SEVENTH REPORT

STANDING COMMITTEE ON PETROLEUM & NATURAL GAS (2004-05)

(FOURTEENTH LOK SABHA)

MINISTRY OF PETROLEUM & NATURAL GAS

EXPLORATION OF OIL AND NATURAL GAS INCLUDING COAL BED METHANE

Presented to Lok Sabha on 04.08.2005

Laid in Rajya Sabha on 04.08.2005

LOK SABHA SECRETARIAT
NEW DELHI

August, 2005/Sravana, 1927 (Saka)

CONTENTS

APPENDICES

COMPOSITION OF THE STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2004-05)

Shri N. Janardhana Reddy - Chairman

Members

Lok Sabha

2. Shri Anandarao Vithoba Adsul
3. Dr. Rattan Singh Ajnala
4. Shri Ramesh Bais
5. Shri Kirip Chaliha
6. Shri Lal Muni Choubey
7. Shri Tushar A. Choudhary
8. Shri R. Dhanuskodi Athithan
9. Shri Santosh Kumar Gangwar
10. Shri Jai Prakash
11. Shri Ch. V.H. Rama Jogaiah
12. Shri Suresh Kurup
13. Shri Sukhdeo Paswan
14. Dr. Prasanna Kumar Patasani
15. Shri Laxman Singh
16. Shri Rajiv Ranjan Singh
17. Shri Ramji Lal Suman
18. Shri Vanlalzawma
19. Shri Ratilal Kalidas Varma
20. Shri Rajesh Verma
21. Shri A.K.S. Vijayan

Rajya Sabha

22. Shri Ahmed Patel
23. Shri Moolchand Meena
24. Shri Rajeev Shukla
25. Shri Kripal Parmar
26. Shri M. Rajasekara Murthy
27. Shri Dipankar Mukherjee
28. Shri C. Perumal
29. Dr. Alladi P. Rajkumar
30. Shri Subash Prasad Yadav
31. Shri Satish Chandra Misra

Secretariat

1. Shri John Joseph - *Secretary*
2. Shri S.K. Sharma - *Additional Secretary*
3. Shri P.K. Grover - *Director*
4. Shri P.C. Tripathy - *Under Secretary*

INTRODUCTION

I, the Chairman, Standing Committee on Petroleum & Natural Gas (2004-05) having been authorised by the Committee to submit the Report on their behalf present this Seventh Report on 'Exploration of Oil and Natural Gas including Coal Bed Methane'.

2. The Committee took evidence of the representatives of the Ministry of Petroleum & Natural Gas and the concerned Public Sector Undertakings at their sittings held on 8th & 23rd November, 2004 and 16th February, 2005.

3. The Committee considered and adopted this Report at their sitting held on 1st August, 2005.

4. The Committee wish to express their thanks to the representatives of the Ministry of Petroleum & Natural Gas and Public Sector Undertakings for placing their views before them and furnishing the information desired in connection with the examination of the subject.

5. The Committee place on record their appreciation for the invaluable assistance rendered to them by the Officials of the Lok Sabha Secretariat attached to the Committee.

New Delhi;
August 01, 2005
Sravana 10, 1927 (Saka)

N. JANARDHANA REDDY,
Chairman,
Standing Committee on
Petroleum & Natural Gas.

REPORT

PART - I

CHAPTER – I

HYDROCARBON RESERVES

(A) Role of Ministry, PSUs and other Organisations

1.1 The Ministry of Petroleum and Natural Gas (MOP & NG) is entrusted with the responsibility of exploration and production of oil and natural gas (including import of Liquefied Natural Gas), their refining, distribution and marketing.

1.2 The Indian Oil Sector can be divided into three sub-sectors:-

(i) Oil and Gas Exploration & Production;
(ii) Oil Refining ; and
(iii) Marketing (Gas and Refined Products)

1.3 Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL), the two National Oil Companies (NOCs), and private and joint-venture companies are engaged in the Exploration and Production (E&P) of oil and natural gas in the country.

1.4 Oil and Natural Gas Commission was established on 14th August, 1956 as a statutory body under the Oil and Natural Gas Commission Act for the development of petroleum resources and sale of petroleum products. As per the decision of the Government, ONGC was converted into a Public Limited Company under the Companies Act, 1956 and named as “Oil and Natural Gas Corporation Limited” with effect from February 1, 1994.

1.5 ONGC has reserves exceeding 1 billion tonnes of oil and gas and produces more than 1 million barrel oil equivalent (boe) per day. It also contributes over 3.5 million tonnes per annum of value added products. ONGC has made multi-fold progress in exploration and development of hydrocarbons and application of new technology in oil and gas production. The Corporation has established itself to be one of the leading companies in this field.

1.6 OIL was incorporated in 1959 as a company with two-third's share of Burmah Oil Company/Assam Oil Company and one-third share of Government of India. In 1961, OIL became a joint venture company with equal share of Government of India and Burmah Oil Company. On 14th October, 1981, OIL became a Government of India Enterprise, a wholly owned Public Sector Undertaking.

1.7 The Company produces crude oil and natural gas from its oil fields in Assam and Arunachal Pradesh and non-associated gas from its fields in Western Rajasthan. The Company has presently operational areas in Assam, Arunachal Pradesh, Western Rajasthan, Orissa onshore and Ganga Valley in Uttar Pradesh and Uttaranchal.

(B) Exploratory areas

1.8 Oil and natural gas also known as hydrocarbons are some of the most important fossil fuels to meet the energy requirements of the country and support economic growth. The share of oil and gas in primary energy is now about 45%.

1.9 Search for oil in the country had commenced as far back as 1866 in Upper Assam. Oil in commercial quantities was discovered for the first time in 1889 at Digboi. ONGC made its first major find in Ankleshwar, Gujarat in 1960. The first giant offshore discovery was made in Mumbai High in 1974. Oil and gas production of the country rose sharply in early 1980s due to production from Mumbai High and other fields such as South Bassein.

1.10 India has 26 sedimentary basins, comprising both onland and offshore areas. Of the total sedimentary basin area of India of 3.14 million sq. km., about 1.39 million sq. km area is in the onshore and 0.39 million sq. km in the offshore area (up to 200 m isobath water depth). The deep water area is about 1.35-m. sq. km. Most of the basins are under various stages of active and/or reconnoitory exploration. The sedimentary basins of India have been classified into four categories as a function of geological knowledge of the basin, presence and/or indication of hydrocarbons and current status of exploration.

Category I basins are proved petroliferous basins with commercial production, e.g., Cambay, Upper Assam, Mumbai offshore, Krishna-Godavari, Cauvery, Rajasthan and Assam Arakan. The area covered under this category is about 0.52 million sq. kms.

Category II basins are those with known occurrences of hydrocarbons, but from which, no commercial production has yet been obtained, e.g., Kutch, Mahanadi (NEC) and Andaman-Nicobar. The area covered under this category is about 0.164 million sq. kms.

Category III basins are those in which significant shows of hydrocarbons have not yet been found, but which on general geological considerations are assumed to be prospective, e.g. Himalayan Foreland, Ganga, Vindhyan, Saurashtra, Kerala-Konkan-Lakshwadeep and Bengal. The area covered under this category is about 0.641 million sq. kms.

Category IV basins are those which, on analogy with similar hydrocarbon producing basins in the world, are deemed to be prospective, e.g., Karewa, Spiti-Zanskar, Satpura-South Rewa-Damodar, Narmada, Deccan Syneclise, Bhima-Kaladgi, Cuddapah, Pranhita-Godavari, Bastar and Chhattisgarh. The area covered under this category is 0.46 million sq. kms.

1.11 19 of the 26 sedimentary basins of India have been taken up for exploration so far, with acquisition of seismic data and carrying out exploratory drilling. Seven basins viz., Cambay, Upper Assam, Assam Arakan Fold belt, Mumbai offshore, Krishna-Godavari, Cauvery and Jaisalmer, which have been upgraded to producing basins.

1.12 The Committee have been informed that depending on the degree of exploration activities, the total sedimentary areas (including deep waters) may be divided into four different categories. They are – Moderately to Well Explored (18%), Poorly explored (19%), Exploration initiated (33%) and Unexplored (30%). The areas falling in the above four categories are as given below :-

Level of Exploration	Area (million sq. km.)
Moderately to Well Explored	0.562
Poorly explored	0.582
Exploration initiated	1.054
Unexplored	0.942
TOTAL AREA	**3.140**

1.13 ONGC, OIL and Private/Joint Venture companies are making new discoveries in seven producing basins also. It is, therefore, inferred that none of the sedimentary basins is fully explored both laterally and vertically.

(C) Exploration regimes

1.14 Exploration of oil and gas in spite of several advances in technology has been stated, till today to be a probabilistic discipline with a high degree or risk of failure. The habitat for oil and natural gas having been determined by geological events of the remote past, any estimation of resources is based on various possible hypotheses and models constructed thereon. Exploration is undertaken based on the same hypotheses and geological models constructed on the basis of data acquired by exploration companies.

1.15 At present, the following regimes are in place for exploration and production of oil and gas in the country:-

(i) Exploration areas allocated to ONGC and OIL on nomination basis: ONGC and OIL have been given certain areas on nomination basis for exploration of oil & gas. As on 1st August, 2004, ONGC has 117 Petroleum Exploration Licenses (PELs) and OIL has 18 PELs on nomination basis. Each PEL now has an agreed and committed exploration work programme.

(ii) Production Sharing Contracts (PSCs) signed before New Exploration Licensing Policy (pre-NELP PSCs): At present, 19 PSCs are in place against pre-NELP rounds in which exploration activities are being undertaken by private companies.

(iii) PSCs signed under NELP: The Government has signed 90 contracts under four rounds of NELP. At present, exploration in 81 blocks is in progress.

(iv) Producing areas with ONGC and OIL: ONGC and OIL have 239 and 22 Petroleum Mining Leases (PMLs) respectively for production of oil and gas. PMLs also allow exploration in the area along with production.

(v) PSCs for discovered fields: The Government has signed 4 PSCs for medium size fields and 24 PSCs for small size fields for production of oil and gas.

(D) Functioning of the Directorate General of Hydrocarbons (DGH)

1.16 DGH was set up *vide* MOP&NG Resolution No. O-20013/2/92-ONG D.III dated 8th April 1993. As per this Resolution, the mandated functions of DGH are as under:

1. Review of Exploration Programmes of companies
2. Advice to Government on Acreage Offering
3. Review of Development Plans of discoveries
4. Reservoir Management Audit &Review
5. Reserves Assessment
6. Strategy for Ventures Abroad
7. E&P Data Repository
8. Laying down of HSE Norms & conducting HSE Audit
9. PSC Monitoring

1.17 When asked as to whether the present manpower strength of DGH is sufficient to carry out all the mandated items, the Committee were informed by the Ministry that the existing strength of DGH is 76 against approved strength of 85. Based on the workload of DGH, requirement of manpower is being reworked. Some of the functions in which DGH performance can be improved if enough manpower is provided to DGH are - Review of Development Plans, Assessment of Reserves, Preparation of Strategy for Venture Abroad, Establishment & operation of E&P Data Base & Archive and Establishment of HSE Norms and carrying out HSE Audits.

1.18 When asked as to whether DGH is adopting modern technology for assessment of deposits of hydrocarbons, the Ministry of Petroleum & Natural Gas informed the Committee as under:-

> "DGH has been adopting state of the art technologies for hydrocarbon exploration in Acquisition, Processing and Interpretation (API). The technologies adopted depend on Geology and Geography of the basins. To bring unexplored/poorly explored areas to active exploration, DGH has carried out various types of Geo-scientific Surveys like Satellite Gravity, Aeromagnetic, Magneto telluric and Regional Seismic, etc., in different parts of India. An area of 1.96 million square km has already been covered by these surveys (carried out from 1995 to 2004) in different basins (onland and offshore including deep waters).
>
> ` Besides, DGH is equipped with Data Processing and Integrated Interpretation Workstations. The data are analysed on these workstations by experts to assess the hydrocarbon deposits. The various blocks under New Exploration Licensing Policy (NELP) are carved out for offer to Global Exploration & Production Companies on the basis of this assessment.
>
> Currently, DGH is in the process of planning the acquisition of seismic data using Wide Angle Seismic Profiling (WASP) method which is the latest technology in imaging the Sediments below Basalt. Aeromagnetic surveys are also planned in difficult terrains of Frontier areas.
>
> Similarly, DGH is planning to acquire latest technology like Virtual Reality Centre (VRC) and latest Interpretation Softwares for analysis of seismic data."

1.19 During the year 2003-04, an amount of Rs. 6.54 crore was spent by DGH on various activities such as surveys, reserve studies, geological modelling etc. During April, 2004 to November, 2004, DGH has incurred Rs. 0.57 crore on exploration activities out of the estimated expenditure of Rs. 4.5 crore in 2004-05.

CHAPTER –II

EXPLORATION OF OIL AND GAS

(A) Exploration strategy of ONGC

2.1 The formulation of exploration strategy 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.

2.2 The Medium-Long term exploration strategy i.e. for the period 2007-2020, of the company is stated to have the following four components:-

a) Continuing the efforts in producing/established basins for potential realisation:

Field growth areas: objective specific technology aided data API programme planned during 10th Plan is aimed at improving the subsurface imaging for exploring the subtle traps in known plays and also the translucent objectives, which will be carried forward during 11th and 12th Plan period to realise the yet to find potential.

New sectors in the producing basins: The new sectors/objectives in the producing basins are likely to yield breakthrough which will be detailed during medium-long term for consolidation and commercialisation.

b) Deep Water areas:

Considering the vast potential of deep water areas, located in continuity of the known petroliferous sectors of producing basins, the emphasis on deep water exploration will continue medium-long term with greater vigour with twin objectives:

- 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.

c) Consolidating the possible breakthrough in non-producing basins:

The consolidation of leads arising out of the short term strategy in the basins viz. Vindhyan, Himalayan foreland, Satpura, S. Rewa-Damodar, Kutch-Saurashtra, Bengal, Ganga, Kerala-Konkan and Mahanadi for discovery of commercial hydrocarbon based on petroleum habitat and play fairway recognition.

d) Knowledge building in the frontier basins:

The frontier basins viz. Deccan Syneclise, Pranhita-Godavari, Chattisgarh, Cuddapah, Bhima-Kaladgi, Narmada, Spiti-Zanskar and Karewa have received very little exploratory input owing to the perceived potential on account of ancient lithic fill and/or logistics constraint. Understanding of the basin characteristics i.e. type, fill and framework is the prerequisite prior to detailed exploration programme in these basins. Some of these basins depending upon acreage availability will be covered during 10^{th} Plan for knowledge building, which will be extended to other basins during the 11^{th} and 12^{th} Plans. Depending on the results of the knowledge building exercise, prospectivity recognition in the prioritised sectors will be taken up.

2.3 It is expected that 3-4 basin discoveries will be made from the present inventory of non-producing basins. The frontier basins will be prepared to move up the ladder from their present status.

2.4 According to the Ministry, deep water is considered to be thrust sector in view of variety of hydrocarbon plays envisaged and success achieved in international arena from basins of similar geological architecture. Considering a modest success rate of 20%, the envisaged exploration thrust is anticipated to lead to upgrade about 50% of the presently prognosticated Resources to inplace hydrocarbons in medium-long term.

2.5 The medium-long term accretion outlook will, therefore, be to establish additional inplace volume of about 6 Billion Tonne i.e. about 2.2 Billion Tonne from the presently producing basins, 0.2 Billion Tonne from the non-producing basins and about 3.5 Billion Tonne from the deep waters.

2.6 The domestic production strategy of ONGC is stated to have been worked out based on the current position of reserves, production profile, exploration strategy outlined and the anticipated accretion scenario both from the field growth areas and the frontier sectors. The salient features of the production strategy are as under:-

(i) Improved management of existing major fields.
(ii) Fast track production from deep water sector.
(iii) Bringing all major and other fields on EOR/IOR process.
(iv) Global recovery factor from present level of 28-29% to 35% and to 40% over a cycle of 10 years and 15-20 years respectively.
(v) Field specific cost cutting technology to put marginal/isolated/small fields in onshore and offshore on production.

2.7 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%.

2.8 The Government envisages improvement in Recovery Factor from the present level of 27-28% to 35% and to 40% over a cycle of 10 years and 15-20 years respectively, through IOR and EOR methods.

2.9 Intensive exploration is planned in the deep-water acreages, with likely accretion of about 3-4 billion tonnes of in place hydrocarbons. The deep water field development with lead time of 3-5 years is likely to come up on production from the beginning of 11th Plan in case of discovery, thus necessitating major investment from mid/late 10th Plan. In case of establishing large fields in the deep water areas, the Committee have been informed that additional build up in the production level in long term to the tune of 20 MMT per annum in low case and 33 MMT per annum in high case by 2016-17 is envisaged.

(B) Exploration strategy of OIL

2.10 OIL's major thrust for exploration continues to be in the North-East. With the easier areas of the region having already been fairly explored, the company has moved into the logistically difficult, geologically complex and technologically frontier areas of the North-East. The thrust areas for exploration are stated to be:

(i) To cover logistically difficult terrain such as riverine areas, swampy and marshy areas including Brahmaputra River bed, rugged hilly terrain in the Belt of Schuppen, nearby township areas etc. by 2D seismic.

