



Ministry of Petroleum & Natural Gas
Shastri Bhavan, Dr. Rajendra Prasad Road
New Delhi : 110 001
Website : www.petroleum.nic.in
Phone # 91-11-3383692, Fax # 91-11- 3383585
Facilitation Counter # 91-11-3388624

Annual Report 2001 - '02



GOVERNMENT OF INDIA
Ministry of Petroleum & Natural Gas
New Delhi

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Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas presented Oil Conservation Award for "Best Performance in upstream Sector" and ONGC received the award for 3rd consecutive year. Shri Subir Raha C&MD received the award on behalf of ONGC. Also seen in the picture Shri Naresh Narad, Addl. Secretary, MoP&NG and Shri R.C. Gourh, Director (Onshore), ONGC.



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas received the SBI Bank Draft of Rs. 1,153.68 Crore from Shri M.A. Pathan, Chairman, IndianOil for acquiring 33.58% Government Equity in IBP Co. Limited.



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas inaugurated India's first skid-mounted Mini Refinery by ONGC at Tadipaka in East Godavari District of Andhra Pradesh. Also seen in picture Late Shri G.M.C. Balayogi, former speaker Lok Sabha, Shri Subir Raha, C&MD, ONGC.

Edited by SHERSIA, premkumar e-mail: shersiapk@bharatpetroleum.com

*Atmospheric and Vacuum Distillation Columns:
CPCL's 3 MMTPA Refinery Expansion project at
Manali near Chennai.*



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Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas, unveiled the plaque on 7.1.2001 at Mulund, Mumbai in presence of Mahanagar Gas officials.

INTRODUCTION

CHAPTER 1

- 1.1 The Ministry of Petroleum & Natural Gas is concerned with exploration & production of oil & natural gas, refining, distribution & marketing, import, export and conservation of petroleum products. The work allocated to the Ministry is given in Appendix-I. The names of Public Sector Oil Undertakings and other organisations under the Ministry are listed in Appendix-II.
- 1.2 Shri Ram Naik continued to hold the charge as Minister of Petroleum & Natural Gas and Shri Santosh Kumar Gangwar as Minister of State in the Ministry of Petroleum & Natural Gas.
- 1.3 Shri V.N. Kaul assumed the charge of Secretary, Petroleum & Natural Gas on 26.6.2001. He relinquished the charge on 14.3.2002 on his appointment as Comptroller and Auditor General of India. Prior to this, Shri P. Shankar worked as Secretary, Petroleum & Natural Gas from 2.11.2000 to 31.5.2001.

1.4 PRINCIPAL ACHIEVEMENTS

The important statistical data relating to the physical performance of the oil sector is given in Appendix-III.

1.5 CRUDE OIL PRODUCTION

Crude oil production in the country during the year 2000-01 was 32.42 million metric tonnes (MMT). The crude oil production target for the year 2001-02 has been set at 32.50 MMT. Gas production during the year 2000-01 was 29.48 billion cubic metres (BCM). The gas production target for the year 2001-02 has been set at 29.8 BCM.

- 1.6 Several measures were taken to enhance the hydrocarbon reserves and increase production. These includes intensive exploration in production basins to upgrade "Yet to Find" hydrocarbon resources, exploration in non-producing, poorly explored and "Yet to be Explored" basins, exploration in new areas like deep seas and geologically and logistically difficult areas, development of new fields, implementation of projects for Improved Oil Recovery (IOR)/Enhanced Oil Recovery (EOR), implementation of specialised technologies, obtaining the services of international experts, wherever necessary, and encouraging participation of private and joint venture companies in the exploration programme through various rounds of bidding under New Exploration Licensing Policy (NELP).

- 1.7 Under NELP - I, 48 blocks were offered. Of these, 25 blocks were awarded and Production Sharing Contracts for 24 blocks were signed. Under NELP - II, 25 blocks were offered and bids for 23 blocks were received. Production Sharing Contracts in respect of all these 23 blocks were signed. Preparatory works for offering exploration blocks under NELP - III are in the final stage.

- 1.8 ONG-Videsh Limited (OVL), a wholly own

subsidiary of ONGC, is active in exploration and development activities in oil and gas in Vietnam. OVL has signed an agreement with M/s Rosneft of Russia to acquire 20% interest in Sakhalin-I offshore field in Russia - from where oil production is expected to commence from year 2005. Apart from Russia, OVL is active in countries like Iran, Iraq, Venezuela and Algeria to acquire exploration acreage and production properties.

1.9 IMPORTS AND EXPORTS

The quantity of crude oil (including joint venture companies/private parties) imported between April - November 2001 was 52.057 MMT, valued at Rs. 41,991 crore. Besides, 4.123 MMT of other petroleum products were also imported during the same period, valued at Rs. 4,529 crore. Quantity of exports of petroleum products during April-November 2001 has been 5.833 MMT, valued at Rs. 4,923 crore.

1.10 REFINING

The refining capacity, as on 1.4.2001, was 112.54 Million Metric Tonnes Per Annum (MMTPA) and it has increased to 114.67 MMTPA as of December 2001. Availability of petroleum products during 2001-02 from domestic refineries and non-refinery sources is adequate to meet the domestic demand - except for Liquefied Petroleum Gas (LPG). In fact, the availability of petrol and diesel is in excess of the domestic requirement and surplus quantity is being exported during the year.

1.11 PETROL & DIESEL QUALITY IMPROVEMENT

Oil Companies have undertaken several measures, in the recent past, in its efforts to combat environmental pollution through improved fuel quality and assist the automobile industry to comply with the emission norms. An investment of Rs. 10,000 crore has been

made by PSU refineries in the last 5 years in this regard. Low sulphur diesel (0.25% maximum) and unleaded petrol are being supplied throughout the country with effect from 1.1.2000 and 1.2.2000 respectively. Further, diesel with sulphur content of 0.05% (Maximum) is being supplied in all the four metros. Unleaded petrol with sulphur content of 0.05% (Maximum) is also being supplied in all the four Metros.

1.12 DR. R.A. MASHELKAR EXPERT COMMITTEE ON AUTO FUEL POLICY

On 13.9.2001, Government of India constituted a Committee of experts of national repute, headed by Dr. R.A. Mashelkar, Director General, Council of Scientific & Industrial Research (CSIR) for recommending an 'Auto Fuel Policy' for the country, including major cities, and other related issues. The Committee submitted its Interim Report on 1.1.2002. The Government has since accepted the recommendations contained in the Interim Report of the committee.

1.13 ETHANOL BLENDING IN PETROL

Oil companies had taken up 3 pilot projects (2 in Maharashtra at Miraj & Manmad and 1 in U.P. at Bareilly) for blending and trial marketing



Inauguration of Ethanol Blending Plant commissioned by BPCL.

of 5% ethanol in petrol, which have been completed successfully.

Based on the experience of these pilot projects, Government has taken a decision to introduce petrol blended with 5% ethanol for use in motor vehicles all over the country in a phased manner. In the first phase, the 5% ethanol blended petrol will be introduced in the eight sugar producing States namely Andhra Pradesh, Gujarat Harayana, Karnataka, Maharashtra, Punjab, Tamil Nadu and Uttar Pradesh. Rest of the States / Union Territories will be taken up subsequently. It has further been decided to launch six more pilot projects, three in Uttar Pradesh, two in Punjab and one in Andhra Pradesh.

1.14 PLAN OUTLAY

The Revised Plan Outlay of PSUs of Ministry

of Petroleum & Natural Gas for the year 2001-02 is Rs. 13,999.56 crore and Budget Estimate for the year 2002-03 is Rs. 17,988.49 crore. These outlays will be met from internal and extra budgetary resources of the Public Sector Undertakings.

1.15 EARNING OF PUBLIC SECTOR UNDERTAKINGS IN OIL SECTOR

The profit before tax and the profit after tax made by the Public Sector Undertakings in the oil sector during 2000-01 were about Rs. 17, 177.64 crore and Rs. 11, 822.20 crore respectively. The profit before tax and the profit after tax anticipated for 2001-02 are about Rs. 13, 879.79 crore and Rs. 9,430.55 crore respectively. The profit before and after tax estimated to be generated by this sector during 2002-03 would be about Rs. 16, 102.47 crore and Rs. 11, 398.99 crore respectively.



Shri J.M. Mauskar, Joint Secretary, MoP&NG and Shri B.B. Sharma, C&MD, OIL are seen exchanging OIL's Production Sharing Contract with Govt. of India under second round of NELP, in presence of Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas, and other Ministry officials.



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas launched the 24 hours Mahagas helpline on 1.7.2001. Next to him are Shri Pradhuman Mehta, MLA-Kandivili and Shri Hareshwar Patil, Mayor of Mumbai.

1.16 CONSERVATION OF PETROLEUM PRODUCTS

Being conscious of the enormous annual oil import bill incurred by the country, Government has initiated several measures for conservation of petroleum products through Petroleum Conservation Research Association (PCRA) and public sector oil companies including driver training programmes in the transport sector, energy audits and technology upgradation projects in industrial sector, promotion of fuel-efficient practices/equipment/appliances in the industrial and domestic sectors and Action Group Meetings to propagate awareness on oil conservation in all sectors. These multifaceted programmes coordinated by PCRA cover a large spectrum of socio-economic activities leading to increase in awareness on oil conservation.

