1775	319	90	2043	790	106
Krishna Godavari Offshore	925		8	3461	458	4
Mumbai Off	3000	4878	112	18173	9051	100

State/Basin	Planned Physical Inputs (PCR)			Physical Inputs Actuals		
	2D (GLK/ LK)	3D (sq km)	Wells	2D (GLK/ LK)	3D (sq km)	Wells
Non Producing Basins	9084	365	18	4703	393	6
Bihar						
West Bengal (Onland)						
W Bengal (Offshore)						
Mahanadi (Offshore)						
Kutch						
Saurashtra						
Kerala-Konkan-Lakshadweep						
Deepwater						
Cauvery Deep Offshore				989		1
Krishna Godavari Deep Offshore			2	3135	1358	5
Mahanadi				1460		
Kutch			7		685	
Saurashtra					3023	
Mumbai				5592	3981	
Kerala-Konkan-Lakshadweep				9054	670	2
Frontier Basins						
Jammu& Kashmir			16	280		
Himachal Pradesh	6686			402		
Uttar Pradesh				231		
Madhya Pradesh				2873		2

4.2 From the above it was noted that there were variations in actual achievements vis-à-vis targets fixed for seismic survey and drilling. Asked to give reasons for variation in targets fixed and actual achievements, ONGC in their note stated as under :-

In seismic acquisition there has been over achievement in 3D seismic data acquisition. In 2D seismic acquisition the targets were overachieved in the state of Gujarat (Cambay Basin), Meghalaya, Tamilnadu and in Mumbai offshore, Kerala Konkan offshore, KG and Cauvery offshore and in deepwater areas. Increase in 3D seismic acquisition is mainly due to i) changed prospectivity perception ii) quick delineation and pursuance of the leads obtained iii) to facilitate improved geological model as in Mumbai High redevelopment plan and iv) advancement of acquisition electronics. Additional 2D acquisition was done to intensify exploration in geologically favorable areas, to fulfill committed work programme in NELP blocks and to facilitate better understanding for improved exploration model.

4.3 The shortfall was mainly in the states of Assam, Nagaland, Tripura and in the Himachal Pradesh and Rajasthan. In Assam state greater emphasis was laid on covering the entire area with a blanket 3D seismic survey. This resulted in the compromising of 2D-seismic survey planned targets for the period, leading to a shortfall in the actual. In Nagaland envisaged programme could not be implemented due to non availability of PEL. The planned contractual seismic survey could not be implemented in Tripura owing to the non finalization of the contract. In Himachal Pradesh, the performance of shothole drilling in Himalayan Foothills was slow due to revamping of departmental rigs, experimenting in Hamirpur area, Shothole drilling problem in hard formation, farmer's agitation in Kumhari-Pateria area and delay of PEL grant in Ganga NELP block.

4.4 The over achievement of drilling in the state of Rajasthan, Gujarat, Tamilnadu and Andhra Pradesh and Krishna Godavari Deepwater was mainly for consolidation of leads obtained and fast track delineation. However, there was a shortfall in drilling in the North Eastern state and in the Himachal Pradesh, mainly due to delays in the Exploration plan implementation in environmentally sensitive and logistically difficult areas, drilling of increasingly deeper wells which developed downhole problems resulting in the delay of timely completion of drilling targets and prolonged Production Testing of wells, often spilled over beyond the time limits. Short fall in offshore drilling target was due to less rig availability and downhole complications while drilling , settling of rig Matdrill and deployment of additional rigs for work-over operations.

4.5 Asked to indicate the status of Hydrocarbon finds / lead made during IX Plan, ONGC gave the following information :-

(AS ON 01-10-2004

SN	Find	Status
CAMBAY		
1	Vatrak	Two wells drilled subsequent to find in Vatrak-1, both are oil wells. Field on production.
2	Anklav	Two wells drilled subsequent to find in Anklav-3, both are dry and abandoned. Field is on production.
3	North Sarbhan	3D data acquired, six wells drilled including one development well subsequent to oil find in NS-1, three are oil wells and three dry and abandoned. Field is on production.
4	Sadra	Five exploratory wells drilled subsequent to oil find in Sadra-1 and all are oil wells. Sixth well is under drilling. Field is on production.
5	Akholjuni	3D data acquired. Eleven wells drilled including four development wells subsequent to oil find in Akholjuni-5. Six are oil wells and five are dry and abandoned.Field is on production.
6	Katpur	Well Katpur-1 has been put on production. Acquired 2D seismic data in 2002-03 FS. Data interpretation completed and delineation location identified recently. Field is on trial production.

7	Chaklasi	Two wells have been drilled, one CK-6 was gas bearing and another CK-7 was dry. 3D data acquired during 2003-04.Under delineation, prospects to be identified based on new 3D data acquired recently. Not put on production because of remote location, lack of infrastructure and poor techno-economics.
Western Offshore		
8	TP	3D seismic API in progress.
9	ED-4	Isolated accumulation. 3D API planned during 2005-06
10	Vasai East	3D seismic API in progress.Development plan of the field being finalised
11	B-23A	Development of the field being planned in cluster
12	D-31	Delineation in progress.
13	BRC	Small isolated pool
14	WO-24	Development of the field being planned in cluster
15	B-105	Studies being carried out for cluster development
16	GK-39	3D API in progress.
CAUVERY ONLAND BASIN:		
17	Periyapattinam	Drilled 9 exploratory and one development well. Four exploratory & one development well gas bearing. Area fully covered with 3D seismic surveys. Field on production.
18	Neyveli	Drilled two exploratory wells. One well gas bearing. Area being covered by additional 2D seismic surveys to enhance the coverage density.
19	Kali	Six exploratory wells drilled. Three wells Hydrocarbon bearing. Area fully covered with 3D seismic surveys. Field on production.
20	PBS-1	Two exploratory wells drilled. One well gas bearing. Area is covered only with 2D surveys. 3D coverage is difficult due to logistics. Field not on production.
21	Ramanavalsai	Four exploratory wells drilled. Two wells gas bearing. Area fully covered with 3D seismic surveys. Field not on production.
22	Kanjirangudi	Six exploratory wells drilled. Three wells hydrocarbon bearing. Area fully covered with 3D seismic surveys. Field not on production.
KRISHNA GODAVARI ONLAND BASIN:		
23	Gokarnapuram	One exploratory well drilled. Gas bearing. Area covered with 3D surveys.
24	Suryaraopetta	Two exploratory wells drilled. One oil bearing. Area covered with 3D surveys. Third well under drilling. Field on production. Produces intermittently.

25	Lakshamaneswaram	Two exploratory wells drilled. One gas bearing. Area planned to be covered with 3D surveys. Field on production.
26	Sanarudravaram	One exploratory well drilled. Gas Indication. Geoscintific data being reviewed for aseessment of the area.
27	Penduru	Two exploratory wells drilled. One well gas bearing. Geoscintific data being reviewed for aseessment of the area.
28	Magatapalli	Four exploratory exploratory wells drilled. Area covered with 3D surveys. Field on production.
29	Sirikatapalli	One well drilled. Gas bearing. Area covered with 3D surveys. Field on production.
30	Kesavadasupalem	Six exploratory and one development well drilled. Six wells gas bearing. Area planned for 3D coverage. Field on production.
31	Gopavaram	Six exploratory wells drilled. All wells are HC bearing. Area covered by 3D surveys. Field on production.
KRISHNA GODAVARI DEEP OFFSHORE BASIN:		
32	KD-1	Two wells drilled. One well gas bearing. Two more wells drilled in the area. Proved dry. One location available. One more location being firmed up. Entire PEL area covered with 3D surveys. Merged volume of 3D data under interpretation to bring out the total picture.
33	GD-1	Two wells drilled on the prospect. One well gas bearing. Two more wells drilled in the area. Proved dry. One more well is under drilling in the area. One location available. Entire PEL area covered with 3D surveys. Merged volume of 3D data under interpretation.
ASSAM & ASSAM ARAKAN BASIN		
34	Nambar	Drilled 4 exploratory and 2 development wells. 1 more development well is under drilling. Field is under development and on production.
35	Safrai	Drilled 2 exploratory and 2 development wells. Field is on production.
36	Panidihing	Drilled 5 exploratory wells. Field is on trial production and assessment.
37	Nazira	Drilled 2 exploratory wells. Field is under trial production and assessment.
38	Tichna	Drilled 7 exploratory wells. Field is yet to be delineated. Activity stopped as the area falls under wild life sanctuary.

OIL INDIA LIMTIED

4.6 Targets fixed, actual achievements and reasons for shortfall in achievements of target laid for seismic Survey and drilling by OIL during 9th plan was stated to be as under:-

IX Plan

Activity	Target	Achievement	(Excess) / Shortfall	Reasons for Shortfall
2D Seismic Survey In- house (SLKM) Contract (GLKM) Offshore (LKM)	 5,312 1,460 1,000	 7,351 730 -	 (2,039) 730 1,000	- Survey for Brahmaputra River Bed was deferred due to inability to finalise contract for reasons beyond the control of the Company. - Seismic data requirement of Saurashtra offshore was reviewed and deferred.
3D Seismic Survey (SQKM)	766	1,005	(239)	
Drilling (000 M)	712	483	229	- Drilling activities affected by repetitive environmental problems, bundhs, blockades etc. - Acute land acquisition problems leading to rig idling. - Poor state infrastructure affecting movement / resulting in delays. - Pause in drilling programme in Rajasthan to undertake basin modeling study. - Unprecedented flood led to deferment of drilling of two wells under Brahmaputra Valley Exploration Project. - Exploratory drilling in Ganga valley rescheduled pending acquisition of additional seismic data and integration of available data. - Planned drilling in Saurashtra could not be undertaken pending acquisition of requisite seismic data.

B PRODUCTION OF CRUDE OIL

ONGC

4.7 Actual production of crude oil by ONGC vis-à-vis the targets fixed during last 5 years were as under :-

YEAR	(`000 tonnes)	
	TARGET	PRODUCTION
1999-00	29180	24648
2000-01	29871	25057
2001-02	30018	24708
2002-03	25897	26005
2003-04	25995	26057

4.8 From the above it was noted that actual production during the years 1999-00, 2000-01 and 2001-02 were much below the targets laid. Giving the reasons for shortfall in production targets, ONGC in their note stated that shortfall in production target during 9th plan was due to delay in commissioning of EOR schemes in Balol and Santhal, less than anticipated potential of Heera and Neelam field and adverse environmental situation in North Eastern region. Asked as to why the above bottlenecks were not anticipated while fixing the targets, ONGC in their subsequent note stated as under:-

The ninth five-year plan of ONGC was formulated in early 1996 based on exploitation status of the different fields and schedules of additional input implementation of following major projects envisaged at that time.

- Additional development of the Bombay High North and Bombay High South to enhance the production level during ninth plan.
- Implementation of Heera Phase-III and additional development for maintaining plateau production from main Heera and South Heera.

- Performance review of Neelam Field including redevelopment plan.
- Development of Marginal Offshore Oil & Gas Fields (B-55, C-24, BS-12 & 13, WO-I5&I6).
- Quantum jump in oil production from EOR projects of Heavy Oil Belt of Northern Cambay Basin.
- Additional inputs to maintain and enhance oil production from ageing fields of Cambay Basin.
- Enhancing production level from ERBC fields by mobilizing input resources.
- Maintaining Oil Production from Onshore fields of KG and Cauvery basins and initiating production from KG Offshore field.
- Enhancing gas production levels from most of the fields of the ONGC.

4.9 As noted by the committee the major deviations came in from:

- Major revision of producible reserves of Neelam field,
- Delay in commissioning of EOR schemes in heavy oil belt of North Gujarat,
- Insignificant contribution from new discoveries, and
- Continued environmental problems in the North East.

4.10 It may be noted that the expected production potential of a field is based on the current field behaviour, understanding of the sub-surface fluid flow character and identification of inputs based on the same. The detailed production forecast is necessarily dependent on the projected schedule for placement of these inputs.

4.11 The knowledge gained from new wells drilled and their production behavior helps in further refining the understanding of the reservoir. The same can lead to both negative and positive variations in expected production.

4.12 The tendering procedure requirements sometimes result in delays in anticipated time schedules of installation of inputs needed, which necessarily affect the planned production.

4.13 These conditions are difficult to foresee in advance. However, the plans are reviewed on a regular basis and the subsequent annual plans reflect the ground reality.

4.14 Asked by the Committee to give reasons for production of crude oil by ONGC remaining static, the Company in their note furnished to the Committee stated as under :-

Development of oil fields is normally carried out in many stages. After the initial prospect evaluation, a feasibility study is carried out. With availability of additional geological and production data from delineation wells a conceptual development plan is drawn. With regular monitoring and additional data availability, the field development takes place in many phases. After the completion of major development the field reaches the plateau production which in due course starts declining. Several corrective measures are then incorporated to arrest the decline which in turn leads to improved oil recovery from the field.

4.15 This philosophy has been followed in development of all the fields in ONGC. The continuing efforts by ONGC have led to reaching a peak oil production of 31.99 MMt during 1989-90.

4.16 As already stated, all the producing fields are in matured stage of development. Typically, without any efforts, the production would have declined by about 6-8% per annum. Thus effectively even sustaining of production at 26 MMt/annum is equivalent to adding about 1.8 MMt/ annum. This is achieved through the new drilling program and other reservoir management strategies on work over & pressure maintenance etc.

OIL INDIA LIMITED

4.17 Targets fixed, actual achievements made and reasons for shortfall for crude oil production during 9th plan and first two years of X Plan by OIL were as under:-

IX PLAN

Crude Oil Production (MMT)	16.47	16.14	0.33	- Environmental problems such as bundhs / blockades affected field operations. - Operation of Khagorijan oilfield suspended due to administrative problems beyond the control of the Company. - Suspension of production for 10 days from Kumchai oilfield due to militant threat.

X PLAN

Crude Oil Production (MMT)	7.10	5.95	1.15	- Unexpected and premature breakthrough of water in a few wells in Shalmari field. - Higher than anticipated decline in one of the major producing oilfields. - Inability to start operation of Khagorijan oilfield for reasons beyond the control of the Company. - Environmental problems in the North East.

LIMITED HORIZON OF OIL

4.18 The Committee noted that although OIL was pioneer in upstream sector in India, it continued to be primarily a North-East based company.

4.19 When asked to specify the reasons for failure on OIL's part to grow beyond North-East, the Committee were informed that :-

> OIL was incorporated as a joint venture company between Government of India and Burmah Oil Company (BOC) with equal share holding in the year 1959. Initially, as per the then prevailing Government policies, exploration blocks within the country were offered to the two E&P companies – OIL and the other national oil company, ONGC on a nomination basis. Since BOC, fifty percent owner of OIL, was

already operating in the North East, new exploration acreages contiguous to BOC's areas of operation in the region were awarded to OIL. However all other new exploration acreages within the country including a few in the North East were awarded to ONGC.

4.20 OIL was finally nationalized in the year 1981 and only when the process of nationalization was started, OIL, for the first time, was awarded an exploration block outside the North East in the North East Coast and in Mahanadi onshore basin in late seventies and early eighties. These were the blocks which had been relinquished by ONGC after initial exploration for lack of commercial prospectivity. OIL's exploration activities in these blocks did not yield commercial success. The Company was next awarded exploration blocks in the deserts of Rajasthan where it has successfully explored and discovered natural gas on commercial scale. The Company was also awarded a few exploration blocks (relinquished earlier for lack of prospectivity by ONGC after preliminary exploration activities) in Ganga Valley basin, Andaman offshore and Saurastra Offshore basin and the exploration activities taken up by OIL in these areas have not led to any commercial find.

4.21 Only after the policy of award of exploration blocks to the national oil companies on nomination basis was amended and the New Exploration Licensing Policy was adopted by the government (under which exploration blocks are awarded on competitive bidding amongst all players in the industry), OIL has successfully bid and acquired thirteen exploration blocks in different parts of the country. Planned exploration activities in all these blocks are in progress and expected success in these blocks will transform OIL to a truly national company with its presence in all parts of the country.

4.22 Elaborating further in this regard, the Chairman, Oil India Limited during his evidence stated as under :-

> "Originally, we were a joint venture company of the Government of India formed in the year 1959. So, uptill 1981, we were a company who had the original licence just in the Dibrugarh district of Assam. We had not been given any additional licence for exploration. So, we remain confined to the North-East. It is only after 14.10.1981 that some small adjoining areas were given in the North-East. Some blocks were given in the mid-80s and some other blocks were given in the late-80s in Rajasthan, Mahanadi and the Ganga Basin areas. But those are not basically any blocks of our choice. We had no option at that time. We were by-passed by the bigger brother, the ONGC, which had already established as a company. So, our first choice really came along with the private companies. We had to bid under the New Exploration and Licensing Policy which really started in 1999-2000."

C. AUGMENTATION OF HYDROCARBON RESERVES

4.23 On the steps taken/proposed to be taken by ONGC to identify more hydrocarbon reserves and to augment production of crude oil. ONGC in their note stated as under:-

Within the broad policy guidelines for the E&P upstream sector, as brought out in the 'India Hydrocarbon Vision-2025', ONGC has formulated its exploration programme which is being pursued with concomitant technology upgradation, best-in-class global consultancy, human and financial resources mobilization for a focussed approach.

4.24 Currently, ONGC's X-plan exploration programme is in progress which envisages acquisition of 35286 LK of 2D Seismic data, 34834 Sq Km of 3D Seismic data and drilling of 561 exploratory wells in Shallow offshore, Deepwater offshore and Onshore areas in ONGC operated acreages. As on 1.10.2004, ONGC has already acquired 42645 GLK/LK of 2D seismic data, 36825 sq.km of 3D seismic data and drilled 332 exploratory wells in onland, shallow offshore and deep offshore areas.

4.25 ONGC's current exploration efforts are targeted at:-

- Producing basins for potential realisation in the less explored sectors, subtle traps and deeper objectives and for field growth opportunities.
- Enhancing the tempo of deepwater exploration
- Knowledge building in less explored sectors of producing as well as frontier basins.
- Exploration in non-producing basins to consolidate the leads obtained/establish breakthrough.

4.26 With the above objectives, the X-Plan exploration is continuing in the acreages held by ONGC in onland areas of Cambay, Assam & Assam Arakan, Krishna-Godavari basin, Cauvery basin, Rajasthan, Himalayan Foreland, Ganga Valley, Bengal, Vindhyan, Satpura, South – Rewa and offshore areas of Kutch-Saurashtra, Mumbai, Kerala Konkan, Krishna Godavari, Cauvery, Mahanadi, Andaman and Bengal Offshore basins.

4.27 The X plan exploration programme encompasses the carrying out of exploratory activities on a time bound manner as envisaged in the committed Minimum Work Programme (MWP) both in the pre-NELP acreages and the exploration blocks acquired during the four rounds of the NELP. Exploration activities are currently in progress in these blocks.

4.28 The deepwater domain has been considered as the bedrock for achieving the enhanced level of accretion. The growing demand for hydrocarbons in the country has turned the deep-waters into focus areas of exploration for enhancing the reserves growth and production in addition to continuance of exploration & exploitation efforts in onland and shallow water offshore areas. To accelerate deepwater exploration activities, ONGC has launched a mega campaign ‘Sagar Sammriddhi’ in August, 2003 for exploration of oil and natural gas in deepwater areas off east and westcoasts of India. “Sagar Sammriddhi” is a

step towards realizing the potential of hydrocarbons in deepwater acreages held by ONGC off the east and west coasts of India.

4.29 The exploration inputs put in place during the first two years of the X-Plan have resulted in 12 new hydrocarbon finds. In the onland areas, the new hydrocarbon finds are Banmali, Laiplingaon, East Lakhibari in Assam Shelf, Sonamura in Tripura Fold Belt, Chinnewala Tibba in Rajasthan, Degam in Cambay and Sitaramapuram in KG Basin. In the offshore areas, the new hydrocarbon finds are Vasai West, NMT in Mumbai offshore and G-4, GS-49, GS-KW in KG offshore.

4.30 The above new finds have opened up new sectors for further exploration and a potential for accretion of new hydrocarbon reserves. These sectors are South Kharatar in Rajasthan, North & Northeast of Lakwa, Southewest of Borholla, South of Rokhia in Assam and Assam Arakan basin.

4.31 ONGC continues to discover new pools of oil & gas as well as extensions of earlier discovered reservoirs. These discoveries add up to the reserve accretion.

Efforts to Increase/Augment Production of Crude Oil

4.32 ONGC has drawn up plans for redevelopment of Mumbai High field and implementation of Improved Oil Recovery (IOR/EOR) in 14 other major fields through 19 schemes. Out of these 19 schemes, 16 have already been approved and are under various stages of implementation.

4.33 In other fields also continuous efforts are in progress to optimise production through better reservoir management, infill drilling, pressure maintenance, optimisation of artificial lift systems, multilateral completion, online simulation, well stimulation, induction of new drilling & completion techniques etc.

4.34 The following specific measures are being made/planned for maintaining/enhancing oil and gas production in the fields being operated by ONGC:

- In an effort to reduce cost of offshore well servicing, work-over with modular rig was conceived and Rig Sundowner –VI has commenced operations from 8.6.2003 at IK Platform. The work-over operations by this concept are not only cost effective but also independent of pugmark of jack-up rigs and seabed survey. Also no docking constraints are envisaged with this concept.
- Solid Expandable Tubular (SET) is a new technology being adopted in Mumbai Offshore for cost effective sidetracking of wells in L-III middle layer. This will save time taken to drill/ sidetrack in L-III middle layer.
- Self Diverting Acid (SDA) like Visco-elastic Diverting Acid (VDA), In-situ Cross-linking Acid Development Agent (ISCADA) etc. jobs are being taken up as a pilot introductory technology in wells of Mumbai High field to improve oil production.
- Application of gel/polymer technology to control production of excess water and gas.
- Specialized drilling techniques like horizontal drilling, drainhole drilling, sidetracking, Extended Reach Drilling (ERD) and multilateral drilling are being adopted to improve well productivity.
- Polymer flooding in Sanand field of Ahmedabad Asset.
- Alkali-Surfactant EOR pilot in Kalol field of Ahmedabad Asset.
- Alkali-Surfactant-Polymer (ASP) EOR pilot in Jhalora and Viraj field of Ahmedabad Asset, Lakwa field of Assam Asset and in S3-1 and S4-3 of Ankleshwar Asset.

- Rigless workover jobs through Coiled Tubing Unit (CTU).
- Workover jobs without killing pay zones (using clean plug).
- Laboratory studies for EOR processes like SWAG, WAG, ASP, Air injection, MEOR as pilots have been completed for a number of fields and feasibility studies are in progress.
- Miscible gas injection in GS-12 sand of Gandhar field.
- Water Alternating Gas (WAG) injection pilot project at GS-4, GS-9, GS-11 sand at Gandhar field of Ankleshwar Asset.
- Putting newer fields on stream as quickly as possible by drawing technological schemes of development and their implementation. Three-pronged strategy is being adopted for small/marginal field development as under: -

- **In-house development**. Schemes are finalized for in-house development of its three marginal fields namely G-1/GS-15, D-1 and Vasai East
- Alliance for profit sharing with other E&P companies.
- **Through service contract**. ONGC identified 18 onland marginal fields for outsourcing to private Indian Companies. Out of these, six fields namely West Becharaji, Khambel, Hirapur, Laxmijan, Bihubar, Barsila, have been awarded on service contract to private companies. ONGC has also initiated action for outsourcing offshore marginal fields.

4.35 On being enquired about the steps taken / proposed to be taken by OIL to enhance hydrocarbon reserves and to augment production of crude oil, the Committee were informed that :-

All exploratory activities are undertaken by the Company with the basic objective of additional reserves accretion and augmentation of production. Initiatives currently in hand focus on:

a. Intensification of exploration and development activities in its areas of operation through additional 2D and 3D surveys and drilling.
b. Undertaking exploration activities in far-flung logistically difficult and geologically complex areas such as Brahmaputra river bed, Belt of Schuppen, Manabum and Pasighat areas in the North East.
c. Acquisition of NELP blocks on offer.
d. Intensification of drilling activities, both exploratory and development.
e. Geoscientific studies of producing oilfields by internationally reputed Consultants to reassess prospects, carry out reserves assessment and optimistic field development.

4.36 Additional reserves lead to augmentation of hydrocarbon production. In addition to above other initiatives in hand to augment production include :

a. Revitalisation of old and depleted fields
b. Development of marginal oilfields
c. Induction of new technologies in the areas of optimal reservoir management, artificial lifting and IOR (Improved Oil Recovery) etc.