(ii) In order to have in-depth information of the complete Upper Assam Basin, identify the stratigraphic prospects and identify exploration plays in the thrust belt areas, three important geo-scientific studies have already been completed. Future exploration action plan including review of ongoing exploration programme will be carried out incorporating results of the studies.

(iii) Probe by exploratory drilling a few deep structures in Upper Assam on priority basins in areas close to Belt of Schuppen (Thrust Belt areas).

(iv) Review of exploratory activities in the North Bank of river Brahmaputra with the drilling results of the five wells has been completed and leads analysed. The study points towards lower prospectivity in the area but indicates prospects in Brahmaputra River Bed upstream north-east. Actions are in hand for Brahmaputra river-bed survey for a total of 1700 GLKM of 2D seismic survey.

(v) Continue exploratory drilling in the deeper prospects in the South Bank of river Brahmaputra, particularly in view of the recent discoveries in Shalmari, Moran, Diroi, Chandmari and Baghjan areas and lead obtained in Mechaki area.

(vi) Exploring the downdip area of recent discovery of Baghjan and Chandmari structures.

(vii) New leads obtained in Eocene/Paleocene hydrocarbon habitat will be followed up by exploratory drilling.

(viii) Taking up exploratory drilling in NELP blocks of Rajasthan.

(ix) Exploratory drilling in Manabum area of Arunachal Pradesh.

(x) Drilling of identified prospect in JV block in Assam & Arunachal Pradesh.

(xi) OIL discovered heavy oil in Baghewala Area in Rajasthan in early nineties. OIL's initial efforts to produce the reserves based on the technical recommendations of Alberta Research Council (ARC), Canada failed to produce desired results. An agreement was subsequently signed with PDVSA Intvep of Venezuela, a State Company in 2002 for undertaking a comprehensive study to identify the most suitable technology for production of these heavy oil reserves (Phase-I) and then help OIL to acquire and implement the selected technology on a pilot scale in second phase. The work related to the first phase has been completed and actions are currently in hand for pilot scale application of the identified technology under expert supervision of PDVSA, Venezuela.

(xii) Oil India Limited (OIL) is putting emphasis to venture into overseas oil/gas production/acquisition in consortium with ONGC-Videsh Limited (OVL) or independently.

(xiii) 10% share in OVL's ventures overseas is mandated to Oil India Limited. Towards this, the Company entered into a Memorandum of Undertaking (MOU) with OVL for jointly looking for producing properties and exploration acreages.

(xiv) OIL is also exploring the feasibility of entering into a Strategic Alliance with a PSU for pursuing E&P opportunities overseas.

(C) Seismic Survey and Drilling

2.11 The targets and achievements in respect of seismic survey and drilling in case of ONGC and OIL are given in the following tables:-

ONGC

Parameters	Units	2003-04 BE/MOU	2003-04 Actual	2004-05 BE/MOU	2004-05 Actual upto 31.12.2004 (Provisional Data)
Seismic Survey					
Onland offshore	2D (GLK) 3D (Sq. Kms.)	3,190 896	2,686 1,470	2,678 1,336	1,379.23 1,258.33
	2D (GLK) 3D (Sq. Kms.)	11,500 13,888	3,307 18,421	2,500 14,620	14,377.08 9,513.26
Drilling					
Exploratory	Meterage ('000m) Wells (Nos.)	491.85 172	324.79 124	499.91 178	223.232 78
Development	Meterage ('000m) Wells (Nos.)	431.45 188	412.72 197	413.16 182	288.691 128
Total (Expl. + Dev)	Meterage ('000m) Wells (Nos.)	923.30 360	737.51 321	913.07 360	511.923 206

OIL

Parameters	Unit	2003-04 Target	2003-04 Actual	2004-05 Target	2004-05 Actual upto 31.12.2004
Seismic Survey					
Onshore	2D (GLKM) 3D (Sq. Kms.)	2,585 350	2,088.22 352.02	1,600 750	1,237.20 426.97
Offshore	3D (Sq. Kms.)	400	NIL	NIL	NIL
Drilling					
Exploratory	('000 Mtr.	66	49.283	54.70	31.778
Well	Nos.	15	13	13	6
Development	('000Mtr.)	70	59.340	85.10	83.257
Well	Nos.	17	14	21	27
Total (Expl. + Dev)	Meterage ('000m) Wells (Nos.)	136 32	108.623 27	139.80 34	115.035 33

2.12 From the above data, it may be seen that both the companies have registered shortfalls in meeting many of the targets fixed for seismic survey and drilling.

(D) OIL's Corporate Plan

2.13 The Oil India Limited has a strategic corporate plan which comprises doubling the production of oil equivalent to over 7 million tonnes in the next five years. Giving details of the organisation's plan to sustain/enhance the production level, the CMD, OIL stated during evidence as under:-

> "We intend not only sustaining the production at the level of 3.5 million tonnes but also going up to 4 million tonnes plus. The current rate of production, which has been the highest ever in our history, is around 3.4 million tonnes. At the end of the year, we intend to bring it to the level of 3.5 million tonnes. It is not possible really to have large growth in the current basins due to the old fields. These fields enter the phase of natural decline. We have not had any major discovery since 1994. We had two medium-sized discoveries at Chandmari and Baghjan in Upper Assam. But they are mostly gas. Earlier, the oil-gas ratio was about 70:30. Today, it is the other way round. It is 45:55 in our discoveries. We are quite confident that we can bring the production and sustain it at 4 million plus from the existing basin."

2.14 The CMD, OIL further informed the Committee during oral evidence that the company plans to go into the frontier areas of the North-East which would increase the production level by 1-1.5 million tonnes in the next five years.

2.15 Besides the frontier areas, OIL is also operating in 13 New Exploration Licensing Policy (NELP) blocks – in 5 blocks as operator and in the remaining 8, it has participatory interest. Giving details about OIL's participation in NELP, the CMD of the organisation stated during evidence as under:-

> "We are operating in 13 NELP blocks, in five of which we are the operators. Three, out of the five, are in Rajasthan which is the other producing basin where we are currently producing gas at the rate of 0.8 million standard cubic metres per day and supplying to the Rajasthan State Electricity Board. We have a drilling plan in Rajasthan to enhance this production also. These are from the nominated blocks. We have 13 blocks under the NELP. In five blocks, we are the operators. We operate three in Rajasthan, one in Orissa which is onshore and one, under NELP-IV, is in Assam in Karbi Anglong district. In the remaining 8, including 5 which are deep sea, we have participating interest between 15 to 20 per cent – along with the ONGC. We expect some in the KG basin where we have 15 per cent share under the NELP-I."

2.16 During the oral evidence, the Secretary, Ministry of Petroleum & Natural Gas was candid enough to admit that OIL has not been very active since it was nationalised in 1981. He summed up the activities of the company as well as the expectations of the Ministry from the company as under:-

> "….. it is a fact that OIL has not been so active since it was nationalised in 1981. We would like them to be more active. Their production has also been, more or less, at the same level of 3 million tonnes per year. We are now suggesting to them that in two years' time they should achieve the target of 4.5 million tonnes and thereafter, reach the level of 7.0 million tonnes. They have been confining their activities mostly to North-East. They have some blocks in Rajasthan also. They are taking up something under NELP as well. We are suggesting that since they have all the information and data relating to North-East, extending to across the border in Myanmar also, they should take interest in onshore blocks in Myanmar as well."

2.17 During oral evidence, OIL expressed the desire that it should be vested with the same powers as the ONGC Videsh Limited (OVL). In this connection, the Ministry of Petroleum & Natural Gas has informed the Committee that although OIL, in Quarterly Progress Review (QPR) meeting, has requested delegation of powers similar to ONGC Videsh Limited (OVL) for acquiring equity oil & gas assets abroad, no formal proposal has been received from OIL so far. Once the formal proposal is received from OIL, the Government will examine the issue on merits.

(E) New Exploration Licensing Policy

2.18 The Government of India had been inviting private investment in exploration of oil and gas in the country since early 1980's. Upto 1991, Government had invited three bidding rounds for exploration of oil and gas limited to offshore areas. However, initial efforts to attract private investments did not have continuity until 1991. Since 1991, Government of India began offering exploration blocks on a regular basis. Between 1991 and 1995, Government invited six bidding rounds which included both offshore and onland blocks.

2.19 In 1996-1997, the Government of India reviewed the policy of inviting investment in exploration of oil and gas including the fiscal and contract terms. According to the Ministry, the need to attract investment was considered for the following reasons:-

(i) Over two-third of the Indian sedimentary basins remained unexplored or poorly explored. Out of the estimated total prognosticated hydrocarbons reserves of 28 billion tonnes, only less than one fourth had been established.

(ii) The efforts of National Oil Companies (NOCs) needed to be complemented.

(iii) There was need to attract risk capital investments in exploration, along with latest technology and management practices, and infuse fresh geological ideas.

(iv) To provide a level playing field as well as competition to the NOCs by giving similar fiscal and contract terms as applicable to private investors.

2.20 With the above objectives in mind, based on broad based consultations with various international agencies as well as stakeholders within the country, Government of India formulated the New Exploration Licensing Policy (NELP) in February, 1997. The main features of NELP were as under:-

(i) No mandatory state participation through ONGC/OIL or any carried interest of the Government.

(ii) Blocks to be awarded through open international competitive bidding.

(iii) ONGC and OIL to compete for obtaining the petroleum exploration licenses on a competitive basis instead of the existing system of granting them PELs on nomination basis.

(iv) ONGC and OIL to get the same fiscal and contract terms as private companies.

(v) Freedom to the contractors for marketing of crude oil and gas in the domestic market.

(vi) Royalty at the rate of 12.5% for the onland areas and 10% for offshore areas. Half of the royalty from the offshore are to be credited to a hydrocarbon development fund to promote and fund exploration related activities, such as acquisition of geological data on poorly explored basins, promotion of investment opportunities in the upstream sector, institution building etc.

(vii) Royalty to be charged at half the prevailing rate for deep water areas beyond 400 m bathymetry for the first 7 years after commencement of commercial production.

(viii) Cess to be exempted for production from blocks offered under NELP.

(ix) Companies to be exempted from payments of import duty on goods imported for petroleum operations.

(x) No signature, discovery or production bonuses.

(xi) Seven-year tax holiday from the date of commencement of commercial production.

(xii) Fiscal stability during the entire period of contracts.

(xiii) A separate Petroleum Tax Guide (PTG) of facilitate investors.

(xiv) A Model Production Sharing Contract (MPSC) which is reviewed for every NELP round.

(xv) Contracts to be governed in accordance with applicable Indian Laws.

2.21 The broad parameters considered for offering exploration blocks under NELP are as under:-

(i) Availability of area i.e. no PEL/ML has been issued to NOCs or JVs/Private Companies.

(ii) Availability of sufficient geo-scientific data, to attract oil companies.

(iii) Preliminary inter-ministerial clearances including defence and environmental clearances.

2.22 The following are the main features of NELP implementation:-

(i) Deep water areas were offered for exploration for the first time under NELP.

(ii) Data packages and information dockets were digitised and given in CD-ROMS/Exa-byte Tapes.

(iii) The total areas covered under exploration in the four rounds of NELP is about 0.9 million sq. kms. which constitutes about 80% of area presently under exploration in the country.

(iv) A total of 90 contracts have been signed in the four rounds of NELP.

(v) The bidding process leading to award of blocks and signing of contracts have been completed in 3-7 months under NELP as compared to 24-48 months or even more taken prior to NELP rounds.

(vi) With its combined emphasis on work programme as well as profit sharing in the bid evaluation criteria, NELP has generally attracted rather aggressive work programme commitments and commercial terms for the Government as compared to previous bidding rounds.

(vii) Emphasis is on higher 3D seismic surveys under NELP, which is expected to improve exploration efficiency and reduce chances of drilling dry wells.

2.23 The Committee have been informed that Government of India has signed 90 contracts under NELP and 28 contracts prior to NELP and PELs have been granted to ONGC and OIL on nomination basis. These require effective monitoring for implementation of exploration programme committed by companies in a timely manner.

2.24 The PSCs are monitored by the Directorate General of Hydrocarbons (DGH) through Management Committees. The progress and implementation of work programme and other contractual terms are presented by DGH to the Ministry of Petroleum & Natural Gas on a quarterly basis. Further, any urgent contractual matter is addressed on priority by DGH and Government.

2.25 DGH also monitors the progress and work programme in PEL and PML areas awarded to ONGC and OIL on nominations, on a six monthly basis. The progress is also monitored by the Ministry of Petroleum and Natural Gas through quarterly progress review meetings and periodic reviews of ONGC and OIL.

2.26 The monitoring mechanism is stated to be fine-tuned based on the experience gained in implementation and monitoring of PSCs.

2.27 The Committee have been informed that a total of 144 exploration blocks have been offered under five rounds of New Exploration Licensing Policy (NELP). 124 blocks were offered under previous four rounds of NELP, whereas the 20 blocks have been offered in fifth round of NELP, for which last date of submission of bids was 31 May, 2005.

2.28 Out of the 124 blocks offered under four rounds of NELP, PSC of 90 blocks have been signed. Out of 90 blocks awarded and signed so far, 56 blocks have gone to public companies and 34 blocks to private companies.

2.29 The broad details of the first four rounds of NELP are given in the succeeding paragraphs.

2.30 Bids under the first round of NELP were invited in January, 1999. A total of 48 exploration blocks covering an area of about 0.462 million sq. km. including 10 onland, 26 shallow offshore and 12 deep water blocks were put on offer for global bidding. Deep-water areas on the East Coast were offered for the first time under NELP. 24 Production Sharing Contracts (PSCs), 7 in deep water, 16 in shallow water and 1 in onland, were signed in April, 2000.

2.31 Bids under the second round of NELP were invited in December, 2000. A total of 25 exploration blocks covering an area of about 0.294 million sq. km. including 9 onland, 8 shallow offshore and 8 deep water blocks were put on offer for global bidding. Deep-water areas on the West Coast were offered for the first time under NELP II. 23 Production Sharing Contracts (PSCs), 8 in deep water, 8 in shallow water and 7 in onland, were signed in July, 2001.

2.32 Bids under the third round of NELP were invited in March, 2002. A total of 27 exploration blocks covering an area of about 0.263 million sq. km. including 11 onland, 7 shallow offshore and 9 deep water blocks were put on offer for global bidding. 23 Production Sharing Contracts (PSCs), 9 in deep water, 6 in shallow water and 8 in onland, were signed in 4th February, 2003.

2.33 Bids under the fourth round of NELP were invited in May, 2003. A total of 24 exploration blocks covering an area of about 0.21 million sq. km. including 11 onland, 12 deep water and 1 shallow water blocks were put on offer for global bidding. 20 Production Sharing Contracts (PSCs), 10 in deep water and 10 onland were signed in February, 2004.

2.34 When asked about the time taken between bidding of tenders/awarding of blocks, signing of PSCs and initiation of actual exploration/drilling work and the steps being taken to reduce this period, the Ministry informed that the time interval between offering of blocks and the signing of a PSC has been substantially reduced by the Government to 3-4 months. The evaluation of the submitted bids has been computerized, so that delays are avoided. Initiative has been taken for granting the Petroleum Exploration License (PEL) within three months of signing of the Production Sharing Contracts, so that the respective operators can start their exploration activities as soon as possible.

2.35 When asked as to whether the Government propose to lay down a policy to ensure that gas produced in any part of the country by any producer is first made available to local areas/areas prioritised by the Government, the Ministry furnished the following reply:-

> "Gas produced under NELP is governed by the provisions of Production Sharing Contracts. As per this provision, the contractors have freedom to market the gas in India at market related price. However, in order to meet the requirement of natural gas of different parts of the country, the Government has taken various initiatives to augment the availability. Besides intensification in the domestic exploration and production activities, initiatives have been taken to import natural gas in the form of Liquefied Natural Gas (LNG) as well as through transnational pipelines from gas rich countries in West Asia (including Iran), Central Asia and South East Asia."

2.36 The Committee also desired to know whether the Government proposed to review/revise the Production Sharing Contracts with private companies to ensure that they do not sell gas produced from their fields to other States/parties without catering to the local requirements. The Ministry gave the following reply in this regard:-

> "The Government has signed 90 PSCs in the first four rounds of NELP after making public the terms and conditions of the offer which included freedom to market the gas in India. PSCs are legally binding contracts between the Government and the contracting companies and all parties are contractually obligated to their terms and conditions.
>
> Any revision of the signed PSCs has to be with the consent of all parties to the agreement. Any move on the part of Government to seek unilateral revision of the signed PSCs on any matter including sale of gas in the local markets, apart from having legal implications and consequential possible liabilities to the Government, would not be in the interest of exploration of oil & gas when the Government is making all out efforts to attract investment in this critical sector involving huge quantum of risk money. The PSCs ensure that all gas, which are national natural resource, would be available for sale exclusively within the country. Local areas would naturally have a pricing advantage on account of low transportation costs which would normally give advantage to local markets."