OTHER ACHIEVEMENTS

1.17 RELEASE OF LPG CONNECTIONS

During calendar year 2001, Oil Marketing Companies (OMCs) have released about 63 lakh new LPG connections. Waiting lists of LPG connections in urban areas have been liquidated completely and new LPG connections are now available on demand and across the counter in existing markets throughout the country. To cater to rural areas, the Government has envisaged setting up of 540 exclusive rural distributorships. Further 700 more LPG distributorship at Block/Tehsil level will be set up. Oil marketing companies have already commissioned 153 LPG distributorships. As on 1.1.2002 the total number of LPG consumers is 622 lakh.

1.18 SPECIAL SCHEME FOR DEFENCE PERSONNEL KILLED IN KARGIL ACTION

The Government has formulated a special scheme to allot 500 retail outlet dealerships/ LPG distributorships to widows/next of kin of defence personnel killed in action in "Operation Vijay" (Kargil). The allotments under this scheme are made on recommendations of Ministry of Defence. On the basis of recommendations received from them so far, allotments in 429 cases (for 265 retail outlets and 164 LPG distributorships) have been approved as on 1.2.2002. The oil companies have been instructed to issue Letters of Intent (LOIs) expeditiously.

1.19 COAL BED METHANE (CBM)

Government of India invited bids for 7 blocks i.e. two in Jharkhand, three in Madhya Pradesh and one each in Rajasthan and West Bengal for exploration and production of CBM in the first round. A total of 16 bids were received from 5 companies for 6 blocks. And 5 of these CBM blocks have already been awarded to

successful PSU/private companies in January 2002. Separately ONGC is carrying out CBM operation in West Bengal (Raniganj coalfield) and Jharkhand (Jharia coalfield). Government has approved exploration and exploitation of CBM by M/s Great Eastern Energy Corporation Ltd. in Raniganj areas in West Bengal and contract for this block was signed on 31 May, 2001. Contract for 2 CBM blocks, on nomination basis - where ONGC and Coal India Limited (CIL) are carrying out some works, would also be signed shortly.

1.20 FACILITATION COUNTER AND WEBSITE

The Information Facilitation Counter is in operation. In the year 2001 about 4,500 parties availed of this facility. In addition to this, Facilitation Counter also provided guidance to visiting public on - how to avail of the information through this Ministry's website "www.petroleum.nic.in". The e-mail address of this counter is fc.png@sb.nic.in. Enquiry messages have started pouring in, through Internet also.

ONGC Hazira Processing Complex, Hazira, Gujarat.



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EXPLORATION AND PRODUCTION

CHAPTER II

2.1 CRUDE OIL & GAS PRODUCTION

2.1.1 The Oil & Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL), the two National Oil Companies, and a few private & joint venture (JV) companies are engaged in Exploration and Production (E&P) activities of oil and natural gas in the country. Crude Oil production during 2000-01 from ONGC & OIL was 28.34 MMT against the target of 27.99 MMT. The achievement of crude oil production by ONGC and OIL is about 101% with respect to their MOU Targets. In addition, there was production of 4.08 MMT, from the JV companies during 2000-01. The crude oil production target for year 2001-02 has been set at 32.50 MMT.

The gas production during the year 2000-01 by ONGC & OIL was 25.88 BCM and that from JV companies was 3.60 BCM. The gas production target for 2001-02 has been set at 29.8 BCM.

2.1.2 Several measures were taken to enhance hydrocarbon reserves and increase production. These include:-

- Intensive exploration in producing basins to upgrade "Yet to Find" (YTF) hydrocarbon resources.
- Exploration in "non-producing" - "poorly explored" and "yet to be explored" basins, which also includes exploration in the new frontier areas like deep seas and geologically and logistically difficult areas.
- Development of new fields on priority basis.
- Additional development of existing fields



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas inaugurating High South Redevelopment programme of ONGC also seen in the picture are Shri Santosh K. Gangwar, MOS and Shri V.N. Kaul, the then Secretary - Petroleum.

through implementation of Improved Oil Recovery (IOR)/ Enhanced Oil Recovery (EOR). These schemes are under implementation in number of oilfields of ONGC & OIL. Recently, Mumbai High South Redevelopment project was launched by Hon'ble Minister of Petroleum & Natural Gas on 29 October, 2001.

- Implementation of specialised technologies, like latest 'state - of - art' Data Acquisition & Processing System, extended reach drilling, horizontal drilling and drain hole drilling.
- Obtaining services of international experts wherever considered necessary.
- Review of old depleting fields through multi disciplinary studies to identify the input requirement.

2.1.3 One of the landmarks in liberalisation in petroleum-sector is encouragement of participation of Foreign and other Indian companies in Exploration & Development activities to supplement efforts of National Oil Companies (NOCs). A number of contracts have been signed with both Foreign and

Indian companies to undertake exploration activities and development of fields on production sharing basis.

2.1.4 There were sporadic attempts of unsuccessful multinational ventures till early 1990s. During that time, self-reliance and do-it-yourself were the main policies in evolution and expansion of two National Oil Companies. With the liberalization process initiated in July 1991, the upstream E&P sector was opened up - with almost yearly exploration bidding rounds and offer of few small and medium sized fields for development by private/joint venture sector. A number of exploration blocks were awarded to private sector and Production Sharing Contracts (PSCs) were signed amongst the Government, NOCs and Private Companies to this effect. As a part of the liberalization process, Government of India announced the New Exploration Licensing Policy (NELP) in 1999 with more attractive fiscal terms and conditions. With this, a new concept of level - playing field has been introduced in the Indian upstream Petroleum sector - where NOCs are required to compete with private oil companies in acquiring fresh exploration acreages.

2.1.5 Since 1991, Government of India has been inviting bids almost on regular basis with several rounds of bidding carried out till announcement of New Exploration Licensing Policy (NELP). During this period, a total of 35 blocks were awarded; out of which, Production Sharing Contracts have been signed for 27 blocks.

2.1.6 After the announcement of NELP, out of 73 blocks offered in the two rounds, Production Sharing Contracts have been signed for 47 blocks.

2.2 INDIA HYDROCARBON VISION-2025 AND STRATEGY OF Xth PLAN

2.2.1 Government has formulated India

Hydrocarbon Vision - 2025 wherein Medium Term and Long Term strategic directions have been indicated in order to

- undertake total appraisal of Indian sedimentary basins for tapping the hydrocarbon potential and optimise production for maintaining a reserve replacement ratio of more than one;
- keep pace with technological advancement in global E&P industry; and
- achieve as near as zero impact on environment.

2.2.2 The strategic issues covered in Hydrocarbon Vision-2025 for E&P sector are as under:

- Continue Exploration in Producing Basins.
- Aggressively pursue extensive exploration in non-producing and frontier basins for knowledge - building and new discoveries, including in deep-sea offshore areas.
- Finalise programme for appraisal of Indian sedimentary basins to the extent of 25% by 2005, 50% by 2010, 75% by 2015 and 100% by 2025. Sufficient resources to be made available for appraising the unexplored/partly explored acreages through Oil Industry Development Board (OIDB) cess and other innovative resource mobilization approaches, including disinvestments and privatisation.
- Provide internationally competitive fiscal terms - in order to attract major oil and gas companies and through expeditious evaluation of bids and award of contracts on a time-bound basis.
- Optimise Recoveries from Discovered fields/Future fields.
- Improve Archival Practices for Data Management
- Continue technology acquisition and

absorption alongwith development of indigenous Research & Development (R&D).

- viii. Ensure adequacy of finances for R&D required for knowledge - building infrastructure.
- ix. Make Exploration and Production (E&P) operations compatible with environment and reduce discharge and emissions.
- x. Support R&D efforts to reduce adverse impact on environment.
- xi. Acquire Acreage abroad for exploration as - well - as production.

2.2.3. The above strategic issues and the milestones as brought out in the "Hydrocarbon Vision-2025" provide the basic guidelines for Xth five year Plan (2002-07) for E&P activities. The strategy for the Xth Plan is to:

- i. Carry out sustained exploration efforts along with value-added synergistic approach in data acquisition and evaluation in producing basins.
- ii. Aggressively pursue extensive exploration in non-producing and frontier basins including deep-sea offshore areas for knowledge - building and breakthrough.
- iii. Cover adequately the exploration of the Indian sedimentary basins to the extent of 35% by end of the plan.
- iv. Optimise recoveries from discovered fields/ future discoveries.
- v. Improve archival practices for data management.
- vi. Induct advanced technology for improved business performance.
- vii. Dovetail R&D efforts to achieve the set

exploration and development objectives and telescope into requirements at the national level.

- viii. Match with best global practices to provide occupationally healthier work force, reduced accident rates, cleaner and greener products with reduced discharge in the field of Safety & Environment.
- ix. Participate in foreign exploration acreage and discovered oil/gas fields for exploration and development activities.
- x. Explore non-conventional hydrocarbons to supplement the conventional hydrocarbons.

2.3

ACQUISITION OF EQUITY OIL ABROAD

Equity oil abroad may lessen our dependence on few suppliers and increase our inter-dependence on a global basis. Considering the oil demand scenario vis-à-vis domestic production level, Government is encouraging oil sector PSUs to venture abroad to access exploration blocks and oil producing properties for equity oil - either on its own or through strategic alliances/joint ventures. ONG Videsh Ltd. (OVL), a wholly owned subsidiary of ONGC, is active in exploration and development activities of oil and gas in Vietnam. OVL, in February 2001, has signed an agreement with M/s Rosneft of Russia to acquire 20% interest in the Sakhalin-I offshore field in Russia and the interest of the Russian parties stand transferred to OVL with effect from 31 July, 2001. Commerciality of the oil & gas field has been declared on 29 October, 2001 and oil production is expected to commence from year 2005. OVL has "participating interest" in an exploration block in Iraq. OVL has also been actively pursuing some other opportunities in countries like Iran, Iraq, Russia, Venezuela and Algeria to

acquire exploration acreage and oil producing properties in these countries. OIL is also actively pursuing opportunities abroad for equity oil.