4.37 These steps have helped the Company in continuously enhancing its reserve base and augmenting hydrocarbon production.

D SHORT, MEDIUM AND LONG TERM STRATEGY

4.38 ONGC has formulated short, medium and long term exploration strategy for the next 20 years. Asked by the Committee to give details of short term, medium term and long

term strategy formulated, the benefits expected to accrue therefore, and steps taken/proposed to be taken is implement the strategies, ONGC in their note stated as under.

ONGC has formulated its short, medium and long term strategy, which addresses doubling of in-place volume of hydrocarbons from 6 BT to 12 BT, improving the recovery factor and augmentation of production. The gist of the strategy is as follows :-

- **PREAMBLE:**

Formulation of the Short & Medium-Long term E&P strategy of ONGC for the next twenty years is a step forward towards actualizing the Corporate Vision which reflects its resolve to maintain its position as the flagship for the domestic hydrocarbon E&P activities. The strategy formulation is based on the evaluation of hydrocarbon potential of sedimentary basins of India of varied risk-reward perception, tailored to the economic and commercial requirements of business for the Company. The strategy thus evolved has been further grouped into Short and Medium-Long term with milestones for both. The programme for the X-plan period constitutes the short term objective, where as the programme beyond forms the part of medium-long term strategy. The outline of the exploration and production strategy is as follows:

- SHORT TERM EXPLORATION AND PRODUCTION STRATEGY(2002-2007):
- Exploration strategy- Short term (2002-2007):

4.39 Out of the twenty six basins, only seven have been upgraded to producing category. Within the producing basins also, certain sectors remain in the realm of knowledge building, whereas the yet-to-produce basins need sustained efforts for achieving a breakthrough, consolidation of the leads and establishment of commercial hydrocarbons.

The concept of exploration stages/cycles has therefore been invoked which when viewed with the exploration input expended in the different sectors so far and the results obtained bring out the future potential from the domestic acreages leading to concretizing the future strategy. The short term exploration strategy is based on:

- Acreage wise Prospectivity analysis with the integration of available G&G data for sector prioritization and exploration programme formulation.
- Time scheduled G&G activities for prospect recognition and drilling.
- Prioritization of exploration activities and implementation as fast track projects for enhancing results.
- Pre-drill 3D seismics in deep water.
- Blanket 3D in key growth sectors viz. Upper Assam and North Cambay etc. for exploring deeper objectives and new hydrocarbon plays.
- Knowledge building in less explored sectors of producing as well as frontier basins.

4.40 The exploration programme for X-plan period has been worked out based on this strategy which envisages API of 45800 LK/GLK of 2D & 38100 sq.km. of 3D seismic data and drilling of 594 wells with projected in-place hydrocarbon accretion of 565-585 MMt (+500MMt indicative accretion envisaged mostly in deep water areas). The short term exploration programme lays emphasis on deep water areas for a break through and also the frontier onland basins for long term benefits.

- Development strategy- Short term (2002-2007):

4.41 The production scenario for the X-plan has been worked out based on the current position of reserves, production profile, exploration strategy outlined and the anticipated accretion scenario from the field growth areas. For formulating the oil and gas production scenario, the following components have been considered:

- Improved Reservoir management for optimization of production and recovery.
- Application of the IOR in Existing 12 major fields and EOR in 3 fields,
- Feasibility studies for improved recovery in other fields,
- Initiation of Laboratory studies for EOR in the remaining 12 major fields and pilots in case of success.
- Small and marginal fields and
- New reserves in field growth areas.

4.42 The above efforts are envisaged to yield cumulative production of 130.56 MMt of oil and 112.4 BCM of gas during X-plan period.

- MEDIUM TO LONG TERM EXPLORATION AND PRODUCTION STRATEGY (2008-2020):
- Exploration strategy- Medium to long term :

4.43 Based on the understanding of hydrocarbon plays/prospectivity, likely upgradation of basins/sectors based on exploration cycle concept, analysis of learning curves in the established basins and projecting them to non-producing basins based on the concept of exploration cycles and curve fitting, in-place hydrocarbons accretion level of about 6 billion tones i.e., 3 BT from the producing and yet to produce basins and 3 to 4 BT from deep water sectors envisaged in medium-long term.

4.44 In order to achieve the envisaged accretion level, basin wise physical input requirement up to the end of XII-plan period was worked out based on assessment of prospectivity, leads and results obtained and hydrocarbon plays perceived.

4.45 Technology is considered to play a key role in actualizing the adopted strategy. A low case of 60 % is also in built, in case of a lower acreage holding scenario. The above strategy will be reviewed periodically for necessary course correction depending on the results.

- Development strategy- Medium-long term:

4.46 The following components have been considered:

- Improved management of existing major fields.
- Fast track production from deep water areas.
- Bringing all major and other fields on IOR & EOR,
- Envisaged improvement in Global Recovery Factor from the present level of 28-29% to 35% and to 40% over a cycle of 10 years and 15-20 years respectively.
- Field specific cutting edge technology to put marginal/small fields on production.

4.47 These efforts are envisaged to maintain the current level of production in medium to long term at the rate of about 25 MMt per annum with possible enhancement upto 20%. Intensive exploration is planned in the deep water acreages, with likely accretion of about 3 to 4 BT of in place hydrocarbons. In case of establishing large fields in the deep water areas, additional build up in the production level to the tune of 20 MMt per annum in low case and 33 MMt per annum as high case is envisaged by 2016-17.

- **IMPERATIVES**:
- Level of up-gradation of Resource potential based on geoscientific evaluation at current state of knowledge and probabilities worked out.
- Considering the contiguity of petroliferous basins the deep water territory is rated as high risk with a probability of 20-25%. The resource potential is likely to grow with more subsurface information.
- Major investment in domestic E&P activities envisaged from mid / late X-plan for deep-water field development and EOR projects.
- The exploration efforts are projected to account for 30-35% of budget i.e.15-20% in domestic field growth areas and extension/new & frontier areas, 10-15% in deep waters, about 5% for overseas exploration ventures. The overseas as well as domestic frontier basin components, specifically deep water exploration expenditure will be enhanced in case of better opportunities and success.
- Sensitivity analysis required to assess availability of surplus funds vis-a-vis short and long term business and growth opportunities in E&P sector and associated energy related growth sectors.
- Any oil price fluctuation would need to be accounted in exploration cycle with due neutralization over longer time spread.

4.48 The short term strategy has been dovetailed with X Plan and is under implementation.

4.49 Oil has also taken measures for enhancing Hydrocarbon Production with a goal of more than doubling the production level within ten years time by formulating strategic and corporate pan and initiating implementation of various modules proposed in the strategic and corporate plan including restructuring of the organization

4.50 Details of strategic and corporate plan formulated and measures initiated for their implementation were given as under:

4.51 OIL has recently embarked upon a new visionary path and has drawn up a Strategic Plan with the following business focus:

- Strategic focus on E&P activities in the North East, Rest of the Country and Rest of the World (global operations)
- Strategic focus on E&P service business and Pipeline business in the North East and Rest of the Country and selective focus in Rest of the World
- Selective focus in Refining, Retailing and Marketing of products including LPG and other downstream business in the North East and Rest of India.

4.52 The plan aims at more than doubling its present level of production in the immediate future and bringing about a multifold increase over a longer time horizon, through two distinct sets of initiatives. The first relates to physical activities in the following three major focus areas:

- Maintaining and improving production from the existing acreages in the North East through intensive exploration and development initiatives,
- Enlarging the Company’s production base in the rest of the country through aggressive activities in the NELP blocks available with the company, acquisition of new blocks under future NELP rounds and acquisition of producing properties available in the market and

- Acquiring prospective exploration and producing acreages abroad.

4.53 The second set of initiatives relates to transformation of OIL to a learning organization with inherent flexibility to adapt to changes. This is being achieved by focusing on enhancing employees' capabilities and competencies to realize a shared vision through the process of continuous learning in teams. The philosophy of mutually accountable team activities aims at quantum improvement in performance and achievements.

4.54 The plan also calls for a diversified business portfolio for the Company through selective presence in the oil and gas value chain covering amongst others refining, marketing / retailing, gas monetisation through cracker / power generation and extension of existing business of pipeline services and E&P services as a service provider.

4.55 The plan is being implemented through six distinct modules:

- Business and Organisation Restructuring and Creation of a New Performance Management System
- Change Management and Creation of a new HR Policy to meet the requirements of the new and emerging competitive business environment
- Implementation of Enterprise Resource Planning (ERP)
- Performance Improvement and Cost Reduction
- Manpower Redeployment
- Corporate Governance Framework

E IOR/EOR PROGRAMME OF ONGC/OIL

ONGC

4.56 ONGC has drawn up a time bound action plan for implementation of IOR programme and field development for 41 other fields of different Assets/Basins.

4.57 Time bound action plan for implementation of IOR programme and field development for 41 other fields of different Assets/Basins. These fields include

Ahmedabad, Ankleshwar, Limbodra, Nandej, Nawagam, Wadu-Paliyad, Wasna, Jhalora, S Kadi, Bechraji, Linch, Nandasan, Nada, SW Motwan, Kathana, Demulgaon, Charali, Borholla, Champang, Changmaigaon, D-1, D-18, B-173A, B-192, R-7, R-9, Ratna, Adiyakkamangalam, Kovikalappal, Tiruvarur, Narimanam, Kamlapuram, Nannilam, Lingala, Kesanapalli, Mori, GS-23, Gopavaram, G-1 & G-15 and Suryaraopeta.

4.58 Asked to give details of action plan drawn up for implementation of IOR/EOR programme and field development of 41 fields together with physical and financial laid and achieved, ONGC in their statement note stated as under :-

In April 2002, 41 fields were screened for implementation of IOR / EOR scheme the schedule was also prepared for laboratory studies , conceptual designing and pilot implementation. These fields were studied during last two years and inputs were suggested wherever feasible. However, major inputs for these fields are yet to be firmed up. For fields like Linch, Nandasan inputs have been firmed up and FR has been prepared.

4.59 Statement showing IOR/EOR studies in Progress/completed is placed below. From statement it is noted that study in respect of many fields is yet to be planned. Even as case of some fields study has been completed but further steps have not been initiated for exploration and their development..

IOR/EOR Studies in progress/ Completed

S.No.	Field	Process	Remarks
	B-173A	IOR	Study completed in April'02. Drilling of 1 oil producer (drilled). Oil/ Gas Rec. = 0.28 MMt/ 0.04 BCM by 2010. FR by Sept'02.
	B-192	IOR	Study completed in Mar'02. Drilling of 5 producers and 2 injectors from light-weight platform. Oil rec = 2.49 MMm^3 (19.2%) in 12 years. Presently not economically viable as communicated by Offshore Basin – Field earmarked for OUTSOURCING.

	D-1	IOR	Study completed .Drilling of 3P + 3I each in first and second phase. Installation of 1 light weight platform. Deployment of Sagar Laxmi. Capex = 310.32 Crore. Oil rec = 4.57 MMt (24%) in 10 years. FR approved on 25th Sept'02. Under implementation. Oil prodn from 2005/2006.
	D-18	IOR	Production profile using new geological model worked out. Discussed with IOGPT, IOT, Basin & Marginal field group in Mar'03. – Field earmarked for OUTSOURCING.
	Ahmedabad	Chem. Flood	Feasibility of Chem Flood process in K-IX+X evaluated. **Not recommended for implementation**
	Ahmedabad	IOR	IRS study completed, to be presented in ASSET.
	Bechraji	IOR	Study completed in May'02. **No IOR proposed**.
	Bechraji	MEOR	Study completed and **not recommended for implementation**
	Jhalora	IOR	IRS study under completion
	Kathana	IOR	Study for Eocene Pay-1
	Limbodra	Air Inj	Pilot area identified & Conceptual design prepared Study under review by Asset
	Nada	WAG	Laboratory and Simulation study completed. WAG not suitable for field.
	Nada	IOR	Study completed.
	Nada	Chem. Flood	Feasibility of Chem Flood process in Main sand evaluated. **Not recommended for implementation**.
	Nandasan	Chem. Flood	Feasibility of Chem Flood process in K-III evaluated. **Not recommended for implementation**

	Nandej	IOR	Study completed. Out of recommended 20 locations, 18 vertical wells have been drilled and remaining 2 horizontal wells have been planned for drilling in 2004-05.
	Nandej	Chem. Flood	Feasibility of Chem Flood process in K-IX+X evaluated. **Not recommended for implementation**
	Nawagam	Chem. Flood	Feasibility of Chem Flood process in Upper Pay evaluated. **Not recommended for implementation**
	Nawagam	Air inj	Study planned
	Nawagam	IOR	Study in 2004-05

	S W Motwan	IOR	Study for S2 under progress.
	S W Motwan	Polymer	Study will be taken up after development of high temperature polymer
	Wadu-Paliyad	IOR	Study completed in Feb'04, presented in 2nd ADB in May 2004. 7 OP has been agreed for release.
	Wasna	Chem Flood	Feasibility of Chem Flood process in K-IX+X evaluated. **Not recommended for implementation**
	Amguri	IOR	Field handed over to Canaro Consortium
	Borholla – Changpang	IOR	Study completed and presented in ADB.
	Changmaigaon	IOR	Study planned by March'05.
	Charali	Chem Flood	Feasibility of Chem Flood process in TS evaluated. **Not recommended for implementation**
	Charali	IOR	IRS study completed. Development wells are being drilled as per IRS recommendation.
	Demulgaon	Chem Flood	Feasibility of Chem Flood process in BMS evaluated. **Not recommended for implementation**.
	Adikkyamanglam	IOR	Study completed by Mar'04. No infill location suggested. Recommended WSO jobs in three wells.
	Adikkyamanglam	MEOR	In place of Narimanam, MEOR study for Adikyamanglam and/or Vijyapuram is being carried out.

	Gopavaram	IOR	Repeat study completed. Drilling of 1 development location recommended.
	GS-23	IOR	Study to be planned.
	Kamalapuram	IOR	Study completed in June'03. **No input envisaged.**
	Kesanapalli-W	IOR	Study completed in Sept'02. Envisaged development wells drilled. Geol model is being reviewed to study the feasibility of water injection.
	Kovilkalappal	IOR	Study completed in Aug'02. Inputs: Drilling of 2 producers & 3 injectors and conversion of 1 existing well to injector. No gas cap gas production. Expected incremental oil rec 0.35 MMt (12.2%). Scheme under implementation.
	Lingala	IOR	Study completed. Inputs: Drilling of 3 producers (1 to be dually completed) & 1 injector, conversion of 2 existing wells to injectors. Expected incremental

			oil rec = 0.13 MMt (10%). Study discussed in RDB. All the 4 wells drilled.
	Mori	IOR	Study to be planned.
	Nannilam	IOR	Study completed. Inputs: 1 producer drilled. Conversion of 1 well to water injector deferred based on the drilling results.
	Narimanam	IOR	Study completed. 5 producers drilled, 1 Z/T from OS-II to OS-VI and 2 WSOJ. Expected incremental oil recovery for different sands 5-10%. Inc oil = 0.367 MMt. FR implemented.
	Suryaraopeta	IOR	Study to be planned.
	Tiruvarur	IOR	Study completed in Sept'04. **No input envisaged.**
	Gamij	Chem Flood	Feasibility of Chem Flood process in K-IV evaluated. **Not recommended for implementation**
	G-1	IOR	Study completed .Drilling of 2 locations for sand-8, Smart completion in 1 well for sand-6, 10 & 12. Envisaged oil production 0.702 MMt & gas production of 5.576 BCM over 15 years. FR approved in Apr'03 for module-1 and revised FR on 26-03-04. Project under implementation
	GS-15	IOR	Study completed. Drilling of 2 locations (1 dual). Z/T of 1 well. Revival of 1 well. Oil rec 10-15%. Oil = 0.28 MMt. Gas = 0.345 BCM.

	R-7 Ratna R-9	IOR	In house study has been done. However field is covered under offer of Medium & Small Size fields-second round . Action will be taken if field revert back to ONGC

4.60 IOR / EOR initiatives undertaken by Oil India Limited and their impact in increasing recovery of hydrocarbons was stated to be as under:-

OIL has been undertaking IOR / EOR initiatives in the form of water injection, gas injection, polymer flooding etc in its different oilfields from very early production phase. A polymer flood project was concluded successfully which has resulted in an increased recovery of about 5 percent of in place reserves of the reservoir apart from resulting in a significant reduction of formation water production. This has led to significant economic benefits in

artificial lifting and water handling facilities. Currently, water injection is being carried out in 13 reservoirs (spread over 6 fields) through 39 water injection wells at an average rate of around 8,100 klpd (compared to around 6,500 klpd during 2002-03). The target laid out for the next few years (upto end of X Plan) is as follows:

Year	Injection Target (klpd)	Financial Outlay (Rs. Crores)	Total No. of wells
2004 –05	9,500	6.00	50
2005 –06	11,200	18.00	64
2006 –07	13,000	8.38	77

4.61 The other EOR / IOR initiatives in hand include infill drilling in developed fields and drilling of a few horizontal wells (estimated financial outlay of around Rs. 600 Crores), development drilling (around Rs. 800 Crores annually), work-over operations (around Rs. 50 Crores annually), steam pilot in Baghewala, de-bottlenecking of production facilities through creation of additional infrastructure, etc.

F DEEP WATER EXPLORATION

4.62 The vast area under the cover of 400 m or more of water column surrounding the Indian landmass, both in eastern and western offshore is commonly defined as deep-waters. The deep-water basinal area constitutes about 43% of the sedimentary area of the country (1,350,000 Sq Km out of the total sedimentary area of 3,134,700 Sq.Km) About seven billion tonnes of hydrocarbon resources have been assessed in the deep-water sectors of India based on preliminary analysis. The growing demand for hydrocarbons in the country to cater to the needs of the fast developing economy has turned the deep-water into focus areas of exploration.

4.63 Observing that Deep Water hold a large potential for hydrocarbons, Committee asked as to what steps being taken by ONGC to explore hydrocarbon from deep waters. In reply ONGC stated as under:-

> "ONGC started its Deep-water exploration during seventies with seismic data acquisition. In the East Coast deepwater, two prospects viz. G-I & G-2 drilled during early eighties proved to be hydrocarbon bearing. These prospects extend from the deep-water regime to the shallower water (<400 m) also."

4.64 On the anticipated in place and recoverable reserves in Deep water ONGC stated as under:-

> "The deep water and the Frontier sectors are at present under the knowledge building and exploration stage and it is not feasible to categorize the hydrocarbon in terms of inplace and recoverable reserves. The prognosis done by DGH shows that the prognosticated resources in the deep water sector are of the order of 7 BT. In the Frontier and non producing sectors, covering basins viz. Kutch-Saurashtra, Andaman-Nicobar, Kerala-Konkan, Ganga Valley, Bengal, Himalaya Foreland and Mahanadi the prognosticated resources are of the order of 2.6 BT."

4.65 Asked about the outcome of the efforts made for deep water exploration during IX plan and first two years of X plan, ONGC in their note further stated as under:-

> **IXth PLAN**
> During the IX-Plan, ONGC continued the deep-water exploration and acquired 20233 LK of 2D and 9717 Sq.Km of 3D seismic data and drilled 8 wells in deep-water regime with it's own upgraded drill-ship. The well KD-1-1 on KD-1 prospect and GD-1-1 on GD-1 prospect flowed gas during production testing.
>
> **Xth Plan**
> Deep water sector received a quantum jump in X Plan exploration programme with twin objective:
>
> - To intensify the exploration in the sectors with successful outcome arising out of short-term strategy.
> - To expand the activities to new sectors simultaneously making foray into the super and ultra deep waters.
>
> The deepwater component of the total X-plan programme includes acquiring 14000 LK of 2D, 17900 sq km of 3D and drilling of 34 exploratory wells.

During first two years of X-plan (2002-04), ONGC has acquired 8485 LK of 2D and 9684 sq km of 3D seismic data and drilled 5 wells. Of these, wells G-4-2, G-1-10 and G-1-11 drilled in Krishna-Godavari Basin proved to be hydrocarbon bearing.

To give impetus to deepwater exploration, project 'Sagar Sammriddhi' was launched in August, 2003. This project, the biggest ever deepwater exploration campaign by a single operator any where in the world is progressing with 3 drill ships, Belford Dolphin, Discoverer Seven Seas and ONGC's own rig Sagar Vijay.

Under the campaign 'Sagar Sammriddhi', ONGC, as on 1.4.2004 drilled two wells namely G-4-2 (water depth-430 m) in the East Coast through in-house drill ship "Sagar Vijay", and GK-DW-A-1 (water depth-1860 m) in the Arabian Sea with chartered hire rig Belford Dolphin.

The well G-4-2 proved to be gas bearing and the estimated initial in-place volume of gas is about 22 BCM.

Three more wells namely, DWRO-1-A in the West Coast at a water depth of 1090m by Belford Dolphin and KD-2-1 by Discoverer Seven Seas at a water depth of 1463m and GD-2-1 by in-house drill ship "Sagar Vijay" at a water depth of 650m in East Coast were under drilling on 1.04.2004.

ONGC has completed the Minimum Work Programme (MWP) under phase-I in three deepwater blocks namely KG-DWN-98/4, KG-DWN-98/5, MN-DWN-98/3 awarded under NELP-I and has entered the phase-II of exploration in these blocks. ONGC has completed the seismic data acquisition in the six deepwater blocks awarded under NELP-II within the timeframe as per the phase-I committed MWP.

Being a cost and technology intensive activity, for risk mitigation pre drill 3D seismic and process/interpretation validation through internationally reputed consultants were carried out."

4.66 To a question about the steps taken/proposed to be taken for exploration in deep water, a representative of ONGC during evidence stated as under:-

"We are going into deepwater in a big way. As I shared with you, we have already made one discovery. In the deepwater sector, we have launched what we call Sagar Sammriddhi. This is one of the biggest campaign which any national oil company or international oil company is taking up in the world. This is covering from Kutch deepwater to Mumbai offshore, Kerala-Konkan, Cauvery, Krishna-Godavari, Mahanadi and Andaman and Nicobar Islands. We are covering total Indian deepwaters in the Tenth Plan period. After launch Sagar Sammriddhi, we have drilled two wells (till 31.3.2004) and we have already made one hydrocarbon discovery.

4.67 Exuding confidence over the outcome of exploration efforts in deep water, Chairman ONGC during evidence stated:

> "In 45 years from 1956 to 2001 we have discovered about 6 billion tonnes of in-place oil and gas. Our first corporate strategic goal was to double the in-place oil and gas in 20 years. we have got the experience, and the confidence to double the quantity of in-place oil and gas in the next 20 yeas' time' and we are working on it. Out of 6 billion tonnes, we expect to find 2/3rd of it from the deep water."

OIL INDIA LIMITED

4.68 On being asked as to how many projects for deep water exploration have been launched by OIL and what was their out come. OIL in their note furnished to the Committee stated as under:-

> OIL has so far bid and acquired, as member of consortium with other players, interest in five deep water blocks (KG-DWN-98/4, MB-DWN-2000/2, CY-DWN-2001/1, KG-DWN-2002/1, MN-DWN-2002/1) under four rounds of NELP.

4.69 When questioned as to whether OIL was equipped with required experience and expertise for exploration and production in deeper offshore. OIL replied as under :-

> OIL currently does not have adequate experience and expertise for exploration and production in deeper offshore.

G RECOVERY PERCENTAGE

4.70 The current average recovery from the producing fields of ONGC is about 28% of the total production of crude oil. As per a note furnished by ONGC

> Recovery factor is dependent on several parameters. Some of the key ones' are:
>
> - Reservoir rock, its property, heterogeneity etc.
> - Properties of resident fluids (Oil, Gas & Water)
> - Energy system operating in the reservoir which is responsible in expulsion of the oil
> - Depth, logistics
> - Techno-economic consideration

The recovery expectations vary from field to field from 5 to 70% with an average of 30%. ONGC is working on the possibilities of application of new technologies and Enhanced Oil Recovery (EOR) with an objective of improving the average recovery to 35% and then to 40%."

4.71 Asked as to what was the world wide average recovery factor of some of advanced companies in the world engaged in the work of oil exploration. A representative of ONGC during his evidence stated :-

> "World over, in the U.S. which is supposed to be very technologically advanced the average recovery factor is of the order of 32 to 33 per cent. In USSR, which had been in the oil business for a long time, the average recovery factor is about 28 per cent. I am coming to the best part also. In China, the recovery factor is of the order of 28 per cent. I am leaving aside the Middle East. The best recovery factor which has been achieved is by the Norwegian companies which is of the order of 45 to 55 per cent.
>
> In the international scenario, today in the world, the fields which they have in Norwegian sector, mainly the offshore their recovery factor is of the order of 45 to 55 percent."