2.37 The details of discoveries made in the pre-NELP and NELP blocks operated by Private/Joint Venture Companies are as under:-

Name Block/field	Operator	Type of Block / Area	Name of Discovery	Oil / Gas	Date of Discovery	Oil & Gas In Place (BCM/MMT)	Status
Ravva	Cairn	Producing Area	Ravva Satellite	Gas	May'99	12	Producing
RJ-ON-90/1	Cairn	Pre-NELP	Guda	Oil	1998	Very small field. Reserve not established.	
			Saraswati	Oil	Nov.'2001	2.24	Reserves are proved IIP. Reserves as per operator. Declared commercial by MC of the block on 15.10.2004
			Rageshwari	Oil	Feb-2003	4.2	
			Mangla	Oil	Jan'04	120.2	
			NA	Oil	March'04	9.7	
			Kameshwari	Oil	October'03	Under evaluation by operator	
			NC	Oil	April'04		
			NV	Oil	August, 04		
			Greater Rageshwari (GR-F)	Oil	Jan'04	1.21	Commerciality under evaluation by operator.
CB-OS/2	Cairn	Pre-NELP	Lakshmi	Gas / Oil	May, 2000 / April '02	7.31	Producing since Nov. 2003.
			Ambe	Oil / Gas	November,2000	Under estimation	
			Gauri	Oil / Gas	December,2000	3.23	Production commenced in April 2004.
			Parvati	Oil	January 2001	Under estimation	
			CBX Structure	Gas	February 2004	Under estimation	
KG-DWN-98/2	Cairn	NELP-I	Annapurna	Gas	June, 2001	18.41	Working on commerciality
			Kanak Durga	Oil / Gas	August, 2001	23.27	
			Padmavati	Oil / Gas	October, 2001	18.46	
KG-DWN-98/3	RIL	NELP-I	Dhirubhai-1	Gas	October, 2002	323 Dhirubhai-1, 2 & declared as commercial.	Development plan of Dhirubhai1 and 3 has been approved by MC
			Dhirubhai-2	Gas	October, 2002		
			Dhirubhai-3	Gas	October, 2002		
			Dhirubhai-4	Gas	January, 2003	21.2	Working on commerciality. In place estimate made by RIL.
			Dhirubhai-5	Gas	July, 2003	8.5	
			Dhirubhai-6	Gas	July, 2003	41.2	
			Dhirubhai-7	Gas	May, 2004	17.7	
			Dhirubhai-8	Gas	May, 2004	10.5	
			Dhirubhai-16	Gas	August,2004	Under evaluation	
NEC-OSN-97/2	RIL	NELP-I	Dirubhai-9	Gas	June'04	11.3	To be appraised further.
			Dirubhai-10	Gas	June'04	9.1	
			Dirubhai-11	Gas	June'04	6.8	
			Dhirubhai-15	Gas	August,2004	Under evaluation	
CB-ONN-2000/2	Niko	NELP-II	Bhima-1	Gas	November, 2002	0.06	As per D&M report.
			NS	Gas	January, 2003	0.71	Under production since May,04
CB-ONN-2000/1	GSPC	NELP-II	PK#2	Oil	August,2004	Under evaluation	

(F) Exploration in the Krishna-Godavari basin

2.38 Krishna-Godavari basin, on the East coast of India, comprising the onland part in the State of Andhra Pradesh and its contiguous offshore area both shallow and deep water, is considered as the most emergent petroliferous province of India, second only to the Western Offshore Basin in terms of its hydrocarbon potential.

2.39 As regards ONGC's activities in the KG basin, the Committee have been informed that ONGC's exploration and production activities are concentrated in the districts of East Godavari, West Godavari and Krishna in the onland and shallow and deep water areas in the offshore of Krishna Godavari basin.

2.40 Presently, ONGC operates in two PEL blocks acquired through nomination in KG onland Basin. In the KG offshore basin ONGC currently operates in 6 shallow water PEL blocks (5 under nomination and 1 under NELP regime) and 7 deep water PEL blocks (4 under nomination and 3 under NELP regime).

2.41 ONGC's exploration activities in KG onland began way back in 1959. The key highlights of ONGC's exploration and production activities in KG onland basin are stated to be as under:-

- ONGC started its exploration activity in the basin with geological mapping in 1959.
- Gravity-Magnetic surveys were initiated in 1960.
- Single fold 2D seismic surveys were started in 1965.
- Multifold 2D seismic surveys were introduced in 1972.
- The first exploratory well, Narsapur-1 drilled in the West Godavari district in 1978 which blew out with flow of gas, indicated the presence of hydrocarbons in the basin.

- Commercial flow of gas in the onland part of the basin was established in 1983 in Razole structure in the West Godavari district.

- 3D seismic surveys were first carried out during the year 1992-93.

- Exploratory efforts in the KG (onland) basin have since resulted in discovery of a number of oil and gas fields, notably Pasarlapudi, Tatipaka, Ponamanda, Mandapeta, Kesanapalli-west, gopavaram, Kesavadasupalem, Kaikalur, Lingala, Endamurru, etc.

2.42 ONGC initiated surveys in KG offshore area in 1964-65. The significant milestones achieved by ONGC in KG offshore are stated to be as under:-

- Reconnaissance seismic surveys were initiated in 1964-65 by the Soviet Vessel 'Academic Archangelesky'.

- 2D-CDP seismic surveys were introduced in the year 1978.
- The first well on G-1 prospect drilled in the year 1980 – proved commercial flow of oil and gas.

- First 3D seismic surveys were conducted over G-1 field in 1988.
- Through continued exploration activities, seven oil bearing prospects, viz., G-1, G-2, Ravva, GS-15, GS-23, GS-29 and GS-KW and six gas bearing prospects namely GS-8, GS-38, KD-1, GD-1, GS-49 and G-4 have been discovered. The Ravva field is currently producing over 50,000 barrels of oil per day and is being operated under joint venture arrangement.

2.43 With reference to the discoveries made by Reliance Industries Limited and Cairn Energy in Krishna – Godavari deep waters, the Committee have been informed that the deep water blocks were offered for the first time under the first round of NELP in 1999. The data packages were prepared by DGH and identical data sets were provided to all bidding companies. However, being an open competitive bidding system, ONGC could not get the blocks and companies offering the best bids got the blocks. ONGC also got some blocks in NELP including some deep water blocks in the KG basin. It has acquired seismic data as per the work programme commitment under the production sharing contracts and will be drilling exploratory wells in accordance with their work programme. ONGC has drilled wells in KG basin in their nomination blocks and has made

hydrocarbon discoveries like G-4. It may be pertinent to inform that ONGC has so far put 6 out of the 7 producing basins of the country on the hydrocarbon map.

2.44 When asked as to why ONGC could not be able to discover oil and gas in KG basin while late comers like RIL could find huge gas there, the Ministry of Petroleum & Natural Gas, in a written reply, *inter-alia* stated as under:-

> "ONGC has so far established initial in-place volume of 42.64 MMT of oil and 137.8 BCM of gas from KG Basin including 22.83 MMT of oil and 40.13 BCM of gas from offshore areas. In specific relation to the deep water of KG basin, ONGC has discovered about 7 MMT oil and 33 BCM of gas.
>
> Historically in the offshore sector, the award of acreages by Government of India in the basin was initiated way back in 1979 and 8 rounds of bidding were witnessed. It is interesting to understand that in the 4th round of bidding (1991), two acreages viz. KG-OS-90/2 and KG-OS-90/3 were on offer with no takers. The present day gas discoveries of M/s Reliance as well as those of M/s Cairn energy were actually part of the blocks on offer during that period."

2.45 Giving details of exploration efforts of ONGC *vis-à-vis* private companies in KG basin in the last four years, the Ministry of Petroleum & Natural Gas stated as under:-

"ONGC

Parameters	Onland	Offshore
2D (GLK/LK)	2272	5177
3D (Sq. Km)	955	5999
Exploratory wells	83	15
In place reserve accretion (O+OEG) in MMT	21.24	33.10

Private and others

Parameters	Onland	Offshore
2D (GLK/LK)	715	15055
3D (Sq. Km)	--	11872
Exploratory wells	--	17
In place reserve accretion (O+OEG) in MMT	--	290.13 "

2.46 The Committee specifically wanted to know the details of oil and gas wells in KG basin that have not yet been connected to the main trunk line. The Ministry of Petroleum & Natural Gas furnished the following details in this regard:-

"There are some oil/gas wells in KG basin, which are not yet connected to production facilities due to various reasons. Details are as under:-

Sl. No.	Wells	Location (Distt)	Reasons
Oil wells (onshore)			
1.	Laxmipuram –1	Krishna	Isolated and low potential.
Gas wells (onshore)			
2.	Namvanipalem – 1	East Godavari	Isolated and low potential.
3.	Nandigama – 2	Krishna	Isolated and low potential.
4.	Elamanchilli – 7	West Godavari	low potential.
5.	Mahaddevapatnam – 1	West Godavari	Isolated and low potential.
6.	Mahaddevapatnam – 2	West Godavari	Isolated and low potential.
7.	Pendurru – 1A	Krishna	Isolated and low potential.
8.	Akkividu – 1	West Godavari	Isolated and low potential.
9.	Achanta – 1	West Godavari	Isolated and low potential.
10.	Gokarnapuram – 1	West Godavari	Isolated and low potential.
11.	Gopavaram – 6	East Godavari	low potential.
12.	Kaza – 1	Krishna	Isolated and low potential.
13.	Kaikalur – 16	Krishna	Isolated and low potential.
14.	Kavitam – 2	West Godavari	Isolated and low potential.
15.	Mandapeta – 23	East Godavari	low potential.
16.	Mandapeta West – 2	East Godavari	Isolated and low potential.
17.	Sanarudravaram – 1	Krishna	New objects to be tested.

18.	Mandapeta West –3	East Godavari	Gas allocated. Gas production expected shortly.
19.	Mandapeta West – 5	East Godavari	Gas allocated. Gas production expected shortly.
20.	Rangapuram – 1A	East Godavari	Being connected.
21.	Penumadam – 3	West Godavari	New well. Being connected.
22.	Razole – 8	West Godavari	New well. Being connected.
23.	Sitarampuram – 4	East Godavari	New well. Being connected.
24.	Gopavaram – 5	East Godavari	New well. Being connected.
25.	Kaikalur – 19	Krishna	New well. Being connected.

Further 7 offshore oil wells and 4 offshore gas wells drilled in KG basin are unconnected and will be put on production after development of offshore production facilities."

(G) Leakage of data/information regarding oil/gas blocks

2.47 During oral evidence, the Committee brought to the notice of the Government that certain cream oil and gas blocks have been acquired by some private parties on which they do not have to spend that much of money as the Public Sector Oil Companies in their blocks. This has possibly been done with the leakage of information about these blocks by persons who have deserted Public Sector Companies and joined Private Sector ones.

2.48 The Committee were informed during oral evidence that the Government is encouraging more and more private and foreign investment into exploration and production because it is in need of resources. The vast resources of ONGC are not adequate to fully exploit the oil and gas reserves in the country.

2.49 When asked about the number of Public Sector employees who have gone to the Private Sector, CMD, ONGC deposed before the Committee as under:-

> "The present rules require that only Board level officers need to seek Governmental approval for joining private sector within two years of their retirement. This does not apply to anyone at any other level who resigns or just leaves and joins the private sector or goes abroad. Therefore, the information which is available from the Government sources would be in a way the tip of the iceberg – only the Board level officers who have sought permission and then with permission have gone to private sector within two years. However, the number of people who have left public sector to go to private sector or abroad from junior, middle and senior management level is much higher. It runs into several hundreds. They have gone over the years and even now they are going."

2.50 Supplementing further, a representative of the Ministry of Petroleum & Natural Gas submitted before the Committee during oral evidence as under:-

> "If someone asks for permission, Government can examine and see if it is prejudicial to Government's interest and then they can say no. But if someone does not ask for permission and just goes out without telling you, there are no specific rules on how to cope with such situations. After examining what has happened in the recent past in the case of ONGC, Oil India Limited and so on, we have just initiated action to collect the details. With this, we would like to go back to the concerned Department of the Government, namely the Department of Personnel, on how to deal with such a situation. In fact, we are taking action on that. There is a certain lack of clarity. We would like to deal with that very quickly. We would incorporate this suggestion also because this needs to be dealt with correctly. Right now, the present rules do not provide for a situation like this."

2.51 On the same issue, CMD, ONGC added the following:-

> "We need to have perhaps new rules to be codified by DoPT or whichever body in the Government. These two things are open issues. One is if one does not ask for permission and goes out, there is no penal action. Secondly, those who are below the Board, if they go out again there is no provision at all or any provision or any permission to join a private sector because leakage is not only documents, whatever the person carrying in his head is also a leakage. Once you have nurtured somebody for 20 or 25 years and if he walks over, he carries a tremendous amount of information, knowledge, data with himself besides the papers."

2.52 The Committee specifically desired to know the number of employees of ONGC and OIL who have left the organisation and joined the private sector during the last ten years. The Ministry furnished the following details in this regard:-

"ONGC

The total number of executives who have left ONGC during last 10 years is as under –

Sl. No.	Disciplines	No. of employees who have left ONGC (other than normal superannuation)
1.	Drilling	409
2.	Exploration	414
3.	Operations	500
4.	Technical	1288
5.	Common services	73
Total		2684

We, however, do not have any information as to whether they have joined any private sector as the same has not been divulged by them at the time of separation.

OIL

As far as Oil India Limited (OIL) is concerned, 376 Executives and 1,920 Workpersons left OIL in the last 10 years on resignation, retirement including early/voluntary retirement, termination/removal, etc. However, OIL does not have any record of the outgoing employees joining private sector. Nonetheless, from time to time, OIL comes to know that some of OIL's outgoing Executives have been associated with certain private sector oil and gas companies. "

2.53 When asked as to whether any cases have come to the notice of the Government wherein the outgoing employees of ONGC/OIL have divulged confidential information to private companies, the Ministry of Petroleum & Natural Gas *inter-alia* stated as under:-

"ONGC

To the best of our knowledge we do not have any information regarding outgoing employees who have divulged confidential information to private companies.

OIL

As far OIL is concerned, OIL has not come across any such case of any OIL's outgoing employees having divulged any confidential information to private companies."

(H) Improved Oil Recovery (IOR)/Enhanced Oil Recovery (EOR) Schemes

2.54 ONGC and OIL are employing the Improved Oil Recovery (IOR) and Enhanced Oil Recovery (EOR) schemes to increase and optimise the recovery from the existing fields. The brief details of these schemes are given in the succeeding paragraphs.

ONGC

2.55 19 projects of ONGC (including two EOR projects in Balol and Santhal already approved by Government (PIB)) were identified and preparation of 14 feasibility reports of IOR projects were initiated in 2000-2001. These FR were approved by ONGC EC/Board between Aug. 2000 and Oct. 2001. The balance 3 IOR projects are under study.

2.56 The total expenditure of the 16 (14 IOR and 2 EOR) approved projects (including 2 EOR projects approved by Government) is Rs. 10972 crore. The envisaged incremental oil is 106 MMT by 2020 for an increase in recovery factor by an average of 4% over the base case. The base year for the profiles is 2000-2001.

2.57 Five projects have been completed as below:-

Sl. No.	Projects	Completion date
1	In-situ Combustion Balol	Nov. 2001, Facilities commissioned.
2	In-situ Combustion Santhal	Dec. 2001, Facilities commissioned.
3	Sanand Extended Polymer	Sept. 2002
4	Santhal Infill – IOR	Nov. 2003
5	Additional Development Heera Part-I	Dec. 2003

2.58 The remaining 11 projects are stated to have made significant progress and expected to be completed within the scheduled time and sanctioned cost.

2.59 The total expenditure on the 16 projects up to end March' 2004 was Rs. 5504 crore (provisional) against planned Rs. 7268 crore. Up to the end of September, 2004, against the plan of Rs. 8287 crore, actual expenditure was around Rs. 6462 crore (provision actual). The variation has been stated to be on account of:

(i) Significant cost savings realised in 7 offshore packages awarded so far.
(ii) Shortfall in the no. of wells drilled.
(iii) Rescheduling the award of Mumbai High North and Mumbai High South Process Platforms to incorporate recommendations of M/s Worley in one case (MNW) and delay in project approval by about 6 months in the other case (MSP) and optimisation of no. of wells/platforms by clubbing four packages.
(iv) Upgradation of Process Gas Compressors at Neelam delayed due to negotiations with OEM.
(v) Delay in installations of Low Pressure Gas Compressors in Gandhar.

2.60 The production performance of the major fields as a group has been improved from the level of 52200 TPD in April, 2000 to 59347 TPD by March, 2004, an increase of 13.7%.

Mumbai High Redevelopment Projects

2.61 The two projects for Redevelopment of Mumbai High Field account for the major part of the investment in the IOR/EOR Programme, Rs. 8185 crore out of Rs. 10972 crore, with a corresponding contribution of 57 MMT out of 106 MMT incremental oil by 2020. MHN Redevelopment project was approved in Dec. 2000. Approval for MHS Redevelopment project was accorded in Oct. 2001, after clearance by DGH, against envisaged date of April, 2001.