2.4

NEW EXPLORATION LICENSING POLICY (NELP)

As part of economic liberalisation of Petroleum Sector, Government of India announced "New Exploration Licensing Policy" (NELP) in 1999 with attractive fiscal terms and incentives. In the first round of NELP (NELP-I), a total of 48 blocks (12 onland blocks, 26 shallow water blocks and 10 deep water blocks in the East Coast beyond 400m iso-bath) were offered. Of these, 25 blocks (2 onland blocks, 16 shallow water blocks and 7 deep water blocks) were awarded and Production Sharing Contracts for 24 blocks signed.



Signing of Production Sharing Contracts for Discovered fields.

Bids under NELP-II were invited on 15.12.2000 wherein 25 blocks (8 in offshore deep water in West coast, 8 in shallow water and 9 onland blocks) were offered. Bids for 23 blocks, out of 25 blocks offered, were received. Production Sharing Contracts in respect of all these 23 blocks were signed on 17 July, 2001.

Preparatory works for offering exploration blocks under NELP-III are in final stage.

2.5

COAL BED METHANE (CBM)

The Government of India on 23 April, 2001 invited bids for 7 blocks (two in Jharkhand, three in Madhya Pradesh and one each in Rajasthan and West Bengal) for exploration and production of CBM in the first round. Total of 16 bids were received from 5 companies for 6 blocks. And 5 of these CBM blocks have already been awarded to successful PSU/ private companies in January, 2002.

Separately, ONGC is carrying out CBM operation in West Bengal (Raniganj coalfield) and Jharkhand (Jharia coalfield). The Government has approved exploration and exploitation of CBM by M/s Great Eastern Energy Corporation Ltd. in Raniganj areas in West Bengal and contract for this block was signed on 31 May, 2001. Contracts for 2 CBM blocks, on nomination basis - where ONGC and Coal India Limited (CIL) are carrying out some works, are also expected to be signed shortly.

2.6

SAFETY & ENVIRONMENT

Efforts are being continued to improve the Health, Safety & Environment (HSE) management to match the best global practices - to ensure occupationally healthier work force, reduced accident rates, produce cleaner and greener products with reduced discharges.

In order to make Exploration and Production (E&P) operations compatible with environment and reduce discharge and emissions, the following are being attempted:

- Establishing self - imposed discipline by oil companies in environment management system for all oil and gas field installations and drilling rigs - based on international standards to ensure improvements towards reducing discharge and emissions to internationally acceptable levels

- Eco-rating of major installations and compulsory environmental audits
- Benchmarking - at par with international oil majors with respect to environmental practices

2.7 REGULATORY MECHANISM FOR E&P SECTOR

The Government is considering recommendations of High Level Working Group which envisage setting up an *Upstream Hydrocarbon Regulatory Authority* (UHRA) in addition to DGH - in order to differentiate & streamline role of the regulatory authority from that of DGH.

2.8 OIL & NATURAL GAS CORPN. LIMITED

Oil and Natural Gas Corporation Limited (ONGC), engaged in exploration and exploitation of oil and natural gas, was incorporated under the Companies



Act, 1956 on June 23, 1993, pursuant to Govt. of India's decision to transform the statutory commission into a Public Limited Company. Through the Parliament Act for Oil & Natural Gas Commission (Transfer of Undertaking and Repeal) Act, 1993, a new corporation under companies Act was incorporated to take over the business of Oil & Natural Gas Commission w.e.f. 1.2.1994. The authorised and paid-up capital of ONGC as on 31.3.2001 are Rs. 15,000 crore and Rs. 1,425.931 crore respectively. ONG Videsh Limited (OVL) is a wholly owned subsidiary of the corporation which looks after overseas ventures.

HIGHLIGHTS FOR THE YEAR 2001-02

2.8.1 NEW HYDROCARBON FINDS

Exploratory efforts of ONGC during year 2001-02 (upto December 2001) resulted in six new hydrocarbons finds viz. Penduru West (KG), Katpur (Cambay), Nazira - 2 (Assam), Chaklasi (Cambay), GD-1-1 (KG Deepwater) and Palk Bay Shallow (Cauvery).

2.8.2 PHYSICAL PERFORMANCE

Parameters	2000-01 (Actual)	2001-02 Target (BE/MOU)	2001-02 Actual upto Dec. 2001 (Provisional)	2001-02 (Anticipated) RE
SEISMIC SURVEY				
Onland				
2D GLK	3164	4890	1600	3870
3D Sq.Km.	1083	976	500	890
Offshore				
2D LK	16895	12050	10027	36019
3D Sq.Km.	4253	1144	508	10650
DRILLING				
Exploratory				
Metreage('000 m)	359.60	502.46	271.16	410.62
Well Nos.	145	194	109	164
Development				
Metreage('000 m)	313.96	295.75	237.91	326.30
No. of Wells	143	143	110	154
Total (Expl.+Dev.)				
Metreage ('000 m)	673.56	798.21	509.07	736.92
No. of Wells	288	337	219	318

Parameters	2000-01 (Actual)	2001-02 Target (BE/MOU)	2001-02 Actual upto Dec. 2001 (Provisional)	2001-02 (Anticipated) RE
Production				
Crude Oil Prd. (MMT)	25.057	25.20	18.49	24.709
Gas Sales (MMSCM)	19363	19000	14591	18945
LPG Production(000' MT)	1213.87	1100	862	1131.64
NGL Prod. (000' MT)	363.73	350	266	338.07
C ₂ -C ₃ (000' MT)	570.57	570	384	546.45
SKO (KL)	222.70	225	172	222.80
ARN (000' MT)	1325.09	1317	1026	1323.01

2.8.3 FINANCIAL PERFORMANCE

(Rs. in Crore)

Parameters	2000-01 (Actual)	2001-02 (BE)	2001-02 (Actual upto Sept. 2001)	2001-02 (Anticipated) RE
Plan Outlay	3607.21	6077.07	1860.75	5859.08
Total Income*	25121.65 **	22326.56	11801.63	24208.88
Net Profit	5228.78	4490.22	3143.00	4997.98

*Income includes interest income.

**Excluding prior period adjustment.

2.8.4 ACHIEVEMENTS

- ONGC posted a profit of Rs. 3143.00 crore during 1st half of 2001-02 as compared to Rs. 2533.54 crore for the corresponding period in 2000-01 registering an increase of 24%.
- Fire and blow out at well G-345 in Gandhar field on Oct 30, 2001 caused by miscreants was successfully controlled and extinguished by ONGC's Crisis Management Team on 9 November, 2001.
- Blowout at well SK-108 in South Kadi field on Dec. 12, 2001, during production testing was subdued and controlled by ONGC's Crisis Management Team on 18 Dec, 2001

- Four major projects, namely, Mumbai High South Redevelopment, IOR in Lakwa, Geleki and Rudrasagar were approved during the year for implementation. The Mumbai High South Redevelopment project - costing Rs. 5,256 crore, was launched by Hon'ble Minister for Petroleum & Natural Gas on 29.10. 2001.
- Successful completion of 27 years and drilling of 125 wells by ONGC's offshore rig Sagar Samrat, ceremoniously announced by the Hon'ble Minister for Petroleum & Natural Gas on 11.8.2001.
- India's first skid-mounted mini refinery - with refining capacity of between 220 - 320 tonnes, set up by ONGC at a cost of Rs. 30 crore was inaugurated by

Hon'ble Minister for Petroleum & Natural Gas on 3.9.2001

- vii. Longest horizontal production well completed in Mumbai High Field - with 15% time & cost savings.
- viii. Under Coal Bed Methane exploration, production testing carried out in wells JHAA, JHAB and JHAD in Parbatpur Block. Six slim holes drilled in adjoining areas of Parbatpur Block and four slim holes drilled in Raniganj PEL Block.
- ix. ONGC was awarded 16 blocks out of 23 blocks offered under NELP-II round, with 6 on stand-alone basis and 10 in consortium with other bidders. Operating agreements for 8 blocks awarded under NELP-I were signed during the year.

2.8.5 PROGRESS OF PROJECTS

As on end Dec, 2001, following major projects of ONGC, costing more than Rs. 100 crore, are under various stages of implementation (Table).

Sl. No.	Name	Approved Cost (Rs. Crore)	Status/ Anticipated Commissioning
1.	BHN Revamp	263.53	May-2002
2.	Additional Compressor at Heera	177.64	March-2002
3.	ZA Platform (Merged with Mumbai High South Redevelopment)	302.24	June-2003
4.	Mumbai High North Redevelopment	2929.40	Dec.-2005
5.	Mumbai High South Redevelopment	5255.97	July-2007
6.	Improved Oil Recovery - Neelam	347.69	July-2003
7.	Addl. Development Heera Part - I	309.08	Jan.-2004
8.	Improved Oil Recovery - Gandhar	761.74	Dec.-2004
9.	Improved Oil Recovery - Rudrasagar	113.90	March-2006
10.	Improved Oil Recovery - Geleki	390.09	March-2007
11.	Improved Oil Recovery - Lakwa - Lakhmani	345.10	March-2007

Note : Two major projects, namely in-situ Combustion Balol and in-situ Combustion Santhal were completed during the year.



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas launched the Mumbai High South Redevelopment Project, ONGC on 29.10.2001.

2.8.6 MAJOR INITIATIVES

Long Term Strategy

A long term strategy on exploration and production was formulated and approved by ONGC Board in July 2001. The main points are:

- To double the accretion of oil and oil equivalent of gas reserves from 6 billion tonnes to 12 billion tonnes over the next 20 years.