4.72 When asked to explain as to how Norwegian recovery factor was so high and what steps were contemplated by ONGC to achieve similar recovery factor, representatives of ONGC added :-

> "They went from the beginning based on a field life cycle concept. It means that they start as a process that considers, okay, I am having this as an investment scenario, inputs and physical inputs today, but over the field life cycle of 20-30 years, this is going to be my input and this will be my strategy to develop it and this will be my investment scenario and I will be able to reach in the 30 years cycle a recovery factor of 50 per cent. They have made some of the investments today and they will make tomorrow some of the investments, but they are taking global recovery factor, by this particular approach, of the order of 45 to 55 per cent. We have also started adopting a similar approach in out field life cycle concept. We have started practicing a field life cycle concept in which we examine, in spite of the economics, what best recovery it can give me. Then, I can come back to the economics and see the total investment scenario."

4.73 Elaborating further on the availability of latest technology for carrying out the exploration and production activities, the ONGC Chairman stated the following :-

> "Our average recovery was about 28 per cent. So, the second strategic goal was that by 2020 we shall increase this average figure from 28 per cent to 40 per cent, which itself means discovering another Mumbai High. It is because you are taking out more from the same reserve. We have made about 320 discoveries in India. Out of that about 100 fields are in production, and out of those 100 fields, 15 fields give us 75 per cent of the production, and 85 fields give the balance 25 per cent of the production. For these 100 fields, our average recovery has been 28 per cent, and we also have fields where recovery is 55 per cent, and we have fields where recovery is 5 per cent."

H REVIEW / REASSESSMENT OF IN PLACE RESERVES OF OIL

4.74 The Committee desired to be appraised of as to whether any review / re-assessment in-place reserves of oil fields of ONGC / OIL has been made and if such a review had been made, what were the extent of variations. In reply ONGC and OIL stated as under :-

ONGC

ONGC in its course of action, reviews/reassess the in-place hydrocarbons every year as on 1st April, based on the production performance, newly drilled wells and newly acquired / interpretation of G&G data.

The detail scrutiny is carried out at Asset/Basin and at Headquarters. The reserve estimates accepted by Reserve Estimate Committee are finally put up to the ONGC Board for adoption.

The positions of in-place hydrocarbons of ONGC operated areas during the last five years are as follows, which shows the growth in the quantum of in-place Hydrocarbons.

Year	O+OEG
As on	MMt
1.4.2000	5488.36
1.4.2001	5624.79
1.4.2002	5767.77
1.4.2003	5894.73
1.4.2004	5988.64

M/s DeGolyer & MacNaughton, USA carried out auditing of estimates of major fields of Western onshore and Assam in 1972-73.

At the time of corporatization the valuation of hydrocarbon reserves of 23 major fields of ONGC was carried out by M/S DeGolyer & MacNaughton in 1993-94. The variations in the reserves were insignificant.

In 1994, International Petroleum Engineering Consultants (IPEC) U.K., also independently studied and estimated hydrocarbon reserve of 23 Major fields for ONGC. The variations in reserves were insignificant.

The fair market value of Neelam Field was done by D&M in 1998.

GCA evaluated Bombay High field in 2001 during the process of redevelopment of the field.

As a policy of good corporate governance, the ONGC Board has decided to have the reserve base of ONGC audited by an internationally reputed independent external agency once in every five years. In the first such exercise M/S DeGolyer & MacNaughton of USA were engaged for auditing the reserves of 38 major fields of ONGC. The audit, conducted on the reserve base as on 1.4.2002, confirmed that the reserve base of ONGC was in conformity with the audit results. The variations in the reserve base were insignificant.

In the opinion of M/S D & M, the differences in the reserves estimate were found to be both positive and negative for individual field and the differences appeared to be compensating to a great extent resulting in the overall difference not being substantial. Essentially, the reserves assessed by ONGC do not differ materially from the assessment carried out under this audit.

OIL

OIL carries out an annual review of its reserves internally in the month of April every year. At different points of time the Company has undertaken a number of Geoscientific studies through internationally reputed Consulting organisations for optimal field development and reservoir management in different oilfields. The starting point for all such studies is reassessment of reserves. It has been seen that the variation between the reserves estimates made in-house and that made by the external agencies in such studies is in the range of 10 to 15 percent. Notwithstanding the above OIL is currently in the process of commissioning the services of an internationally reputed Consulting firm to undertake an audit of its reserves.

I ADOPTION OF LATEST TECHNOLOGY

ONGC

4.75 As per a note furnished to the Committee ONGC employs the best in class technology for pursuing its E&P objectives. It has been keeping pace with the latest technology and the state-of-the art solutions through appropriate technology mapping and induction strategy through identification / categorization / prioritization of E&P technology gaps proactively and then pursuing its induction through key technology centres (Institutes and Services) in the form of eight R&D centres. The latest technologies identified by this process are being inducted / developed through work association / contractual services or through outright purchase.

4.76 Latest high end technology products in E&P business belong to a very specialist domain and are mostly proprietary items of various service providers. In such cases, ONGC is availing new technology through service from the companies.

4.77 On the adequacy and acquisition of state-of-the art technology, a representative of ONGC during his evidence before the Committee stated as under :-

> "……..I would like to mention that we are keeping pace with all that is happening around the world. I would not say that we are immediately getting it, but within a gap of a couple of years we are keeping pace with the technologies that are presently available around the world for seismic data interpretation, processing, acquisition, etc. We have a Technology Scouting Cell to know all that is happening today in the field of technology around the world, and what is likely to happen in two years henceforth, so that we can get prepared to catch up with it. These are some of the technologies about which we have already enumerated in detail in the presentation. So, I am skipping this portion as well."

4.78 Asked as to whether ONGC was at par with other technologies available in the world; in reply representative of ONGC further stated :-

> "Sir, if I say that we were four years behind for acquiring the technology 10 years back, then today I can say that we are only two years back. I am not saying that we are at par with the technologies available in the world because acquisition of technology takes time."

4.79 Elaborating further on the availability of latest technology for carrying out the exploration and production activities, the ONGC Chairman stated the following :-

> "Today, we can assure the hon. Members of this Committee that we have the technology, equipment, and skills at par with anybody else. Perhaps, five years back we could not say so. We constantly analyse the technological gaps in the company. In the latest review, we have analysed some 248 technologies, and have prioritized them into immediate, mid-term, and long-term plans. Some technologies are being developed, some are available from the market, and some need to be customized for our specific use. We have specific plans for its, and every six months the Board reviews it."

Representative of OIL stated as under :-

> "Upgradation of technology comes in two ways. One is we would like to acquire certain technology and make it a part of our in-house strength. Second is, there are certain areas where technology changes very rapidly in the world. May be do not need that all the time, but we need it for a specific work only. So, at that time we outsource it from wherever it be, from any part of the world. For example, seismic data equation processing and interpretation, in all the three phases, whatever is the best technology available in the world today, we have it in-house. In Assam we have seismic data acquisition capability, seismic processing capability as well as interpretation capability. In spite of having these capabilities, we still go and outsource the need-based things for two reasons. One, to do exploration in the shortest possible time, we have to supplement the effort whatever is available with us. For example, we have two seismic crews. We want to do more seismic quickly. Therefore, we go and outsource it with the help of best technology available. Similarly, in seismic processing whatever data we acquire, we have in-house state of the art technology facility available and experienced geo-physicists to do seismic processing. In terms interpretation capabilities, we do our own interpretation. But then geo scientific interpretation is one thing where we really have to integrate data from geology, geo-physics, geo-chemistry etc. At many a point of time, this is subjective. While we think that we are quite good in what we do, the fact remains that our experience is limited to certain areas only."

4.80 Some of the technology planned to be introduced by ONGC were stated to as under:-

<u>Well Services</u>

Many new technology solutions for well services have been introduced/planned to be introduced , these include:

a. Squeeze Crete technology for remedial cement jobs.

b. Rigless Cementation with coil tubing unit
c. Thru' tubing intervention by Inflatable Packer/Bridge plug for zone isolation:
d. Rigless Mechanical Water Shutoff
e. Filter Cake Removal for improving the productivity of the horizontal wells

Engineering Services

Many technological improvement have been initiated in design which includes:

- Multi Phase flow meter with no test separator / two phase test separator with water cut meter and auto down load data logger in place of conventional three phase test separator.
- Adopted Clamp-On Structure on existing platforms for creating additional well slots in the same platform.
- Use of Marine growth preventor for mitigation/ removal of marine growth on the jacket structure.
- Use of Multiphase Pumps included under 'Addl. Development of Bassein' Well Platform Project (Power Import through Sub Sea Electrical Cables)
- Use of Flexible Pipelines for Water Injection lines already started.
- Use of composite materials

4.81 Some of the new technologies are also planned for induction, based on project feasibility reports are:

- Grid Interconnectivity of all the platforms in western offshore through submarine composite cable (power cable plus fiber optic) is being considered. By doing this, approximately 92 MW power can be transported to onshore point.
- Offshore power generation by using gas from C series marginal field and other nearby marginal fields is being considered and power thus generated shall be transported through submarine composite cable to land fall point where it will be distributed through national / state grid.

OIL

4.82 When desired to know about the acquisition of state-of-art technology by OIL for carrying out its E&P activities and the technological inadequacy, it any felt by the Company, the Committee were informed that:

> Induction of new and appropriate technology on a continuous basis is the guiding philosophy for all operations of the Company. Over the years the Company has been upgrading its existing technologies and acquiring state-of-the-art technology to improve efficiencies in the areas of exploration and production.
>
> For its Geoscientific activities, the Company has acquired all necessary latest software available in the industry related to geophysical data processing, interpretation, subsurface log interpretation, reservoir characterization, reservoir simulation, pressure transient data acquisition and interpretation etc.
>
> In the areas of Reservoir management and Production optimization, the Company has inducted suitable IOR technologies available in the market and also, is in the process of undertaking / examining field trials for a few state - of - the - art technologies such as Microbial Enhanced Oil Recovery (MEOR), Alkaline Surfactant Polymer (ASP) etc.
>
> In the area of drilling, OIL has resorted to cluster drilling, drilling of deviated wells, horizontal wells, use of innovative fluid loss control system for deep wells etc. On the production front, the Company deploys the latest modes of artificial lifting, undertakes rigless workover operations, and uses downhole heat tracing and magnetic conditioners to mitigate paraffin problems.
>
> The Company is also in the process of implementing ERP (Enterprise Resource Planning) and E&P (Exploration and Production) Data Base Systems for efficiency

enhancement. Thus exploration and production is not hampered by technological

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4.83 The Committee were informed that both ONGC and OIL have an elaborate set up to carry on R&D activities. Asked by the Committee to give details on R&D activities of the companies and their impact in augmenting crude oil exploration and in reducing expenditure incurred in operations pertaining to exploration and production of crude oil, ONGC and OIL in their reply stated as under :-

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ONGC has captive Research Institutes in all the major areas of exploration and production activities like exploration, seismic data processing, reservoir engineering, drilling technology and production technology. These institutes are aware of technical challenges faced in the areas where ONGC is operating. These institutes ensure that ONGC has advantageous technologies for its operatio.

On continuous basis the progress and breakthrough in different technologies world over is tracked. Whenever necessary the suitable technologies are tailored for ONGC is needed and are adopted.

The Institutes work in close association with the assets and basins and continuously update the methods for its operations with the impact of R&D activity.

In house efforts in EOR techniques like in-situ combustion have already been field implemented.

R&D efforts over the last 20 years in the area of Enhanced Oil Recovery (EOR) are yielding results. Successful testing of In-Situ Combustion (ISC) pilot in Balol field has put the country and ONGC in particular on the world map of EOR. Commercial application of this process is underway in harsh reservoir environment prevailing in both Balol and Santhal fields. The process is envisaged to enhance recovery from these fields by 30%.

ISC pilot is in progress in Bechraji field. The process is also being planned to be tested on a pilot scale in Lanwa and North Kadi fields.

The successful pilot testing of polymer flooding process resulted in the ongoing commercial application of polymer flooding process in Sanand field which is expected to increase recovery by about 15%.

Moving with the current worldwide trend, R&D was focused in the area of Alkali-Surfactant-Polymer (ASP) process so as to make the chemical processes cost effective. ASP process has been found to be viable for fields like Viraj, Kalol, Sobhasan, Ankleshwar. The process is being tested on a pilot scale in Viraj and Lakwa to ascertain its efficacy. The enhancement of recovery with the application of the process is in the range of 10-15%.

In addition to these, following collaborative R&D projects are in progress with various Institutes/ Universities:

* Projects entitled "Development of Thermophillic, Microaerophillic and paraffin degrading bacterial consortium" and "Development of bio-catalyst to enhance the growth of degrading bacterial consortium" are in progress with TERI, New Delhi. MEOR field trials using S-2 bacterial consortium conducted in wells of Kalol, Sobhasan and North Kadi have shown oil gain and reduction in water cut.

* Collaborative R&D project with TERI for development of suitable consortium for MEOR application in various oil fields with temperature upto 90°C will be of immense value in high temperature reservoirs like Gandhar.

* Under a collaborative project agreement signed with NCL, Pune the study on techno-economic feasibility of manufacturing the AMPS based water-soluble polymers for water shut off applications in oil fields has been completed. A new collaborative project with NCL, Pune for development of polymers for polymer flooding & water shutoff for fields with high temperature and high salinity is in progress.

* An MOU has been signed between IIT-Bombay, Mumbai and IRS. Agreement for "Physical and Numerical models for unconventional flood pattern" has also been signed and work is in progress.

* Agreement on "Development of biosystem producing microbial metabolites as feedstock for MEOR" has been signed with MS University, Vadodra.

In addition, an MOU has been finalized with School of Petroleum Engineering, University of New South Wales, Australia, for five years for collaboration on Reservoir Characterization & Engineering, Strategies for production of gas from tight gas sands & coal seams, EOR technologies and Pore scale reservoir studies.

In order to cope up with the changing technology, joint collaborative studies have been undertaken with University of Calgary, Canada in ascertaining the viability of air injection process for light oil reservoirs.

R&D ACTIVITIES OF OIL INDIA LIMITED

The major operations of Oil India Limited cover a wide range of activities such as exploration, drilling, production and transportation of hydrocarbons. All these operations call for appropriate and sophisticated technology that must be continuously refined, upgraded and replaced through continuous R&D efforts. Since inception of the Company, OIL has accorded considerable importance to in-house research and development for solving the multifarious field problems in its activities in the areas of petroleum exploration, drilling, production and transportation. This had yielded rich dividends.

Keeping in mind the twin objectives of accomplishing the company's goal of petroleum exploration, drilling, production and transportation of hydrocarbons and meeting the technological challenges in a fast changing global scenario, a separate, full-fledged R & D Center was set up in the year 1985 with a core cell of 20 scientists and supporting staff. A modern building replete with state of the art research equipments houses this research center.

In a short span of two decades, OIL's R & D Center has grown from its humble beginning to a place of excellence and has gained recognition as an in-house R & D unit from the Department of Scientific and Industrial Research, New Delhi.

Main focus of OIL's R&D activities is to create solutions to operational problems in the major areas of the Company's operations - exploration, drilling, production and transportation of hydrocarbons. In addition considerable activities are undertaken in the areas of enhanced oil recovery, pollution control and alternate sources of energy. The process generally starts with survey of literature on the specific problem areas, undertaking laboratory experiments related to identified solutions and finally taking up field implementation. The experience acquired from field implementation is used in continually improving the process. In the area of alternate fuel one of the major research project currently undertaken by the R&D centre is conversion of coal to liquid using Assam coal.

The table below provides some of the major R&D efforts in different operational areas of the Company.

Areas of Operation	R&D Initiatives
Exploration	Development and application of Geochemical techniques and integrated basin modeling as a supplementary tool for hydrocarbon exploration
Drilling	Development of suitable drilling fluid and cement slurry compositions for the varied underground formation conditions encountered while drilling for hydrocarbon with particular thrust on the development of chemicals required for these formulations within the country.
Enhanced Oil Recovery	To develop and implement the most suitable methods for improving ultimate recovery of crude oil from the ageing fields of the company.
Transportation	Studies on flow behavior, wax depositional tendencies of crude oil, thermal conditioning and chemical treatment of crude oil to make it amenable to pipeline transportation in severe winter conditions
Pollution Control	Studies to prevent the surface and ground water from pollution by the polluting effluents generated from drilling, work over and production operations. Also to prevent air pollution by vented/flared natural gases.
Alternative Sources of Energy.	Coal-Oil Co-processing, Coal liquefaction studies.

Some of the major benefits derived from R&D activities undertaken can be summarized as under:

1. Development of an advanced geochemical technique for crude oil analysis using sophisticated gcm spectrometer. Data generated through this technique helps in oil to oil and oil – source correlation critical for basin modeling studies.

2. Development and field implementation of a modified technique of crude oil treatment with low dosage of flow improver. This has helped the Company in avoiding the use of Crude Oil Conditioning Plant (COCP) for thermal treatment of crude prior to transportation to refineries. Capital cost of setting up a COCP is of the order of Rs. 22.00 Crores with an annual running expense of around Rs. 1.00 Crore.

3. Development of a fluid loss arrest system using Xenvis for undertaking productive workover in sub hydrostatic wells. This has brought in very significant improvement in success ratio of workover operations in such wells. The benefits are both in terms of saving in number of days of operations and also the time required to bring the well back into oil production.

4. Projects taken up in the area of oil and gas production have resulted in:

    - Reduction in water oil ratio through polymeric gel treatment.
    - Reduction in wax deposition problem through PPD treatment.
    - Improvement in injectivity of disposal water wells.
    - Arrest of decline in water injection in Tipam wells in Jorajan field through modified acidisation technique

5. Enhanced Recovery Project viz. MEOR and ASP flooding (in trial stage) will result in increase in ultimate oil recovery.

K EXPERIENCE / EXPERTISE AND ADEQUACY OF TECHNOLOGY

4.84 The Committee noted that OIL is in partnership with ONGC and other PSUs in most of the blocks awarded it under NELP. Asked as to why Oil had not bid for blocks independently, OIL in their note stated as under:-

> Out of the 13 nos. NELP blocks OIL holds with one block (RJ-ONN-2000/1) independently, another NELP block (CY-OSN-97/2) in Cauvery basin held independently by the Company had to be recently relinquished due to non availability of Government's permission for undertaking exploration activities (on considerations related to the country's defence).
>
> Of the remaining 12 nos. blocks, there are six nos. offshore / deep water blocks. OIL of its own does not have extensive experience in undertaking offshore exploration

and development activities. In view of this, the Company had bidden for these blocks as member of consortiums.

4.85 Committee noted that Baghewala heavy oil reserve were discovered about a decade ago. However, the same has not been developed so far by OIL. OIL is now taking help of a `Venezuelan Company' for its exploitation. Asked by the Committee as to why help of Venezuelan oil company was being taken for exploitation of Baghewala heavy oil reserves OIL in their note stated as under :-

> Since discovery of heavy oil in Rajasthan, the Company has been making efforts for commercial exploitation of the same. Since in-house expertise for production of such type of heavy oil was not available, M/s Alberta Research Council (ARC), Canada was engaged as consultant in November, 1992 to study and recommend suitable recovery methods for commercial exploitation of Baghewala heavy oil reserves. Based on recommendations of M/s ARC, Canada, two wells were was put on production. However production from the wells on a sustainable basis could not be achieved.
>
> In order to speed up the process of commercial exploitation of the reserves, the block was then offered for Joint Venture bidding round (for Production Sharing Contract) in 1995 by Government of India. However no contract was finalized and the area was returned to OIL in December, 1998. Under the Indo-Venezuelan Joint Working Group, MoP&NG, Govt.of India, advised OIL to seek technical assistance from M/s PDVSA, the National oil company of Venezuela with experience and expertise in production of heavy oil and Bitumen, for exploitation of Baghewala heavy oil and Bitumen reserves.
>
> Venezuela is one of the largest producers of heavy oil in the international E&P industry and has developed technology to successfully produce heavy crude of extremely poor quality with API gravity as low as 8 degrees. OIL has entered into a contract with a Venezuelan company, PDVSA, Intevep, Venezuela to undertake a comprehensive study to identify the most suitable technology for production of its heavy oil reserves in Rajasthan (in phase 1) and then help OIL to acquire and implement the selected technology on a pilot scale in the second phase. Work related to the first phase has been successfully completed and a suitable technology has been identified.
>
> Actions are currently in hand for pilot scale application of the technology under expert supervision of the Venezuelan company. If the initiative is successful, the tested technology will be used for regular production of heavy oil in OIL's Baghewala field in Rajasthan.

CHAPTER – V

A . EXPLORATION BY PRIVATE OPERATORS

5.1 The Committee noted that Private Operators discovered oil and gas from some blocks which could not be earlier discovered by ONGC and OIL. Citing the example of OIL who was present in Mahanadi basins since 1979 but could not find any oil / gas whereas Reliance discovered gas from there within few years of starting operations, Committee asked OIL to give their comments in this regards. In reply OIL in their note stated as under:-

> "Areas like Ganga Valley, Saurashtra basin, Andaman offshore etc. awarded to OIL on a nomination basis are known to be High Risk exploration ventures in areas already relinquished by ONGCL.
>
> The NELP blocks acquired by OIL during the last few years against competitive bidding are in initial phase of exploration. On completion of committed work programme, the Company is confident of making new oil / gas discoveries in these NELP blocks."

5.2 On the issue of exploration in Mahanadi Basin by OIL, discovery of gas by Reliance and reasons due to which OIL could not discover gas in Mahanadi Basin. Union Minister of Petroleum and Natural Gas in reply to a Parliamentary Unstarred question No. 325 answered as on stated:-

> "Oil India Ltd. (OIL) had started exploration activities in the Mahanadi Basin in 1978. OIL have carried out 14,248 Line Kilometer (LKM) of 2D seismic survey and 3393 Square Kilometer of 3D seismic survey and drilled 15 exploratory wells in Mahanadi basin. No commercial discovery was made by OIL in the drilled wells.
>
> In the Mahanadi North East Coast area M/s Reliance India Ltd. have recently made four gas discoveries in block NEC-OSN-97/2. The reserves of these discoveries are under appraisal.
>
> Oil and gas exploration is an activity beset with many imponderables and uncertainties. OIL did not encounter any commercial hydrocarbon prospects in all the 15 wells drilled in Mahanadi onshore (4), Mahanadi offshore (7) and in North-East Coast (4) prior to relinquishing its Petroleum Exploration License (PEL) areas."

5.3 The Committee expressed similar views during their interaction with ONGC. On being asked as to how private companies had been successful in discovering hydrocarbon from the fields / basins whereas ONGC failed to discover any hydrocarbons from those fields earlier, ONGC in their note furnished stated as under:

> Exploration for oil and gas remains one of the riskiest business ventures primarily because there is no direct scientific method of discovering the same. Data interpretation and geological model building to better understand hydrocarbon habitat remain intrinsic to creation of work flows to infer oil and gas accumulations. All companies whether private or public undertakings like ONGC have taken recourse to these methods with varying degrees of success. To put matters into a perspective, Bombay High, the largest field (Private or public) with the country so far was also discovered in the first well itself, while this part of the country was declared non prospective in earlier times. Thus the models, methodologies and technology go on evolving to revisit again.
>
> It must be reiterated that throughout the exploration history of KG Basin multinational and domestic private operators have been actively engaged in exploring for oil and gas acreages awarded to them (which includes multinational companies like M/s Chevron, Amoco). They however walked away after initial efforts, leaving discoveries to be made by ONGC in same areas held by AMOCO.
>
> ONGC initiated exploratory activities in the state of Rajasthan in late nineteen fifties and with the find of gas in Manhera Tibba established hydrocarbon in the state in 1967, in the Jaisalmer basin. Since 1982 its activities have been confined only to this basin. However ONGC had earlier carried out some exploratory activities in the southern portion of the Barmer basin. These activities were confined to the southern portion which was also pursued by the Russians under the Intensive Integrated Exploration Project (IIEP), during which some hydrocarbon was discovered in the South Patan area of Gujarat. During the Pre NELP Exploration bidding round , the block RJ-ON-90/1 was won by one of the largest multinational companies in the world i.e. M/s Shell , through its Indian counter part M/s Shell India. M/s Shell India drilled in the central part of the basin and in one of the wells established the presence of oil. However in the subsequent well no success could be met and they relinquished the block, which was taken over by M/s Cairn. M/s Cairn focused its activities in the Northern portion of the block which led to significant success.
>
> As can be seen success in hydrocarbon find is not only dependent on the exploratory intensity alone but is also governed by an element of serendipity. In such an existent situation it is difficult to judge on the G&G studies and operational activities carried out by any company.
>
> In the Mahanadi area ONGC has never been a major player in the past. During the late nineteen sixties ONGC had carried out some survey work in the onland part. Subsequently GOI awarded the PEL to OIL to under take exploration in the basin.