2.62 The proposed scope of work includes installation of 2 process platforms, 21 well platforms, 23 clamp-on structures, and structural modifications

on existing platforms, laying of associated sub sea flow-lines and drilling of 213 new development wells. The entire work is scheduled for completion in Mumbai High North by Dec. 2005 and Mumbai High South by July 2007.

Mumbai High North Redevelopment Project

2.63 The salient features and status of activities of the various packages of the Mumbai High North Redevelopment Project are given below:-

a. Clamp-on Package (MNCO): Completed on 19.12.2001 against schedule of 28.02.2002.

b. MHN Process Platform (MNW): Awarded on 08.02.2002 (Sch. Nov. ' 2001) to M/s EIL for Rs. 821.19 crore against estimated Rs. 1093.54 crore. Award was deferred to incorporate recommendations of M/s Worley. A delay is anticipated in the commissioning of the platform against plan of January, 2004. The impact on additional water injection capacity is envisaged to be minimised through shutdown of high water cut and high GOR wells. Commissioning of water injection facilities are in progress. Against schedule progress of 100% actual achievement is 99.3% (September, 2004).

c. Two Well Platforms N11/N12: Awarded to M/s EIL on 10.04.2002 for Rs. 411.62 crore against estimated Rs. 399.50 crore. Both well platforms have been installed in May, 2003. Drilling Rig deployed at N12 Well Platform on 07.05.2003 and drilling is in progress. Drilling Rig deployed on N11 Well Platform on 11.05.2003.

d. Two Well Platforms N9/N10: Awarded to M/s L&T on 22.05.2003 for Frs. 365.27 crore with scheduled completion by December, 2004. Against schedule progress of 88.6% actual achievement is 86% (September, 2004).

e. Three Pipeline Project: Work awarded to M/s EIL and BHEL at a cost of Rs. 72.38 crore for top side modification and laying of pipelines. Overall progress is 48.6% against plan of 100% (September, 2004).

Mumbai High South Redevelopment Project

2.64 The salient features and status of activities of the various packages of the Mumbai High South Redevelopment Project are given below:-

a. ZA Platform: Completed as per schedule on 31.12.2001.

b. Clamp-on Package (MSCO): Work awarded to M/s L&T on 30.08.2002 for Rs. 32.62 crore. Completed ahead of schedule on 13.02.20003.

c. MHS Process Platforms (MSP): Awarded to M/s HHI on 10.06.2003 for Rs. 1047.70 crore with scheduled completion by April, 2005. Against schedule progress of 65.1% actual achievement is 61.3% (September, 2004).

d. Nine Well Platform Project: The project is scheduled to be executed under two tenders:

   Tender-I : Installation of 9 Well Platforms: Work awarded to M/s L&T on 20.02.2004 at a cost of Rs. 1006.65 crore. First phase of the work is scheduled for completion by April, 2005. Against schedule progress of 12.56% actual achievement is 12.69% (September, 2004).

   Tender-II : Pipeline laying and Platforms Modifications : Work awarded to M/s IOEC, Iran on 20.02.2004 at a cost of Rs. 738.55 crore. First phase of the work is scheduled for completion by April, 2005. Against schedule progress of 15.16% actual achievement is 8.94% (September, 2004).

e. Nine Clamp-on Project: Awarded to M/s L&T on 14.11.2003 at a cost of Rs. 79.20 crore with first phase completion by April, 2005. Against schedule progress of 67.83% actual achievement is 64.51% (September, 2004).

2.65 Drilling & Completion of Wells: Against the planned of 136 wells up to the end March 2004, 109 wells have been completed. Shortfall of wells has been stated to be on account of non availability of suitable matching rigs for drilling of MNCO clamp-on wells and rescheduling of MSCO clamp-on wells. During the year 2004-05 against the plan of 22 wells till September, 2004, 19 wells have been drilled.

2.66 However, the lower no. of new wells available was partly compensated by higher productivity of the horizontal/extended reach wells.

2.67 The actual expenditure incurred on wells and facilities is as below:-

(Rs. in crore)

		Plan	Actual	Remarks
		Up to September, 2004		
MHN Re-development	Wells	1056.29	962.47	Variation due to less no. of wells
	Facilities	1726.36	1436.19	Variation mainly due to delay in award of MNW & less awarded cost.
MHS Re-development	Wells	1661.41	1316.04	Variation due to less cost per well and less no. of wells.
	Facilities	1369.16	730.83	Rescheduling due to delay in approval of project & dropping of few new envisaged platforms

Gains in Production Rate

	Rate TPD April, 2000	Rate TPD March 2004
MHN+MHS with Redevelopment	26800	34000
MHN+MHS without Redevelopment	26800	20500 *

** Mumbai High Field production was declining at the average rate of 7% per annum in the five years (1995-96 to 1999-2000) preceding 2000-01. Hence real gain is 13500 TPD additional productions (equivalent to 4.92 MMT/annum).*

Other Major IOR/EOR projects of ONGC

2.68 Besides the projects mentioned above, there are 14 other projects of ONGC under the IOR/EOR programme which are located as under:-

	Location	Projects	Name
1	Western Offshore	2	Addi. Dev. Heera & IOR-Neelam.
2	State of Gujarat	9	Gandhar; Kalol; Sanand; North Kadi; Jotana; Sobhasan; Santhal infill; Balol and Santhal Insitu;
3	State of Assam	3	IOR – Lakwa; IOR – Geleki and IOR – Rudrasagar

2.69 The total approved cost of these 14 projects is Rs. 2787 crore and the envisaged incremental oil to be produced over the 20 year period upto 2020 is 49 MMT.

2.70 The actual and planned expenditure on facilities and wells under the 14 projects is summed up below:-

	Planned upto Sept. 2004 Rs. crore	Actual upto Sept. 2004 Rs. crore	Remarks
Heera & Neelam (Offshore)	650.70	578.08 (278.58 Heera + 299.50 Neelam)	Lower cost of facilities and wells than envisaged; delay in award of PGC upgradation.
Balol & Santhal (Gujarat, EOR)	450.70	378.77	Facilities commissioned.
Gandhar, Kalol, N. Kadi, Jotana, Sobhasan, Sanand, Santha Infill, (Gujarat)	978.66	759.34	Lower cost of facilities and wells. Slippage of LPGCP Ph-I and Ph-II in Gandhar, award of GGS-IV, N. Kadi, Less wells drilled than plan in Sobhasan due to geological reasons.
Lakwa, Geleki, Rudrasagar (Assam)	393.93	299.80	Lower cost of wells and less number of wells drilled. Some facilities are under review.

OIL

2.71 OIL has been undertaking IOR/EOR initiatives in the form of water injection, gas injection, polymer flooding etc. in its different oilfields of Assam from very early production phase. A polymer flood project was concluded successfully which has resulted in an increased recovery of about 5 per cent of reserves apart from resulting in a 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 9,500 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

2.72 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), workover operations (around Rs. 50 crores annually), steam huff and puff pilot in Baghewala heavy oil in Rajasthan, production of high pour point oil, de-bottlenecking of production facilities through creation of additional infrastructure, etc.

(I) Technology used by ONGC

2.73 The Committee have been informed that horizontal drilling technology, multilateral drilling technology, etc. have been implemented by ONGC for drilling wells in offshore. The application wise details are furnished below:-

Sl. No.	Technology	No. of wells drilled
1	Horizontal well drilling technology	145
2	Multilateral well drilling technology	36
3	Extended Reach Drilling technology	19
4	Side track well drilling technology (horizontal and multilateral wells)	78
5	Medium/short radius drill hole drilling technologies	30

2.74 Due to application of these technologies, many development and side track wells have been drilled for continued and enhanced hydrocarbon production.

2.75 To enhance oil and gas production, private/JV companies have also introduced new technologies in drilling such as drilling of horizontal and multilateral wells, depending upon the suitability of the technology. 43 horizontal wells and 5 multilateral wells have been drilled in Panna-Mukta fields.

2.76 When asked as to whether ONGC has any plan to acquire drill ships/rigs that can drill beyond 900 M of water depth and the relative profitability of having rented deep water rigs *vis-a-vis* fully owned ones in deep water exploration, the Ministry of Petroleum & Natural Gas submitted the following details in a written reply:-

> "Drilling Services has not planned to acquire drill ships/rigs that can drill beyond 900 M of water depth. Since exploration in deep water is planned in varying water depth conditions (upto 3000 M water depths), 2 drill ships with different capabilities (upto 1800 M and upto 3000 M water depths) have been hired. As the acquisition of a drill ship for deep water operations is capital intensive, techno-economics is dependent on long term requirement, success of the exploration efforts, hydrocarbon potential and development requirement for deep water prospects, etc. As these projections are not firm, meaningful techno-economics for acquisition versus rented deep-water rigs at this stage is not possible."

(J) Announcement Policy

2.77 The issue of exaggerated/speculative disclosure of discovery of reserves by some companies was raised during the oral evidence. Such speculation/ exaggeration may have a bearing on the value of the company in the share market, thereby sending a wrong signal to the public. In this connection, a representative of the Ministry informed the Committee that the Government takes a lot of care in curbing and containing such speculation.

2.78 Director General, DGH informed the Committee during evidence that the Government has decided to evolve an 'Announcement Policy' in this regard. According to this Policy, no player can announce a discovery until he meets the minimum requirement of the Government. The policy will be in place shortly and the Government is working on it. For this purpose, a team has been constituted which is supposed to give its report shortly. Once this policy is put in place, people just cannot announce any discovery on their own. The Committee were also informed that the companies would be required to employ globally competent authorities and have them certify the reserves. Only the reserves certified by the global authorities will be acceptable to the Government.

2.79 When asked about the Announcement Policy relating to discoveries made by the companies, the Ministry, in a post-evidence reply, informed the Committee that information on new significant discovery made in the block is declared at large only after detailed technical analysis as per the provisions of the governing PSC and as per international practice. At the time of the first announcement of a discovery only the stabilised flow measurements and other relevant technical details available on date should be made to avoid speculatory announcements/inflated figures. Estimation of reserves separately for the proved, probable and possible categories can only be done after appraisal of the discovery. With a view to keeping the declaration of oil/gas discoveries by various companies in conformity with best international practices, DGH has studied the norms prevailing in various countries in this regard. Based on this study, DGH has prepared recommendations on "Classification of Resources and " and "Declaration of Discoveries". This report is being examined in consultation with the stakeholders.

2.80 Emphasising on the codification of announcements, CMD, ONGC deposed before the Committee as under:-

> "…..on disclosure norms, the US Securities and Exchange Commission has laid down very clear codification on announcement of discoveries and also on assessment of reserves that are declared by companies. ONGC Board, you would be happy to know, in October, 2002 voluntarily adopted FASP-59 which is the US code for announcement of discoveries as well as SSC norms for independent audit of reserves, which we have already completed……..we have recently represented to the Government that there needs to be very clear codification applicable to both public sector and private sector operators on announcements as well as on assessment of reserves. Government has agreed to that …… we expect the Government to issue these codifications either directly or through SEBI at the earliest possible situation."

CHAPTER – III

PRODUCTION AND CONSUMPTION OF OIL AND GAS

(A) Demand and Supply of Crude Oil

3.1 Planned target *vis-à-vis* actual achievement by ONGC and OIL for crude oil production (in MMT) is given below and 'no' target is fixed for private/JV companies:-

Organisation		1999-2000	2000-01	2001-02	2002-03	2003-04
ONGC	Planned	25.800	24.600	25.001	25.897	26.387
	Actual	**24.648**	**25.057**	**24.708**	**26.005**	**26.057**
OIL	Planned	3.29	3.38	3.500	3.500	3.600
	Actual	**3.261**	**3.286**	**3.183**	**2.950**	**3.002**
Pvt./JV	Planned	-	-	-	-	-
	Actual	**4.018**	**4.083**	**4.140**	**4.088**	**4.314**
Total		**31.927**	**32.426**	**32.031**	**33.043**	**33.373**

3.2 Reasons for Shortfall in production have been given as under:-

ONGC

The shortfall in oil production during 1999-2000 is due to less production from offshore and north-eastern areas. The shortfall in oil production during 2001-2002 is due to shutdown in Mumbai High. The shortfall in oil production during 2003-2004 is due to rupture of Mumbai High – Uran Trunk pipeline and less production from Assam, Mehsana.

OIL

3.3 Oil India Limited's major producing fields are in advanced stage of decline. The newer finds in the recent years have been, in general, deeper, smaller and associated with a number of down-hole production problems. Since 1995, the company has not made any medium to large size discoveries and new

discoveries made during the period have just about supplemented the production decline of the old fields. Only during 2003-04, OIL made two major discoveries – Baghjan and Chandmari for which expeditious development plans are in hand.

3.4 In regard to the remedial measures taken by ONGC, OIL and Pvt./JV companies, the Committee have been informed as under:-

(i) IOR/EOR projects by ONGC are under implementation.

(ii) Augmenting drilling efforts by OIL for drilling of increased number of exploratory as well as development wells for enhanced potential retrieval.

(iii) Increasing workover efforts for reviving sick wells for adding production potential.

(iv) Immediately bringing onto production any new finds (through drilling) through creation of quick production set-up/early production set-up and use of bowsers for crude oil transportation.

(v) Induction of more versatile artificial lift assistance methods (where conventional artificial lift assistance are not suitable) for bringing onto production shut-in wells.

(vi) Proposed drilling of horizontal wells in related reservoirs.

(vii) Application of gravel pack technique for sand control in selected wells.

(viii) Undertaking pilot scale studies for exploitation of heavy oil reserves in Rajasthan.

(B) Demand and Supply of Natural Gas

3.5 Allocation demand for natural gas vis-à-vis gas production in the country is given below:-

Year	Allocation Demand in MMSCMD	Allocation Demand in BCM	Gas production in BCM
2003-04	117	42.9	31.96
2002-03	119	43.5	31.39
2001-02	119	43.5	29.71
2000-01	118	43.2	29.48
1999-2000	102	37.35	28.45

3.6 Planned target vis-à-vis actual achievement by ONGC and OIL for natural gas production (in BCM) is given below and 'no' target is fixed for private/JV companies:-

Organisation		1999-2000	2000-01	2001-02	2002-03	2003-04
ONGC	Planned	22.710	23.073	23.996	23.700	23.315
	Actual	**23.252**	**24.020**	**24.042**	**24.244**	**23.584**
OIL	Planned	2.625	2.857	3.022	2.192	2.346
	Actual	**1.729**	**1.861**	**1.615**	**1.743**	**1.887**
Pvt./JV	Planned	-	-	-	-	-
	Actual	**3.465**	**3.596**	**4.054**	**5.407**	**6.490**
Total		**28.446**	**29.477**	**29.711**	**31.394**	**31.961**

3.7 In regard to the shortfall in gas production by OIL, the Committee have been informed that shortfall in gas production in the North-East is more a function of non-withdrawal of committed quantities by consumers than the capability of the company to produce the targeted quantities. In the North-East, the consumers have regularly failed to lift the committed quantity of natural gas. Among the major consumers, Brahmaputra Valley Fertilizers Company Limited (BVFCL), Namrup which had committed to uplift 1.72 MMSCUMD from 2002-03 is currently drawing only around 1.1 MMSCUMD. Similarly, ASEB Lakwa is yet to draw any gas against the committed quantity of 0.5 MMSCUMD.

3.8 About the remedial measures taken by OIL, the Committee have been informed as follows:-

(i) OIL has signed an MOU with Numaligarh Refinery Limited for supply of 1.0 MMSCUMD of gas by end of 2006-07 for which pipeline is presently under construction.
(ii) OIL also plans to extend the gas pipeline to Guwahati for new consumers in this region.
(iii) There has been additional commitments made to NEEPCO for supply of 0.4 MMSCUMD of gas.
(iv) To meet this expected increase in demand, OIL has initiated a time bound Non-Associated Gas Fields development plan in the North-East.
(v) Workover of 15 nos. sick gas wells at Rajasthan followed by drilling of development of gas wells.

(C) Import of Crude Oil

3.9 The demand for petroleum products in the country has been continuously increasing without corresponding increase in the crude oil production. The widening demand-supply gap is being bridged mainly through imports.

3.10 The demand, domestic availability and import dependence of crude oil during the last five years are as under:-

Year	Domestic Production (MMT)	Consumption/Demand (MMT)	Import dependence
1999-00	31.93	97.1	69%
2000-01	32.43	100.1	68%
2001-02	32.03	100.4	68%
2002-03	33.04	104.1	68%
2003-04	33.37	108.0	69%

3.11 Crude oil import and expenditure incurred thereon during last five years are given below:-

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

3.12 Finished Petroleum Products directly imported into India during last five years and their values are given as under:-

Year	Quantity (TMT)	Value	
		Rs. (Crore)	US $ (Million)
2003-04 (Prov.)	8001	9723	2114
2002-03	7228	8847	1822
2001-02	7009	7249	1511
2000-01	9267	12093	2642
1999-2000	16607	14185	3264

3.13 When asked about the measures being taken to reduce the percentage of import dependence in a time bound manner, the Ministry of Petroleum & Natural Gas, in a written reply, stated as under:-

"several important steps have been taken by the Government to increase the pace of exploration and to enhance oil and gas production as indicated below:-

(i) to increase exploration efforts through the New Exploration Licensing Policy (NELP); Under the four rounds of NELP, Production Sharing Contracts (PSCs) have been signed for 90 blocks.