- To raise level of global recovery factor from prevailing 28% to 40% in the next 20 years.

Corporate Rejuvenation Campaign (CRC)

With a view to meet challenges posed by the economic liberalisation and emerging scenario of onsetting competition during post April 2002, ONGC has initiated the Corporate restructuring exercise with the help of consultants M/s McKinsey & Co. After detailed discussions, it has been decided to change over existing Business Group structure to Asset base model. The restructuring exercise has been implemented and, based on new CRC structure, reallocated roles and responsibility of Corporate, Asset, Basin, Field Services, Regional offices and full time Directors have been defined.

The CRC restructuring exercise is designed for maximization of economic value of exploration and production assets besides ensuring commercial accountability and supplementing technology upgradation, renewed focus on exploration and reinforcing multidisciplinary approach in a team environment directed to facilitate quicker decisions.

Delegation of Powers

As a sequel to CRC and corporate restructuring, the authority structure down to Asset Manager, Basin Manager and Head of Institutes level has also been amended with greater financial delegation to facilitate decision making in different situations. The objective of amendment of Book of Delegated Powers (BDP) is to ensure exercise of responsibility and maximize efficiency by minimising steps involved from initiation to final stage of approval.

Infocom Projects

ONGC has launched project PROMISE - Professional Review of Major Infocom

Systems & Equipment, which is designed to integrate the corporation's infotech resources and communication systems, so that acquisition, collation, dissemination and storage of data is done with maximum efficiency, security and cost effectiveness throughout the country.

2.8.7 COAL BED METHANE (CBM)

ONGC entered into Coal Bed Methane exploration in 1994 as a R&D project to harness potential of vast Gondwana Coal reserves of the country. Initial 2 wells were drilled in Durgapur depression of Raniganj Coal field in West Bengal. In the subsequent phase, Parbatpur block of Jharia coal field proved to be gas - bearing confirming presence of CBM in the area.

2.9 ONG VIDESH LIMITED

ONG Videsh Limited (OVL) is a wholly owned subsidiary of ONGC. The company is progressively working to augment the national oil security through acquisition of equity oil in foreign countries. The company has a paid up capital of Rs. 300 crore against the authorised capital of Rs. 500 crore. OVL earned a profit of Rs. 24 crore during 2000-01 as compared to Rs. 8.19 crore in 1999-2000 - registering an increase of 300% its profits. The company has on-going projects in Vietnam, Russia and Iraq; and is actively pursuing opportunities in other focus countries.

2.9.1 ACTIVITIES DURING 2001-02

The activities of OVL during 2001-02 were focused in Russia, Vietnam and Iraq to bring larger quantity of equity oil. The major activities are as under:

RUSSIA

OVL joined the consortium comprising of Exxon-N (subsidiary of Exxon-Mobil), Sodeco,

SMNG-S & RN Astra by acquiring 20% Participating Interest in the Sakhalin-I Project in the far east of Russia on 31 July, 2001. The project includes three discovered oil fields located about 8-25 km off the Eastern coast of Sakhalin Island, the southern tip of which is about 60 km from the island of Hokkaido, Japan. The Government of India approved OVL participation in this project on 6 January, 2001. All major agreements were signed on 10 February, 2001 and OVL holds the interests transferred by the Russian parties from 31 July, 2001. The Reserves are estimated at 310 MMT of Oil and 490 BCM of Gas. The commerciality of the oil and gas field has been declared on 29 Oct, 2001 and the oil production is likely to commence from year 2005, with an expected plateau oil production of 34,150 tonnes per day and a gas production of 29 MMSCMD.

VIETNAM

OVL, signed a Production Sharing Contract in 1988 with M/s Petro Vietnam for the offshore block 06.1. OVL has a "participating interest" of 45%, the other partners are British Petroleum (40%) and Petro Vietnam (15%). The project is presently in development stage and all the major commercial agreements for exploitation of gas have been concluded. Drilling operations has started from 12 December, 2001, and fabrication of production facilities is in progress. The first Gas supply is expected in last quarter of 2002.

IRAQ

OVL, signed an Exploration and Development Contract with Oil Exploration Company of Ministry of Oil, Iraq on 28.11.2000 at New Delhi for the exploration Block - 8 in western desert of Iraq. The Govt. of Iraq has ratified the contract for which the effective date is 15 May, 2001. The first phase of Exploration period is presently under implementation.

OVL, is also pursuing a project for developing a discovered oil field in southern Iraq, through a consortium consisting of OVL, RIL and the National Oil Company of SONATRACH, Algeria. A participating Agreement among the partners has already been signed and technical and commercial terms and contract documents are being discussed with Ministry of Oil, Iraq. In addition, there are other agreements that OVL has signed with the National Oil Companies of Algeria, Venezuela, and Indonesia and various other companies spread all over the world.

2.10 OIL INDIA LIMITED

Oil India Limited(OIL) was incorporated on 18 February, 1959 with two-third share of Burmah Oil Company (BOC)/Assam Oil Company (AOC) and one-third of Government of India. On 27 July, 1961, Government of India and Burmah Oil Company transformed OIL to a Joint Venture Company with equal partnership. On 14 October, 1981, Oil India Limited became a fully owned Government of India enterprise.

OIL produces crude oil and natural gas from its oilfields in Assam & Arunachal Pradesh and natural gas from its gas fields in Rajasthan. Exploration is being carried out in Assam, Arunachal Pradesh, Rajasthan, U.P, Uttaranchal States and Saurashtra Offshore near Gujarat.

In addition to exploration and production, transportation of crude oil produced in Northeast India both by OIL & ONGC is carried through its integrated cross-country pipelines to different refineries in the region. The Company also produces Liquefied Petroleum Gas (LPG) at its LPG recovery plant at Duliajan, Assam.

The authorised & paid up capital of OIL as on 31.3.2001 were Rs. 250 Crore and Rs. 214 Crore respectively.



2.10.1 NEW HYDROCARBON FINDS

During 2001-02 (upto Dececeember 2001), OIL's exploratory efforts led to discovery of high Pour Point oil in the Uriamguri structure near OIL's Tengakhat oilfield in Assam. In addition, exploratory wells being drilled in Chandmari & North Makum area near OIL's Makum oilfield in Upper Assam has also given indication of presence of hydrocarbons.

2.10.4 ACHIEVEMENTS

- OIL successfully completed Gravity survey in logistically difficult area in Sadiya PEL in Arunachal Pradesh and has recently started Seismic Survey in hilly terrain of Ganga Valley Basin - using shothole drilling rig.
- Basin Modelling studies for prospect identification in OIL's operational areas

2.10.2 PHYSICAL PERFORMANCE

Parameters	2000-01 Actual	2001-02 Target (BE/MOU)	2001-02 Actual upto Dec.' 2001 (Provisional)	2001-02 Anticipated RE
Seismic Survey				
Onland				
2D GLK	420.12	1785	279.80	757.50
3D Sq.Km.	155.46	350	17.32	300
Offshore				
3D Sq.Km.	-	600	-	330
Drilling				
Exploratory				
Metreage ('000 m)	39.164	60.20	31.195	41.327
No. of Wells	12	15	7	12
Development				
Metreage ('000 m)	49.558	62.30	45.274	58.673
No. of Wells	13	17	12	17
Total (Expl.+Dev.)				
Metreage ('000 m)	88.772	122.50	76.469	100.00
No. of Wells	25	32	19	29
Crude Oil Prd. (MMT)	3.286	3.45	2.284	3.30
Gas Sales (MMSCM)	1315.18	1215	863.596	1175
LPG Production ('000 MT)	51.47	50.50	37.904	50.00

2.10.3 FINANCIAL PERFORMANCE

(Rs. in Crores)

Parameters	2000-01 (Actual)	2001-02 (BE)	2001-02 (Actual upto Sept.' 2001)	2001-02 (Anticipated) RE
Plan Outlay	556.23	800.00	217.46	650.00
Total Income	2129.86	2161.79	1032.06	2094.44
Net Profit	467.36	437.46	266.95	400.88

- in North East and Rajasthan started and are in the advance stage of completion.
- iii. Multi disciplinary study for implementation of EOR/IOR scheme in the old depleting field of OIL started and is in the advance stage of completion.
 - iv. The estimated Crude Oil and Gas production during the year are 3.30 MMT and 1680 MMSCM respectively.
 - v. The gas flaring in Upper Assam oilfield was brought down to the level of 0.33 MMSCMD as against the average flare of 0.45 MMSCMD in 2000-01.

2.10.5 PROGRESS OF PROJECTS

OIL is carrying out normal exploration and development activities mostly in its operational areas in Assam and Arunachal Pradesh. Additional seismic surveys have been taken up/ planned in the Saurashtra Offshore and Ganga Valley Basin. OIL also expect to start its exploratory work in the NELP-I exploration block area in Cauvery Offshore.

Following are the major projects of OIL, which are under various stages of implementation:

Name of the project/Location	Approved Cost Rs. in Crore	Status/Anticipated commissioning
Laying of Spur line from main trunk pipeline between Badulipar for crude oil supply to Numaligarh Refinery	30.00	Pipeline commissioned and crude oil being supplied to Namaligarh Refinery
Reverse Pumping of 1.50 MMTPA crude oil from Barauni to Bongaigaon Refinery.	21.73	1 st phase of reverse pumping for 0.50 MMTPA was completed on 27.12.2000 and 2 nd phase for pumping 1.50 MMTPA of crude completed on 7.4.2001. Civil jobs are in progress for industrial & housing complex.
Tank Farm at Tengakhat with dewatering facilities to increase storage capacity by 50,000 KL and to improve crude oil quality.	30.00	Process for award of contract for technical consultancy is under process. Expected to be complete by December, 2003.
Oil Collecting Station at Tengakhat	15.62	Expected to be complete by March, 2003.
Oil Collecting Station at Makum	16.00	Expected to be complete by March, 2003.
Development of non-associated Gas field in Tengakhat & Deohal areas in Assam	20.00	Completion will be synchronised with completion of Gas Cracker Plant by RAPL.