Under the NELP rounds ONGC on stand alone or in consortium has won a number of blocks, which are spread from onland to the deep waters. It has an aggressive committed work program, which is being pursued actively.

It is a common phenomenon in the upstream Petroleum industry that an operator makes use of the knowledge base generated by the earlier operators (ONGC) in the same sector to move ahead and register a breakthrough.

It is to be submitted that ONGC has put 6 out of the 7 producing basins of the country on the hydrocarbon map. In case of KG basin, the hydrocarbon finds made by the Private players are in the trends established by ONGC earlier. These finds fall in NELP blocks for which ONGC had also put in its bids but was out bid by the present operators. In the same vicinity, in its acreage, ONGC has also made a significant gas discovery viz. G-4.

It would not be out of place to mention that exploration is pursued based on strategy, which in turn is governed by success/ failure, knowledge building, revisits, etc.. M/s Reliance under the four NELP rounds have been awarded 26 blocks in different basins of the country. Their success , as met in one block in the KG offshore , is a furtherance of the hydrocarbon trends established earlier. As a follow up of this success as a strategy the area was explored extensively leading to success after success within the block. This approach had been adopted by ONGC in and around many of its finds in the past, the recent one being Vasai East find in Mumbai Offshore.

Of the 26 blocks , it is understood that no significant exploratory efforts & success has been reported by M/s Reliance from the other sectors. ONGC as a NOC has been focusing through out the country and establishing hydrocarbons in different basins. In some areas where initial success could not be met, in a cyclic exploratory strategy hydrocarbons could be established on subsequent visit after a drilling holiday, like in Cauvery basin.

There are other basins which inspite of tremendous efforts has been teasers and the hydrocarbon success eluded, like the Bengal basin.

5.4 Elaborating further on the causes for non-discovery for oil / gas by public sector companies from oil fields which were successfully discovered by private companies, Chairman, ONGC during oral evidence stated as under:-

> “If we take the example of Cairn Energy making a discovery in Rajasthan, then it should be noted that Shell tried there before Cairn Energy, and ONGC had tried before Shell. We did not find any oil in Barmer, Shell could not find it there, but Cairn Energy found it. Hence, it is not an issue of a public company or a private company. To put it in real life term, it is like a proper medical diagnostic. A doctor may be working in AIIMS or MAX or Apollo, etc., but what really counts is the fact that the person at a laboratory had projected the thinking that such and such is the place where oil or gas might be found. There are times when he is right, and there are times when he is wrong. The person could be working in a public sector or

working in a private sector. The point to be taken into account is whether he has access to adequate facilities, equipment, and technological support at his disposal.

Today, we can assure the hon. Members of this Committee that we have the technology, equipment, and skills at par with anybody else. Perhaps, five years back we could not say so. We constantly analyse the technological gaps in the company. In the latest review, we have analysed some 248 technologies, and have prioritised them into immediate mid-term, and long-term plans. Some technologies are being developed, some are available from the market, and some need to be customised for our specific use. We have specific plans for it, and every six months the Board reviews it.

There are cases like the Caveri Basin, where we had to do three campaigns for almost 25 years before we actually found oil and gas. In the 40 years we have not been able to find anything in West Bengal. When we began in 1956, we had only small fields, that is, Digboi fields in Assam. Stanvac had said that there is no oil or gas in the rest of India. This was the official report, which Stanvac had given to the Government of India in 1952-1953. Then, the Russians came to India, and they gave a different opinion on this issue. They said that there is oil and gas India.

I can assure this hon. Committee that with the technologies, skills, equipment, which we have, we are confident that we will be having more successes in the future. In terms of the example that I have of diagnostics, we have as a good surgeons as anybody else in the world.

Let us take the example of Reliance. People trained by ONGC carry out the exploratory efforts done by Reliance. They have consultants, and we are also having our consultants. In most of the public sector companies, anyone who is anyone in exploration and production business in India has been trained and nurtured by ONGC. They might have left ONGC or they might have retired from ONGC, but they are trained by ONGC in whatever skills they have learnt."

B COST OF PRODUCTION

5.5 To a question regarding cost of production of crude oil and gas by ONGC the Ministry of Petroleum & Natural Gas was stated to be as under :-

The cost of production of crude oil includes Operating cost, the appropriate statutory duties, relevant Recouped Costs and Financing Costs. Since, surveys are normally done to locate hydrocarbons (irrespective of crude oil or gas) and the fields also normally contain both oil and gas, it requires a lot of allocation, to arrive at separate average costs for oil and gas. Thus it is more relevant to deduce the cost of oil and oil equivalent of gas (OEG) together. The cost of production of oil and OEG for ONGC (excluding Joint Ventures) for the five years period ending 2003-04 is Rs. 3233 per MT (provisional).

5.6 Asked as to how the cost of crude oil production by ONGC and OIL compared with the cost of production of crude oil and gas by private Joint Venture. In reply, the Ministry of Petroleum & Natural Gas in their note further stated that the cost of crude oil production of private companies / JVs is not comparable to cost of production of NOCs due to following reasons :-

The cost of production of crude oil generally consists of the following heads:

- Operating costs
- Depreciation, Depletion, Amortization (DDA) costs
- Financial costs
    a) Exchange loss/gain
    b) Interest charges
- Statutory levies

i) In case of NOC's the operating costs consists of production costs, project & Hqrs overheads, R&D costs, donations, publicity , write offs, provisions for DD's /claims abandonment and idle rigs and impairment costs. However, in case of private JV's these consists of only production costs, allocated G&A costs and 1% of overheads.

ii) DDA costs are not charged in JV accounts whereas, there are accounted in NOC's.

iii) Financing cost are also not accounted in JV accounts, whereas these are charged in NOC's.

iv) NOC's are subjected to royalty and cess as per the prevailing rates, whereas in case of JV's , these are freezed at predetermined rate (In most PSC's royalty and cess rates are Rs. 481/- and Rs. 900 per MT.)

5.7 On the cost of production of ONGC vis a vis private / international companies and steps proposed to be taken by ONGC to reduce it, ONGC in their note stated as under :-

> The finding costs of different oil majors as reported by Deustche Bank in their report 'Major Oils 2003' were compared by ONGC with its own costs for a five-year period average (of 1998-2002). As per this analysis, the finding cost of ONGC was found to be quite comparable to international standards.

Again, from some of the research reports, it is gathered that most international companies use the term 'lifting cost' per barrel of oil equivalent instead of reporting and analyzing 'cost of production'. It is noted that the major difference between the two terms is that the 'lifting cost' does not include cost of depletion, dry wells and statutory levies (like Royalty, Cess, National Calamity Contingency Duty) and Financing Costs, which go into the calculation of cost of production.

The average 'lifting cost' per barrel of oil equivalent of major international companies, as worked out by ONGC from the report titled 'Major Oils 2003'of Deustche Bank vis-à-vis ONGC, for the 5-years period 1998 to 2002 places ONGC as one of the lowest.

5.8 Following steps are mainly being taken, amongst others, to reduce the cost of production by ONGC:

1. Improvement in production through Improved Oil Recovery/ Enhanced Oil Recovery scheme
2. Operational de-bottlenecking, systems optimization and efficiency enhancement through R&D support from ONGC's R&D institutes, technical audits and safety audit Optimization of cost at all stage Proper upkeep and maintenance of rigs, equipments etcAppropriate treasury management;
3. Appropriate treasury management;
4. Induction of new technologies;
5. Continuous thrust on Research & Development;
6. Optimization of human resources

5.9 The OIL informed the Committee that they had taken following steps for reducing its cost of production of oil :-

(a) Revitalization of old oilfields to augment production and thereby ensure better utilization of available infrastructure in these oil fields. This will help in better spread of the fixed overheads and lower fixed cost per unit of production.
(b) Technology induction for production augmentation to improve productivity per employee
(c) Outsourcing of operational services for water injection stations, scraping of wells.
(d) Switching over from road transportation mode to pipeline mode in remote areas for crude transportation.
(e) Periodic preventive maintenance/ health check up of equipment and machineries etc. for loss prevention.
(f) Improved and focused vigilance to minimize miscreant activities in fields that lead to significant unproductive expenditures
(g) Acceleration of exploration to find bigger oil fields."

SHORTAGE OF FUNDS

5.9A Asked by the Committee as to whether funds at disposal of ONGC were enough to carryout its exploration and production activities. In reply ONGC:-

> "As far as ONGC is concerned, its Plan expenditure during first two years of 10th Plan is Rs 12,915.37 cr which works out to 39% of 10th Plan allocation of Rs 33418.95cr. Considering the trend of utilization during the first two years, Plan allocation for ONGC during 10th Plan is likely to be fully utilized. Rigs for Deep water drilling campaign under Sagar Samridhi and exploratory and development drilling in shallow water offshore, are in place to achieve the physical target in the 10th Plan. As regards the major schemes envisaged, Improved Oil Recovery projects are already under execution. As such the funds earmarked in the 10th Plan are likely to be fully utilised. In fact, ONGC proposes to raise 10th Plan Outlays as the funds initially provided (STP) are likely to fall short of the more intensified Plan activities likely to be undertaken. The additional funds shall be proposed during Mid-Term Review of the Plan by the Government/ Planning Commission."

DIFFICULTIES EXPERIENCED BY ONGC

5.10 ONGC informed the Committee that they were facing difficulty in carrying on with their smooth operations on account of lack of autonomy, price preference to domestic bidders. These issues have been dealt in details below:

C AUTONOMY

5.11 Committee desired to know the extent of autonomy available to ONGC and whether the present autonomy was adequate for carrying out its functions in a satisfactory manner. In reply Chairman, ONGC during his evidence before the Committee stated :-

> "There is nothing called autonomy in public sector. We have been given certain empowerment, which is for awarding contracts, etc. That is given to the management. But the way a company is to be run, is not decided by the Board of the company, and that is the bare truth. We have spent hours discussing this. Navratna policy actually means that we can award contract up to any value which saves two to three years of delay in project decisions. That certainly is a tremendous improvement. Barring that, there is nothing really called autonomy of the Board as of today. Abroad there are different structures for State enterprises but we do not have that.
>
> I can award contract up to any value. If I have an independent merchant banker evaluation I can give the contract. But whether I can do a particular business, I have no authority. I can propose but somebody else would tell me that I can or cannot do it."

5.12 Asked as to whether issue of autonomy with regard to doing a particular business had been taken up with the Government. In reply, Chairman, ONGC further stated:

> "Yes, Sir. We have voluminous discussions. Many solutions to go through all these. At the end of the day as I said, Navratna power was a very important devolution because PIB was taken off. But if you take the MoU system the report says very clearly the MoU is an Italian model where the Government and the Company sign a contract. After the first round of MoUs, the page where the Ministry is to make commitment, is left blank. For 14 years, no Ministry has made any commitment to any PSU except to say that the Ministry will provide necessary guidance and assistance. Therefore, it is no longer a contract. If it is not a contract, while go through the exercise. I go to my own Board for setting my own Budget and Targets. I have to go to the Planning Commission although it is not giving me a single paisa. I have to go through the MoU drill. The bottom line is, if you ask why should I spend time in doing something which is of no benefit, no use to the company, whether I meet MOU target or not, frankly speaking does not make difference of one rupee to the share price. Investors are not bothered. If I get Excellent rating, the Prime Minister may issue a certificate after three years, but share market investors are not bothered.
>
> This is the major change. Today we are all listed companies. Government have disinvested equity globally. There is credibility of the Government as well as the company is at stake."

5.13 On the autonomy in respect of technology and other things, ONGC, Chairman stated-:

> "Yes, we have no problem on buying equipment or use of advanced technology. I must say that the Government has usually been supportive whenever we needed support. Our usual contract values are anything between hundreds to thousands of Crore. I must confirm that the Government has been supportive in this area.
>
> There is the basic issue of how the company is to be run. At the end of the day if you hold me as accountable for the company then you must give me the authority to structure it. I cannot carry on for three years waiting for approvals."

PRICE PREFERENCE TO DOMESTIC BIDDERS

5.14 ONGC drew the attention of the Committee on the problems being faced by them due to system of price / purchase preference to PSUs in procurement. In their note, ONGC

gave following justification / reasons to do away with modify the present system of price / purchase preference to PSUs.

(A) Price Preference to domestic bidders (including PSUs):

Price Preference policy was formulated by the Govt. of India in May, 1984 to award business to the domestic bidders (including PSUs) in ICB tenders for supply of goods and services to Oil Sector. The said policy has been in force in one or the other form, though the criterion and the extent of price preference has been changed from time to time. Thus the price preference has already been available to the Indian domestic industry for nearly 20 years. Under the New Exploration Licensing Policy (NELP) in force, ONGC has to compete with other E&P companies, to secure the blocks for exploration purposes. In the new competitive environment, it will not be possible for ONGC to compete effectively with other E&P companies in the bidding process under NELP, if it continues to provide price preference to domestic bidders (including PSUs).

ONGC is not currently extending price preference to domestic companies in International Competitive Bidding (ICB) tenders for supply of Materials and Equipments, as the validity of price preference facility for supply of goods has since expired on 25.08.2003. The price preference, however, is currently applicable in respect of ICB tenders for Service / Lump sum Turn Key (LSTK) contracts.

ONGC is a commercial organization and it would not be fair in asking ONGC to bear the burden of price preference to the domestic bidders, in today's liberalized and global competitive environment as it has to compete both within India and overseas to get acreages. Moreover, due to the policy of price preference to domestic bidders, it has been experienced that participation by foreign bidders in ONGC's tenders has reduced considerably and in some cases, depriving ONGC even of the foreign bidder's reference price for comparison with the prices quoted by domestic bidders.

In view of the position as explained above, it is suggested that price preference to domestic bidders against ICB tenders may not be extended for procurement of materials and equipments. It is further suggested to discontinue the price preference in respect of Service / LSTK tenders.

(B) Purchase Preference to Central PSUs.

As per the policy of Govt. of India to grant Purchase Preference to Central PSUs for supply of Products and Services, the Central PSUs have been granted the Purchase Preference for supply of their products and services to other Central PSUs, in all tenders exceeding value of Rs. 5 Crores, subject to a minimum value addition of 20%. This purchase preference was extended provided however that the price quoted by the Central PSUs is within 10% of the lowest price in a tender, other things being equal.

ONGC has in the past, experienced difficulties resulting from the policy of granting Purchase Preference to Central PSUs. In the cases of highly critical Offshore equipment such as compressors etc., the PSU supplier delayed the supply unduly causing great hardship in its Gas Compression / Gas Flaring reduction processes. ONGC has been indicating its reservations in extending the Purchase Preference policy to the Central PSUs against ICB tenders, bringing out the misuse of this policy by Central PSUs and the resultant lack of interest among Foreign / Private Indian bidders to participate in the tenders.

Revival of the Purchase Preference Scheme for Central PSUs shall bring forward the following inappropriate commercial climate:

i) In the purchase preference scheme, contract is to be awarded to Central PSUs if their rates are within 10% of the lowest offer received in the tender and if the Central PSUs agree to match their rates with those of the lowest bidder. Thus foreign/private Indian bidder inspite of emerging L-1 in the tender does not become eligible for award of contract. Due to this reason, both foreign and Indian private bidders have reduced their direct participation in ONGC's tenders, thereby severely restricting competition. In lieu of this, some of the bidders are preferring to participate through Central PSUs, using them as frontal companies.

ii) Misuse of this provision has also been severely commented by CVC, wh□üich has also observed that Central PSUs are not following established procedure in sub-contracting the work to other companies, after bagging the award of contract.

iii) In the past couple of years, it has been noted that in the tenders being floated by ONGC, Central PSUs who are participating in the bidding process are mis-utilizing the provisions of this scheme. The Central PSUs have started participating in the tendering process without having to play any significant role in execution of the project. Basically the foreign and private Indian firms involve the Central PSUs in thbidding process merely as a front so as to get the benefits of purchase preference.

iv) Under NELP, ONGC has to bid and compete against other private players for securing acreage for exploration and exploitation of hydrocarbons. As other bidders under NELP are under no obligation to give purchase preference, it is unfair to ask ONGC to give purchase preference.

v) Under the post-APM scenario, it would not be fair to expose commercial Navaratna organization like ONGC to bear the burden of a policy of protectionism like purchase preference.

Under the circumstances, it is felt that ONGC should be exempted from granting purchase preference in its ICB tenders relating to award of orders/contracts for Oil Field products/equipment and services.

In their note ONGC further submitted as under :-

(II) ONGC to be treated as High Technology Cost Intensive Company and the need to dispense with normal procurement procedure need not be applicable.

The cutting edge technology is required for certain goods and services and hardware / software. It is not feasible to source the best in class technology by following the normal procurement procedure, because of the implicit incremental costs.

In the 'Strategy Review' held in July-2002 at Behror, Secretary P&NG suggested that ONGC should continuously scout for cutting edge technology and suitable mechanism (purchase process) be developed for sourcing best-in-class technology which can not be made available to present bidding process.

The issue was taken up by ONGC with CVC and a team of senior officers from ONGC had discussed the above issue with the CVC. During the deliberations, it was clarified by the CVC that basically tender terms and conditions should be transparent, equitable and fair so that decision of award of contract / supply order is taken strictly according to terms and conditions of tender. The management can also frame rules and regulations for procurement keeping in view the philosophy of transparency, fairness and equitability. It was also clarified by the CVC that if the normal procedure can not be followed for procurement of cutting edge technology, it should be properly justified in writing.

In view of the foregoing, it may be seen that CVC has emphasized on the transparency, equity and fairness in framing policies and effecting procurement. Accordingly, ONGC is considering evolving a special mechanism in light of CVC's above guideline for procuring goods and services involving cutting edge technology.

The need for Government Fiscal policy to be announced before the beginning of the year and no major deviations during the year.

ONGC fully supports the view that the Fiscal Policy should be announced before the beginning of the year. Further, once a fiscal policy is announced by the Government, there should not be any major deviations in the policy.

While it is generally adhered to by the Government in respect of taxes and duties applicable on crude oil and natural gas, during the year 2003-04, Government has been taking ad-hoc view (contrary to ONGC's interest) on the sharing of subsidies on LPG and Kerosene. The issue was also raised by the prospective investors during road shows of the IPO of ONGC in March, 2004. It was clarified at that stage that the subsidy sharing was not part of policy of the Government and the same was applicable only for FY '04.

The subsidy sharing was resorted to by the Government because the fiscal policy decisions on gradual withdrawal of the subsidy of LPG and Kerosene and linking the retail prices of MS and HSD to the market price levels could not be implemented by

the Government. The Government has again conveyed that during first and second quarters of 2004-05, ONGC, GAIL and OIL would share the under-recoveries of OMCs.

The major deviations in the fiscal policy not only bring un-certainty but cash flow planning and investment decisions are also significantly affected.

It would, therefore, be appropriate that fiscal policy once announced, in the beginning of the year should remain stable. Moreover, E&P industry needs long-term investment and therefore fiscal policy should remain stable over long period.

D OTHER PUBLIC SECTOR UNDERTAKINGS

5.15 Besides ONGC and OIL who have been undertaking Oil exploration and production activities for more than half a century, following PSUs who were hitherto performing , activities pertaining to refining and marketing of crude oil and supply of gas, have also made forays into the Exploration and Production activities.

1. GAIL (India) Ltd.
2. Indian Oil Corporation Ltd. (IOC)
3. Bharat Petroleum Corporation Ltd. (BPCL)
4. Hindustan Petroleum Corporation Ltd. (HPCL)

5.16 The Committee held discussion with representatives of HPCL, IOC and BPCL during their study visit to Hyderabad, Chennai and Kolkata to ascertain the causes due to which these companies have made forays into E&P activities, the number of exploration blocks acquired by them in India / abroad, the expenditure incurred thereon and the actual work done so far in respect of each of the blocks. In reply various companies in their written note submitted to the Committee during study visits stated as under:

BHARAT PETROLEUM CORPORATION LIMITED (BPCL)

Internationally the trend in the Oil Industry has been towards integration; downstream companies going upstream and vice versa. With deregulation of the oil market in India, the same trend of integration is emerging in the industry. The entry into the upstream sector will provide hedge to our future margins.

BPCL is sourcing crude for its Mumbai and Kochi refineries from indigenous source-ONGC's Bombay High and from imports. At present, the import components in tune

of 63% and is expected to rise in future. In order to have reasonable supply security, hedging and benefits of integrated supply chain in the volatile oil market, it has become necessary for us to explore avenues for securing our own equity crude by entering the upstream sector in the liberalized market. We have to plan for reasonable supply security for our refineries with a mechanism for mitigating price risk in the volatile international oil market. Also, in view of the recent trend of natural gas increasingly displacing our fuel products, it has become imperative to enter the gas business to maintain our share in the energy market in the country. The entry into the upstream sector thus relates both to oil as well as gas.

The growth potential of the downstream oil business being moderate, BPCL also proposes to seek avenues for supplementary growth in some other business having synergies with the downstream business. In view of the success rate of recent discoveries, the upstream sector in India promises high growth potential. Similar prospective areas are also available abroad.

II Exploration blocks acquired by BPCL in India:

BPCL was successful in the following NELP IV blocks:

Block Name	Block Number	Block type	Location	Consortium	BPCL' participating interest
KG-DWN-2002/1	D5	Offshore (deep water)	Krishna-Godavari basin	ONGC, OIL and BPCL	10%
MN-DWN-2002/1	D6	Offshore (deep water)	Mahanadi basin	ONGC, OIL and BPCL	10%
CY-ONN-2002/02	12	Onland	Cauvery basin	ONGC and BPCL	40%

Target completion dated and position of works done:

Block Name	Consortium	Effective date (date of getting PEL)	Exploration phase (in years)	Present work status
MN-DWN-2002/1	ONGC, OIL and BPCL	17th March, 2004	8	Seismic data collection / interpretation in progress
KG-DWN 2002/1	ONGC, OIL and BPCL	17th March, 2004	8	Seismic data collection / interpretation in progress

Hindustan Petroleum Corporation Limited (HPCL)

Hindustan Petroleum Corporation Limited (HPCL) owns and operates two refineries, one on the east coast in Visakhapatnam, Andhra Pradesh with a 7.5 Million tonnes per year (MMTPA) crude oil processing capacity and the other on the west coast in Mumbai, with a 5.5 MMTPA capacity. HPCL has a share of 15% in the refining capacity under the Public Sector and plays a vital role in meeting the country's demand for petroleum products.

Of the 13 MMTPA of crude oil required by HPCL to maintain its refining operations in both its refineries, a major portion is imported directly from the oil producing countries. Only a smaller portion of the crude oil feed is met from the indigenous sources viz. Mumbai High and Ravva oil

fields. The cost of crude oil feed contributes approximately 90% of the operating cost of a refinery and thus, has a direct influence on its profitability.

The world crude oil market is highly volatile and is frequently impacted by supply crunch, demand swings, geo-political influences, exchanges rate variations etc. The price of oil remains volatile due to these factors and often moves very sharply upwards, causing severe erosion in profitability. Raising oil prices also shrink the availability of crude oil. The Refineries not only find it difficult to maintain the operations at optimum levels under these circumstances, but also are forced to invest in upgrading the processing facilities to accommodate cheaper and heavier crudes. As the share of the imported crude oil is higher, the volatility of the oil market in terms of prices and limited availability, adversely impacts the refineries.

In order to ensure adequate supply and to soften the impact of crude oil prices on refinery operations, HPCL planned to go in for securing equity oil by acquiring interests in oil fields in India and overseas. The equity oil, thus acquired, may either be directly used in the refineries or swapped in the oil market with suitable and cheaper crudes.

This will facilitate optimum capacity utilization in the refineries and safeguard the revenues. As the margins in the production of crude oil are generally higher, the earnings from such E&P initiatives may add to the overall profitability of the Corporation.