(ii) to improve the recovery factor from existing major fields by implementing Enhanced Oil Recovery (EOR)/Improved Oil Recovery (IOR) schemes; in particular Oil and Natural Gas Corporation Limited (ONGC) has taken up 15 fields for this purpose at an estimated investment of over Rs. 10,000 crore, which would also help in increasing oil production from these fields. IOR/EOR projects of ONGC are to be completed by the end of 10^{th} Plan (2007).

(iii) to explore in new areas, especially in deep water and difficult frontier areas, as also explore in the deeper layers of the producing fields.

(iv) to develop faster the newly discovered fields and to step up the use of new technologies for seismic surveys, work over, stimulation operations, drilling of wells etc. in producing areas (Development of new discoveries by private/JV companies will increase gas

production about 50% from the current level of production within 3-4 years duration).

(v) to acquire acreages abroad (Now, OVL has presence in 10 countries).

(vi) to explore alternative source of energy such as CBM & Gas hydrates (Exploration in 16 CBM blocks is in progress. Exploration for Gas hydrate is going on as per the prepared roadmap)."

(D) Liquefied Natural Gas (LNG)

3.14 Indigenous production of natural gas at present is about 90 MMSCMD. This includes gas used for internal consumption. The present demand is around 150 MMSCMD. As per India Hydrocarbon Vision – 2025 document, the demand projection of natural gas in 2011-12 is 313 MMSCMD.

3.15 The current availability of re-gasified LNG in the country is 2.5 MMTPA which is equivalent to 9 MMSCMD of re-gasified LNG. This constitutes around 12% of the total gas supplied (75 MMSCMD) in the country.

3.16 The LNG terminal for 5 MMTPA at Dahej by M/s Petronet LNG Limited was commissioned in February 2004 and commercial supplies began in April 2004. Another LNG terminal at Hazira by Shell is reported to have gone on stream in the 2nd quarter of 2005. The LNG terminal associated with Dabhol power project was about 80% completed when the work was stopped.

3.17 The Committee have been informed that by 2010 about 6 LNG terminals, viz., Dahej (10 MMTPA), Kochi (2.5 MMTPA), Hazira, Gujarat (2.5 MMTPA), Dabhol (2.5 MMTPA), Mangalore (5 MMTPA) and Ennore/Krishnapatnam (2.5 MMTPA) may come up. The total capacity would be 25 MMTPA which is equivalent to about 97 MMSCMD of natural gas.

3.18 Elucidating further on the future programme of the Government for setting up more LNG terminals in the country and their proposed locations, the Ministry of Petroleum & Natural Gas furnished the following details:-

> "Petronet LNG Limited's (PLL) LNG terminal of 5 MMTPA capacity has already been commissioned at Dahej in Gujarat. Shell's LNG terminal of 2.5 MMTPA capacity is expected to be commissioned at Hazira, Gujarat by second quarter of 2005. Dabhol LNG terminal of 2.5 MMTPA capacity in Maharashtra may be commissioned in next 2 years, subject to resolution of various financial, legal and other disputes. PLL has decided to expand the Dahej terminal from 5 MMTPA to 10 MMTPA and also to set up 2.5 MMTPA terminal at Kochi in Kerala. LNG projects at Mangalore in Karnataka, Ennore, Krishnapatnam and Gopalpur/Haldia are at proposal stages."

3.19 During oral evidence, the Committee desired to know about the location of LNG terminals and the authority who is deciding about the selection of such locations. The Secretary, Ministry of Petroleum & Natural Gas clarified that the companies which are promoting the terminals are the deciding authority and that formally the Government has no role to play in the matter. He further clarified that anyone can do LNG business as this is an open area.

3.20 Amplifying further, the Secretary, Ministry of Petroleum & Natural Gas stated during evidence:-

> "We do not have any statutory authority to dictate where LNG terminal should be set up. Those statutory clearances are given by the Environment Ministry and for land it is the State Government which gives the clearance. The Ministry of Petroleum & Natural Gas is only guiding since most of them are put up by the Public Sector Companies."

3.21 The Secretary also informed the Committee that for setting up LNG terminals, two things are taken into account. These are base load and source of supply of LNG. At least 50 per cent of capacity of LNG must be provided by some anchor customer. It may be one or two or three customers. Until there is a certainty of 50 per cent of that load, it may not be worthwhile to go ahead. Secondly, the source of supply of LNG has to be tied up.

3.22 Asked about the guidelines of the Government regarding the selection of locations for setting up of LNG plants and the steps being taken to ensure regional balance in the setting up of such plants, the Ministry of Petroleum & Natural Gas replied as under:-

> "As per the extant policy, LNG has been included under Open General License (OGL) with permission for 100% Foreign Direct Investment (FDI) on setting up LNG terminals. The prospective parties are free to set up LNG terminal at the location of their choice based on the commercial merit of the project. LNG projects involve back-to-back tie-ups for upstream development, liquefaction, shipping, re-gasification and downstream marketing. As LNG chain is of highly capital-intensive nature, it is difficult to envisage such projects without sound financial viability."

3.23 The Committee asked a specific question as to whether any feasibility study had been/was being conducted regarding the setting up of LNG plants at Krishnapatnam, Ennore, Haldia and Gopalpur. In reply, the Ministry gave the following details:-

> "IOC is currently preparing a Detailed Feasibility Report for setting up LNG import terminal at Ennore. It will take six months for preparation of the technical Detailed Feasibility Report. However, setting up of LNG terminal will be linked to entering into LNG Sale Purchase Agreement with prospective supplier of LNG and Gas Sales Agreement with prospective customers of re-gasified LNG. IOC/GAIL have been asked to study the feasibility of setting up LNG terminal at Krishnapatnam. A decision on LNG terminal at Krishnapatnam, Ennore, and/or other locations will be taken after examining the techno-economic feasibilities of these locations. Similarly, IOC/GAIL have been asked to study the feasibility of LNG terminal at Gopalpur or Haldia. The important criteria are upstream tie-up by way of Gas Purchase Agreement with suppliers and downstream tie-up by way of Gas Sale Agreements with customers."

3.24 Asked about the present position regarding sourcing of LNG from Iran, the Ministry furnished the following details in a written reply:-

> "Recently, an understanding has been reached with Iran to import 5 MMTPA of Liquefied Natural Gas (LNG), with a provision for later adding another 2.5 MMTPA. At present discussions are being held jointly by GAIL & IOC, with National Iranian Gas Export Company (NIGEC) to finalise a

Term Sheet, which will be the basis for LNG Sale/Purchase Agreement to be negotiated and executed for import of LNG from Iran."

3.25 As regards the possible LNG supplies to India, CMD, ONGC deposed before the Committee as under:-

"At this point of time because of the Europe and US demand, there is practically no supplies available in the short time. Qatar has already committed 77 million tonnes of LNG to be delivered up to 2009-10. Iranians do have a capacity and Iranians in January on Government to Government basis have agreed to it. GAIL and IOC are to get supplies on contract terms but major issues have been reopened. The progress with the Iranians is that one has to wait till the agreements are firmed up before we go for the next trip. At this point of time, I would not be very confident that gas will be actually sourced.

Then there are sources in the West Coast Africa where the major supply facilities are being built in Nigeria. In Australia, major facilities are coming up. We are actually looking at West Coast Africa, Australia and also availability of our own share of gas fields which will be coming in full scale in 2008-09…….At this point, …… what we have with us is a commitment from Qatar to supply LNG."

3.26 Regarding the initiatives taken to source LNG from other countries such as Australia or Indonesia, the Ministry of Petroleum & Natural Gas, in a written reply, stated as under:-

"LNG imported from Australia and Indonesia may possibly be cheaper by 3-4% with respect to landed cost due to lower shipping cost for supplies to the east coast as compared to the west coast. Further, FOB prices of supplies from the south-east Asian and Australian sources are relatively lower as compared to supplies from the middle-east sources compensating for the differential arising out of shipping cost. In view of the above, GAIL and IOC are pursuing for import of LNG from various sources including Australia and Indonesia."

3.27 On the same issue, CMD, ONGC added during evidence as under:-

"…….if LNG is sourced from the East, that is North-West shelf of Australia or Indonesia etc, it will be cheaper to land on the East Coast. If LNG is sourced from the West where there is the Middle East, Qatar, Yemen, Iran or West-Coast Africa, it will be cheaper to land on the West Coast."

3.28 During oral evidence, CMD, ONGC gave the following data regarding LNG terminals in some other countries vis-à-vis India:-

> "……the US have five terminals and 29 are under construction now. In Europe, as far as our information goes, eight new terminals are under construction. Japan, on the other hand has more than 30 terminals existing. Against this, India has one terminal in operation and one ready for commissioning. So going by the fact that we are looking at gas demand as total of natural gas and LNG gas demand to double or triple in the next 15 years or 20 years time, obviously there is a need for mechanising sourcing of natural gas and LNG both."

3.29 A number of naphtha based fertilizer plants are being closed down as the increasing cost of naphtha is making such plants unviable. In this connection, the Committee desired to know about the policy being put in place by the Government regarding changing over from naphtha based plants to gas based plants and the steps being taken to make adequate gas available for this purpose. The Ministry of Petroleum & Natural Gas informed the Committee as under:-

> "As per the information furnished by the Department of Fertilizers, the Government has formulated a policy in January 2005 for conversion of existing naphtha/FO/LSHS based urea units to natural gas/LNG as feedstock. The plants based on naphtha/FO/LSHS are less energy efficient and have a higher production cost. Therefore, the policy encourages an early conversion to natural gas/LNG so that they acquire a competitive edge in the deregulated and liberalised economic scenario. With a view to encouraging investments for switch over to NG/LNG as feedstock, the investor is assured that savings on account of energy efficiency after conversion would be retained by the plants for a maximum period of 5 years in respect of naphtha based plants and 10 years in respect of FO/LSHS based plants.
>
> A Working Group has been constituted under the chairmanship of Dr. Y.K. Alagh to review the effectiveness of Stage-I and II of NPS and for formulating policy for urea units beyond Stage-II i.e. from 1.4.2006 onwards etc. The Working group has also been assigned the task of fixing milestones for conversion of existing naphtha and FO/LSHS based units to NG/LNG. As against the existing demand of more than 150 Million Metric Standard Cubic Meters Per day (MMSCMD), the total availability of gas is only about 80 MMSCMD.

Government has taken various initiatives to augment the availability of natural gas in the country. Besides intensification in the domestic exploration and production activities, initiatives have been taken to import natural gas in the form of Liquefied Natural Gas (LNG) as well as through transnational pipelines from gas rich countries in West Asia (including Iran), Central Asia and South East Asia. In the short to medium term the additional gas may be available from LNG imports by PLL at Dahej and Shell at Hazira. However, this gas will be available at market related price. This Ministry has, from time to time, advised Department of Fertilizers to direct the fertilizer units to tie-up LNG to replace costlier liquid feedstocks like Naphtha, FO, LSHS. Some of the units have already tied up. The linking of the units with the pipeline is dependent upon their tying up of LNG."

CHAPTER - IV

EXPLORATION AND EXPLOITATION OF COAL BED METHANE (CBM)

(A) Significance of CBM

4.1 Natural Gas currently accounts for 9% of the commercial energy consumption in the country. As per the current projections, the gap between demand and supply is expected to increase in the years to come with the sustained growth in economy and greater emphasis on development of natural gas. In the context of widening demand-supply gap in natural gas, CBM, a new source of energy in the country, is expected to contribute to the domestic supply.

4.2 Coal Bed Methane (CBM), which is natural gas (methane) adsorbed in coal and lignite seams, is an eco-friendly non-conventional source of energy. CBM production has also an important bearing on reducing the green house effect due to the emission of methane gas in the atmosphere. It also contributes to mine safety by degassing the seams ahead of mining and provides a source of energy which would otherwise have been wasted as methane gas is vented in the air in the course of mining.

4.3 CBM as an energy source is expected to provide a new source of income to the State Governments and Central Government in form of royalty, Production Level Payments (PLP), taxes and commercial bonus. In addition, given that CBM is a low pressure gas, it has greater likelihood of being utilised locally for domestic and industrial uses as well as in local power projects, etc. Thus, it is expected to improve economic activities in the vicinity of CBM operations.

4.4 India is endowed with rich deposits of coal and lignite in different sedimentary basins of varying dimensions. The bulk of the coal resources of 235 billion tonnes is contained in older basins like the Gondwana basin. Large lignite deposits of 100 billion tonnes occur in younger basins of Gujarat, Rajasthan and

Tamil Nadu. A characteristic feature of these basins is the development of very thick coal and lignite seams (20-80m) over a large stretch of the coal/lignite fields. In fact, one of the thickest seams (138m) of the world is in Indian coal fields. This huge resource base has provided impetus for a spurt in coal mining activity and India now holds third position in coal production in the world with an output of more than 300 million tonnes per annum. India has the sixth largest proved coal reserves in the world and therefore, also holds significant prospects for commercial production of CBM.

(B) CBM Policy

4.5 In order to harness the CBM potential, the Government formulated a CBM Policy in 1997, which provided attractive fiscal and contract term. The fiscal and contract terms were formulated following a process of consultation and were based on prevailing international fiscal regimes. The main features of the CBM Policy are as under:-

(i) Blocks would be awarded through open international competitive bidding.

(ii) Contractors would be required to pay license/lease fee and charges including surface rentals, land acquisition charges etc. as per P&NG rules or as required under any other provisions.

(iii) The contractor shall pay fixed ad valorem royalty and biddable Production Level Payments (PLP) on a sliding scale based on the monthly average of daily production with increased PLP being payable on incremental production with base rate of 10%. Thus, while no PLP would be payable on an average natural gas production of upto 1 Million Standard Cubic Metre Per Day (MMSCMD), thereafter PLP would be biddable on every incremental production of 0.5 MMSCMD.

(iv) Contractor and sub-contractors will be exempted from payment of customs duty on import of goods and materials required for exploration and exploitation of CBM.

(v) Contractor will be required to pay a commercial discovery bonus of US $ 0.3 million or its equivalent amount in Indian Rupees from Indian companies on the declaration of commercial discovery.

(vi) The contractor would be required to pay corporate income tax as per the Income Tax Act.

(vii) Seven year tax holiday from the date of commencement of commercial production.

(viii) Contractor will be provided fiscal stability during the entire period of contacts.

(ix) The contract will be subject to the laws of India.

(x) Arbitration shall be governed as per the Arbitration and Conciliation Act, 1996.

(xi) A model contract will be prepared and made available to the companies.

(xii) The contract duration will be divided into four phases as follows:-

Phase-I	:	3 years and will be for exploration.
Phase-II	:	5 years pilot assessment for commercially.
Phase-III	:	5 years development phase.
Phase-IV	:	25 years production phase.

(xiii) The companies will have a walk-out option at the end of Phase-I and Phase-II.

4.6 After the approval of CBM policy and signing of the MOU between Ministry of Petroleum & Natural Gas and Ministry of Coal, steps were taken to operationalise the CBM policy with a view to offering CBM blocks for exploration and production.

(C) Survey and exploration of CBM in India

4.7 When asked as to whether any survey has been made to assess the total recoverable CBM reserves in the country, the Ministry, in a written reply, stated as under:-

> "CBM is methane gas adsorbed in the coal seams. Systematic exploration of coal in the country is being carried out by various agencies viz. GSI, MECL, CMPDI and other State Geology & Mining Departments and inventory of the coal resources are available. However, the information/collection of data regarding CBM potential in the coal bearing areas was not a part of this systematic geological exploration for coal.
>
> With the formulation of CBM policy by Government in 1997, information/collection of data regarding potentiality and prospectivity of CBM in coal bearing areas has been initiated. The GSI has also decided to carry out CBM related studies as a part of their coal exploration programme on a regular basis."

4.8 The Committee have been informed that the cost comparison among different types of fuels viz. coal, tar, furnace oil and coal gas being used in the nearby industries indicates that the CBM can be marketed at a cheaper price than furnace oil and gas. If compared only on the basis of calorific value, CBM may be higher in cost than coal. However, if the cost of disposal and handling of huge solid waste generated in case of coal based industries and other environmental aspects are considered, CBM will be a cheaper option.

4.9 Government of India has awarded 16 CBM blocks for exploration and production of Coal Bed Methane in different coal fields of India. The commercial production of CBM from few of these awarded blocks may start by 2006-07. These blocks may yield a peak production of about 23 MMSCMD of CBM in the country.