2.10.6 INITIATIVES

Under 2nd round of New Exploration Licensing Policy (NELP-II), OIL has been awarded one block independently (RJ-ONN-2000/1) and three blocks (MN-ONN-2000/1, MN-OSN-2000/2 & MB-DWN-2000/2) in consortium. Additionally, OIL has also taken 15% participating interest in a deep water block in Krishna Godavari offshore block (KG-DWN-98/4) which was awarded to ONGC in the first round of New Exploration Licensing Policy.

OIL has submitted a bid for an exploration block in Iran alongwith ONG Videsh Limited and Indian Oil Corporation Limited.

OIL is exploring the possibility of providing technical consultancy services for exploration and development of oilfields overseas.

2.10.7 CONTROL OF POLLUTION AND OTHER ENVIRONMENTAL INITIATIVES

Concerted efforts in protecting the environment have resulted in a clean & green environment in OIL's operational areas. The following initiatives were taken/continued for control of pollution:

Introduced "Drilling effluent recycling system" for better effluent management in drilling operations.

The formation water produced is selectively disposed off through shallow disposal wells and water samples from nearby potable water wells are regularly monitored.

EIA (Environmental Impact Assessment) study on formation water handling, drilling, effluent management and crude oil sludge treatment was carried out by a Canadian firm. Additionally, experimental study with TERI for Bio-remediation of crude oil sludge has been carried out. Results are encouraging and its applicability can be extended at select field locations.

Action are in hand for ISO - 14000 certification of few installations, installation of water clarification plant, implementation of recommendation of detailed noise survey.

2.11 GAS AUTHORITY OF INDIA LIMITED



- 2.11.1 Gas Authority of India Ltd. (GAIL), set up in 1984, is the largest natural gas transmission Company in India. The Company owns and operates a network of over 4,000 kilometres of pipeline. This includes the prestigious HBJ Pipeline, a 2,702 KM long pipeline which runs from Hazira on western coast of India through Vijaipur to Jagdishpur in North India having links to Delhi and over 1300 KM of regional pipelines in different States including Maharashtra (Mumbai area), Gujarat, Rajasthan, Andhra Pradesh, Tamil Nadu, Pondicherry, Assam and Tripura. At present, in addition to transportation of natural gas throughout the country. GAIL is also in the process of extraction of LPG, petro-chemicals and other value added products. The Company has a variety of tele-communication system on its existing pipeline infrastructure -



GAIL's LPG Plant at Auraiya, Uttar Pradesh

for communication and Supervisory Control and Data Acquisition (SCADA). Therefore, the Company plans to lease bandwidth to telecom companies using its optic fibre system available on HBJ pipeline, Jamnagar-Loni LPG pipeline and by adding new optic fibre systems in various sectors. The company has also entered in Exploration and Production business.

- 2.11.2 The Company currently handles 62 million cubic metres approximately of natural gas per day representing about 95 percent of total amount of natural gas handled by pipelines in India. In fiscal year ended 31 March, 2001, the Company sold approximately 20.946 billion cubic metres (BCM) of Natural Gas through its pipeline network.
- 2.11.3 The Company operates six natural gas processing plants with an installed capacity to produce 9,61,000 tonnes of Liquefied Petroleum Gas per year. Four of the Company's natural gas processing plants are located along the HBJ Pipeline, two at Vijaipur in Madhya Pradesh and one each at Vaghodia in Gujarat and Pata (Auraiya) in Uttar Pradesh. The other natural gas processing plants are at Usar near Mumbai in Maharashtra and Lakwa in Assam.
- 2.11.4 The company also operates a Petrochemical complex at Pata in Uttar Pradesh, with an

installed capacity to produce 2,60,000 tonnes of polyethylene and 10,000 tonnes of Butane Gas per year.

- 2.11.5 The company has completed the world's longest and India's first cross country LPG Pipeline from Jamnagar (Gujarat) to Loni (UP) covering 1269 KM and passing through Gujarat, Rajasthan, Haryana, Delhi and U.P. States. The pipeline was dedicated to the Nation on June 11, 2001. The LPG carrying capacity of the pipeline is 1.7 million tonnes per annum, which is to be upgraded to 2.5 MMTPA.

- 2.11.6 The company has also commissioned LPG plant at Gandhar and commenced production in March, 2001. The LPG plant is designed to process five MMSCMD of gas to produce 2,07,000 tonnes of LPG besides 43,000 MT of Pentane and SBP.

2.11.7 ON-GOING PROJECTS

Kandla-Samakhiali LPG pipeline linkage

In Phase-II of the Jamnagar-Loni LPG Pipeline, GAIL is in the process of laying a 71 KM long pipeline from Kandla to Samakhiali at an estimated cost of Rs. 70 crore with intermediate booster stations at Jaipur and a despatch terminal at Kandla. This linkage will increase capacity of the LPG Pipeline from 1.7 MMTPA to 2.5 MMTPA. This project is targeted for completion by October, 2002.

Vizag-Secunderabad LPG Pipeline

The company has commenced laying of 600 KM (approx.) long LPG pipeline from Vizag to Secunderabad at an estimated cost of Rs. 490 crore. The throughput capacity of the pipeline will be 1.1 MMTPA and is scheduled to be completed within 30 months from date of signing Transport Service Agreements with Oil Companies.

Lanco Kondapalli Pipeline Project

The Company has also started construction of about 200 KM length pipeline of 450 mm

dia at an estimated cost of Rs. 300 crore - to supply natural gas of 1.12 MMSCMD to Lanco Kondapalli Power Project in Andhra Pradesh.

Other gas pipelines and facilities

The Company is also constructing pipeline for transportation of gas-to-gas processing complex, Gandhar - to increase production of LPG. Also the pipeline network in Agra and Ferozabad cities is under expansion. Laying of gas pipeline network in the Krishna Godavari and Cauvery basins for marketing additional gas has already commenced.

New Business Development Initiatives

In its endeavor to develop business relationship with reputed International companies, GAIL has signed Principles of Cooperation Agreement with Shell International Gas & Power and Unocal Corporation of the United States during the year. Similarly, the company also signed a Memorandum of Understanding with M/s Gazprom of Russia for jointly pursuing gas sector related projects in India, Russia and other countries. To give further thrust to gas sector cooperation with Iran, the company also signed a Cooperation Agreement with National Iranian Oil Company for jointly undertaking the feasibility study on deep-water pipeline from Iran to India.

- 2.11.8 The focus of the company has been on organising and augmenting gas supplies to the growing Indian market for its business growth in the core business area. GAIL will be marketing a major share of re-gassified LNG from the Dahej terminal of M/s Petronet LNG Limited. In addition, the company will be providing gas transportation services to other partners of M/s Petronet LNG Limited.

- 2.11.9 With a view to ensure long term gas supplies, the company has entered in exploration and production business by achieving award of

one block in Orissa offshore with ONGC and another in West Bengal offshore with M/s Gazprom of Russia. Apart from this, the company has also been awarded six more blocks in NELP-II exploration bidding round.

- 2.11.10 To develop new gas markets and new pipeline infrastructure, the company has signed Gas Cooperation Agreements with Karnataka, Kerala, Maharashtra and West Bengal States and is in the process of finalising similar Gas Cooperation Agreements with Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh States.

- 2.11.11 In the Power Sector, the company has been pursuing participation in various gas-based power projects and has decided to participate with 12% equity participation in the 156 MW Hazira Power Project - under implementation by Gujarat State Energy Generation Company and similar participation in Samalkot Power Project which is being implemented by BSES in Andhra Pradesh.

2.11.12 JOINT VENTURE COMPANIES

In the area of growth and consolidation of its existing business and diversification into the related activities, GAIL has taken notable initiatives in Joint Venture companies, namely, Mahanagar Gas Limited (JV with British Gas of U.K.) in Mumbai and Indraprastha Gas Limited (JV with Bharat Petroleum Corporation Limited) in Delhi for City Gas Distribution Schemes including CNG for the Transport Sector.

Besides, GAIL has an equity participation with IOC, ONGC & BPCL in M/s Petronet LNG Limited for setting up LNG terminals at Dahej in Gujarat and Kochi in Kerala for import of LNG in the country. GAIL has been awarded two blocks under New Exploration & Licensing Policy (NELP) for carrying out Exploration and Production activities jointly with ONGC and GAZPROM of France.



GAIL's Petro Chemical Plant at Pata, Uttar Pradesh

2.11.13 PHYSICAL PERFORMANCE AT A GLANCE

Description	Unit	Actual		Provisional (upto December,2001) 2001-02
		1999-2000	2000-01	
Gas Sales	MMSCM	21,942	20,946	16,982
LPG/SBP/others Production	('000 MT)	825,410	866,309	813,000
Petrochemical Production	('000 MT)	118,807	194,587	183,000

2.11.14 FINANCIAL PERFORMANCE**(Rs. in crore)**

Description	Actual		Provisional (upto December, 2001) 2001-02
	1999-2000	2000-01	
Profit After Tax	861	1,126	850
Internal Generation	1,350	1,727	1,289

GAIL has paid dividend of Rs. 338.26 crore (excluding Dividend Tax) for the year 2000-01.