INITIATIVES:

Government of India (GOI) offered 24 exploration blocks under the New Exploration Policy (NELP-V) programme. HPCL took the initiative of forming a consortium with the other major players in the E&P sector to bid for these blocks. Accordingly, HPCL entered into a Memorandum of Understanding with Oil & Natural Gas Corporation (ONGC) for co-operation in the sector and submitted bids for two deep water offshore blocks in the Kerala-Konkan coast and one onshore block in the Cauvery basin under NELP-IV. HPCL is also reviewing various farming in opportunities with a view to acquire interests in producing fields. Prize Petroleum Company Limited, a Joint Venture company formed in association with the financial institutions provides technical assistance to HPCL in this regard.

E&P BLOCKS ACQUIRED

The HPCL –ONGC consortium has been awarded two deep water offshore exploration blocks in the Kerala-Konkan coast (KK-DWN-2002/2 and KK-DWN-2002/3) under NELP-IV. HPC-hold 20% participating interest in each of these blocks, while ONGC holds the remaining 80%. The details of the individual blocks are given below:

KK-DWN-2002/3

The block is spread over 20,910 sq.km in the Kerala-Konkan basin approximately 300 kms off the coastal city Kochi on the west coast. The water depth in the block varies from 400 to 2700 metres. The earlier geophysical surveys carried out in the block collected about 1000 LKM of 2D seismic data.

CONTRACTS / AGREEMENTS / COMMITTEES :

Production Sharing Contract (PSC):

A Production Sharing Contract (PSC) has been signed for each of these two exploration blocks by the HPCL – ONGC consortium with the Government of India on February 6, 2004. The PSC defines the exploration period as eight consecutive years starting from the effective date i.e. March 17, 2004. The exploration period shall be in three phases of three, three and two years each. The PSC also defines the composition and the role of the Management Committee and the Operating Committee. The measurement of Petroleum, recovery of cost, production sharing, payment of taxes & levies, sale of produce etc. have been spelt out in detail. The procedures for maintaining the accounts & records, reports to be submitted, auditing and verification etc. have also been defined. Procedures to be followed for reassigning of participating interest by the consortium members are laid out in detail in the contract.

Operating Agreement (OA):

The HPCL-ONGC consortium has nominated ONGC as the Operator for each of these exploration blocks. In accordance with the PSC, an Operating Agreement (OA) has been entered into between HPCL and ONGC on June 9, 2004. This OA defines the role and responsibilities of the Operator in carrying out the exploration work in line with the PSC. It also specifies the procedures for budgeting, accounting for the costs and expenses, relinquishment of the areas, disposal of production etc. The procedures for sale, transfer or assignment of interest, insurance and indemnification are also clearly spelt out.

Committees

An Operating Committee (OC), comprising of representatives from the each member of the HPCL-ONGC consortium was formed for the individual blocks. The Committee conducted its first meeting on June 15, 2004 and finalized the work programme as well as the budgets for the financial years 2004-05 & 2005-06.

A management Committee (MC), comprising of representatives from the each member of the HPCL –ONGC consortium and the Directorate General of Hydrocarbons (DGH) was formed for the individual blocks. The Committee conducted its first meeting on August 5, 2004 and approved the work programme as well as the budgets for the financial years 2004-05 & 2005-06.

KK-DWN-2002/2 & KK-DWN-2002/3

The Petroleum Exploration License for the individual blocks has been obtained from the Ministry of Petroleum & Natural Gas, Government of India. The work programme and the Budget for the financial year have been prepared and the approval of the Management Committee obtained. Approximately 1500 LKM of digitized 2D seismic lines has been

taken up. The job of co-relating the seismic horizons representing trap top and Early Eocene top is in progress.

The work in both these exploration blocks is progressing as per the schedule and no cost over run is anticipated at this juncture. No area has been relinquished / abandoned as of now."

INDIAN OIL CORPORATION LIMITED (IOC)

IOC with dominance in the core business of refining & marketing has emerged as a leading company in downstream hydrocarbon sector. To maintain its national leadership position, sustain adequate growth and to consolidate its resources strategically, it is imperative to integrate core business with related areas along the hydrocarbon value chain. Such a need has been recognized and incorporated in IOC's vision of becoming "a major, diversified, transnational, integrated energy company...".

Vertical integration along the hydrocarbon value chain has also been the key strategy for growth for all oil and gas majors worldwide as this provides opportunities for higher returns and flexibilities for resource utilization. The global oil majors, which are integrated companies, derive significant portion of their profit/revenue from upstream business. Therefore, vertical integration into upstream hydrocarbon sector through E&P initiatives has been considered necessary for IOC, to have its own equity oil so as to safeguard its business interest against the highly volatile oil market and to achieve greater stability of revenues/profits, thereby protecting stakeholders interest.

The Government of India has also been encouraging downstream oil PSUs to participate in domestic exploration activity and to step up indigenous production as well as to go overseas for securing equity oil.

IOC made a foray into E&P sector in the year 1996. A humble beginning was made by securing two exploration blocks, along with ONGC, under New Exploration Licensing Policy (NELP) – I round. Subsequently, IOC has been awarded 8 blocks under NELP-II and 1 block under NELP-III in consortium with ONGC/OIL/GSPC/GAIL. Besides two Coal Bed Methane (CBM) blocks were awarded under First CBM Licensing round to IOC-ONGC consortium. Farm-in opportunities in India are also being pursued. IOC acquired participating interest in a block in Assam-Arunachal Pradesh, where Premier Oil is the operator. IOC also entered in overseas E&P arena when it was awarded an Exploration Service Contract in Iran alongwith ONGC and OIL.

In addition, IOC has signed 'farm-in' agreement for 35% participating interest in Exploration Block CR-ON-90/1 with Premier Oil (49% & Operator). The Government approval for farm-in is awaited. IOC management has also approved farm-in in PY-1 field with 50% stake (HOEC – 50% & Operator) and CY-OSN-97/1 exploration block with 40% stake (HOEC – 40% & Operator), the farm-in agreements for which will be signed shortly.

Besides, with a view to further expand and strengthen its E&P business, IOC management has accorded "In-Principle" approval for acquisition of a suitable overseas mid-size E&P company, which is being pursued.

Exploration blocks awarded / acquired in India and abroad.

So far, all the exploration blocks have been awarded to IOC in consortium with partners like ONGC/OVL, OIL, GAIL and GSPC. In addition, IOC has also farmed-in in one exploration block and is in the process of farm-in in 2 exploration blocks and one discovered field. The following table gives the details thereof:

Block Name	Consortium (%)				
	ONGC	OIL	IOC	GAIL	GSPC
DOMESTIC					
NELP-I					
MB-OSN-97/4	70*	---	**30**	---	---
GV-ONN-97/1	70*	---	**30**	---	---
NELP-II					
MB-DWN-2000/1	85*	---	**15**	---	---
MB-DWN-2000/2	50*	10	**15**	15	10
MB-OSN-2000/1	75*	---	**15**	---	10
MN-OSN-2000/2	40*	20	**20**	20	---
WB-OSN-2000/1	85*	---	**15**	---	---
WB-ONN-2000/1	85*	---	**15**	---	---
GV-ONN-2000/1	85*	---	**15**	---	---
MN-ONN-2000/1	20	40*	**20**	20	---
NELP-III					
AA-ONN-2001/2	80*	---	**20**	---	---
CBM-I					
BK-CBM-2001/1	80*	---	**20**	---	---
NK-CBM-2001/1	80*	---	**20**	---	---
Farm-in					
AAP-ON-94/1	**Premier Oil**	**OIL**	**IOC**	**HOEC**	
	38*	10	**27**	25	
CR-ON-90/1**	**Premier Oil**		**IOC**	**Essar Oil**	
	49*		**35**	16	
PY-1***	**HOEC**		**IOC**		
	50*		**50**		
CY-OSN-97/1***	**HOEC**		**IOC**	**Mosbacher**	
	40*		**40**	20	
OVERSEAS					
Farsi Offshore Exploration Block, Iran	**OVL**	**OIL**	**IOC**		
	40*	20	**40**		

*** Operator**
**** Govt. approval for assignment awaited**
***** Board approved; Farm-in Agreement to be signed**

The Production Sharing Contracts (PSCs) have been signed by IOC, along with the consortium partners, with Govt. of India for 11 blocks awarded under NELP-I, II & III rounds. IOC-ONGC consortium has signed 2 Contracts with Govt. for 2 CBM blocks under CBM-I round. Besides, IOC has farmed-in in Block AAP-ON-94/1, which was initially awarded under VIII round. IOC-OVL-OIL consortium has also entered into an 'Exploration Service Contract' for 'Farsi' Block in Iran.

5.17 IOC is participating as a 'Non-Operator' in all the blocks awarded/acquired so far.

The cost estimates have been revised in case of NELP-I & II blocks only.

The broad reasons for cost overrun were stated to be as under:

- Technical evaluation of the data package of each block before bid submission was carried out and the Minimum Work Programme (MWP) was prepared by respective Operators alongwith estimated expenditure based on the then-prevalent rates for bid submission.

- After award of the blocks, detailed studies revealed that technical data was inadequate in some of the blocks. This data gap was required to be filled up by more data acquisition and/or reprocessing/special processing of existing data at an additional cost.

- Further, conceptual plan of data acquisition technique, drilling methodology, water depth, vessel configuration, hiring charges, etc. also needed to be re-looked and re-worked to achieve the best results, which contributed to further increase in exploration expenditure.

- Besides above, all the cost elements such as seismic data acquisition, processing & interpretation (API); drilling cost, site/current/geochemical surveys, etc. are market driven and hence are prone to fluctuations. Therefore, precise estimation of the total exploration costs is not possible. A better estimate for a particular year is obtained only after the Operator prepares the annual budget.

- Costs towards General & Administrative (G&A) Charges, annual Petroleum Exploration License (PEL) Fees, Environmental Impact Assessment (EIA) studies, technical manpower, computing services (workstation usage charges), etc., which were not considered by the Operator at the time of bidding, have also contributed towards upward revision of costs."

Gas Authority of India Limited (GAIL)

5.18 Committee got written note from GAIL on their Exploration and Production activities.

Giving reasons for GAIL entering the E&P activities, details of blocks acquired in India and

abroad, and actual achievements so far, GAIL in their note furnished to Committee stated as under:

GAIL entered the E&P sector when national exploration acreages were opened under the New Exploration Licensing Policy (NELP) as a non-operator and has since taken part in four bidding rounds announced by the Government of India.

GAIL has primarily focused on relatively gas prone blocks with clear understanding, in few cases, that in case of commercial discovery, gas marketing will be undertaken by GAIL.

Summarizing, the business scenario for GAIL post NELP and other policies of Government of India was –

i) Projected decline in gas supplies from existing fields;
ii) Freedom to operator of NELP blocks to market gas directly and create the marketing facilities.
iii) Gas/LNG imports under OGL and entry of global majors like Shell, Enron, Totalfina Elf, BG and BP etc. to set up gas imports projects and pipeline to market gas.

The above scenario created following implications for GAIL :

i) Gas volumes will shrink with time.
ii) Additional gas volumes would not be available automatically to serve the existing markets/loss of market as well as develop new markets (access to new markets)
iii) There will be no significant opportunities for new gas processing facilities as well as gas pipelines under the new producers of gas/importers of gas decide to give gas to GAIL
iv) There could be serious inadequacy of projects in GAIL, area of core competence.
v) Gas supplies are thus critical to survive and grow and only gas volume growth will create logical investment plans for the company.
vi) Gas Sourcing and integration in supply sources is become a business necessity.
vii) Supply side integration become business requirements in view of emerging competition in the gas sector.
viii) To play in competetive market, supply dependency will be inadequate and hence self supplies would be critical.

5.19 The target dates for completion and actual position of work done in respect of the each of the blocks alongwith time and cost overrun are given below:-

"The twelve exploration blocks (including two blocks under NELP-IV) are in different stages of Exploration phases in which implementation of work programme by the respective Operator is in progress, except in block KK-DWN-2000/2 which is relinquished. Seismic works are completed for the respective phases in seven blocks and in three blocks seismic works are in advanced stage of completion and balance two blocks are recently awarded in NELP-IV where exploration activities are in the stage of start. On the basis of seismic and other geo-technical works, estimated potential hydrocarbon resources have been revised from the initial stages, after acquisition, processing and interpretation of additional seismic data. Drilling of one exploratory well each in "Farm-in" blocks CY-OS/2 and A-1, Myanmar has been completed. Drilling of six wells in NELP-II block CB-ONN-2000/1 has been completed. One well each has been drilled in two deepwater blocks. As a result of drilling in above blocks, gas discovery in block A-1, Myanmar and oil discovery in block CB-ONN-2000/1 have been made.

The activities under Minimum Work Programme (MWP) of the PSCs are all time bound programmes and there is no time over run in current exploration phase of any exploration block , except in case of pre-NELP block CY-OS/2. In this block, the consortium of Hardy and GAIL have planned additional work programme over and above MWP. The Consortium of block CY-OS/2 has requested the Government of India for 22 months time extension due to delay on account of seismic data archival from ONGC and non-availability of seismic vessel for 3D seismic data acquisition.. The extent of additional expenditure involved will be known once the process is completed and jobs executed."

5.20 A brief status of work programme in ongoing exploration blocks progressed in last quarter ending September 2004 is narrated below:

1 <u>MN-OSN-97/3 (Mahanadi Offshore) (Phase-II : 19.5.2002 to 18.5.2005):</u>

- Exploration Phase-I completed successfully and consortium has entered next exploration phase.
- Acquisition, Processing and Interpretation (API) of 3D Seismic Data, 400Km^2 – It is an additional work over Minimum Work Programme. Acquisition and Processing is completed and Interpretation is in progress. In the last quarter, three prospects have been mapped based on special processing of 3D seismic data.
- Exploratory well drilling, 1 well: Release of location shall be firmed up after prospects are prioritized and drilling is planned in 1st quarter of 2005.

2 NEC-OSN-97/1 (Bengal Offshore) (Phase-II : 13.8.2003 to 13.11.2005):

- Exploration Phase-I completed successfully and consortium has entered next exploration phase.
- API of seismic data(3D 530 Km^2 and 2D 40 LKM) – Acquisition and processing of 246 Km^2 3D (47%of total volume) and 40 LKM 2D seismic data is completed. Interpretation is in progress. Acquisition of balance 3D seismic data planned in Nov, 2004 after monsoon.
- Exploratory well drilling, 1 well: Modified drilling programme finalized in September, 2004 for drilling 2 wells. 1^{st} well location is identified in the most promising prospect in shallow depth for drilling in 2004-05. Tenders for drilling rig and its associated services have been invited. Simultaneously, tendering for Geo-hazard and site survey is in progress. Pre-drill EIA study by NEERI completed and applied for Environmental clearance from Ministry of Environment and Forest (MOEF).

3 GS-DWN-2000/2 (Gujarat Saurashtra Offshore) (Phase-I : 16.8.2001 to 15.8.2005):

- Reprocessing of 2D seismic data, 1500 LKM – Completed
- API of 2D seismic and Gravity Magnetic data, 2000 LKM and 3D, 1500 Km^2 – Completed. Additional API of long offset 2D seismic data, 230 LKM planned to map Mesozoic level (deeper level).
- Exploratory well drilling, 3 wells – First well drilled in Aug'04 upto a depth of 3,838m in water depth of 2,545m and found dry (no hydrocarbon shows). Lab analysis of samples and review of well data is in progress.

4 MB-DWN-2000/2 (Mumbai Offshore) (Phase-I : 16.8.2001 to 15.8.2005):

- Reprocessing of 2D seismic data, 1500 LKM – completed
- API of 2D seismic and GM data, 2000 LKM and 3D, 1500 Km^2 – Completed. Additional API of long offset 2D data, 1598 LKM planned to map Mesozoic level (deeper level).
- Exploratory well drilling, 3 wells - First well drilled in July-Aug'04 upto a depth of 3,250m in water depth of 2,378m and found dry (no hydrocarbon shows). Lab analysis of samples and review of well data is in progress.

5 KK-DWN-2000/2 (Kerala Konkan Offshore) (Phase-I : 16.08.2001 to 15.08.2004) :

- The block has been relinquished on 30.7.2004, as prospectivity was downgraded after exploration activities of Exploration Phase-I. Minimum Work commitment has been fulfilled.

6 MN-OSN-2000/2 (Mahanadi Offshore) (Phase-II : 02.08.2003 to 01.08.2006):

- Exploration Phase-I completed successfully and consortium has entered next exploration phase.
- Additional API of 3D seismic data, 625 Km^2 – 285 Km^2 data acquired and processing of 3D data acquired is in progress.. Acquisition of balance seismic data planned in Nov-Dec' 04.
- Exploratory well drilling, 2 wells – Planned in 2005-06 after API of 3D seismic data.

7 CB-ONN-2000/1 (Cambay Onland) (Phase-I : 7.1.2002 to 7.1.2005 with 6 months extension):

- Reprocessing of 2D seismic data, 2000 GLK - Completed
- API of 3D seismic data, 120 Km^2 – Completed
- Exploratory well drilling, 7 wells – 6 wells drilled. Location for 7^{th} well being finalized. 6^{th} well was drilled in Aug'04 at PK#2 location and oil was discovered with a flow rate of 800 BOPD from 4mm bean size. 2^{nd} production test in PK#2 carried out in September, 2004 and produced oil @1654 BOPD from 6mm bean size.

8 MN-ONN-2000/1 (Mahanadi Onland) (Phase-I : 22.4.2002 to 21.4.2005):

- Reprocessing of 2D seismic data, 760 GLK – Completed
- API of 2D seismic data, 460 GLK – Basic Interpretation of 2D seismic data is undertaken. Further data processing is required for better interpretation/modeling. Broad scope of work for processing and interpretation of 2D seismic data by an independent E&P consultant is firmed up.

9 AA-ONN-2002/1 (Tripura Onland) (Phase-I : 7.4.2004 to 6.4.2007):

- 2D seismic data reprocessing, 368 LKM, Geological mapping and Geochemical analysis : Tendering in progress.

- API of 2D seismic data, 250 LKM - EIA study for 2D seismic data acquisition completed and report received on 23.09.2004.
- Exploratory well drilling, 3 wells – Planned in early 2006

10 CY-ONN-2002/1 (Cauvery Onland) (Petroleum Exploration Licence (PEL) to be granted):

- 2D seismic data reprocessing, 1000 LKM – Effective date yet to start.
- API of 2D seismic data, 300 LKM - Effective date yet to start.
- Exploratory well drilling, 3 wells – Effective date yet to start.

11 "Farm-in" Block – A-1 (Myanmar) (Appraisal 1.7.2004 to 30.6.2005):

- 1st and 2nd Exploration Period and 1st One Year Extension were completed successfully. Gas discovery was made in first prospect called SHWE from 1st exploratory drilling in January 2004 with an estimated reserve size is 5 TCF. The consortium has entered 2nd One Year Extension for appraisal of the discovery
    - 3D seismic data of 1200 Km^2 acquired and processed. From interpretation of SHWE prospect, location of 1st and 2nd appraisal wells is firmed up.
    - Drilling of 5 firm and 3 conditional wells (6 appraisal + 2 exploratory) – Hiring of drilling rigs and related services are at finalization stage. 1st Drill ship mobilization planned in 4th week of October, 2004.

12 "Farm-in" Block –CY-OS/2 (Cauvery Offshore (Applied for Phase-III time extension of 22 months):

- Exploration Phase-I and Phase-II have been completed successfully and consortium has entered next exploration phase.
- Exploration Phase-III has come to an end on 15.1.2004 and Consortium has applied for 22 months time extension to complete the work programme. In addition to Minimum Work Programme of 1 well drilling in Exploration Phase-III, the Consortium has planned to undertake API of 3D seismic data (250 Km^2) and drilling of one more well.

Expenditure of 12 exploration blocks with GAIL has been revised due to dynamic nature of exploratory work, as per annual work programme and budget of respective block. Reasons for increase in initial estimated expenditure (bid costs) are due to three major factors, as explained below:

i. Revised cost estimates of work programme based on tendering or budgetary quotes/actuals.

ii. Revised work programme for additional exploration activities/quantum as per need basis, resulting in additional expenditure.

iii. PEL fees, EIA Study, Operator's G&G/G&A costs, Computing charges, Capital equipment, Overheads: These items were not the part of the initial estimates pertaining to minimum work programme in the bid and were not reflected in the initial cost estimates:

b) PEL fees: The fees has been revised in 2003 to Rs. 50, 100, 500, 700, 1000 against Rs. 8, 40, 200, 400, 600 per Km^2 for 1^{st}, 2^{nd},3^{rd}, 4^{th} and subsequent years respectively. EIA study is must for compliance with Environmental and regulatory norms before carrying out any exploration activities in block areas.

c) G&G/G&A costs & Computing charges: Expenditure incurred by Operator towards G&G personnel and General and administrative charges for carrying out the activities outlined in Minimum Work Programme and as agreed in work programme by Operating Committee and Management Committee from time to time. The Computing charge implies expenditures incurred towards hiring/utilization charges of workstation for G&G study. Besides that the charges under Capital equipment includes cost of software purchase, office furniture & equipment cost etc.

d) Operator's Overheads: As applicable under Production sharing Contract for the cost of general assistance, advice and support provided to Operator by its head office which is about 4% of total expenditure.

5.21 Revised project cost (GAIL's share of expenditure) for completed, ongoing and next phase which is conditional upon entry depending on outcome of preceding phase for these 12 exploration blocks are as below:

(All figures in MMUS$)

Status of Expl. Phase		No. of Block	Cost Estimate of GAIL's share		Expenditure incurred/ basis of cost estimation
			Initial	Revised	
Completed Phase		5	3.97	5.20	As per actuals
Ongoing Phase	Ph-I	7	21.43	49.38	As per actual work programme & budget & inputs from respective Operator
	Ph-II	3	10.46	22.82	
	Ph-III	2	2.55	5.57	
Total		12	34.43	77.77	
Next Phase (Subject to entry)		11	42.05	91.26	As per present trend of cost estimate for similar work programme and is subject to further revisions.
Total			80.45	174.23	

E OPERATORSHIP ISSUE

5.22 The Committee drew the attention of ONGC to the problems being faced by some of the downstream companies on account of their being non operators in exploration and production activities and asked as to why other PSUs who have forayed into upstream activities should not be offered operatorship in joint deals. In reply, Chairman ONGC during his evidence before the Committee stated as under :-

> "It took us 48 years to be recognised as an operator by Saudi Arabia. I was very pleasantly surprised when one day last year I got a letter from the His Excellency the Oil Minister of Saudi Arabia saying: I am pleased to recognize ONGC as an operator. That means, as far as Saudi Arabia is concerned, ONGC can bid directly along with Shell, Exxon and everybody else. It took us 48 years to reach that stage. In Kuwait, we do not have operator status. We are bidding with Occidental and other bidders. In Iran, we are operators and in Sudan we are joint operators and so on. Capability to become an operator takes a huge investment. I have been in downstream also. Thirty years, I was in IOC. I am now in ONGC. IOC had ensured cooperation with ONGC. to go in for NELP and things like that. Developing the capability for NELP, etc. just cannot be done like you can do in any factory. You want to manufacture a car or cycle, you build a factory. You have to hire people who get into production and you get into business.

Reliance wanted to do this, they took our people and they also hired people directly in USA, Europe and other places. They made the investments. People trained by us for 20 years might have gone to Reliance for getting 10 times or 15 times of their salaries. Why should any one go to another PSU for the same salary? My point on what has been told to the Committee on operatorship, is that the operatorship in exploration business does not come cheap. Something which has to be developed over 10 or 15 or 20 years or a company has to go to hiring people from all over the world at international salaries, not on PSU salaries."

5.23 The Committee pointed out some of those PSUs had expressed the opinion that as a non-operator they were at the receiving end. In reply the Chairman, ONGC further stated as under :

"We submit that it is the other way round. ONGC does not need funding. So, it does not need a financial partner. If somebody does not have the capability, he cannot give me technology. So, I have no need, as ONGC, to take anyone in exploration effort. But it is a fact that we have taken IOC, BPCL, HPCL and GAIL with us. It is essentially because, to be very honest, IOC had taken the initiative. As regards, BPC and HPC – when they came to us last year, we said okay, we take you provided you give us supply and distribution chain access to the whole country. It is because it does not make any sense for us to build another chain for distribution. So, it was a commercial deal between two sets of companies. It is an opportunity cost. Because for them, to get into exploration business will take 20 years. And for us, to build a national distribution chain will take 20 years. That does not make any sense. So, it is a business deal. But, when we go abroad as ONGC Videsh, partnership is something which is preferred."