4.10 The progress made so far under CBM blocks is as under:-

PROGRESS OF WORK IN AWARDED CBM BLOCKS

Sl. No.	Block Name/ (Block Nomenclature)	State Area in (Sq.Km)	Awardee / Consortium	Contract Signed on	PEL Granted on / Effective date	Work Status as on 21.03.2005 (Exploration Phase-I)
A. CBM Blocks Awarded Under 1st Round of Bidding (CBM-I)						
1	Bokaro	Jharkhand	ONGC– IOC	26.7.2002	21.2.2003	● Completed drilling and geophysical logging of 8 coreholes. ● CBM related studies on coal cores are in progress. ● Drilling of first Test Well is in progress
	[BK-CBM-2001/I]	*95*				
2	North Karanpura	Jharkhand	ONGC– IOC		21.2.2003	● Completed drilling and geophysical logging of 9 coreholes. ● CBM related studies on coal cores are in progress. ● Test Well drilling likely to start in April 2005
	[NK-CBM-2001/I)]	*340*				
3	Sohagpur East	Madhya Pradesh	RIL		29.10.2001	● Completed drilling and geophysical logging of 8 coreholes. ● CBM related studies on coal cores are in progress. ● Carried out injection fall off test in all the coreholes. ● Complete drillling of 5 Test Wells. ● Hydrofracturing of Test Wells in progress
	[SP(East)-CBM-2001/1]	*495*				
4	Sohagpur West	Madhya Pradesh	RIL		29.10.2001	● Completed drilling and geophysical logging of 8 coreholes. ● CBM related studies on coal cores are in progress. ● Carried out injection fall off test in all the coreholes. ● Completed drilling of 5 Test Wells in a cluster, ● Hydrofracturing work in 5 wells in progress.
	[SP West)-CBM-2001/1]	*500*				
5	Raniganj East	W. Bengal	EOL			**● Signing of PEL Deed with State Govt. is still awaited.**
	[G(East)-CBM-2001/1]	*500*				
	Total : [A]	**1930**				
B. CBM Blocks Awarded on Nomination Basis						
6	Raniganj North	W. Bengal	ONGC– CIL	6.2.2003	-	● PEL granted on 9.6.2004.
		356				
7	Jharia	Jharkhand	ONGC– CIL		28.08.2003	● PEL granted on 28.8.2003. ● Corehole drilling started in January 2005 ● Drilling of 2 Coreholes are in progress.
		85				
8	Raniganj South ***(The block was earlier awarded through FIPB route)***	W. Bengal 210	GEECL	31.5.2001	9.11.2001	● ***Phase-I work programme completed.*** **PHASE-IIA: Pilot Assessment Phase-IIA** ● Drilling and hydrofracturing of 3 Pilot wells completed. ● Dewatering is in progress for assessment of CBM potentiality in all the 3 pilot wells. ● Flow of gas @ 2000 m3/day
	Total : [B]	**645**				
C. CBM blocks awarded under second round of bidding (CBM-II) :						
9	South Karanpura	Jharkhand	ONGC	6.2.2004	-	**PEL awaited.**
	[SK-CBM-2003/II)	*70*				
10	North Karanpura	Jharkhand	ONGC		-	**PEL awaited.**
	[NK(West)-CBM-2003/II]	*267*				
11	Satpura	Madhya Pradesh	ONGC		4.1.2005	**PEL granted on 4.01.2005.** ● Corehole drilling likely to start soon.
	[ST-CBM-2003/II]	*714*				
12	Wardha	Maharashtra	ONGC		12.1.2005	**PEL granted on 12.01.2005.** ● Corehole drilling likely to start soon.
	[WD-CBM-2003/II]	*503*				

13	Sonhat	Chhatisgarh	RIL		30.10.2004	**PEL granted on 30.10.2004.** ● Corehole drilling started in January end 2005 ● Completed drilling and GPL of 2 Coreholes.
	[SH(North)-CBM-2003/II]	*825*				
14	Barmer(1)	Rajasthan	RIL			**PEL awaited.**
	[BS(1)-CBM-2003/II]	*1045*				
15	Barmer(2)	Rajasthan	RIL			**PEL awaited.**
	[BS(2)-CBM-2003/II]	*1020*				
16	Barmer-Sanchor	Gujarat	ONGC-GSPCL		10.9.2004	**PEL granted on 10.9.2004.** ● Corehole drilling likely to start soon.
	[BS(3)-CBM-2003/II]	*790*				
	Total: [C]	**5234**				
Grand Total [A]+[B]+[C]		**7809**				

Total CBM resources in above 16 awarded blocks are estimated to be 820 BCM and expected total production from these blocks is estimated around 23 MMSCMD.

4.11 When asked about the time taken between bidding of tenders, signing of PSCs and the actual exploration work under the CBM Projects and the measures being taken to reduce the time period, the Ministry of Petroleum & Natural Gas furnished the following details:-

"Actual time taken between offer received (bid closing date), award and signing of contracts are given below:

Bidding Round	Bidding of Tenders (last date for receipt of tender / bid opening date)	Contract Signed on
CBM-I	31.08.2001	26.7.2002 (after about 11 months from the bid opening date)
CBM-II	15.10.2003	6.2.2004 (after about 4 months from the bid opening date)

From the above table it may be seen that after streamlining the procedure and systems and gaining experience in the first round of CBM (CBM-I), the Government has been able to reduce the time taken from the bid closing date to signing of contracts from about 11 months in CBM-I to about 4 months in CBM-II.

The exploration period (Phase-I) is of upto 3 years and assessment/ appraisal period including pilot test (Phase-II) is upto 5 years under CBM contracts in accordance with the CBM policy. The actual exploration commences after getting Petroleum Exploration License (PEL) from the concerned State Government."

(D) Exploitation of CBM in other countries

4.12 As regards the progress made by other countries in the exploitation of methane gas, the Committee have been informed that today, US is the market leader in this industry and at present Coal Bed Methane (CBM) contributes about 8% of the total US gas production. Of the 13 basins targeted initially the present day commercial production is mainly from San Juan, Power River, Black Warrior basins. The programme of producing CBM in USA, initiated in the early seventies of the last century was followed by Canada, which began its production operations in the early eighties. Recognising its success, European countries, such as Germany, France, Czech Republic and Poland began activities. South Asian countries like Indonesia and China did not lag behind. Australia has also started commercial production of CBM from Bowen basin. In UK 2 to 4% of gas production is expected to be met from CBM resources.

(E) Activities of ONGC relating to exploitation of CBM

4.13 When asked about the future programme of the ONGC in regard to exploration of CBM, the Committee were informed as under:-

> "ONGC will continue to implement committed work programme in all the blocks awarded to it under two rounds of CBM policy and on nomination basis. ONGC will also participate in all future rounds of CBM policy based on its perception of prospectivity of the offered blocks to maintain its position as the largest CBM operator in the country.
>
> During the last three years of X-Plan, ONGC plans to drill 34 bore holes, 9 exploratory wells and 15 pilot holes in the five blocks where PEL have been granted to ONGC. In the remaining four blocks awarded to ONGC under CBM policy-II, ONGC will also take up exploratory activities after the grant of PEL."

4.14 As regards the technologies developed by ONGC for exploration of CBM, the Committee have been informed that ONGC through its R&D efforts has adopted technologies prevalent in CBM industries in USA and successfully produced CBM on test basis from 3 wells in Jharia Block. These efforts have

established that Indian coals can produce CBM through vertical wells through imbibitions of suitable technology.

4.15 It has also been informed to the Committee that ONGC is in the process of establishing the commercial viability of CBM through further work by drilling exploratory and pilot wells in different blocks. Success in exploratory work (2 to 3 years) will lead to further work in pilot phase for establishing commercial viability which will lead to large scale development of different blocks. In each phase the technology will be suitably refined and fine tuned for maximising commercial production. The technology being used in oil and gas industry world over is used for CBM also and as such the technology available with ONGC has been used for drilling, completion, stimulation and test production of 3 R&D wells in Jharia.

4.16 As regards engagement by ONGC of foreign consultants in the work relating to CBM extraction, the Committee were informed as under:-

> "In the year, 1999-2000, ONGC engaged M/s Holditch Reservoir Technology Consulting (HRTC) Services, USA for cementation, stimulation and testing of R&D wells in Jharia.
>
> In future also, there is a plan to engage foreign consultant in specific areas like stimulation, reservoir simulation and formulation of development plans for different CBM Blocks."

PART –II

OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE

1. Hydrocarbons are generated and accumulated in sedimentary rocks. The country has 26 sedimentary basins comprising both onland and offshore areas. The total area of the Indian sedimentary basin is 3.14 million sq. km. Of this, the share of the onland area is 1.39 million sq. km., that of offshore area is 0.39 million sq. km. (upto 200m isobath water depth). The deep water area is 1.35 million sq. km. The Committee have been informed that 19 of the 26 basins have been taken up for exploration so far, with acquisition of seismic data and carrying out of exploratory drilling. However, extensive exploration appears to have been carried out only in the seven producing basins viz. Cambay, Upper Assam, Mumbai offshore, Krishna-Godavari, Cauvery, Rajasthan and Assam Arakan. The Committee would like to know the programme of the Government in respect of the basins in which exploration activity has not been initiated as yet. They further note that while 18% (0.562 million sq. km.) of the total area of the Indian sedimentary basin has been moderately to well explored, the area in which exploration has been initiated constitutes 33% (1.054 million sq. km.). Thus, about half of the total area is either unexplored (30%, 0.942 million sq. km.) or poorly explored (19%, 0.582 million sq. km.). The Committee find that the percentage of unexplored and poorly explored areas has come down from 57% to 49% in the last four years or so, which is no doubt a positive sign. However, in the Committee's view, the pace of exploration needs to be accelerated so as to cater to the increasing demands for petroleum products and reduce the huge import bill. They would, therefore, recommend that a firm schedule should be drawn up by the Government to explore the remaining sedimentary basins.

2. The Directorate General of Hydrocarbons (DGH) was established by a Government of India Resolution of 1993. The main objectives of the organisation are to promote sound management of the country's oil and natural gas resources having a balanced regard for environment, safety, technological and economic aspects of the petroleum activity. The Committee note that the existing strength of DGH is 76 as against the approved strength of 85. They have been informed that some of the functions like review of development plans, assessment of reserves, preparation of strategy for venture abroad, establishment and operation of E&P data base and archive, etc. can be performed by DGH in a better manner if enough manpower is provided to the organisation. The Committee have further been informed that the Government is in the process of reworking the requirement of manpower of DGH *vis-a-vis* its workload. The Committee desire that the Government should complete this process on priority basis and, based on this analysis, provide additional manpower to DGH so that the organisation is able to carry out all the mandated functions to the optimum level. The Committee would also like to know the progress made by the Directorate General of Hydrocarbons (DGH) in setting up the National E&P database and archive system.

3. The Committee note that an amount of Rs. 6.54 crore was spent by DGH on activities such as surveys, reserve studies, geological modeling, etc. during the year 2003-04. However, the Committee are unhappy to note that the estimated expenditure on exploration activities came down to Rs. 4.5 crore in 2004-05. The Committee would like to know the reasons for lower expenditure by DGH on exploration activities in 2004-05 *vis-à-vis* 2003-04 as well as the impact of this reduction on survey and exploration in physical terms. The Committee are also unhappy to note that out of the estimated expenditure of Rs. 4.5 core in 2004-05, the actual expenditure during the first 8 months of the year i.e. April – November, 2004 was to the tune of Rs. 0.57 crore only which constitutes a negligible 13% of the estimated expenditure for the whole year. The Committee would like to be apprised of the reasons for this abnormally slow pace of expenditure. The actual

expenditure incurred during the last 4 months of the year i.e. December, 2004-March, 2005 may also be intimated to the Committee.

4. The medium-long term exploration strategy i.e. for the period from 2007-2020 of the Oil and Natural Gas Corporation Limited (ONGC) has four major components viz. continuing efforts in the producing basins, intensifying activities in deep water areas, consolidating the possible breakthrough in non-producing basins and knowledge building in the frontier areas. The Committee have been informed that during the 10th Plan the Company plans to explore subtle traps of producing basins through the use of superior technology and to carry forward the same to the 11th and 12th Plans. They would like to know the success achieved in the exploration of subtle traps in the producing basins so far. The exploration strategy in deep water areas aims at intensifying exploration in the sectors and expanding activities to new sectors simultaneously. The Committee desire that the organisation should give more importance to deep water areas in view of the vast hydrocarbon prospects and the reported discoveries made in such areas in the recent past. The exploration strategy of ONGC also involves consolidation of leads arising out of the short term strategy in the non-producing basins such as Vindhyan, Himalayan foreland, Satpura, Bengal, Ganga, etc. for discovery of commercial hydrocarbons based on petroleum habitat. The Committee desire that this process should be completed in a fixed time frame. As regards knowledge building in the frontier basins, ONGC plans to take up a few of these basins for knowledge building during the 10th Plan which would be extended to other basins during the 11th and 12th Plans. The Committee would like to be informed as to whether any of these basins has since been taken up for knowledge building. The Committee also desire that a Plan-wise programme should be chalked out so as to cover all the frontier basins by the end of the 12th Plan.

5. The average recovery factor from the producing fields of ONGC has remained stagnant in the range of about 28% for the last few years. The Committee do not view this rate as encouraging which needs to be enhanced in order to reduce the increasing demand-supply gap and imports. They have been informed that through IOR/EOR measures, ONGC envisages to improve the recovery factor to 35% over a period of 10 years and 40% over 15-20 years. The Committee desire that the organisation should make all out efforts to bring in improvements in the recovery factor, as envisaged, through effective implementation and close monitoring of IOR/EOR schemes.

6. The major thrust for exploration of the Oil India Limited (OIL) is in the North-East. With the easier areas of the region having been fairly explored, the Company has moved into the logistically difficult, geologically complex and technologically frontier areas in the North-East. The Committee have been informed that the organisation has carried out three geo-scientific studies in order to have an in-depth information of the entire Upper Assam Basin. The Committee would like to be apprised of the outcome of these studies. The Committee find that the organisation has made two major discoveries in the North-East in the year 2003-04 *viz*. Baghjan and Chandmari. They would like to know the activities undertaken/being undertaken by OIL in these fields after the discoveries were made as well as the plans to start commercial production from these reserves.

7. The Committee have been informed that the Oil India Limited (OIL) discovered a huge quantity of oil in Baghewala area of Rajasthan in early nineties. The said oil could not be produced/extracted for want of proper technology. Initially, the Company's attempt to extract the oil on the basis of the technical recommendations of the Alberta Research Council, Canada failed to produce the desired results. Subsequently, an agreement was signed with a Venezuelan company in 2002 for undertaking a comprehensive study to identify the most suitable technology for production of oil from these reserves in the first phase and then help OIL to acquire and implement the technology on a pilot scale in the

second phase. The Committee have now been informed that the work relating to the first phase has been completed and measures are being taken for pilot scale application of the selected technology. The Committee find that unduly long time has been taken by the Company to extract oil from a field which was discovered as far back as in early nineties. The Committee would like to know the approximate quantity of oil in these reserves as well as the reasons for not using the technology in this field which the Company employs for producing oil from other discovered fields. They desire that the work relating to the second phase of the agreement i.e. pilot scale application of the identified technology be expedited and the progress made in this regard conveyed to them.

8. The Committee are displeased to note that ONGC and OIL have failed to meet many of the targets fixed for seismic survey and drilling during 2003-04. As against the combined exploratory and developmental drilling target of 923.30 km. in respect of ONGC, the actual achievement was 737.51 km. only. Similarly, in case of drilling of wells (both exploratory and developmental), the Committee find that the Company could drill only 321 wells during the year against the target of 360. As far as seismic survey is concerned, though the targets in case of 3D surveys were exceeded, the same in respect of 2D surveys could not be met by ONGC. As regards OIL, the Committee notice that during 2003-04, except 3D onshore survey, the company has failed to meet the targets in respect of all other activities under seismic survey and drilling *viz*. 2D onshore survey, 3D offshore survey, exploratory drilling, developmental drilling and drilling of wells. The Committee are particularly unhappy about OIL's 'nil' achievement in 2003-04 in respect of 3D offshore survey against a target of 400 sq. kms. The Committee would like to be apprised of the reasons for shortfalls registered by ONGC and OIL in respect of seismic survey and drilling as well as the corrective measures taken/being taken by the Companies to remedy the situation. The actual achievements made by ONGC and OIL during 2004-05 may also be conveyed to the Committee.

9. It is noticed that the activities of the Oil India Limited (OIL) have remained confined mainly to the North-East and some parts of Rajasthan. The crude oil production by the Company has remained stagnant at around 3 MMT for the last several years. In the Committee's view, OIL needs to make concerted efforts to enhance substantially the production from these areas. The Committee have been informed that OIL has a strategic corporate plan which envisages to enhance the production of oil equivalent to over 7 MMT in the next five years. Towards this end, the organisation plans to exploit the frontier areas of the North-East which would yield an additional 1/1.5 MMT of oil equivalent in the next five years. Besides, the organisation is also operating/participating in 13 NELP blocks which would also add to the production. The Committee would like to be apprised of the success achieved by the Company in these ventures.