Fluidised Catalytic Cracking unit of Kochi Refineries Limited, Kerala.



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REFINING

CHAPTER III

3.1 REFINING CAPACITY AND THROUGHPUT

3.1.1 The refining capacity of 112.54 Million Metric Tonnes Per Annum (MMTPA) as on 1-4-2001 has increased to 114.67 MMTPA as on 1.12.2001.

3.1.2 At present, there are 18 refineries operating in the country (16 in Public Sector, one in Joint Sector, and one in Private Sector). Out of the 16 PSU refineries, 7 are owned by Indian Oil Corporation Limited (IOCL), two by Chennai Petroleum Corporation Limited (CPCL), subsidiary of IOCL, two by Hindustan Petroleum Corporation Limited (HPCL) and one each by Bharat Petroleum Corporation Limited (BPCL), Kochi Refineries Limited (KRL), subsidiary of BPCL, Bongaigaon Refinery & Petrochemicals Limited (BRPL), subsidiary of IOCL, Numaligarh Refineries Limited (NRL), subsidiary of BPCL and Oil & Natural Gas Corporation Limited (ONGC). There is one refinery in Joint Sector viz. Mangalore Refinery & Petrochemicals Limited (MRPL) and one refinery in Private sector viz Reliance Petroleum Limited (RPL).

3.1.3 A mini refinery of ONGC with capacity of about 0.1 MMTPA with an approved cost of Rs. 29.9 crore was commissioned in September, 2001 at Tatipaka in East Godavari District of Andhra Pradesh.

3.2 IMPORT AND EXPORTS

The quantity of crude oil (including joint venture companies/private parties) imported between April - November 2001 was 52.057 MMT, valued at Rs. 41,991 crore. Besides, 4.123 MMT of other petroleum products were also imported during the same period, valued at Rs. 4,529 crore. Quantity of exports of

petroleum products during April-November 2001 has been 5.833 MMT, valued at Rs. 4,923 crore.

3.3 NUMALIGARH REFINERY LIMITED



3.3.1 Numaligarh Refinery Limited (NRL), popularly known as "Assam Accord Refinery" has been set up as a grass-root refinery at Numaligarh in the District of Golaghat (Assam). Numaligarh Refinery Limited was incorporated on 22 April, 1993 with IBP Co. Ltd. (IBP) and Government of Assam (GOA) as the co-promoters having 51% and 10% equity participation respectively leaving the balance 39% to be raised from public.

On 2 June, 1995 Government of India inducted Bharat Petroleum Corporation Limited (BPCL) as the 3rd promoter, revising the equity structure to 32%, 19% and 10% for BPCL, IBP and GOA respectively, leaving the balance 39% to be raised through Public issue. Subsequently in March, 2001, BPCL has acquired 19% IBP's equity in NRL thereby raising BPCL's equity holding to 51% and making Numaligarh Refinery Ltd. its subsidiary. Out of the 39% of equity earmarked to be raised through public issue, 10% each has been placed with OIDB and OIL through private placement route.

3.3.2 The refinery is designed to process 3 MMTPA of indigenous crude oil adopting state - of - art technologies with the configuration of Crude Distillation Unit (CDU), Vacuum Distillation Unit (VDU), Delayed Cracker Unit (DCU), Hydrocracker Unit (HCU), Hydrogen Unit (H₂U), Coke Calcination Unit (CCU), and a Sulphur Recovery Block (SRB).

The commercial production of the refinery, which was commissioned in a phased manner from April, 1999, commenced from 1 October, 2000.

3.3.3. PHYSICAL PERFORMANCE

	(in '000 MT)	
	Oct., 2000 to Mar., 2001	For the year 2000-01
A) Crude Throughput		
1 Actual Crude Processed	1035	1451
2 % of crude processed against OEB target	91.20%	93.55%
3 Distillate Yield (Actual)	87.22%	83.00%
B) Production achieved		
1 Light Distillate (LPG+Naphtha)	119	156
2 Middle Distillate (SKO+HSD+ATF)	783	1049
3 Heavy Ends (RPC+FO+Sulphur)	48	68
Total Production	950	1273
C) Product Evacuation		
1 Light Distillate	74	79
2 Middle Distillate	832	1000
3 Heavy Ends	35	47
Total Product Evacuation	941	1126

3.3.4 FINANCIAL PERFORMANCE

Despite lower Refinery Gate Prices, arising out of the relatively lower CIF prices of products ruling in the market, the company has been able to register a net profit of Rs. 21.6 crore during the very first year of operation i.e. from October 2000 to March, 2001. In line with the Govt. guideline for dividend declaration of oil PSUs, 30% of post tax profit has been paid out as dividend.

3.3.5 During the 1st six months of the year 2001-02 (i.e. from April to September, 2001), 1.019 MMT of crude was processed. The company has registered a net profit of Rs. 4.19 crore during the period (i.e. from April to September, 2001).

3.4 KOCHI REFINERIES LIMITED



3.4.1 The Kochi Refineries Limited (KRL) installed capacity at the inception in September 1966 was 2.5 million metric tonnes per annum (MMTPA). The capacity of the Refinery has been expanded from time - to - time and at present, it is 7.5 MMTPA. The secondary processing facilities have also been expanded to 1.4 MMTPA.

3.4.2 PHYSICAL PERFORMANCE

During the year 2000-01, the Refinery processed 7.52 MMT of crude oil. The capacity utilisation was 100.27% and this was the thirteenth consecutive year when the Refinery could achieve capacity utilisation of over 100%. KRL also set record in Fluidised Catalytic Cracker Unit throughput and production of liquefied petroleum gas, benzene, toluene, motor spirit and aviation turbine fuel.

The crude oil processed till 31.12.2001 was about 5.009 MMT and anticipated crude oil throughput for 2001-02 is 6.91 MMT.

The Company continued to be vigilant in making the Refinery a safe place for its employees and the community around it. It invested substantially in automated safety and process control systems to ensure safe working conditions.

As on December 31, 2001, KRL had completed 177 days of continuous accident-free operation, equivalent to 1.934 million man-hours.

3.4.3 FINANCIAL PERFORMANCE

Turnover and Profits:

During year 2000-01, the Company achieved an all time high turnover of Rs. 7,136 crore

against Rs. 5,768 crore during 1999-2000. However, the profit before tax (PBT) was Rs. 102.46 crore as against Rs. 283.71 crore in the previous year.

In spite of excellence in physical performance, the profit was lower compared to previous years. This was partly due to the volatility of crude oil price witnessed in the international market during the relevant period and lower demand for diesel oil, coupled with the additional investment for the Diesel Hydro De-Sulphurisation (DHDS) Unit (Rs. 750 crore), for upgrading the quality of diesel oil which could not bring in any significant additional revenue. The additional operating expenditure including interest and depreciation on account of this Unit is approximately Rs. 200 crore for 2000-2001.

The overall financial performance for year 2000-01 along with the figures for the previous year is highlighted below:

	(Rs. in crore)	
	1999-2000	2000-01
Turnover	5,768.33	7,135.75
Profit before interest, depreciation and tax	385.21	313.85
Interest	38.78	109.93
Depreciation	62.72	101.46
Profit Before Tax	283.71	102.46
Tax provision (net)	48.50	(7.00)
Profit After Tax	235.21	109.46
Appropriation:		
* Dividend: 21%		31.98
(Dividend 1999-2000: 166%)	129.90	
General Reserve	23.55	10.95
Balance Carried to Profit & Loss Account	81.76	66.53

* Including Corporate Dividend Tax.

The Company contributed a sum of Rs. 1873.49 crore to the Exchequer by way of taxes, duties, etc. during the year, against Rs. 2052.53 crore in 1999-2000.

Performance under key financial parameters for the period up to end December 2001 (tentative) together with forecast for the remaining three months of the financial year 2001-02 is given below:

	Rs. in crore		
	Actuals upto Dec. 2001 (Tentative)	January to Mar 2002 (Forecast)	2001-02 Estimated*
Turnover	4400	1910	6310
Profit before tax	63	27	90
Profit after tax	55	24	79

* The estimate for 2001-02 is provisional and subject to changes depending on the crude and product prices in the international market.

3.4.4 PROJECTS

A. Projects completed:

i) Stand Alone Water Supply Scheme:

This project costing Rs. 79 crore has been set-up for an independent water supply scheme to meet KRL's present water requirements of 6.3 MGD with a capacity to enhance up to 16.3 MGD, from Periyar River. The facilities include Intake well/pump house, substation, pipelines of 18 KM length, water treatment plant. Project has been completed except the finishing jobs of the water treatment plant and pumping has been commenced from first week of April 2001 onwards.

ii) Corporate Office:

A corporate office building costing approximately Rs. 13.62 crore, with 5 floors and exquisite interior design has been constructed at Maradu landing site near NH-47. Top management and some of the other key departments were started functioning from new corporate office from April 2001 onwards.

iii) Enhancement of LPG Recovery:

The project envisages enhancement of LPG recovery from the crude unit by 20,000 tonnes per annum, conversion of 1,84,000 tonnes per annum naphtha to high speed diesel and increase in crude throughput by 40,000 tonnes per annum. Around 6,300 tonnes per annum of fuel oil saving is expected on account of pre-heat optimization. The project costing Rs. 49.60 crore has been commissioned in June 2001.

iv) Upgradation of Distribution Control System (DCS)

This project costing Rs. 12.55 crore has replaced the original Distribution Control System in Primary Unit, Fluidised Catalytic Cracker Unit, Aromatic Recovery Unit and also in the Utilities with latest open system & networking of all control rooms. The project has been completed in May 2001 during the shutdown.