CHAPTER – VI

A ONGC VIDESH LIMITED

6.1 ONGC Videsh Limited, a wholly owned subsidiary of ONGC, is engaged in overseas exploration and production of oil and gas to supplement the reserves of the parent company ONGC and to augment the national energy security. It was incorporated on 5th March 1965 as Hydrocarbon India Pvt. Ltd. with its Registered Office at New Delhi, while formalizing the contracts to explore for petroleum in Iran and was re-named as "ONGC Videsh Limited" (OVL) in 1989.

Mission/Vision/Objectives of the company are as below:

VISION

"To be a world class E&P company having an Organization & Culture committed towards Sustainable Growth & Superior Profitability through pursuit of International Opportunities & Excellence in Execution."

MISSION

"By 2025 contribute 60MMTPA of Equity Oil and Gas"

OBJECTIVES

To support India's oil and gas security.
To get at par with international oil and gas companies.
Build investment confidence and financial position.
Be the strongest Indian player in the international E&P.
Build excellent relations.

6.2 On Exploration and production – activities undertaken by OVL since inception and their outcome OVL in their note stated as under:-

> The company made two discoveries "Rustam & Raksh" in Iran, but the contract was terminated in 1979, during the nationalization drive of the oil and gas assets in Iran. In 1975 company performed a service contract in Iraq, which led to discoveries but the same did not meet the minimum threshold limit set out by the authorities and therefore, further development could not be carried out.

The company also carried out small services contracts in Tanzania (1975-77), Iraq (1982-84), Sri Lanka (1987-90), Abu Dhabi (1987-90), Malaysia (1988-91), Thailand (1989-90) & Bhutan (1988-90).

OVL carried out Exploration in Egypt in 1993, Tunisia in 1995 and Yemen in 1996, where the company participated in these projects in Joint Venture with international companies. Exploratory wells were drilled in these projects but no commercial discoveries could be made.

The Production Sharing Contract (PSC) for exploration in Vietnam Offshore Blocks was signed by OVL on 19 May 1988 with PetroVietnam (PV), the national petroleum company of Vietnam. Subsequently in 1992, OVL farmed-out 30% and 15% of its participating interest in the Block to BP and State Oil respectively. Contractor Parties had further concluded the assignment of 15% participating interest in the project to PetroVietnam. OVL also assigned its share of 10% participating interest to PetroVietnam w.e.f. 1998. As a result of the exploration and appraisal work done in the Contract Area, natural gas reserves in commercial quantities were discovered in two gas fields known as Lan Tay and Lan Do in 1992/1993. All the major commercial agreements for exploitation of gas were concluded. The development of the Lan Tay gas field had been taken up in Phase 1 as per approved development plan. Lan Tay / Lan Do field is the first non-associated offshore gas development in Vietnam and there, the development of reserves required simultaneous construction of Gas transportation and processing facilities and end use facilities. The commercial production of Gas from the Vietnam project started in January, 2003.

It is evident from above that OVL had low profile till 2000. In the year 2000, special empowerment was granted to OVL which pushed up the activities of OVL. In the year 2001, OVL acquired 20% stake in discovered Sakhalin-1 project in Russia. In 2003, OVL acquired 25% stake in oil producing Greater Nile Oil Project in Sudan. Besides this, OVL also acquired stakes in exploration projects in Iran, Iraq, Myanmar, Sudan, Libya, Syria, Australia and Ivory Coast. At present OVL has two producing assets i.e. Vietnam and GNOP Sudan and One development asset i.e. Sakhalin-1 and 10 exploration blocks. Now the company has E&P interest in 10 countries.

6.3 The expenditure incurred by OVL during the last 10 years on exploration and development and production activities was stated to be as under

(Rs. in Crores)

Year	Expenditure on Exploration and Development	Expenditure on Production
1994-95	(0.13)*	-
1995-96	44.12	-
1996-97	57.06	-
1997-98	33.11	-
1998-99	10.61	-
1999-00	38.81	-
2000-01	79.42	-
2001-02	2360.82**	-
2002-03	4919.99**	105.16
2003-04	2165.77**	1983.89

* Minor figure adjustment towards operation expenditure in Vietnam operation.

** upto 2000-01 expenditure was mainly on exploration activities. From 2001-02, expenditure include cost of development and acquisition of projects including carry finance for Sakhalin-1 project.

B OVL'S SHARE IN WORLD RESERVES

6.4 Details of oil and gas reserves of various companies and OVL's share in those reserve are given below:-

Oil: Proved reserves			
	At end 2003		
	Thousand million tonnes	Share of World Total	OVL's Share at 31st March, 2004
USA	4.2	2.70%	0.0
Canada	2.3	1.50%	0.0
Mexico	2.2	1.40%	0.0
Total North America	8.8	5.50%	0.0
Venezuela	10.8	6.80%	0.0

Other S. & Cent. America	3.3	2.10%	0.0
Total S. & Cent. America	14.1	8.90%	0.0
Kazakhstan	1.2	0.80%	0.0
Norway	1.4	0.90%	0.0
Russian Federation	9.6	6.00%	0.0614
Other Europe & Eurasia	2.4	1.50%	0.0
Total Europe & Eurasia	14.6	9.20%	0.0614
Iran	18.1	11.40%	0.0
Iraq	15.9	10.00%	0.0
Kuwait	13.3	8.40%	0.0
Oman	0.8	0.50%	0.0
Qatar	2.1	1.30%	0.0
Saudi Arabia	36.3	22.90%	0.0
Syria	0.3	0.20%	0.0
United Arab Emirates	13.5	8.50%	0.0
Other Middle East	0.1	0.10%	0.0
Total Middle East	100.5	63.30%	0.0
Algeria	1.6	1.00%	0.0
Angola	1.2	0.80%	0.0
Libya	5.0	3.10%	0.0
Nigeria	4.7	3.00%	0.0
Sudan	0.1	0.10%	0.0204
Other Africa	1.5	0.90%	0.0
Total Africa	14.1	8.90%	0.0204
Australia	0.6	0.40%	0.0
China	3.3	2.10%	0.0
India	0.8	0.50%	0.0
Indonesia	0.6	0.40%	0.0
Malaysia	0.6	0.30%	0.0
Vietnam	0.3	0.20%	0.0007
Other Asia Pacific	0.4	0.30%	0.0
Total Asia Pacific	6.6	4.20%	0.0007
TOTAL WORLD	158.8	100.00%	0.0825

From the above it is noted that OVL's share in world's oil reserves was a minuscule o.0825% only.

6.5 Asked as to what efforts were being made by OVL to acquire more and more overseas equity. In reply, Chairman ONGC during his evidence before the Committee stated as under :-

> "we go abroad as ONGC Videsh partnership is something which is preferred. Today, we have invested about three billion dollars in oil and gas abroad. Our acquisition cost for the properties, that we have taken, is barely one dollar per barrel. Now, if you produce in India or in Sudan, the production cost is well below ten dollars per barrel. Freight from Sudan or Middle-East to India would be 2-4 dollar per barrel depending upon the freight market situation. Now the reason for taking equity overseas is that we can get oil and gas to India at a cost of about 15 dollars per barrel whereas the market price of the same oil today is around 50 dollars. Now, everyone knows that game. That is why when we go and negotiate, they want us to buy their reserves. There are models based on which the net present value is calculated. We can buy any amount of oil at market price. But, once we make a capital investment, we can get an arbitrage of 20-25 dollars for the life of the field. This is the real benefit. This is why, all over the world, the majors – mostly the American companies plus Shell and B.P. from Europe – have been operating in 80-100 countries. We are nowhere. This is the market today. If today anything is offered for sale, we can buy it. But, somebody has to first offer its reserves for sale. We cannot buy at our choice. ONGC is fighting out every opportunity. We win some; we lose some.
>
> At this point, I must acknowledge that our present Minister has taken some very serious initiatives to commercial and diplomatic efforts in overseas/ investments. Last week itself, he had a meeting with the Foreign Minister, and some of our former Ambassadors, who have worked in major capitals, and they have worked out a certain road-map. In my experience, it is for the first time that I have seen the Minister of External Affairs and the Minister for Petroleum Natural Gas sitting together to work out as to how to go about it. They considered a number of suggestions, including some of the suggestions that you have made, that there should a permanent placement of a foreign service officer, the Ambassadors should be regularly briefed and all that."

6.6 To a question by Committee on the procedure adopted by OVL in carrying out its overseas exploration/production activities, OVL stated:-

> A company operating alone in the international E&P business is unitarily exposed to risks, where as the risk in a consortium get proportionately reduced and mitigated in

cases where strong partners are the members. It is always beneficial to have multi-partner consortia both for the host country and for the investors in the opportunity.

Due to the complex nature of the overseas E&P operations, in the past the company has deliberately followed the policy of working in the multi partner consortium under the operator-ship of strong internationally reputed E&P companies. The company followed this model of operation for Vietnam, Sakhalin, Myanmar and other project. Now with the confidence built through encouraging participation in International Consortiums like in Vietnam, Sakhalin, USA, Myanmar, other countries with BP, Exxon, Daewoo etc, OVL intends to take more of independent operator-ship projects in the focus countries. The company has taken up the operator-ship in Iran for Farsi block in which OVL is the lead partner in the consortium of Indian PSUs (OIL & IOC). It also has 100% stake in Block 8 in Iraq with operatorship position. The company is also a joint operator in the Greater Nile Oil Project in Sudan, where approx 50 secondees on OVL are working.

C OVL's PRODUCTION

6.7 OVL's production of oil and gas from the overseas fields started from January, 2003.

Actual production vis-à-vis target fixed during 2002-03 and 2003-04 was as under :-

	2002-03		2003-04	
	Plan	**Actual**	**Plan**	**Actual**
OIL (MMT) (Including Condensate)	-	0.183	-	3.345
GAS (BCM)	0.23	0.07	0.60	0.523
TOTAL (O+OEG)	**0.23**	**0.253**	**0.60**	**3.868**

6.8 When asked to give reasons for shortfall in achieving the targets, OVL in their note stated that:-

The actual gas production from Block 06.1, Vietnam during 2002-03 was 0.07 BCM as compared to the plan target of 0.23 BCM. The actual production was lower as the commercial production of gas started from January, 2003 as against planned in November, 2002 as the buyer PetroVietnam was not ready with the downstream facilities. Moreover, the initial nomination of gas quantity by the buyer was less than planned quantity.

Further, the difference in production of gas during 2003-04 i.e. 0.523 BCM as against plan of 0.60 BCM is marginally lower due to lower nomination of gas quantity by the buyer.

6.9 Explaining in detail the performance of OVL so far, its future plans to acquire oil acreage and augment production, a representative of OVL during his evidence before the Committee stated as under :-

"Coming to performance, we have just got 600 staff in Delhi. Whenever we have a requirement, we take people from ONGC. We were earlier making losses and there was a case for us to be taken to the BIFR because of the losses. In 2004, we have emerged as the second largest oil producer in terms of oil and gas reserves. We are second only to ONGC and we expect to be amongst the 50 largest companies in terms of revenues and profits. As per the ET-500 list, although we are not a listed company, our position should be around 40th or 42nd at present in terms of gross revenues.

As I mentioned, we have just two producing fields in Vietnam and Sudan. The production in Vietnam has started in January 2003. We just had a limited production last year. This is a full year operation when we had oil production of 3.345 MT and 523 MMCM of gas. ONGC has the largest reserve, with a reserve of 699 million tonnes. OVL had 199 million tonnes of reserve as on March 31, 2004 and Oil India had 178 million tonnes. So, we have been able to emerge as the second largest, after our parent company ONGC, in terms of our distribution.

Our expenditure at present should continue on our exploration projects. It is less than one per cent. We think that we can increase the exploration commitment to a reasonably good level so that we are able to have a balanced portfolio in terms of our investment distribution and commitments in terms of gross revenue.

As I mentioned, we started producing only in January, 2003. We had very small revenues prior to that. It was Rs. 39 crore in 2001-02, Rs. 233 crore in 2003-04. The same is also reflected in terms of profits. We had started earning profits only in 1996-97. Last year, we had a profit of Rs. 59 crore but in 2003-04, as a result of acquisition of the Sudan oil block, we were able to increase our revenues and our profit up to Rs. 428 crore.

In terms of earning per share, our earning per share has again shown a significant jump. As far as debt equity ratio is concerned, we take our entire finance from ONGC which is our parent company in terms of the finances, technical and manpower support. Despite that we have been able to improve our profits and we have been able to reduce our debt equity ratio which went up to 14:1 last year to 10:1.

In terms of future, I as mentioned, if we are to maintain 30 per cent self-sufficiency and considering the projects for oil consumption by 2025, we will have to have 60 to 66 million tonnes by 2025. Currently, we just have four million tonnes and

approximately three million tonnes from Sudan oil project - one billion cubic metre which is equivalent to one million tonne of oil equivalent gas - from Vietnam four million tonnes and by the time Sakhalim project goes in full production from 2006 onwards, that should give us on peak production basis, entitlement for 2-1/2 million tonnes of oil which makes to 6 ½ million tonnes. So, we have a large gap to fill. That is why we are trying to get an exploration position as well as position in good assets in many other regions of the world.

Now, this is just in terms of the chart that we stand here and we have to reach here, maybe after Sakhalim we should be able to reach around 6-1/2 to 7 million tonnes, but the ultimate goal is here for which we are striving."

6.10 On being asked as to whether OVL had sufficient trained manpower and state-of-the art technology to take care of its exploration activities abroad, extent of inadequacy and the steps taken/proposed to be taken to overcome them, representatives of OVL stated as under:-

However, with the expansion of its activities, the Company needs to add to its manpower strength by inducting more experts from ONGC besides expanding its functional directors on Board. In order to cross fertilise the talent, Company also proposes to hire experts including expats on contractual terms.

D ASSESSMENT OF PERFORMANCE OF OVL

6.11 To a question put by the Committee as to whether any assessment with regard to the performance of OVL vis-à-vis other majors in other countries had been made. OVL in their note stated as under:-

In most of the projects OVL is working in the multi partner consortium with the operator-ship of strong internationally reputed E&P companies. The company followed this model of operation for Vietnam, Sakhalin, Myanmar, and other project. In Vietnam project OVL is partner with British Petroleum as the Operator and PetroVietnam, a Vietnamese Government-owned entity. In Sakhalin-1 project, OVL is partner with Exxon-NefteGas Ltd., a subsidiary of Exxon-Mobil as the operator, Sodeco, a consortium of Japanese companies and balance SMNG-S and RN Astra, two Russian Government controlled entities. In GNOP project, OVL is jointly operating with China National Petroleum Company, Petronas Carigali Overseas Sdn Berhad, a subsidiary of the Malaysian National Oil Company Petronas and Sudan National Oil Company (Sudapet). Similarly in Myanmar project OVL is partner with Daewoo International Corporation (DIC) as the Operator; KOGAS, Korea and GAIL (India) Ltd..

Though no comparative analysis of OVL performance with international majors has been done, the performance of the company has been quite good in the past few

years. OVL's equity share in oil and oil equivalent gas production from Vietnam and Sudan project increased from just 0.252 MMT in 2002-03 to 3.868 MMT during 2003-04. The balance proved reserves of the company stood at 199 MMT (O+OEG) as on 31st March, 2004. OVL earned a consolidated gross revenue of Rs. 3502 crores during 2003-04, up 1404% from Rs. 233 crores in 2002-03 and earned a consolidated net profit of Rs. 428 crores during 2003-04, up 626% from Rs. 59 crores in 2002-03.

6.12 When asked as to whether OVL was facing competition from international companies and if so, how it proposed to deal with them. OVL in their note stated that :-

"The international oil and gas assets acquisition environment is very competitive. Companies from oil and gas deficit nations such as China pose serious competition to OVL. Similarly companies from developed world such as USA, Canada & Europe also pose competiton to OVL.

OVL competes with these companies in the open offerings of oil and gas blocks, however it also partners some of the companies in the existing portfolio of assets. The competition and participation is on case to case basis. The strongest competition is being posed by the major oil companies and by Chinese and Malaysian companies."

6.13 Asked to indicate the details the deals lost by OVL in the recent past and reasons for losing the deal, OVL in their note stated:-

(i) In the recent past, OVL has lost and/or has been put at a disadvantageous position in respect of the following two good oil & gas acquisition opportunities:

Block 3&7: OVL had proposed to acquire 11% Participating Interest (P.I.) in Block 3&7, in Sudan. 6% interest from one party and 5% interest with another party in the project. OVL reached at an agreement with the seller of 5% PI. It was expected that the seller of 6% PI would also sell his share on same terms. As per the agreement, seller granted exclusivity to OVL, which was valid till 31st January 2004 before which OVL was to seek all necessary approvals and sign the agreement. The Empowered Committee of Secretaries (ECS) considered the proposal on 19th December, 2003 and recommended the same for approval of CCEA. The proposal for acquisition of 11% of Participating Interest (P.I.) in Project 3&7 was considered by the CCEA in its meeting held on 20th January 2004, however, CCEA desired some details.

As the decision of CCEA could not be obtained in time and exclusivity with seller expired on 31st January 2004, the opportunity slipped out of OVL's hands. In the meantime, the seller of 5% PI also informed OVL that the other 6% holder of PI has sold its share to a Chinese Company at a higher price than what was agreed with OVL and the deal was no more available at same terms.

(ii) **Block 18, Angola:** With the approval of CCEA, OVL entered into a Sale and Purchase Agreement (SPA) with Shell for acquisition of its 50% stake in

Block 18, Angola on 7th April, 2004. For closure of the transaction, waiver of pre-emption rights and consent of BP as the other partner and Sonangol that of as the National Oil Company of Angola and Govt. of Angola were required. It is understood that in view of its undisclosed commitment to Chinese, the Sonangol, the National Oil Company of Angola has pre-empted the deal.

6.14 Explaining in detail the reasons due to which OVL lost Angola deal. Chairman, ONGC during evidence stated as under:

> "Angola is a small country with huge reserves off-shore. In fact, western Africa is a major area. BP and Shell had fifty-fifty propriety but Shell wanted to sell it share.
>
> CNPC and ONGC were negotiating with Shell. On commercial negotiations, we beat CNPC and signed with Shell for the property of 5 million tonne of crude per year. This is a very, very attractive proposition. While we won commercially, India lost diplomatically. Allegedly, Chinese have offered them 2 billion dollar credit line over five years whereas the best we did 500 million and so on, so forth. Reasons can be anything but the bottom line is, these are the countries where the President has the last word and we are now going to have to cope up with them.
>
> This is one of the reasons why today effort is being made to combine diplomacy and the point which I had made in that meeting was that it is not only diplomacy, also our aid efforts, we must take a total view, we need to look at the balance of trade, prospectivity of oil and gas, that kind of aid we are giving to which country and then make a composite effort, which is what China is obviously doing. The point which was appreciated by both the Ministers and also senior diplomats who were present that we need to take these five things into one; oil and gas negotiations, aid that we give, diplomatic effort *per se* and the fourth thing is, in certain situations defence sales, which would be an important issue in many of these negotiations. Finally, there are situations where today the President of France personally travels to negotiate the deal from China. We need to take it at that level. In Angola itself on a commercial contract dispute, President personally intervened to get the issue resolved for the French company. At the end of the day, we need to put in the whole weight of the country to get some of these deals.
>
> We have one major bottleneck. Many of these deals in many countries involve pay off. As a Government company, there is no way we can do that. But that is the handicap which has to be resolved by other means. With the new initiative, I would hope for better."

6.15 Asked by the Committee as to whether any difficulties were being faced by OVL in carrying out exploration activities. In reply, OVL in their note stated that they were facing following constraints:

a) Enhancement of the Board of Directors; OVL currently has two full time Director, Managing Director and Director (Finance). Two additional posts of Directors have been requested, which needs expeditous creation. The DPE is currently examining the matter.

b) Enhancement of Empowerment of OVL; The matter was discussed in the COS, which recommends the enhancement of the empowerment to Rs 300 crore from Rs 200 crore. DPE has to present the note before the Cabinet on this matter.

c) Confidentiality of the acquisitions; The sharing of the information with various agencies in the approval process results in the spread of the information of the possible acquisition of OVL, which causes loss of faith in OVL in the seller and also leads to embarrassments to the OVL. In some cases the stocks of the seller get effected due the leakage of the information on the divestment. The existing process does not warrant confidentiality and excessive interests of agencies unconcerned in the decision making impacts international image of OVL.

d) Diplomatic support in overseas acquisitions; In view of the fierce competition from other multinational companies in acquisition of oil and gas fields abroad, the diplomatic support is very essential for successful acquisitions abroad.

e) Increase in Authorized and Paid-up Share Capital: the Board of Directors of OVL in their 277th Board Meeting held on 28th April, 2004 decided to take approval of the Government for increase in the authorized share capital of OVL from Rs. 500 crore to Rs. 5000 crore and paid-up share capital from Rs. 300 crore to Rs. 1000 crore. The matter is currently under consideration of administrative ministry.

6.16 The representatives of IOC during their discussion with the Committee drew the attention of the Committee towards the problems being faced by them in not being able to pursue E&P activities in India and abroad independently. Elaborating further IOC in its note submitted to the Committee stated as under :-

> Due to limited resources and expertise in E&P business, IOC opted the route of collaborative participation with experienced companies like ONGC/OVL, OIL, GAIL, GSPC, Premier Oil, etc and has been continuing this approach for domestic/overseas E&P opportunities for quite some time now. However, in view of other companies' own business interests and strategies, IOC's E&P aspirations are not being fully met.
>
> For the overseas E&P business activities, from the very beginning IOC has been working with OVL. However, the current participation is not commensurate with IOC's upstream business aspirations. OVL has been designated as the nodal agency by MOP&NG for overseas upstream opportunities. IOC has been pursuing its greater participation as an equity partner in all the overseas ventures of OVL with MOP&NG. Despite continued efforts in this direction, no significant progress has been made so far. Therefore, IOC should be allowed to pursue overseas E&P opportunities independently while avoiding any competition/conflict of interests with other PSUs. Such a freedom will ensure greater overseas participation by IOC, thereby contributing in nation's efforts for enhancing oil security.
>
> IOC possesses adequate financial and managerial capabilities for carrying out E&P business. As regards development of specific skill set, the corporation has embarked upon the strategy of inorganic growth through acquisition of a suitable overseas E&P company. The acquisition of an overseas E&P company, which will become the E&P arm of IOC, will not only deliver required skill set and expertise but

also generate international acceptance for IOC's role of operatorship. Such a move will provide IOC the platform for pursuing all E&P activities and expand its E&P business portfolio.

6.17 Pointing out that in case IOC pursues E&P activities independently a conflict may arise with OVL particularly if both were pursuing the same opportunity abroad, which will be detrimental to interest of both IOC & OVL. The Committee asked IOC to give their comment in reply, IOC in their note further stated as under :-

To avoid conflict/competition with OVL, the regions/countries where the two entities will pursue opportunities may be divided based on geographical boundaries. With such an approach OVL and IOC can focus on emerging opportunities in their respective regions. The regions where IOC is better placed and would derive greater values from the upstream ventures should be allocated to IOC. All other regions of the world may be demarcated as OVL's regions for pursuing upstream business. OVL already has established its presence in Russia, Vietnam and Sudan and has recently been pursuing an acquisition deal in Angola. Therefore, OVL can continue to explore further opportunities in these countries. The geographical regions suggested for OVL and IOC are summarized below:

IOC

South and South East countries including Australiasia (e.g Nepal, Bangladesh, Myanmar, Sri Lanka, Malaysia, Indonesia, Thailand, Philippines, Brunei, Papua New Guinea, Australia and New Zealand), Middle East and African regions.

OVL

Far East countries viz Japan, Korea, China and Vietnam; North America (USA, Canada, Mexico), Central & Latin America; Europe (including North Sea); Russia and CIS countries; and Sudan & Angola (Africa) etc.