10. During oral evidence, the Secretary, Ministry of Petroleum & Natural Gas was candid enough to admit that OIL has not been very active since its nationalisation in 1981. He also suggested that since the organisation has all the data relating to the North-East, it should extend its operations to some of the onshore blocks in Myanmar, bordering North-East. The Committee, while endorsing the views of the Secretary, recommend that the organisation should look for oil/gas properties not only in Myanmar but also in other prospective/productive sources, after evaluating the cost-benefit ratio.

The Committee have been informed by the Ministry that OIL, in the Quarterly Progress Review Meeting, has requested for delegation of powers similar to the ones being enjoyed by the ONGC Videsh Limited (OVL) for acquiring equity oil and gas assets abroad and that a decision in this regard has not been taken in the absence of a formal proposal from OIL. The Committee would like the Ministry to take a decision on this issue on priority basis after calling for a formal proposal from the organisation.

11. The Government formulated the New Exploration Licensing Policy (NELP) in 1997 in order to facilitate early exploration of unexplored/poorly explored areas

of the Indian sedimentary basins, complement the efforts of the National Oil Companies and attract capital investments in exploration along with latest technology and management practices. The policy gives certain advantages to the contracting companies which include exemption of cess for production from NELP blocks, exemption from payment of import duty on goods imported for petroleum operations, seven year tax holiday from the date of commencement of commercial production, freedom to contractors for marketing of crude oil and gas in the domestic market, etc. As a result of these attractive features, a number of companies, both public and private, have acquired blocks under NELP. This has not only accelerated the exploration process in the country but also yielded positive results by way of a number of oil/gas discoveries which is significant in the context of widening demand-supply gap and huge import bill. The Committee find that the areas covered in the first four rounds of NELP constitute about 80% of the total area under exploration in the country. The Committee, therefore, desire that the Government should attach utmost importance to the programme. In view of the fact that vast areas of the Indian sedimentary basins still remain unexplored or poorly explored, the Committee recommend that the Directorate General of Hydrocarbons (DGH) should play a more active role to expedite the process of carving out blocks for future rounds of NELP.

12. The Committee are pleased to note that the Government has taken some initiatives to reduce the time period in respect of certain activities carried out under NELP. For example, the time interval between offering of blocks and signing of Production Sharing Contracts (PSCs) has been substantially reduced to 3-4 months from 24-48 months in the pre-NELP era. Besides, the Government has taken initiative for granting the Petroleum Exploration License (PEL) within three months of signing of PSC so as to enable the operators to start their exploration activities as soon as possible. The Committee appreciate the efforts of the Government aimed at expediting activities under NELP. They would, however, like to know how far the Government has succeeded in granting PEL within 3 months in the NELP blocks awarded so far.

The Committee further note that one of the mandates of the Directorate General of Hydrocarbons (DGH) is to monitor PSCs signed with contracting parties. The Committee would like to be apprised of the details about the companies which have violated the terms and conditions of PSCs during the last three years, the nature of violations and the remedial measures taken by DGH thereon.

13. The Committee note that gas produced under the New Exploration Licensing Policy (NELP) is governed by the provisions of Production Sharing Contracts (PSCs) according to which, the contractor has the freedom to market gas produced from his area of operation, to any part of India at market related price. Such a provision often results in diversion/sale/transportation of such gas to other areas at the cost of the area in which it is produced. The Committee desire that the Government should consider the feasibility of making a provision in the PSCs for the future rounds of NELP so as to ensure that a certain percentage of gas is earmarked for the area from which it is produced.

14. The Committee have been informed that 20 exploration blocks were offered in the fifth round of the New Exploration Licensing Policy (NELP), for which the last date of submission of bids was 31st May, 2005. The Committee would like to know the number of proposals received and the number of foreign companies bidding for these blocks as well as the progress made by the Government in completing the subsequent formalities like allotment of these blocks and signing of Production Sharing Contracts (PSCs). The Committee have also been informed that out of the 90 blocks for which PSCs have been signed in the first four rounds of NELP, 56 have gone to the Public Sector Companies and 34 to the Private Sector companies. The Committee find that as many as 19 discoveries have been made upto August, 2004 from the blocks offered by the Government under NELP. Most of the discoveries have been made from the blocks operated by private companies. The Committee desire that the Public Sector Oil Companies should make extra efforts in the blocks awarded to them to achieve success.

It has been reported in the press that some National/State oil companies have made huge discoveries in some blocks awarded to them under NELP in the recent past. The Committee desire to be apprised of the details of these discoveries together with the likely time it would take to start commercial production from these areas.

15. The Committee note that ONGC's exploration activities in the Krishna-Godavari (KG) onland basin started as far back as in 1959. The exploratory efforts by ONGC in the KG onland basin have resulted in the discovery of a number of oil and gas fields. However, its performance in the KG offshore basin has not been very encouraging. A comparative analysis of the performance of ONGC *vis-à-vis* private companies indicates that while in-place reserve accretion in KG offshore basin in the last four years by ONGC was 33.10 MMT, the same in respect of private and other companies was 290.13 MMT. Similarly, ONGC's performance in the KG offshore basin in the last four years in the field of 2D survey, 3D survey and drilling of exploratory wells has been short of the level achieved by private and other companies. The Committee recommend that

ONGC should analyse the various factors responsible for its performance in the KG offshore basin, plug the loopholes and bring in improvements in its success rate in future.

16. The Committee have been informed that as many as 25 oil and gas wells in KG basin have not yet been connected to the main trunk line/production facilities for various reasons. While some of these wells are in the process of being connected, more than half of these wells have not yet been connected being 'isolated and low potential'. Besides, 7 offshore oil wells and 4 offshore gas wells drilled in KG basin are stated to be unconnected which will be put on production after development of offshore production facilities. The Committee would like the Government to take measures to connect these wells to the main trunk line/production facilities in a time bound manner. They would like to know the action taken/being taken by the Government in this regard.

17. The Committee have been informed that during the last 10 years, as many as 2684 Executives of ONGC have left the organisation. Similarly, in case of OIL, 376 Executives and 1920 Workpersons have left the organisation during the said period. According to the Committee, the possibility of some of them having joined the private companies and divulging the data/information about the cream oil and gas blocks to the private companies cannot be ruled out, thereby giving an undue advantage to such companies over Public Sector Companies. In the Committee's view, putting more and more private and foreign investments into exploration and production activities should not be at the cost of giving out the information regarding cream blocks. The Committee feel that the situation needs to be remedied urgently. They have been informed that the present rules do not permit the Government to take action against those who leave the Public Sector Undertakings without informing the organisation/seeking prior permission for this purpose. The Committee desire that the Government should review the existing provisions in this regard and bring in the requisite amendments as early as possible to discourage flight of personnel from Public Sector Oil Companies.

18. The Committee note that the Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL) have launched Improved Oil Recovery (IOR)/Enhanced Oil Recovery (EOR) Schemes to augment recovery from the existing producing fields. ONGC has 16 approved IOR/EOR schemes in which an investment of Rs. 10972.00 crore is envisaged. The likely incremental oil as a result of implementation of such schemes is 106 MMT by the year 2020. The Committee have been informed that 5 of these schemes have already been completed, while the remaining 11 have made significant progress. The Committee have further been informed that till September, 2004, the provisional expenditure on these schemes was Rs. 6462.00 crore as against the planned expenditure of Rs. 8287.00 crore. Apart from the cost savings in 7 offshore packages, the shortfall in expenditure has also been due to *inter-alia* shortfall in the number of wells drilled, delay in project approval, delay in the installation of certain equipments, etc. The Committee would like the Government/ONGC to be more active so as to ensure that the physical progress of such important schemes is not hampered. They also desire that all out efforts should be made to ensure that the remaining 11 IOR/EOR schemes are completed without any time and cost overruns. As regards IOR/EOR schemes of OIL, the Committee have been informed that the company has been taking initiatives in the form of water injection, gas injection, polymer flooding, etc. in its different oil fields of Assam and that the company has successfully completed a polymer flood project which has resulted in an increased recovery of about 5% of reserves apart from significant economic benefits in artificial lifting and water handling facilities. The Committee recommend that OIL should intensify such efforts and also extend the same to its other areas of operation.

19. The two projects for Redevelopment of the Mumbai High Field (Mumbai High North and Mumbai High South Redevelopment Projects) account for the major portion of the investment in IOR/EOR programme. Out of the total investment of Rs. 10972.00 crore on IOR/EOR schemes, an amount of Rs.

8185.00 crore is envisaged for these two projects. These two projects would contribute an incremental 57 MMT of oil out of the total incremental oil of 106 MMT expected to be produced by 2020 as a result of implementation of IOR/EOR schemes. The Committee are unhappy to note that some activities on these two projects have been rather slow and achievement has been less than the fixed target in some cases. For example, in the Mumbai High North Redevelopment Project, the achievement has been less than the scheduled progress in case of three packages viz. MHN Process Platform, Two Well Platforms (N9 & N10) and Three Pipeline Project. The Committee are particularly displeased about the Three Pipeline Project in which case, the overall progress was 48.6% against the plan of 100% at the end of September, 2004. The Committee would like to be apprised of the reasons for the same. Similarly, in case of the Mumbai High South Redevelopment Project, the achievement has fallen short of the scheduled progress in case of MHS Process Platforms, Nine Well Platform Project (Tender-II) and Nine Clamp-on project. The Committee would like the Government to analyse the factors leading to delays/slow progress and take appropriate remedial measures.

20. The Committee are unhappy to note that the actual expenditure incurred on wells and facilities in the Mumbai High North and South Redevelopment Projects has been far short of the planned amount. As against the planned amount of Rs. 1056.29 crore and Rs. 1661.41 crore on wells (upto September, 2004), the actual expenditure was Rs. 962.47 crore and Rs. 1316.04 crore for the Mumbai High North and Mumbai High South Redevelopment Projects respectively. Similarly, the actual expenditure on facilities was Rs. 1436.19 crore and Rs. 730.83 crore in respect of Mumbai High North and South Redevelopment Projects respectively against the planned amount of Rs. 1726.36 crore and Rs. 1369.16 crore. The shortfall in expenditure on facilities has been attributed to delay in award of work, delay in approval of projects, etc. The less expenditure on wells has been primarily due to drilling of less number of wells. The Committee have been informed that as against the plan of drilling 136 wells upto March, 2004, only 109

wells could be drilled. Similarly, during the year 2004-05, against the plan of 22 wells (upto September, 2004), 19 wells could only be drilled. The shortfall in drilling of wells has been ascribed to non-availability of suitable rigs. The Committee understand that ONGC does not own rigs that can work in deep water conditions. It has to obtain such rigs by floating tender and/or negotiating with suitable rig suppliers. This process, being time-consuming, is telling upon the drilling activities of the organisation, thereby leading to failure in meeting the planned targets. To obviate such a situation, the Committee recommend that ONGC should go in for purchasing rigs for its use instead of procuring/hiring the same from other sources, after making a cost-benefit analysis of the two options. Till such time the rigs are procured, the company should endeavour to initiate the hiring process in advance keeping in view its future drilling programme.

21. The Committee note that the Oil and Natural Gas Corporation Limited (ONGC) is employing horizontal, multilateral, extended reach and other improved drilling technologies in its offshore wells. Besides, the organisation is also using new technologies in other E&P activities such as surveys, acquisition of data, etc. However, in the Committee's view, one area in which adequate attention has not been given is the acquisition of data through 4D surveys. ONGC is understood to have recently acquired the capability to make such surveys. The Committee desire that the Corporation should make more efforts/investments in this area so as to match or even excel the multi-national companies. The Committee also recommend that the Oil India Limited (OIL) should also pay adequate attention to the use of 4D technology in its fields.

22. The Committee have been informed during evidence that the Government has decided to evolve a policy in order to eliminate the instances of exaggerated/speculative disclosures of discovery of reserves by some companies. The Committee appreciate this initiative of the Government as such speculative/exaggerated disclosure is not only misleading but also has a bearing on the value of the company's share in the market. They have been informed that

a team constituted to examine this issue has already given its report which is being examined by the Government. The Committee recommend that the Government should expedite the process and put the policy in place without any delay. The policy should lay down clear-cut codifications requiring the certification by globally competent authorities in respect of discoveries made by the companies and such codifications should be made applicable to both public and private sector operators so as to ensure a level playing field for all.

23. During the five years from 1999-2000 to 2003-04, the cumulative crude oil production target for the two national oil companies viz. ONGC and OIL was set at 144.955 MMT. As against this target, the actual production by these two companies during the said period was 142.157 MMT, thereby resulting in a shortfall of about 3 MMT. While the OIL registered shortfalls in production during all the five years, ONGC failed to achieve the target in three out of five years viz. 1999-2000, 2001-02 and 2003-04. The shortfall in case of ONGC has been attributed to rupture of Mumbai High – Uran Trunk Pipeline, shutdown in Mumbai High and less production from offshore and North-Eastern areas. OIL's failure to achieve the targets has been attributed to producing fields reaching the declining stage and inability to discover any medium to large size discoveries since 1995. The failure of the national oil companies to enhance substantially the production of domestic crude oil has resulted in increasing the country's import dependence in respect of crude oil. The Committee have been informed that ONGC and OIL are taking a number of measures such as induction of new technology, implementation of IOR/EOR schemes, revival of sick wells, enhancement of drilling efforts, etc. to augment the domestic production. In order to reduce the import dependence, the Committee desire that the oil producing companies should implement these measures in the right earnest and closely monitor the same to find out their impact on the actual production. The Committee would like to be apprised of the additional production achieved as a result of these measures. The Committee also desire that the Government should lay more emphasis on acquisition of overseas oil and gas properties which would save some foreign

exchange as the equity oil would be cheaper as compared to the import price of crude oil.

24. As regards natural gas, the Committee find that during the five years from 1999-2000 to 2003-04, the total allocation demand was 210.45 BCM whereas the actual gas production by both Public and Private Sector companies was 150.99 BCM. While the annual allocation demand was around 43 BCM, the production was hovering around 31/32 BCM mark. The Committee also find that though the production by ONGC has shown an upward trend from 1999-2000 upto 2002-03, the same has declined in the year 2003-04 as compared to the previous year. The Committee would like to know the reasons for the same. As regards OIL, the Committee are unhappy to note that the company has failed to meet the production target in all the five years mainly due to non-withdrawal of committed quantities by consumers like the Brahmaputra Valley Fertilizers Company Limited, Namrup. In this regard, the Committee have been informed that additional consumers like NEEPCO and Numaligarh Refinery Limited have committed to lift gas for which a pipeline is being constructed which is proposed to be extended to Guwahati for new consumers in this region. The Committee desire that this pipeline project should be completed expeditiously which, besides catering to the gas requirements of needy consumers, would also improve the financial health of the company. The Committee would also like to be informed of the outcome of the initiative taken by OIL to develop certain Non-Associated Gas Fields in the North-East to meet the additional gas requirement in the region.

25. The Committee note that at present LNG is being sourced only from Qatar. They have been informed that an understanding has been reached with Iran for import of 5 MMTPA of LNG, with a provision of addition of 2.5 MMTPA subsequently. However, the agreement in this regard has not been firmed up. The Committee have learnt from press reports that India and Iran have recently signed the final sales purchase agreement for long term supply of LNG, the first consignment of which is expected to reach the country by 2009. It has also been

reported that the contracted gas will be primarily used by the Northern and Western Indian markets to fuel power plants and manufacture fertilizers. The Committee would like to be apprised of the factual position in this regard. Apart from Iran, the Government should also endeavour to source LNG from other countries such as Australia, Indonesia and Nigeria to meet our pressing needs. The Committee have been informed that GAIL and IOC are making efforts to import LNG from various sources. They desire to be informed of the success achieved by these companies in this regard.

26. Taking into account the acute shortage of gas in the East Coastal areas of the country, the Committee, during the examination of Demands for Grants (2005-06) of the Ministry of Petroleum & Natural Gas, had recommended that the Government should carry out feasibility study for setting up LNG terminals at Gopalpur in Orissa and Haldia in West Bengal. In its Action Taken Reply, the Government has, *inter-alia*, stated that GAIL's report on the LNG terminal at Gopalpur/Haldia would be completed in 2-3 months. The Committee would like to be apprised of the outcome of the said study. The Committee were also informed during the examination of the Demands for Grants that IOC/GAIL were working on the feasibility study of setting up an LNG terminal at Krishnapatnam, Andhra Pradesh which was likely to be completed within three months. The Committee have now been informed through the Government's Action Taken Reply that the location of Krishnapatnam was considered for LNG terminal. However, in the study conducted for selecting the best location for LNG terminal on the East Coast, it has been concluded that Ennore is the most suitable location. In this connection, the Committee would like to know the relative advantages of Ennore *vis-a-vis* Krishnapatnam which prompted the Government to conclude that Ennore is the most suitable location on the East Coast for LNG terminal.