B. On-going Projects

i) Revamp of Electrical Distribution System

As a part of modernization of the High Tension/Low Tension system, three different revamp electrical jobs are planned to be executed under this project at a project cost of Rs. 19.20 crore. The project envisages the replacement of obsolete Main Receiving Station and B4& B5 load centres, as the spares for these are not available. The feeders of the transformers in Fluidised Catalytic Cracker Unit are also planned to be relocated to improve the plant reliability. The offers have been received for the revamping job and are being processed. The project is scheduled to be completed by July 2003.

ii) Additional Reactor for DHDS

In order to reduce the sulphur content in part of the HSD to 0.05 wt %, an additional HDS Reactor and connected facilities are being put up in DHDS unit. The project costing Rs. 28.36 crore is scheduled to be complete by May 2002. Presently, fabrication of the Reactor is in progress at Larsen & Toubro's workshop.

C. Project Proposals

i) 6 MMTPA Capacity Expansion-Cum-Modernisation Project

It has been decided to drop the proposal for Expansion-cum-Modernisation Project (from 7.5 MMTPA to 13.5 MMTPA). KRL is reconfiguring the expansion proposal in line with the product demand, the auto fuel quality requirement and also the need to modernise the refinery.

ii) Crude Oil Receipt Facilities

KRL is proposing to set up Crude Oil Receipt facilities at Manakkodam, which is declared as a 'Minor Port' by Government of Kerala. It involves a Single Point Mooring facilities, Sub-marine pipe line, Shore tank farm and a cross country pipeline of 34 KM for the transportation of crude oil to refinery. This is envisaged to receive crude in Suex Max and/or Very Large Crude Carriers as there are limitations in the existing jetties to receive the same. The estimated cost of this project is around Rs. 750 crore and Detailed Feasibility Report preparation is on hand.

iii) Integrated Refinery Information System

For ensuring optimum utilisation of available assets and resources, KRL has ventured into establishment of an enterprise wide network, Integrated

Refinery Information System. The project envisages implementation of integrated software solutions for all functional areas of the Company. Detailed Feasibility Report for the same is under preparation.

3.5 CHENNAI PETROLEUM CORPORATION LIMITED



3.5.1 Chennai Petroleum Corporation Limited (CPCL), formerly Madras Refineries Limited (MRL) was formed as a Joint Venture of Govt. of India (74%), with AMOCO India Inc. (13%) and National Iranian Oil Company, Iran (13%). The company was incorporated on 30.12.1965 as a Public Limited company. CPCL has two refineries i.e. one at Manali near Chennai and the other at Panangudi near Nagapattinam (Cauvery Basin Refinery - CBR).

3.5.2 CPCL's Manali Refinery originally designed for processing 2.5 Million Metric Tonnes Per Annum was commissioned in the year 1969. The refining capacity was expanded from time-to-time and CPCL also became multi-locational when its CBR was commissioned in Nov.1993, with a capacity of 0.5 MMTPA. The current overall refining capacity of CPCL is 7 MMTPA



CPCL has been awarded ISO 9001: 2000 and OHSAS 18001: 1999 certifications for compliance of Quality Management system and Occupational Health and Safety Mgmt. System for its Manali Refinery. Mr. S. Rammohan, C&MD received the Certificates on 26.12.2001.

3.5.3 The authorised capital and paid-up capital of the company are Rs. 200 crore and Rs. 149 crore respectively. The Government of India divested its entire share holding in CPCL in favour of IOCL in March, 2001.

3.5.4 PHYSICAL PERFORMANCE

During the year 2000-01, the company processed 6.625 MMT of crude oil. The capacity utilisation was 94.64%. The lower throughput as compared to full capacity was on account of regulating the production to match the secondary processing capability at Manali and for maximizing the overall profitability of company against the background of international prices for crude oil and petroleum products.

The company was awarded with "Technology and Environmental Protection in National Sector" given by Central Pollution Control Board. The company also won the CSIR Technology Award for the year 2000 for its R&D efforts.

For 2001-02, the crude oil throughput was 4.38MMT till November 2001 and for the full financial year it is estimated that it would be around 6.813 MMT.

3.5.5. FINANCIAL PERFORMANCE

During the year 2000-01, the company exceeded the Rs. 7000 crore mark in Turnover to reach Rs. 7132.62 crore as against Rs. 5514.29 crore in the previous year, recording an increase of 29.34%. The Gross Profit Before Interest, Depreciation and Taxation has increased from Rs. 358.63 crore during the previous year to Rs. 380.92 crore during the current year. The Profit Before Tax has reduced from Rs. 191.68 crore to Rs. 147.43 crore mainly due to higher interest outgo and depreciation on account of full year impact of

operation of DHDS unit. The company paid a dividend of 25% during 2000-01 against 30% during the previous year. The company contributed a sum of Rs. 880.96 crore to the exchequer by way of taxes, duties etc. during the year.

3.5.6. PROJECTS

(i) Completed during the year

Provision of Additional Reservoir with Pump

In order to supply water from the Tertiary Sewage Water Treatment Plant to cooling towers and DM Plant, CPCL has commissioned this project at a cost of Rs. 100 lakh.

Installation of additional Reactor in DHDS Unit

A project to install Additional Reactor for reducing sulphur content in Diesel from the present level of 0.25% to 0.05% has been completed at a cost of Rs. 25 crore.

(ii) On-going projects under implementation

3.0 MMTPA Expansion at Manali

CPCL has obtained CCEA approval from Govt. of India for expanding its refining capacity at Manali by 3.0 MMTPA, at an estimated investment of Rs. 2360.38 crore. This is an expansion-cum-modernisation project as it would enable CPCL to produce products meeting Bharat stage II and Euro III specifications which will be made mandatory, in a phased manner, by 2005. The Process licensors for all units have been finalised and have been released. Orders have been placed for critical equipment in crude and vacuum units and in once - through hydrocracker unit. Site grading works are nearing completion. The piling works are in progress for crude and vacuum units.

Capacity Expansion at Cauvery Basin Refinery

The existing capacity of 0.5 MMTPA has been expanded to 1.0 MMTPA at a cost of about Rs. 30 crore. The expanded capacity is expected to be fully operational during financial year 2002-03 synchronised with completion of captive Oil Jetty Project at Nagapattinam in first quarter of 2002-03.

Oil Jetty Project

In order to meet crude requirement at Cauvery Basin Refinery at Nagapattinam, CPCL is setting up a permanent Oil Jetty facility at an estimated cost of Rs. 96 crore. The contract for construction has been awarded and construction activities are in progress. This facility is now planned to be commissioned during first quarter of 2002-03.

Zero-Discharge Project

CPCL is implementing a unique Zero-Discharge project at a cost of Rs. 4.6 crore based on the success achieved at the pilot plant studies using Ultra Filtration technology. This project is first of its kind for converting secondary treated sewage water and refinery treated effluents into usable process water for refinery applications, using Ultra filtration and reverse osmosis process. On implementation, the discharge of treated effluents from Manali refinery complex will be negligible quantity. This project is expected to be completed by March 2002.

3.6 BONGAIGAON REFINERY & PETROCHEMICALS LIMITED



3.6.1 The Bongaigaon Refinery & Petrochemicals Limited (BRPL) was incorporated on 20 February, 1974, with the objective of installation of a Refinery having crude processing capacity of 1 MMTPA and a

Petrochemical Complex consisting of Xylene, Dimethyl Terephthalate (DMT) and Polyester Staple Fibre (PSF) units. The crude processing capacity of the Refinery has been enhanced to 2.35 MMTPA in 1995-96 by commissioning its Refinery Expansion Units.

3.6.2 The authorised equity capital of the Company is Rs. 200 crore. The paid up capital as on date is Rs. 199.82 crore. The Government of India has divested its entire 74.46% holding in BRPL in favour of IOCL on 29 March, 2001. Balance is held by financial institutions (FIs), Corporate bodies & individuals.

3.6.3 The POL products from Refinery are marketed by Indian Oil Corporation. However, the Petrochemical products and Petroleum Coke from Refinery are marketed by BRPL through its own Marketing set-up.

3.6.4 PHYSICAL PERFORMANCE

Performance highlights of the Refinery as well as Petrochemical Units for 2000-01 and 2001-02 are as follows:

Item	2000-01	2001-02 (Anticipated)
a) Crude throughput (million metric tonnes)	1.49	1.5
b) Production of Major Petrochemical Products (tonnes) :-		
- Para xylene	10,935	7,000
- Ortho xylene	643	800
- DMT	18,692	10,000
- PSF	15,128	11,000

The lower processing of crude vis-à-vis rated capacity of 2.35 MMTPA during the recent years is primarily due to lower crude availability from North East oil fields. The company has entered into an agreement with IOCL and OIL for transportation of imported crude oil via Haldia-Barauni Crude Pipeline



A view of Xylene Plant at BRPL Refinery.

of IOCL and Barauni-Bongaigaon through existing Crude Oil Pipeline of OIL.

Imported crude oil pumping started from 27.12.2000 and till 26.12.2001, 0.406 MMT (excluding line fill) imported crude oil has been received. Out of which 60,582 MT and 3,32,302 MT of imported crude oil has been processed in the year 2000-01 and 2001-02 respectively.

3.6.5 FINANCIAL PERFORMANCE

The Company incurred loss for the first time during financial year 2000-01. The net loss after tax during 2000-01 was Rs. 57.44 crore and net loss after tax for year 2001-02 is estimated to be Rs. 108.53 crore. The high price of crude oil in the international market & transportation cost - not commensurating with product prices, has resulted in negative margins.