E MERGER AND ACQUISITION

6.18 During their discussion with Committee the representatives of IOC submitted that their proposal for merger and acquisition deals pertaining to domestic as well as overseas upstream projects were required to be cleared at appropriate level in Government. Therefore, a fast track dispensation mechanism on the lines of ECS (Empowered

Committee of Secretaries) route, presently available to OVL, should also be made available to IOC. Giving justification, IOC in their note stated as under :-

> IOC has been granted Navratna status under which its Board can decide on establishment of financial joint ventures and wholly owned subsidiaries in India or abroad with equity investment limited to Rs. 200 crores or 5% of net worth in any one project and up to 15 percent of the net worth of the company in all joint ventures/subsidiaries put together. In regard to merger with and/or acquisition of any other business entities or major business activities, prior approval of the Govt. is required to be obtained. Further, prevailing DPE guidelines necessitate prior Govt. approval for executing any Merger and Acquisition (M&A) deal.
>
> It is noteworthy that overseas upstream opportunities require large capital investments (generally exceeding the limits of power of Navratna Board) and often involve acquisitions of assets of/interests in foreign entities in whole or in part. Hence, IOC's proposals for M&A investments pertaining to domestic as well as overseas upstream projects are required to be cleared at appropriate levels in Govt. The existing process sometimes leads to situations where some prospective opportunities may be lost on account of procedural limitations.
>
> In view of the fact that bidding and participation decisions with respect to upstream opportunities are required to be taken in a narrow time window and to circumvent the above procedural limitations, a provision has been made by the Govt. which provides a single window clearance to OVL through ECS for overseas upstream projects irrespective of investments involved.
>
> Therefore, it is imperative that a fast track dispensation mechanism similar to one presently available to OVL, should also be made available to IOC. Such a process would also avoid situations where some prospective opportunities may be lost on account of existing procedural limitations.
>
> Alternatively, IOC Board should be empowered to take decision in all matters of acquisition of overseas E&P assets as well as for establishment of joint ventures and wholly owned subsidiaries in India or abroad with no ceiling on individual projects. Also in the case of merger & acquisition (M&A), IOC Board should be given absolute power. Such decisions shall be taken considering various commercial parameters i.e. cost of acquisition per boe (barrel oil equivalent), rate of return etc. which can be suitably bench marked by IOC Board.

6.19 Pointing out towards present DPE guidelines which require prior Government approval for executing any merger and acquisition deals, Committee asked from the Ministry of Petroleum & Natural Gas as to whether Ministry proposed to modify these

guidelines to enable speedy decisions by the oil companies. In reply the Ministry of Petroleum & Natural Gas stated :-

> As per the DPE O.M No. 3 (2)2003-DPE (Fin.)/GL XVI dated 11-2-2003, the Central Government's public enterprises are required to take prior approval of the Government in regard to merger with and / or acquisition of any other business entities or major business activities. This is applicable to all the Central PSUs irrespective of their financial status or grant of Navratana/Mini-Ratna status etc.
>
> There is no proposal under consideration of this Ministry to suggest modification of these guidelines.

6.20 To a question as to whether Ministry proposed to make available to oil PSUs in India a fast track dispensation mechanism on the lines of Empowerment Committee of Secretaries (ESC) route presently available to OVL to enable them take decisions on merger and acquisition proposals and also on other exploration activities. The Ministry of Petroleum & Natural Gas in their note stated as under :-

> Major oil PSUs have been given Navratna status where by they enjoy delegation of powers including decision making powers for investment. Any constraint or decision requiring Government approval are processed by this Ministry expeditiously and efforts would be to streamline approval processes keeping in view the objective of domestic exploration and production and acquiring equity oil abroad.

F MERGER OF OIL COMPANIES

6.21 Committee asked from the representatives of Ministry of Petroleum and Natural Gas as to whether there was any proposal to merge all the national oil companies in order to have synergy amongst them and to enable them to compete effectively in international market. In reply, Ministry of Petroleum and Natural Gas in their note stated as under:-

> Public sector oil companies' strategies undergo constant changes with a view to improving their core competency and business prospects. The Oil companies analyse and evaluate various options, on a continuous basis, for developing an integrated approach to their growth and diversification. However, there is no specific proposal under consideration of the Government to merge all the national oil companies.

6.22 On the issue of merger of oil companies. ONGC and OIL submitted as under:

ONGC

With the launching of NELP-rounds the upstream sector of exploration and production of domestic basins have opened up and during the past three rounds ONGC has bagged approx. 60% of the basins for which exploration rights have been granted. As such it is competing effectively with the other private and MNCs for acquiring exploration rights which, given the geology of the basins have to be carried out on the strength of ONGC's balance sheet only.

In the downstream segment at present there are three major PSU players but with the dismantling of APM, this sector is also opening up and two major private companies have already entered the return marketing segment besides putting up their own refineries. Though with the acquisition of majority stake in MRPL, ONGC has achieved entry into downstream refining business, but the same remains inadequate commensurate to its own annual production.

Globally all major hydrocarbon companies (Exxon Mobil with approx. 10 times market cap of ONGC) are achieving synergistic integration through dynamic portfolio management and mergers. As such in the Indian context merger of oil companies, as being envisaged, will facilitate leveraging of competence in the entire hydrocarbon chain and will have following salient benefits :

- Integrated approach in meeting hydrocarbons security for the country.
- Strong balance sheet of merged companies will pose effective competition to existing global MNCs thereby facilitating chances of oil / gas property acquisition abroad.
- Communality of utilities and infrastructure facilities would ensure more cost effective operation, consumers being the ultimate beneficiaries.

OIL INDIA LIMITED

OIL's current activities (except for NELP blocks) are limited to onshore areas while major share of ONGCL's production comes from offshore fields. Larger investments required for offshore operations and the consequent higher returns provide an inherent advantage to ONGCL as far as size and magnitude of operations are concerned. However if a comparison is made considering only onshore operations the performance of the two companies compares well. In effect OIL's productivity in its areas of operations in the North East compared to ONGCL's in contiguous areas is provably higher.

Internationally E&P companies with OIL's size and resources – physical, financial and people, operate over large geographical spheres. OIL possesses inherent capabilities and strength to expand its business horizon under a level playing field both within the country and abroad.

Further major operations of OIL are confined to the geographically, geologically and politically difficult North East region and the Company is closely linked to the development of the area. People of the region closely identify themselves with OIL inspite of the fact that ONGCL operates nearby.

It is therefore necessary from both, the Company's as well as the region's points of views for OIL to maintain its separate identity.

E&P activities the world over are highly competitive and capital intensive by nature. Larger players because of their inherent size, financial powers and relationships have natural advantages to succeed in this business. In recent times, there have been initiatives by all petroleum PSUs to acquire overseas properties, either alone or in consortium. Strategic alliances between PSUs with different but complimentary strengths to take up such initiatives will provide the benefits of scale and size on one hand and help synergies to develop between different core competences of the alliance partners on the other. As against this, merger of two or more oil companies for taking up E&P activities abroad will lead to forcible clubbing of distinctly different work cultures of the individual companies. This is likely to generate cultural friction effecting productivity of the new entity. Further under the Indian scenario the general benefits expected out of mergers and acquisitions such as reduced manpower costs due to right sizing, lower overheads etc., can not be realized.

In view of all of above we feel that merger of oil companies for taking up E&P activities overseas may not be the optimal course of action. A better solution would be to encourage such companies with different but complimentary core competencies to form strategic alliances to take up such activities.

6.23 During evidence the Committee asked the representatives of OIL as to why OIL should not be merged with ONGC. In reply a representative of OIL stated as under:-

"In our assessment every company has its own specialised characteristics and its own culture. We have tremendous amount of respect for ONGC. At the same time, I would like to submit that we are also known as a different company with different working culture.

In case of Oil India, we beg to submit that since we have been working for about five decades in the North-Eastern parts of the country, our assessment, in general, is that the people from the North-Eastern region identify themselves with our Company very closely. What we feel is that if there is a straight- forward merger, it may not be received with willingness."

CHAPTER VII

A ALTERNATE SOURCES OF ENERGY

7.1 Besides intensifying exploration and production efforts in India and abroad, there is an imperative need to develop alternate sources of energy. So as to reduce India's dependence on imported crude oil and save precious foreign exchange out go. As per a note furnished to the Committee by the Ministry of Petroleum & Natural Gas several important steps have been taken by the Government to increase the pace of exploration and to enhance oil and gas produce which inter-alia include exploring alternate source of energy such as Coal Bed Methane (CBM) and Gas Hydrate.

7.2 DGH has also identified two unconventional sources of hydrocarbon energy for development

7.3 Emphasizing the need to develop alternate sources of energy if India had to achieve self sufficiency in energy the chairman ONGC during briefing to the committee stated :-

> "As far as self-reliance is concerned, India can become self-reliant in energy, but can never become self-reliant in oil and gas. It is because, from what we know, we have 0.4 per cent of oil and gas reserves, which is estimated at about 32 billion tonnes at present. We have 15 per cent of world's population and our average consumption of oil and gas today is about 180 kg. per year as against the world average of 550 kg. We are one-third of world average. The average consumption in U.S. is 900 plus. For India, every kg. increase per year means one billion kg. So, if you want to go from 200 kg to 600 kg., we need 400 billion kgs. of additional oil and gas. So, with 15 per cent of world's population and 0.4 per cent of reserves, we can never become self-reliant. We can, of course, step up our production. As I said, from the present domestic level of 50 million tonnes, we hope that we can have 65 million tonnes domestically, more from overseas plus discoveries – small, medium and large – we can bring them to life. But, given the fact that by 2025 A.D., our oil and gas demand is like to go to 350 million tonnes from the present level of 120 million tonnes, we can never become self-reliant. Even if our population remains at what it is at present, we do not have the reserves. So, we will always have to import. We do not have the advantage which the U.S. has. They have decided to save their own oil reserves and keep on buying from abroad. Otherwise energy-wise – from coal, hydel and nuclear – we can become self-reliant.

There are three new things on energy front. One is coal-bed methane. It is a significant input. We propose to start its commercial production by 2007. Second is gas hydrates. We have very huge reserves on both coasts. It will take probably 10-15 years to start its commercial production. In this regard, we are working with U.S., Canada, Japan. Some of the work is being done in our laboratories also. The major issue now launched is underground coal gasification. It is a very exciting concept. We have coal below up to 400-800 metres whereas actual mining is generally done up to hundred metres or so. Then, actually we take out only one-third while two-thirds remain there. In this respect, We are working in collaboration with a Russian institute. So, these are the technologies which we are now going to introduce."

RECOMMENDATIONS / OBSERVATIONS OF THE COMMITTEE

RECOMMENDATION NO. 1

FORMULATION / IMPLEMENTATION OF NATIONAL INTEGRATED ENERGY POLICY

The Committee note that current level of per capita consumption of primary energy in India being at 285 kg of oil equivalent is amongst the lowest in the world. However, the primary energy requirement of our country is increasing year after year. While in 1999 primary energy requirement was 304.0 million tonnes of equivalent (mtoe), in 2003 the requirement increased to 345.3 mtoe and the energy demand is projected to be 780 mtoe in 2020, which will make us along with China, US and Japan amongst the largest energy consumers globally.

At present, India's energy requirement is mainly met by fossil fuel i.e. oil, gas and coal. It is estimated that to meet its energy requirement by 2020, India will be required to get 730 mtoe from fossil fuels. Amongst the three fossil fuel, the demand for oil and gas would be more, as they are relatively cleaner fuels. 30% of current demand of oil in the country is being met through indigenous production and the rest i.e. 70% through imports.

As per India Hydrocarbon Vision 2025, 25% of total energy needs of the country would be met by oil sector by 2020. The Committee note that despite the fact that there has been a continuous surge in demand of crude oil, its production has remained almost static in the last five years, thereby further

widening the gap between demand and supply and making a big dent on country's scarce foreign exchange reserves. During 2003-04, the estimated amount spent on import of crude oil was 18268 US million dollar, which was more than double of the amount spent on import of crude oil in 1999-2000. Growing dependence on imported crude oil and soaring price of crude oil in international market which touched an all time high at 55 $ per barrel, will not only drain our resources but also further fritter away our scarce foreign exchange reserves. Needless to say that India's economy is most vulnerable to high oil prices and this vulnerability will increase as the economy grows in size and power. Besides the vulnerability of economy, huge dependence on imported crude oil may undermine national security in case of sudden disruption of supply through import which cannot be ignored on account of events and happenings in the regions from where crude supply is predominant. Viewed in this context, the energy security of the country is of paramount importance. The Committee, therefore, feel that a National Integrated Energy Policy for the country should have been formulated and implemented long back to stem the ongoing drift towards energy crisis.

Surprisingly the issue of National Integrated Energy Policy – an integrated approach is still at a nascent stage as only discussions, being coordinated by Planning Commission, are

being held. A standing committee of Group of Ministers under the Chairmanship of the Minister of Power has also been constituted to study and formulate an energy policy, which would include the implementation aspect also.

The Committee are, therefore, constrained to observe that since dependence, the Government had not addressed this issue of grave national importance having a bearing on economy and security of the country with the attention it deserved.

The Committee desire that expeditious steps should be taken to formulate and implement a dynamic National Integrated Energy Policy within a definite time-frame, so that the country moves away from excessive dependence on fossil-fuels based energy. The Committee feel that such a policy would ensure the security of our energy supplies and also would make it sure that our country does not become vulnerable to the vagaries of the global oil market.

RECOMMENDATION NO. 2

DIRECTORATE GENERAL OF HYDROCARBONS (DGH)

The Committee note that Government by a Resolution in 1993 established Directorate General of Hydrocarbons (DGH) under the administrative control of Ministry of Petroleum and Natural Gas with the following objectives:

1. To provide technical advice to Ministry of Petroleum and Natural Gas on exploration and exploitation of hydrocarbon in India and abroad;

2. To review the exploration programmes of companies engaged in E&P activities;

3. To reassess the hydrocarbon reserves discovered and estimated by the operating companies;

4. To advise the Government on the offering of acreage for exploration;

5. To review the development plans for commercial discoveries of hydrocarbon reserves and advise Government on the adequacy of such plan and on future exploitation strategies;

6. To review and audit the management of Petroleum reservoirs;

7. To maintain the E&P data base; and

8. To advise Government on the laying down of safety norms in oil field operations, prescribe pollution control measures and to assist in inspection and periodic safety audit.

The Committee have been informed by some of the PSUs who have recently ventured into E&P activities that non availability of data of adjoining blocks at the time of data viewing of a particular block on offer by Government and delay in availability of technical data of awarded blocks were some of the major constraints being experienced by them in undertaking Exploration and Production activities. There is no denying the fact that access to adequate data is necessary for making a proper assessment of the blocks offered.

Non availability of data at the disposal of oil exploration companies will dissuade them to undertake E&P activities in the Country. To obviate such a situation, the Committee recommend that DGH should possess data on all Indian basins by obtaining it from all the explorers. The Committee also feel that there is an imperative need for setting up of the National E&P data base. The Committee note that DGH has taken some measures in this regard by conducting a feasibility study . The Committee desire that based on the outcome of such a study, expeditious steps may be taken to set up the National data base and archives. It should be made mandatory for all companies to hand over a set of data collected by them to the archives, as this will help DGH and other companies to make a realistic assessment of the reserves of blocks offered to them.

Despite being entrusted with very important activities of monitoring and regulating India's Hydrocarbon reserves, Exploration and Production activities within the country and abroad, the Committee note that DGH does not have a cadre of its own and its manpower is drawn from various PSUs, mainly ONGC and OIL on deputation. ONGC and OIL are the two premier oil companies engaged in most of the Exploration and Production activities in the country and abroad. The Committee feel that the manpower drawn on deputation from the same Organisation, working of which DGH is mandated to review and monitor, can hardly provide any effectiveness to the functioning of DGH. Moreover, an Organisation, solely being manned by deputationists cannot provide continuity to its functioning. In view of the important role entrusted to DGH, the Committee recommend that DGH should have its own separate, independent cadre of staff and should be empowered to take all decisions on the functions assigned to it .

RECOMMENDATION NO. 3

NEW EXPLORATION LICENSING POLICY (NELP)

The Committee note that India today remains one of the least explored regions with well density per thousand sq. kms being among the lowest. To boost the level of exploration activity in the country so that new finds can be made and level of crude oil and gas produced may be increased, the New Exploration Licensing Policy (NELP) was formulated by the Government of India in 1997. NELP was operationalised in 1999. The Committee have been informed that NELP has considerably increased the exploration activities of Indian sedimentary basins. However, from the details of work programme and achievement of exploration blocks offered under NELP-I to IV, the Committee note that there was a huge shortfall in achievement of target pertaining to seismic survey and drilling of blocks awarded under NELP II, III and IV. As against the targets of conducting 10415, 16320 and 12655 sq.km of 3D seismic survey the actual achievements were 11752 and 8072 and NIL sq km respectively. Position with regard to drilling of wells is no better either. As against the targets of drilling of 52 and 57 wells under NELP II & III the actual number of exploratory wells drilled were 34 and 1 respectively. The Committee are unhappy over the slow pace of work being undertaken in seismic survey and drilling activities, and desire that DGH which is mandated to monitor and review the

exploration programme of Companies engaged in E&P activities, should closely monitor the progress of exploration of all the blocks offered under NELP-I to IV and suggest corrective measures so that targets laid are achieved.

On NELP, Public sector companies engaged in E&P activities have informed the Committee that they are experiencing certain difficulties due to its present provisions. They have suggested certain changes like providing of more incentives for frontier basins, more powers for approval to Management Committee related to phase extension assignments, special incentives for development of marginal fields, timely availability of data of blocks offered, according infrastructure industry status to E&P projects, granting of PEL in shortest possible time, environmental clearance, and awarding of blocks on the basis of minimum work programme carried out.

The Committee desire that Ministry of Petroleum and Natural Gas should review all the suggestions with an open mind and take appropriate steps to modify NELP so as to make it more attractive and conducive to the needs of the companies engaged in E&P activities. The Committee also desire that NELP should be reviewed and modified periodically to ensure that terms of Production Sharing Contract (PSC) are comparable to the best of terms of PSC offered by any country in the world- so that more

and more companies from India and abroad could be attracted to bid for exploration blocks offered under NELP.

NELP should be reviewed in such a way that all PSUs engaged in E&P activities should be given preference over other companies in the bidding taking into account their capabilities to undertake the venture. Thereafter preference may be accorded to domestic private sector E&P companies over foreign companies in the matter of awarding of blocks under NELP.

RECOMMENDATION NO. 4

SEDIMENTARY BASINS

The Committee note that India has an endowment of 26 sedimentary basins stretching over an area of 1.39 million sq. km. on land and 1.75 million sq. km. Offshore, including the vast stretch of sedimentary basin area measuring 1.35 million sq. km. in deep water areas. All these basins are prognosticated to hold about 28 billion tonnes of hydrocarbon resources. Out of a total of 26 sedimentary basins, so far seven basins are in commercial production stage. These basins categorized as category I basin covering 16% of total basinal area, hold about 66% of prognosticated resources of the country and account for almost entire hydrocarbon discovered so far. Besides category I basins, category II basins have also got hydrocarbon but are yet to be commercially exploited. The Committee desire that concerted efforts should be made by using state-of-the art technology to commercially exploit these basins as well. Basins under category III & IV which are total 17 in number are still under/unexplored basins. To assess and locate additional potential resources of these basins, the Committee note that DGH is carrying out a number of geo-scientific surveys, either alone or in collaboration with national /international companies. The Committee desire that the surveys should be completed expeditiously and efforts for exploration of these basins, be intensified so that their

hydrocarbon potential is fully tapped as early as possible. The Government should also award more and more blocks under NELP to various companies in the less explored areas and offer more incentives for the companies who undertake exploration in these blocks.

Due to increase in demand for oil and persistently mounting oil prices which have been inflating our oil imports bill year after year, it is imperative that efforts should be intensified to increase indigenous production and for this all sedimentary basins need to be fully explored. The Committee note that Hydrocarbon Vision 2025 envisages total appraisal of sedimentary basins of India by the year 2025 and in order to meet the objectives of the Hydrocarbon Vision 2025, action plans are stated to have been drawn up to achieve the following appraisal programme :-

- **25% by 2005**
- **50% by 2015**
- **100% by 2025**

The Committee desire that progress of action plan should be monitored strictly so that the targets laid down for appraisal of basins are adhered to.

RECOMMENDATION NO. 5

UNDER ACHIEVEMENT OF SEISMIC SURVEY AND DRILLING TARGETS

The Committee note that targets for seismic survey and drilling laid by ONGC during IX Plan could not be achieved and implemented in the States of Assam, Nagaland, Tripura and Himachal Pradesh due to one reason or the other. Shortfall in achievement of targets in Assam State has been attributed to laying of greater emphasis on covering the entire area with a blanket 3D seismic survey which resulted in compromising of 2D seismic survey planned targets. In Nagaland, envisaged programme could not be implemented due to non-availability of Production Exploration Licence (PEL). The planned contractual seismic survey could not be implemented in Tripura owing to non-finalisation of the contract. In Himachal Pradesh, besides delay of PEL grant in Ganga NELP block, slow performance of shot-hole drilling and foreigner's agitation have been cited as the reasons for non achievement of the targets. Shortfall in drilling targets in North Eastern States and Himachal Pradesh have also been attributed to the delays in the exploration plan implementation in environmentally sensitive and logistically difficult areas, drilling of increasingly deeper wells, less rig availability, down hole complication, etc.

To obviate the delay on account of non availability of PEL, the Committee recommend that the Union Government should

analyse this problem in detail so that State Governments are made aware that certain blocks are proposed to be awarded for exploration and a way should be found out by which State Governments readily facilitate the exploration immediately after the award of a block to an explorer by granting the necessary approvals for land acquisition, forest clearance etc. expeditiously. In grant of PEL for on land blocks, the effort of the Union Government should be focussed on prior clearance or consent from the State Governments concerned at the time of offer under NELP, so that PEL is granted in the shortest possible time.

Other causes for delay as enumerated above viz. non finalisation of contract, carrying out exploration in environmentally sensitive and logistically difficult areas, etc may be identified and corrective steps be taken to prevent occurrence of delays in achievement of targets on such accounts in future.

From the details regarding status of Hydrocarbon finds / leads made during IX Plan, the Committee note that in many of the fields in western offshore, 3D seismic API is still in progress. The Committee desire that the survey should be completed within a time-bound programme and further steps be taken for interpretation of data and production of blocks / fields with due promptitude. The Committee also desire that the fields in respect of which 3D surveys have been carried out, but which have been

not yet put on production, expeditious steps be taken for interpretation of the data and putting these field on production.

The Committee note that there was a shortfall in actual achievement vis-à-vis targets laid by OIL for seismic survey and drilling, during IX Plan. Various reasons which led to shortfall in achievement of targets stated are – deferring of survey for Brahmaputra River Bed due to inability to finalise contract, environmental problems, bandhs, blockades, land acquisition problems, poor state infrastructure, delay in acquisition of seismic data, problems pertaining to environmental clearance, land acquisition and contractors. The Committee feel that these bottlenecks should be anticipated and corrective measures be taken in advance so that delays on such accounts do not recur in future. The Government should ensure that the best of state-of-the art technology is made available to our oil E&P companies to enable them to achieve their targets.

RECOMMENDATION NO. 6

NEED FOR PERIODICAL REVIEW OF EXPLORATION PROGRAMME

The Committee note that to identify more hydrocarbon reserves and to augment production of crude oil, ONGC has formulated its exploration programme which is reportedly being pursued by it vigorously. The X Plan exploration programme of ONGC encompasses the carrying out of exploratory activities on a time bound manner both in pre NELP acreages and the exploration blocks acquired during the four rounds of the NELP. The Committee note that the exploration inputs put in place during the first two years of X Plan have resulted in 12 new hydro carbon finds which have opened up new sectors for further exploration and a potential for accretion of new hydrocarbon. The Committee desire that progress of the X Plan exploration programme should be reviewed periodically to ensure that there are no slippages of targets.

RECOMMENDATION NO. 7

NEED FOR EXPEDITIOUS IMPLEMENTATION OF THE STRATEGIES

The Committee note that ONGC has formulated short, medium and long term exploration and production strategies, for next 20 years, which envisage doubling of in-place volume of hydrocarbons from 6BT to 12BT, improving the recovery factor and augmentation of production. The Committee desire that ONGC should initiate steps with due promptitude to implement these strategies and monitor their progress periodically to ensure that achievements are in consonance with the strategies planned.

RECOMMENDATION NO. 8

NEED FOR IMPROVED OIL RECOVERY (IOR) / ENHANCED OIL RECOVERY(EOR) INITIATIVES

The Committee note that ONGC and OIL have taken up IOR/EOR initiatives for increasing Hydrocarbons reserves. As far as ONGC is concerned, the Committee note that in April 2002, ONGC screened 41 fields for implementation of IOR/EOR schemes. Though these fields were studied during last two years, the Committee note that the major inputs for these fields are yet to be firmed up. It is also noted that studies in respect of many fields are either in progress or yet to be planned. It is needless to mention that without completion / initiation of IOR/EOR studies, it would not be possible to implement IOR/EOR programme and develop the fields as per time bound action plan. The Committee, therefore, desire that the studies which are incomplete, and are yet to be carried out, should be initiated and steps be taken for further exploration and development of these fields so as to achieve the objectives laid down during X Five Year Plan.