27. The Committee note that there is a wide gap between the demand and supply of natural gas in the country. As against the present demand of about 150 MMSCMD, the total gas supply in the country is a meagre 75 MMSCMD. Further,

this demand is likely to go upto 313 MMSCMD in 2011-12. The increasing demand for gas can be met to some extent by the import of Liquefied Natural Gas (LNG). At present, the re-gasified LNG constitutes only around 12 per cent of the total gas supply in the country and thus, there is a need to set up more LNG terminals in the country. In this connection, the Committee note that while Japan has more than 30 LNG terminals, USA has 5 terminals in operation and 29 under construction. On the contrary, India has just two terminals in operation viz. Dahej and Hazira, a situation which needs to be improved urgently. The Committee have been informed that 6 LNG terminals are likely to be installed in the country by the year 2010 which would add 25 MMTPA of LNG (equivalent to about 97 MMSCMD of natural gas). The Committee would like the Government to encourage the Public Sector Oil Companies to consider the feasibility of setting up of more LNG terminals in the country which would go a long way in rectifying the adverse demand-supply ratio of gas. The Committee further desire that the Government should frame guidelines in regard to setting up of LNG terminals in the country so as to ensure regional balance in the supply/availability of gas.

28. A number of Naphtha based fertilizer plants in the country have been closed down or are facing closure as the increasing cost of naphtha is making such plants unviable. There is an urgent need to make these plants viable by converting them to gas based plants. The Committee have been informed that the Department of Fertilizers has taken an initiative in this regard and a policy has been formulated in January, 2005 for conversion of the existing naphtha/FO/LSHS based urea units to natural gas/LNG as feedstock. The Committee appreciate this move of the Government and hope that the policy will yield positive and timely results. In this venture, the Ministry of Petroleum & Natural Gas will also have an important role to play i.e. it has to make available adequate gas to these units for their conversion. Besides, these units will have to be linked to the gas pipeline network. The Committee, therefore, desire that while finalising/laying the future gas pipelines, the Government should take into account the locations of these fertilizer units so as to facilitate their linking to the pipeline network.

29. The country holds significant prospects for commercial production of Coal Bed Methane (CBM) as it is endowed with abundant coal reserves. The exploitation of CBM assumes added significance in view of the widening demand-supply gap in natural gas in the country. Besides, CBM, as a source of energy, has a number of advantages. Firstly, unlike some other types of fuel, CBM production could play a role in the reduction of the green house effect. Besides, it also contributes to mine safety by degassing the coal seams ahead of mining. Again, CBM could also be a new source of income for the Central and State Governments in the form of royalty, production level payments, taxes, etc. Moreover, it is also likely to foster economic activities in the vicinity of CBM operations as it has greater likelihood of being used locally for domestic and industrial purposes. In spite of having so many advantages, the Committee regret to note that the exploration/exploitation of CBM in the country has not got the due attention of the Government as a result of which the country has been bereft of the dividends of this vital source of energy. They would like the Government to prepare a committed and time bound work programme for the sustained exploitation of Coal Bed Methane in the country and act on the same in a dedicated manner.

30. The Committee note that in order to harness the CBM potential, the Government has formulated a CBM Policy in 1997. However, they regret to note that even after a lapse of 8 years of the announcement of the CBM Policy, the Government has still not been able to conduct any systematic study to assess the total recoverable CBM reserves in the country. The Committee recommend that the Government should carry out a scientific study to assess these reserves and complete the same within a definite time frame which would enable it to systematically explore and exploit these resources and proceed in the right direction.

31. The Committee note that the Government has so far awarded 16 blocks (13 blocks under two rounds of CBM bidding and 3 on nomination basis) for exploration and production of Coal Bed Methane in different coal fields of India. The total CBM resources in these blocks are estimated to be 820 BCM. 9 out of these 16 blocks have been awarded to the Oil and Natural Gas Corporation Limited (ONGC) either exclusively or in collaboration with other companies (2 under CBM-I, 2 on nomination basis and 5 under CBM-II). As regards the two blocks awarded under CBM-I viz. Bokaro and North Karanpura, the Committee have been informed that while drilling of first test well is in progress in Bokaro, the same in respect of North Karanpura was likely to start in April, 2005. The Committee would like to be apprised of the latest status of these projects. The Committee also note that in the case of 2 out of 5 blocks awarded under CBM-II viz. South and North Karanpura, the grant of PEL is awaited. The Committee desire that ONGC should take up the matter with the State Government and expedite the process. They also recommend that all efforts should be made to ensure that commercial production of CBM starts by 2006-07 as envisaged.

New Delhi;
August 01, 2005
Sravana 10, 1927 (Saka)

N. JANARDHANA REDDY,
Chairman,
Standing Committee on
Petroleum & Natural Gas.

Appendix-I

EXTRACTS OF MINUTES

STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS (2004-05)

FOURTH SITTING (22.9.2004)

The Committee sat on Wednesday, September 22, 2004 from 1500 hrs. to 1720 hrs. in Committee Room 'E', Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS
LOK SABHA

2. Shri Ramesh Bais
3. Shri Kirip Chaliha
4. Shri Lal Muni Choubey
5. Shri R. Dhanuskodi Athithan
6. Shri Ch. V.H. Rama Jogaiah
7. Dr. Prasanna Kumar Patasani
8. Shri Rajiv Ranjan Singh
9. Shri Ramji Lal Suman
10. Shri Vanlalzawma
11. Shri Rajesh Verma
12. Shri A.K.S. Vijayan

RAJYA SABHA

13. Shri Moolchand Meena
14. Shri Rajeev Shukla
15. Shri Dipankar Mukherjee
16. Shri C. Perumal
17. Shri Subash Prasad Yadav
18. Shri Satish Chandra Misra

SECRETARIAT

1. Shri P.K. Grover - Director
2. Shri B.D. Swan - Under Secretary
3. Shri P.C. Tripathy - Assistant Director

REPRESENTATIVES OF MINISTRY OF PETROLEUM AND NATURAL GAS

1.	Shri S.C. Tripathi	-	Secretary
2.	Shri M.S. Srinivasan	-	Additional Secretary
3.	Shri Ashok Chawla	-	AS&FA
4.	Shri Sunjoy Joshi	-	Joint Secretary

REPRESENTATIVES OF PUBLIC SECTOR UNDERTAKINGS

1.	Shri R.K.Dutta	-	CMD, OIL
2.	Shri Y.B. Sinha	-	Director, ONGC
3.	Shri V. Ravindra Nath	-	ED, OVL
4.	Shri G.C. Saxena	-	Incharge, DGH

2. At the outset, the Hon'ble Chairman welcomed the Secretary of the Ministry of Petroleum and Natural Gas and other accompanying officials to the sitting of the Committee.

3. Thereafter, the Committee were briefed by the Secretary and other officials on the subject `Exploration of Oil and Natural Gas including Coal Bed Methane' through a visual presentation. During the course of the briefing, the Members were enlightened on various issues relating to the subject such as exploration activities of ONGC in the Krishna – Godavari Basin, Hydrocarbon Vision 2025, New Exploration Licensing Policy (NELP), overseas activities of ONGC Videsh Ltd., Coal Bed Methane Policy, etc.

4. The representatives of the Ministry/ PSUs then withdrew.

5. ** ** ** ** ** ** ** ** ** ** **

6. A verbatim record of the proceedings has been kept.

The Committee then adjourned.

*** Matters not related to this Report*

Appendix – II

MINUTES

STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2004-05)

SIXTH SITTING
(08.11.2004)

The Committee sat from 1530 hrs. to 1715 hrs.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS
LOK SABHA

2. Shri Anandrao Vithoba Adsul
3. Shri Tushar A. Choudhary
4. Shri Jai Prakash
5. Shri Ch. V.H. Rama Jogaiah
6. Shri Suresh Kurup
7. Shri Sukhdeo Paswan
8. Shri Laxman Singh
9. Shri Rajiv Ranjan Singh
10. Shri Vanlalzawma
11. Shri Ratilal Kalidas Varma
12. Shri Rajesh Verma
13. Shri A.K.S. Vijayan

RAJYA SABHA

14. Shri Kripal Parmar
15. Shri M. Rajasekara Murthy
16. Shri Dipankar Mukherjee
17. Dr. Alladi P. Rajkumar
18. Shri Subhash Prasad Yadav

SECRETARIAT

1. Shri P.K. Grover - Director
2. Shri B.D. Swan - Under Secretary
3. Shri P.C. Tripathy - Assistant Director

REPRESENTATIVES OF MINISTRY OF PETROLEUM & NATURAL GAS/PSUs

1. Shri S.C. Tripathi - Secretary
2. Shri M.S. Srinivasan - Additional Secretary
3. Shri Subir Raha - CMD, ONGC
4. Shri R.K. Dutta - CMD, OIL
5. Shri V.K. Sibal - DG, DGH
6. Shri R.S. Butola - MD, OVL

2. At the outset, the Hon'ble Chairman welcomed the Secretary of the Ministry of Petroleum and Natural Gas and other accompanying officials to the sitting of the Committee.

3. Thereafter, the Secretary gave a visual presentation before the Committee highlighting various issues on the subject `Exploration of Oil and Natural Gas including Coal Bed Methane'.

4. Then, the Committee took oral evidence of the representatives of the Ministry of Petroleum and Natural Gas on the above-mentioned subject.

5. The following important issues were discussed during the meeting:-

(i) Achievements of ONGC *vis-à-vis* private companies
(ii) Terms and conditions for tapping oil and gas resources abroad
(iii) Keeping oil and gas resources of the country intact for use at the time of emergency
(iv) Production of crude oil in Mumbai High
(v) Reduction in time gap between bidding for tenders, signing of Production Sharing Contracts and the actual exploration work under NELP
(vi) Availability of technology with ONGC
(vii) Cost of imported vis-à-vis indigenously produced gas
(viii) Blocks awarded to ONGC under NELP
(ix) Setting up of LNG terminals
(x) Policy on supply of gas
(xi) Review of Production Sharing Contracts with private companies

6. A verbatim record of the proceedings has been kept.

The Committee then adjourned.

Appendix –III

MINUTES

STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2004-05)

SEVENTH SITTING
(23.11.2004)

The Committee sat from 1530 hrs. to 1730 hrs.

Present

Shri N. Janardhana Reddy - Chairman

Members
Lok Sabha

2. Shri Anandarao Vithoba Adsul
3. Dr. Rattan Singh Ajnala
4. Shri Tushar A. Choudhary
5. Shri R. Dhanuskodi Athithan
6. Shri Santosh Kumar Gangwar
7. Shri Jai Prakash
8. Shri Ch. V.H. Rama Jogaiah
9. Dr. Prasanna Kumar Patasani
10. Shri Ramji Lal Suman
11. Shri Vanlalzawma
12. Shri Ratilal Kalidas Varma
13. Shri A.K.S. Vijayan

Rajya Sabha

14. Shri Ahmed Patel
15. Shri Moolchand Meena
16. Shri Kripal Parmar
17. Shri M. Rajasekara Murthy
18. Shri Dipankar Mukherjee
19. Shri C. Perumal
20. Dr. Alladi P. Rajkumar
21. Shri Satish Chandra Misra

Secretariat

1.	Shri P.D.T. Achary	-	Additional Secretary
2.	Shri P.K. Grover	-	Director
3.	Shri B.D. Swan	-	Under Secretary
4.	Shri P.C. Tripathy	-	Assistant Director

Representatives of Ministry of Petroleum & Natural Gas and Public Sector Undertakings

1.	Shri M.S. Srinivasan	-	Additional Secretary
2.	Shri Sunjoy Joshi	-	Joint Secretary
3.	Shri V.K. Sibal	-	Director General, DGH
4.	Shri Subir Raha	-	CMD, ONGC
5.	Shri R.K. Dutta	-	CMD, OIL
6.	Shri V. Ravindranath	-	Executive Director, ONGC-Videsh Ltd.
7.	Shir G.P. Sarcar	-	Executive Director, GAIL (India) Ltd.

2. At the outset, the Hon'ble Chairman welcomed the Additional Secretary of the Ministry of Petroleum and Natural Gas and other officials accompanying him to the sitting of the Committee.

3. Thereafter, the representatives highlighted the various issues relating to the subject 'Exploration of Oil and Natural Gas including Coal Bed Methane'.

4. Then, the Committee took up further oral evidence of the representatives of the Ministry of Petroleum and Natural Gas on the aforesaid subject. During the course of evidence, important issues relating to the subject were discussed *viz.* Gas Linkage Committee and guidelines for allocation of gas, equitable distribution of natural gas/LNG, longer period taken for commercial production after discovery and leakage of important information etc.

6. The Members sought certain clarifications/information on the issues relating to the subject under examination. The representatives responded to the same.

6. A copy of the verbatim record of the sitting has been kept.

The Committee then adjourned.

Appendix-IV

EXTRACTS OF MINUTES

STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2004-05)

ELEVENTH SITTING
(16.02.2005)

The Committee sat from 1100 hrs. to 1245 hrs.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS
LOK SABHA

2. Shri Kirip Chaliha
3. Shri Lal Muni Choubey
4. Shri R. Dhanuskodi Athithan
5. Shri Santosh Kumar Gangwar
6. Shri Jai Prakash
7. Dr. Prasanna Kumar Patasani
8. Shri Rajesh Verma
9. Shri A.K.S. Vijayan

RAJYA SABHA

10. Shri Moolchand Meena
11. Shri Rajeev Shukla
12. Shri Kripal Parmar
13. Shri M. Rajasekara Murthy
14. Shri Dipankar Mukherjee
15. Shri C. Perumal

SECRETARIAT

1. Shri P.D.T. Achary - Secretary
2. Shri P.K. Grover - Director
3. Shri P.C. Tripathy - Assistant Director

REPRESENTATIVES OF THE MINISTRY OF PETROLEUM & NATURAL GAS AND PUBLIC SECTOR UNDERTAKINGS

1.	Shri S.C. Tripathi	-	Secretary, P&NG
2.	Shri M.S. Srinivasan	-	Addl. Secretary, P&NG
3.	Shri Sunjoy Joshi	-	Joint Secretary, P&NG
4.	Shri A.K. Srivastava	-	Joint Secretary, P&NG
5.	Shri G.C. Saxena	-	DGH
6.	Shri Subir Raha	-	CMD, ONGC
7.	Shri R.K. Datta	-	CMD, OIL
8.	Shri Anupam Mathur	-	GGM, OVL
9.	Shri B.S. Negi	-	Director, GAIL

2. The Chairman welcomed the Secretary of the Ministry and officials accompanying him to the sitting of the Committee.

3. Thereafter, the Chairman & Managing Director of the Oil India Limited (OIL) gave a presentation highlighting the various activities of the organisation.

4. The Committee then took oral evidence of the representatives of the Ministry of Petroleum & Natural Gas on the subject 'Exploration of Oil and Natural Gas including Coal Bed Methane'.

5. During the course of evidence, the main issues which came up for discussion included setting up of LNG terminals in the country especially in the East Coast, preparation of feasibility study for setting up of LNG terminals at Krishnapatnam, Ennore, Gopalpur and Haldia, ensuring regional balance in setting up of LNG terminals, guidelines/policy regarding setting up of LNG terminals, LNG terminals in other countries, sourcing of LNG from other countries, etc.

6. The witnesses then withdrew.

7. ** ** ** ** ** ** ** ** ** ** **

** ** ** ** ** ** ** ** ** ** **

8. ** ** ** ** ** ** ** ** ** ** **

9. ** ** ** ** ** ** ** ** ** ** **

** ** ** ** ** ** ** ** ** ** **

10. A verbatim record of the proceedings of the sitting has been kept.

The Committee then adjourned.

*** Matters not related to this Report.*

Appendix - V

MINUTES

STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS
(2004-05)

SEVENTEENTH SITTING
(01.08.2005)

The Committee sat on Monday, August 1, 2005 from 1530 hrs. to 1600 hrs. in Committee Room `C', Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

Members

Lok Sabha

2. Shri Anandrao Vithoba Adsul
3. Shri Tushar A. Choudhary
4. Shri R. Dhanuskodi Athithan
5. Shri Santosh Kumar Gangwar
6. Shri Jai Prakash
7. Shri Sukhdeo Paswan
8. Shri Laxman Singh
9. Shri Vanlalzawma

Rajya Sabha

10. Shri Rajeev Shukla
11. Shri M. Rajasekara Murthy
12. Shri Dipankar Mukherjee

Secretariat

1.	Shri S.K. Sharma	-	Additional Secretary
2.	Shri P.K. Grover	-	Director
3.	Shri P.C. Tripathy	-	Under Secretary

2. At the outset, Hon'ble Chairman welcomed the Members to the sitting of the Committee.

3. Thereafter, the Committee condoled the death of persons in the recent fire at ONGC platform in Mumbai High North. The Committee appreciated the rescue operations carried out by various agencies. They also desired to have a detailed factual note from the Ministry of Petroleum and Natural Gas on this incident.

4. The Committee then took up for consideration the draft Reports on the subjects `Pricing of Petroleum Products' and `Exploration of Oil and Natural Gas including Coal Bed Methane' one by one.

5. After some discussions, the draft Report on `Pricing of Petroleum Products' was adopted by the Committee with some changes. The draft Report on `Exploration of Oil and Natural Gas including Coal Bed Methane' was adopted without any change.

6. The Committee also authorised the Chairman to finalise the Reports after factual verification by the concerned Ministry and present the same to both the Houses of Parliament in the current Session.

The Committee then adjourned.