RECOMMENDATION NO. 9

SCHEMES FOR REDEVELOPMENT OF MUMBAI HIGH FIELD

ONGC has also drawn up plans for redevelopment of Mumbai High Field and implementation of Improved Oil Recovery (IOR) in 14 other major fields through 19 schemes, out of which 16 schemes are under various stages of implementation. The Committee desire that other 3 schemes should also be formulated and implemented expeditiously. Above all, the Committee note that ONGC has planned specific measures for maintaining / enhancing oil and gas production in the fields being operated by it. The Committee desire that these measures should be finalised and implemented with due promptitude. The Committee would also like to be apprised of the impact of these measures in enhancing oil production.

RECOMMENDATION NO. 10

NEED TO ENHANCE THE RECOVERY FACTOR BY ONGC

The Committee note that current average recovery factor from the producing fields of ONGC is 28%. Though the recovery factor of ONGC is comparable to the recovery factor being achieved by oil companies in USSR and China, it is well below the recovery factor of US which is of the order of 32% to 33 % and Norwegian Companies which have the recovery factor of the order of 45 to 55%. The Committee note that ONGC has set a goal to increase average recovery factor from 28% to 40% by 2020. The increase in the average recovery factor from the current 28% to 40% will appreciably augment India's hydrocarbon reserves and will help in reducing the widening gap between oil supply and demand. The Committee desire that ONGC should not only strive to achieve the laid down objective of achieving recovery factor of 40% by 2020 but also analyse the field cycle concept which have helped Norwegian Companies to achieve a recovery factor of the order of 45% to 50% and follow a suitable concept to achieve the recovery factor of the order of 45% to 50%.

RECOMMENDATION NO. 11

DEEP WATER EXPLORATION

The Committee note that the deep water basinal area constituting about 43% of the sedimentary area of the Country is estimated to contain about seven billion tonnes of hydrocarbon resource. So far India's exploration and production activities were concentrated mainly on category I basins which have almost fully been exploited by now. Obviously, there is no choice but to change the present exploration strategies and concentrate on deep waters which hold a large potential of hydrocarbons. The Committee note that though ONGC started its deep water exploration programme during seventies but success has been eluding it so far. To give an impetus to its deep water exploration, ONGC launched `Sagar Sammridhi' project in August, 2003. The Committee find that after the launch of this project, ONGC has achieved success by finding hydrocarbons from one of the two wells, discovered so far. ONGC has set a target of achieving another 6 billion tonnes of hydro carbons by 2020, and 2/3 of the reserves are expected to be discovered from deep waters. As exploration in deep water basins involve huge expenditure, it should be ensured that exploration activities in deep waters do not slow down for want of funds.

RECOMMENDATION NO. 12

COST OF PRODUCTION

The Committee note that ONGC compared the cost of different Oil Majors, as reported by Deustche Bank in their report 'Major oils 2003' with its own cost for a five year period and found that the cost of ONGC was quite comparable to international standards. The Committee are of the view that there should be no room for complacency in making efforts to further reduce the cost of production. The Committee note that ONGC & OIL are taking certain steps to reduce the cost of production. The Committee desire that these steps should be implemented expeditiously and monitored periodically to attain the desired results.

RECOMMENDATION NO. 13

SHORTAGE OF FUNDS

The Committee have been informed that ONGC proposes to raise the 10th plan outlay as the funds initially provided are likely to fall short for the more intensified plan activities likely to be undertaken by it. The Committee, however, note that the extent of shortage of funds is yet to be firmed up. The Committee desire that ONGC should make an assessment of its additional requirement of funds during 10th plan and find ways and means to meet the requirement of funds. The Committee recommend that the Government and the Planning Commission should allocate fully the additional funds required by ONGC during the Mid-Term Review of the Plan without making any cuts in the proposals of ONGC.

RECOMMENDATION No. 14

LIMITED HORIZON OF OIL

Oil India Limited was incorporated as a joint venture company between the Government of India and Burmah Oil Company (BOC) with equal share holding in the year 1959. The Company was nationalised in 1981. The Committee note that despite being one of the two premier national oil companies engaged in the work of exploration and production, OIL does not have a presence at all India level which a national company is expected to have, and its most of the exploration and production operations are mainly confined to North-East part of the country.

One of the main reasons for OIL's limited operations was on account of awarding of most of the blocks to OIL in North-East region before nationalisation on the ground that BOC, who was 50% owner of OIL, was already operating in North-East, therefore, new exploration acreages contiguous to BOC's area of operations in the region were awarded to OIL.

The Committee, however, note that even after nationalisation of OIL in 1981, a step-motherly treatment was meted out to OIL, and they were awarded blocks in North-East coast and in Mahanadi offshore basins, Ganga Valley basin, Andaman offshore and Saurashtra basin which were relinquished by ONGC for lack of commercial prospectivity. Thus, it is noted that OIL did not get blocks of their choice even after

nationalisation. The Committee feel that in the era of global competition, stifling the operations of a company by thrusting upon it blocks which had earlier been relinquished by another company for lack of prospectivity is least desirable. Before awarding a block, the Government should also take into consideration the choice of companies and their capability to undertake exploration and production activities in such blocks so as to enable them perform optimally. After advent of NELP, the Committee hope that all the companies will be treated on equal footing and OIL would be able to enlarge its operations uniformally all over the country which will make it a national oil company in true sense.

RECOMMENDATION NO. 15

CORPORATE PLAN OF OIL

The Committee note that OIL has formulated strategic and corporate plan with the goal of more than doubling the production level within ten year. The Committee desire that adequate steps should be taken to implement these plans so as to achieve the targets fixed. The progress of the two plans should be monitored periodically to ensure their full implementation. Besides formulating strategic and corporate plan, OIL has also taken initiatives which focus on intensification of exploration and development activities in its areas of operation through additional 2D and 3D Surveys and drilling; undertaking exploration activities in far-flung logistically difficult and geologically complex areas, acquisition of NELP Blocks on offer, intensification of drilling activities, reasoning of prospects, reserves assessment; optimistic field development; revitalization of old and depleted fields, and development of marginal fields. The Committee desire that all these initiatives which are, in hand, be undertaken within a time bound programme.

The Committee would also like to be apprised of the impact of such measures in additional reserve accretions and augmentation of production.

RECOMMENDATION NO. 16

REVIEW / REASSESSMENT OF IN-PLACE RESERVE

The Committee note that both ONGC and OIL have contractual system to review/reassess the in-place hydrocarbon reserves every year. Besides internal review, ONGC has also taken a decision to have its reserve base audited by an internationally reputed independent external agency once in every five years. However, OIL has not so far adopted the system of regular audit of its reserves from independent agencies, though they intermittently undertake such audit by commissioning the service of internationally reputed consulting firms. The Committee note that while no significant variations have been found in the reserve base of ONGC by external auditor, in case of OIL there has been a variation to the extent of 10-15% which is quite significant. The Committee feel that to have a realistic assessment of its reserve, it is imperative that besides internal audit, audit by independent agencies should be made a regular feature. The Committee, therefore, desire that OIL on the lines of ONGC also should evolve a system to have a regular external audit of its reserve base.

RECOMMENDATION NO. 17

OIL EXPLORATION BY ALL PSUS

The Committee note that besides ONGC and OIL which have been undertaking exploration and production activities for more than half a century, the following PSUs which were hitherto performing activities pertaining to marketing of crude oil and supply of gas, have also made forays into the Exploration and Production activities:

1. **GAIL (India) Limited (GAIL) ;**
2. **Indian Oil Corporation Limited (IOC) ;**
3. **Bharat Petroleum Corporation Limited(BPCL); and**
4. **Hindustan Petroleum Corporation Limited (HPCL)**

The Committee note that these companies have entered into upstream activities to have their own equity oil so as to safeguard their business interests against the highly volatile oil market, to have reasonable supply security and to achieve greater stability of revenues/profits. The Committee note that due to lack of experience in undertaking E&P activities, most of these companies have collaborated with experienced companies like ONGC, OVL and OIL.

The Committee have been informed by one of the down-stream company i.e. IOC that from the very beginning, it was working with OVL for the overseas E&P business activities.

However, the current participation is not commensurate with IOC's upstream business aspirations. OVL has been designated as nodal agency by Ministry of Petroleum and Natural Gas for overseas upstream opportunities and IOC participation is limited to equity only. IOC has desired that it should be allowed to pursue E&P opportunities independently, while avoiding any competition / conflict of interests with other PSUs. It has further suggested that to avoid conflict / competition with OVL, the regions/countries where the two entities will pursue opportunities, may be divided, based on geographical boundaries. The Committee desire that the suggestions of IOC should be examined by Ministry of Petroleum and Natural Gas, and appropriate steps be taken to provide some form of independence to other companies in undertaking their overseas E&P activities.

The Committee are of the view that to meet the aspirations and interests of other companies, feasibility of forming a new joint venture in which equity may be held by all the PSUs, may be explored. It should also be examined as to whether the consortium approach, where all the players in oil market would have stakes, could provide better results in pursuing overseas E&P activities.

RECOMMENDATION NO. 18

GRANT OF INFRASTRUCTURE STATUS TO E&P PROJECTS / ACTIVITIES

The Committee note that, as of now, E&P Activities qualify only for a 7 year tax holiday from the date of commercial production. But these activities do not qualify for infrastructure / industry status to avail of tax holiday under Section 80 IA and also do not have the option to choose the block of 10 year tax holiday out of 15 years, which is not necessarily linked to commencement of commercial production. The Committee feel that if the 7 year tax holiday necessarily starts from the commencement of commercial production, the advantage of tax holiday is lost because of carried forward losses of the previous years on account of large investment. Therefore, the Committee recommend that the Government should grant infrastructure industry status to E&P projects / activities because of the significance of oil discovery for the national economy.

RECOMMENDATION NO. 19

SPECIAL TRANSPARENT PROCUREMENT PROCEDURES FOR OIL EXPLORING COMPANIES

The Committee note that exploration activities require cutting edge technology for certain goods and services and hardware / software. It has been brought to the notice of the Committee that by following the normal procurement procedures it has not been feasible for the oil companies to source the best technology because of the implicit incremental costs. The Committee feel that if normal procurement procedure is disadvantageous to be followed, then the oil exploring PSUs should be allowed to evolve a special mechanism for procurement of cutting edge technology, as long as the new procedure sought to be followed is characterized by transparency, equity and fairness which are the underlying principles of the usual procedure.

RECOMMENDATION NO. 20

ONGC VIDESH LIMITED

ONGC Videsh Limited, a wholly owned subsidiary of ONGC is engaged in overseas exploration and production of oil and gas to supplement the reserves of the parent Company i.e. ONGC and to augment the national energy security. The company was incorporated on 5th March, 1965 as Hydrocarbon India Private Limited and renamed as "ONGC Videsh Limited"(OVL) in 1989. The Committee are, however, constrained to note that despite being in operation for almost three decade, now OVL's share in World's oil and gas reserves is minuscule being 0.0825 percent only. The Committee are constrained to note that OVL's share in oil rich Middle East region which have reserves to the tune of 63%, is zero. The position is equally bad as regard to the share in North, South and Central American regions, which have a total of 14.40% of the world reserves. Needless to mention that OVL's efforts in supplementing countries oil reserves have been highly pathetic.

While the world's major oil companies like Shell and B.P. have been operating in 80-100 countries, OVL's E&P activities are confined to only 10 countries. The Committee are constrained to note that despite being in overseas E&P activities for the last

three decades, OVL has not done much to acquire oil fields overseas.

RECOMMENDATION NO. 21

ASSOCIATION OF MINISTRY OF EXTERNAL AFFAIRS FOR OIL RELATED ECONOMIC DIPLOMACY

As our domestic reserves are limited and present proven fields have been developed to optimal levels, there is no alternative but to be in the forefront in the race for acquiring equity oil from abroad.

The Committee note that OVL is facing stiff competition from oil companies of Malaysia and China in its bid to acquire overseas oil equity. The Companies from developed world such as USA, Canada & Europe are also posing competition to OVL. OVL recently lost two good oil and gas acquisition opportunities in Sudan and Angola. While Sudan block was lost on account of delay in obtaining decision of CCEA, Angola deal could not be acquired, as the deal was pre-empted and given to China.

The Committee recommend that the system of single window clearance through ECS should be reoriented in a manner that would ensure that no delay is caused in securing the oil deals.

To obviate loss of deals on such accounts, the Committee recommend that OVL's efforts should be supplemented by Ministry of Petroleum and Natural Gas and by Ministry of External Affairs.

To clinch big deals in its quest for global energy, Ministry of Petroleum and Natural Gas should work in close tandem with the Ministry of External Affairs.

The Committee understand that for extending guidance and advice to Indian oil companies in their efforts to acquire equity oil abroad, the Government have constituted an advisory Committee on Oil Diplomacy for Energy Security comprising experts with specialized knowledge of the countries and regions with whom the oil companies are expected to interact. The Committee desire that the Ministry of Petroleum and Natural Gas and other PSUs involved in E&P activities abroad should maintain a regular liaison with this Committee, apprise them about their future plans / proposals for acquiring oil equity abroad and seek their help to clinch the deals

RECOMMENDATION NO. 22

NEED TO STRENGTHEN THE POWERS OF OVL

Besides lack of diplomatic support, the Committee have been informed that OVL is facing constraints in undertaking activities due to less number of Directors in its Board, less financial powers, and non confidentiality of the acquisition.

To enable OVL to establish its significant presence in upstream activities abroad, it is imperative that OVL be strengthened both in administrative and financial terms. The Committee, therefore, desire that Ministry of Petroleum and Natural Gas should analyse the problems of OVL and take remedial steps to remove them.

RECOMMENDATION NO. 23

ECS MECHANISM FOR CLEARANCE TO ALL OVERSEAS E&P PROJECTS

The Committee are of view that ECS (Empowered Committee on Secretaries) mechanism which is a single window clearance for OVL for overseas projects should also cover all other PSUs as well immediately, so that any overseas E&P projects by any PSU is routed through ECS for faster decision making in order to avoid losses due to procedural limitations / delays. They desire that the system of single window clearance through the empowered Committee of Secretaries should be reoriented in such a manner so that no delay is caused in securing the oil deals.

RECOMMENDATION NO. 24

AUTONOMY FOR OIL EXPLORING PSUs

The Committee note that the oil sector PSUs have been performing commendably. All the oil PSUs except OIL enjoy Navratna status. The navratna status allows the delegation of enhanced powers subject to certain conditions and guidelines. In an era of competition due to liberalisation policies, the oil PSUs have to compete with multinationals and private Indian companies. As the PSUs operating in the oil sector have to scout globally for technology, for procurement and to offer global tender for their works etc., these matters need decisions to be taken on commercial and technical aspects quickly.

Though the navratna status confers certain powers on them, the Committee note that in actual practice, the PSUs lack autonomy to decide on matters affecting their performance. In an era where most of the oil PSUs equity has been divested and there are various stakeholders, the PSUs are answerable to them as well. The Committee regret to note that the autonomy already available is inadequate.

The Committee feel that the Government should consider granting autonomy to the Board of Directors even to the extent of deciding a particular kind of business that they deem fit to undertake.

RECOMMENDATION NO. 25

COLLECTIVE BARGAINING MECHANISM FOR OIL IMPORTING COUNTRIES

Currently oil markets are supply-led market and prices are determined by market forces. The oil producing countries have formed an ORGANISATION OF PETROLEUM EXPORTING COUNTRIES (OPEC) which cater to the interests of the oil producers. It is seen that no formal mechanism for collective bargaining exists among the oil importing countries. The Committee desire that Government may initiate steps to form an understanding with major oil importing countries to create a forum to get reasonable prices for oil imports from OPEC and to protect the oil importing countries from being hit by high oil prices.

RECOMMENDATION NO. 26

ALTERNATE SOURCES OF ENERGY

Primary energy requirement of our country is growing continuously. As noted earlier, energy requirement which was 304.0 mtoe in 1999 rose to 345.3 mtoe in 2003. The energy demand is expected to grow at the rate of 4.1% over the next two decades. At present, India's main source of energy are fossil fuels i.e. oil, gas and coal. India has only 0.4% of oil and gas reserves of world. In view of increasing demand for oil and gas which is projected to go to 350 MT by 2025 from the present level of 120 MT, it seems that it may not be possible for India to become self reliant in oil and gas. To meet the country's growing need for energy, the only alternative is to develop energy from other sources like coal, hydel, nuclear, solar and other non-conventional sources of energy. The Committee note that two unconventional sources of hydrocarbons viz. Coal Bed Methane and Gas Hydrate have been identified by DGH for development. The Committee hope that these sources would improve our energy requirement considerably.

Besides development of alternate sources, measures pertaining to energy conservation are equally important. The Committee, therefore, desire that the policy for energy conservation and their efficient use, should be brought out within

a definite time frame so as to reduce the country's dependence on Hydrocarbons to the barest minimum.`

New Delhi
20 December, 2004
29 Agrahayana, 1926(S)

RUPCHAND PAL
CHAIRMAN
COMMITTEE ON PUBLIC UNDERTAKINGS

ANNEXURES

MINUTES OF THE 2nd SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS HELD ON 30 SEPTEMBER, 2004

The Committee sat from 1500 hrs to 1830 hrs.

CHAIRMAN

Shri Rupchand Pal

MEMBERS, LOK SABHA

2. Shri Gurudas Dasgupta
3. Shri P. S. Gadhavi
4 Shri Suresh Kalmadi
5. Dr. Vallabhabhai Kathiria
6. Shri Sushil Kumar Modi
7. Shri Kashiram Rana
8 Shri Mohan Rawale
9. Shri Bagun Sumbrui
10. Shri Rajesh Verma
11. Shri Ram Kripal Yadav

MEMBERS, RAJYA SABHA

12. Shri Ajay Maroo
13. Shri Pyarimohan Mohapatra
14. Shri Jibon Roy
15. Shri Shahid Siddiqui
16. Shri Dinesh Trivedi

SECRETARIAT

1.	Shri S. Bal Shekar,	Director
2.	Shri Raj Kumar,	Under Secretary
3.	Shri N. C. Gupta,	Under Secretary
4.	Shri Ajay Kumar,	Assistant Director

REPRESENTATIVES OF OIL INDIA LTD.

1.	Shri R. K. Dutta,	Chairman & Managing Director
2.	Shri S. K. Pattra,	Director (Exploration & Devp)
3.	Shri M. R. Pasrija,	Director (Finance)
4.	Shri N. M.Borah	Director (Operations)
5.	Shri S. K. Srivastava	Sr Geo Technical Advisor

REPRESENTATIVES OF OIL & NATURAL GAS CORP LTD.

1.	Shri Subir Raha,	Chairman & Managing Director
2.	Shri Y. B. Sinha,	Director (Exploration)
3.	Shri N.Lal,	Director (T&FS)
4.	Dr. A. K. Balyan	Director (HRD)
5.	Shri N. K. Mitra	Director (Off-shore)

LIST OF REPRESENTATIVES OF ONGC VIDESH LTD.

1.	Shri R. S. Batola,	Managing Director
2.	Shri V. Ravindra Nath,	Executive Director
3.	Shri J. Thomas,	GGM
4.	Shri D. K. Sarraf	GM(Finance)
5.	Shri Ashok Varma,	GM(P)

2. At the outset, the Chairman, COPU asked the officials of Oil India Limited to give a briefing on the subject of Oil Exploration – Domestic and Overseas Projects individually.

3. Representatives of Oil India Limited gave audio-visual presentation of the exploration efforts being made by the Company. After audio-visual presentation, Members raised queries on various aspects pertaining to the subject. The Chairman, COPU asked the representatives of Oil India Limited to furnish replies to the all the queries in writing. The representatives of Oil India Ltd. then, withdrew.

4. Thereafter, the representatives of ONGC Ltd. and ONGC Videsh Limited briefed the Committee alongwith audio-visual presentation of their exploration activities.

5. Some of the queries raised by the Members were replied by the officials of ONGC Ltd. & ONGC Videsh Ltd. The Chairman, COPU asked the officials to send in writing the replies to the remaining queries.

6. XXXXX XXXXX XXXXX

7. A copy of the verbatim proceedings has been kept on record separately.

The Committee then adjourned.

MINUTES OF THE 5th SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS HELD ON 22 NOVEMBER, 2004

The Committee sat from 1500 hrs to 1845 hrs.

CHAIRMAN

Shri Rupchand Pal

MEMBERS
LOK SABHA

2. Shri Suresh Kalmadi
3. Smt. Preneet Kaur
4 Shri Kashiram Rana
5. Shri Rajiv Ranjan Singh
6. Shri Ram Kripal Yadav

MEMBERS
RAJYA SABHA

7. Prof. Ram Deo Bhandary
8 Shri Ajay Maroo
9. Shri Pyarimohan Mohapatra
10. Shri Jibon Roy
11. Smt. Ambika Soni
12. Shri Dinesh Trivedi

SECRETARIAT

1.	Shri S. Bal Shekar,	Director
2.	Shri Raj Kumar,	Under Secretary
3.	Shri N. C. Gupta,	Under Secretary
4.	Shri Ajay Kumar,	Assistant Director

REPRESENTATIVES OF OIL & NATURAL GAS CORPORATION LTD.

1.	Shri Subir Raha,	Chairman & Managing Director
2.	Shri R. S.Sharma,	Director Finance
3.	Shri D. K.Pandey,	Executive Dir.
4.	Shri Gautam Sen	Executive Dir. (Western Onshore)
5.	Shri S. K. Majumdar,	Executive Dir.(A.A. Basin)

REPRESENTATIVES OF ONGC VIDESH LTD.

1.	Shri Ravindra Nath,	Gr. General Manager
2.	Shri D. S.Porwal,	General Manager
3.	Smt. H.K.Joshi,	Chief Manager (F&A)

REPRESENTATIVES OF OIL INDIA LTD.

1.	Shri S. K.Patra,	Director (E & D)
2.	Shri N. M. Bora,	Director (Operations)
3.	Shri P. S. Gopal,	Chief Manager (F&A)
4.	Shri S. K. Srivastava,	Sr. Geo-technical Advisor

REPRESENTATIVES OF THE MINISTRY OF PETROLEUM & NATURAL GAS

1.	Shri M. S.Srinivasan,	Additional Secretary
2.	Shri Prabh Das,	Joint Secretary
3.	Shri Sunjoy Joshi,	Joint Secretary
4.	Shri V. K. Sibal	DGH

2. XXXX XXXX XXXX

3. XXXX XXXX XXXX

4. The Committee, thereafter, took oral evidence of the representatives of Oil & Natural Gas Corporation Ltd. and ONGC Videsh Ltd. in connection with the examination of Oil Exploration – Domestic and Overseas Projects.

(REPRESENTATIVES OF ONGC LTD & ONGC VIDESH LTD THEN WITHDREW)

5. The Committee then took the evidence of the representatives of Oil India Ltd. in connection with the examination of Oil Exploration – Domestic and Overseas Projects.

(REPRESENTATIVES OF OIL INDIA LTD THEN WITHDREW)

6. Finally, the Committee took the evidence of the representatives of the Ministry of Petroleum & Natural Gas in connection with the examination of Oil Exploration – Domestic and Overseas Projects.

7. A copy of the verbatim proceedings has been kept on record separately.

The Committee then adjourned.

MINUTES OF THE 7th SITTING OF THE COMMITTEE ON PUBLIC UNDERTAKINGS HELD ON 20 DECEMBER, 2004

The Committee sat from 1500 hrs to 1630 hrs.

CHAIRMAN
Shri Rupchand Pal

MEMBERS, LOK SABHA

2. Shri Manoranjan Bhakta
3. Shri Gurudas Dasgupta
4 Shri P. S. Gadhavi
5. Dr. Vallabhabhai Kathiria
6. Smt. Preneet Kaur
7. Shri Parasnath Yadav

MEMBERS, RAJYA SABHA

8. Shri Ajay Maroo
9. Shri Pyarimohan Mohapatra

SECRETARIAT

1.	Shri S. Bal Shekar,	Director
2.	Shri Raj Kumar,	Under Secretary
3.	Shri N. C. Gupta,	Under Secretary
4.	Shri Ajay Kumar,	Assistant Director

2. XXXX XXXX XXXXX

3. The Committee then took up for consideration the draft report on "Oil Exploration – Domestic and Overseas Projects" and adopted the same with some modifications.

4. The Committee authorised the Chairman of the Committee to finalise the aforesaid Reports and to present / lay the same to the Parliament.

5. XXXX XXXX XXXXX

The Committee then adjourned.