3.6.6. PLAN EXPENDITURE

Plan capital expenditure during 2000-01 was Rs. 33.92 crore. The revised estimate of plan expenditure for 2001-02 is Rs. 48.12 crore. There are no major on-going projects at present.



Bharat Petroleum's LPG Filling Plant at Piyala, Distt. Ballabhgarh, Haryana is the Oil Industry's largest in Northern Region. The Plant Running at 118% of its rated capacity (1,32,000 MT per annum), was appreciated by Word LPG Forum delegates during their visit to India in 1999.

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MARKETING AND DISTRIBUTION

CHAPTER IV

4.1 BHARAT PETROLEUM CORPORATION LIMITED



4.1.1 The Bharat Petroleum Corporation Limited (BPCL) is an integrated oil company in the downstream sector, engaged in refining of crude oil and marketing of petroleum products. It has also diversified into manufacture and marketing of petrochemical feed stocks. The Corporation has an all-India presence through its extensive marketing network. The authorised and paid-up share capital of the Corporation were increased to Rs. 300 crore. The Government of India holding in BPCL is 66.2%.

4.1.2 During the year 2000-01, BPCL refinery achieved a throughput of 8.66 MMT. The throughput achieved upto December 2001 has been 6.7 MMT. The total sale of petroleum products during 2000-01 was 19.35 MMT as against 18.86 MMT in 1999-2000. The sales volume achieved upto December 2001 has been 14.7 MMT.

The profit after tax during 2000-01 was Rs. 820.12 crore as against Rs. 703.86 crore during the previous year. For the year 2000-01, the Corporation declared a dividend of Rs. 225 crore equivalent to 75% of the paid up capital.

4.1.3 During the year 2000-01, the Corporation sold 19.35 MMT of petroleum products representing a growth of 3.59 %, which was higher than the industry growth rate. The market share of the corporation has increased from 20.66% in

1999-2000 to 21.43% in 2000-01 - enabling the corporation to retain its second position in the Industry. During the year 2000-01, the corporation commissioned 81 new retail outlets, 2 SKO dealerships and 80 new LPG distributorships. During the period April-December 2001, 47 new retail outlet dealerships, 10 SKO dealerships and 209 new LPG distributorships were commissioned. The Corporation released 24.24 lakh new LPG connections during year 2000-01 and approximately 11.42 lakh new connections during April-December 2001.

4.1.4 MAJOR ACHIEVEMENTS

Maruti Genuine Oil (MGO) status :

MGO status was awarded to the Corporation's lubricant brand *Automol SF*, which will be marketed as MGO through all Maruti Dealerships/workshops.

Launch of Hero Puch Genuine Oil :

First Genuine Oil tie up with any Automobile Manufacturer was launched this year.

Industrial and Commercial

During 2001-02, the following I & C facilities were commissioned :

- Consumer facilities at Tanir Bavi Power Plant, Mangalore with tankage of 30610 KL for Naphtha & 1200 KL for HSD and for Power Project at Kasargod, Kerala LSHS tankage of 1960 KL.
- 2 Nos. pipelines of length 6 KM and dia 400 mm for white Oils and 610 mm for Furnace Oil.

4.1.5 PROJECTS COMPLETED

Investment in JVC – Numaligarh Refinery Limited

A 3 MMTPA capacity grassroots refinery alongwith a Marketing Terminal was set up at

Numaligarh in Assam by Numaligarh Refinery Limited (NRL) a joint venture company which has become a subsidiary of BPCL on 30.3.2001 after acquisition of IBP's equity of 19% thereby enhancing its equity contribution to 51%.

The project was completed in June 2000 within the approved project cost of Rs. 2724.64 crore and commercial production ex-Numaligarh Refinery commenced w.e.f. October 2000.

Synchronizing with commissioning of the refinery, the Marketing Terminal was also commissioned in April 2000 with commencement of product evacuation from this terminal from 3 April, 2000 by road and 9 April, 2000 by rail.

Provision of matching facilities from new Pir-pau manifold to Mumbai Refinery

To match Mumbai Port Trust's new pumping rates for crude oil, necessary matching facilities from Pir-pau manifold to refinery has been put up with provision of 900 mm dia Crude Oil Line and connected to crude oil tanks.

The matching facilities provided by Refinery will reduce the awaiting berthing time by tankers and thereby reduce demurrage charges payable in foreign exchange.

The project was completed within the approved cost of Rs. 16 crore and commissioned in September 2001.

4.1.6 AWARDS

(i) International Safety Rating System (ISRS) Level - 8

BPCL Refinery achieved International Safety Rating System (ISRS) Level - 8 Certification in July/August 2001 from M/s. DNV, UK for its Safety Management Systems. With this certification, BPCL have been rated amongst the first 8% of the



BPCL launched "Pure for Sure" movement to supply Quality products in right Quantity from its Retail Outlets. Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas inaugurated the scheme in presence of Shri U. Sundararajan, C&MD, Shri S. Behuria, Director (Mktg), BPCL.

refineries worldwide who have adopted ISRS.

(ii) Best Environmental & Ecological Implementation Gold Award and Best Pollution Control Implementation Gold Award.

BPCL Refinery has been adjudged as one of the best organisation and honoured with the prestigious "Best Environmental & Ecological Implementation Gold Award" and "Best Pollution Control Implementation Gold Award" by M/s International Greenland society, Hyderabad under Millennium 2000 National awards scheme.

(iii) Golden Peacock National Quality Award 2000

BPCL Refinery in Mumbai is the winner of the prestigious "Golden Peacock National Quality award 2000" for the category "Manufacturing (Large)".

(iv) National Petroleum Management Programme (NPMP) Awards

For the year 1999-2000, BPC bagged three awards in the individual category and four certificates of recognition in the team category for "Excellence in Creativity and Innovation".

(v) National safety award 2000

BPCL refinery won the "National safety award 2000" from M/s. British Safety council, U.K. for the second consecutive time.

(vi) Oil Industry Safety Directorate Award

BPCL has been awarded the prestigious Oil Industry Safety Directorate Award for the best performer amongst "POL

Marketing Organisations" and "LPG Marketing Organisations" for the year 1998-99. This is the third consecutive year that BPCL has been the recipient of the Award in the "POL Marketing Organisations" category.

(vii) The India CFO Awards 2001

The Economic Intelligence Unit (EIU) India and American Express initiated the *India CFO Awards 2001* as an exercise to reward financial excellence as well as recognise how far the CFO has stepped beyond his core function into larger organisational concerns. In recognition of his role in design and execution of information and knowledge management initiatives, BPCL Director (Finance) has been conferred with the India CFO Award for Information and Knowledge Management.

(viii) SAP Star Installation Award

BPCL had taken up implementation of ERP through SAP, a world class integrated, flexible and standardized information system as a key strategic initiative to create a robust IT backbone, for enhancement of operational efficiency. In recognition of its SAP implementation project, BPCL has been awarded the SAP Star Installation Award. BPCL has rolled out SAP at all its locations across the country.

(ix) Jamnalal Bajaj Award

BPCL has been conferred the Certificate of Merit in the "large manufacturers" category in the recently held Council for fair Business Practices (CFBP) Jamnalal Bajaj Awards for Fair Business Practices. The award was conferred by the Hon'ble Vice President of India, His Excellency Shri Krishan Kant, in the august presence of Hon'ble Governor of Maharashtra, His

Excellency Dr. P.C. Alexander and Hon'ble Chief Minister of Maharashtra Shri Vilasrao Deshmukh. Shri S.A. Narayan, Director (Human Resources), BPCL received the award.

The CFBP Jamnalal Bajaj Awards for Fair Business Practices have been instituted by Council for Fair Business Practices (CFBP) since 1988 to encourage high standard of integrity and fairness at every level of business dealings and adherence to fair business practices in the interest of the consumers and the public at large.



Golden Peacock Award won by HPCL

4.2 HINDUSTAN PETROLEUM CORPORATION LIMITED



4.2.1 The Hindustan Petroleum Corporation Limited (HPCL) is the second largest integrated oil company in India. It has two refineries producing a wide variety of petroleum products - one in Mumbai (West Coast) having a capacity of 5.5 MMTPA and the other in Visakhapatnam (East Coast) with the capacity of 7.5 MMTPA. The Corporation also operates the only joint-venture refinery in the country - Mangalore Refinery & Petrochemicals Limited with a capacity of 9 MMTPA, in association with Aditya Birla Group of Companies, and is progressing towards setting up a 9 MMTPA grass-root refinery in the state of Punjab. The Corporation owns and operates the largest Lube Refinery of 3,35,000 tonnes capacity producing Lube Base Oils of international standards. The authorised and paid-up capital of the Corporation as on 31.3.2001 were Rs. 350 crore and Rs. 339.33 crore respectively. The Government of India holding in HPCL is 51.01%.

4.2.2 During the year 2000-01, the two refineries of the Corporation achieved a combined crude throughput of 11.99 MMT compared with 10.56 MMT in 1999-2000. The throughput achieved upto December 2001 has been 9.29

MMT. The total sale of petroleum products during 2000-01 was 17.88 MMT compared with 17.5 MMT in 1999-2000. Sales volume achieved upto December 2001 has been 13.03 MMT. The sales turnover increased to Rs. 47,644 Crore in 2000-01 from Rs. 34,368.03 Crore in 1999-2000 and the net profit Rs. 1,088 crore from Rs. 1,057.14 Crore. The Corporation declared a dividend of Rs. 374 Crore for the year 2000-01 equivalent to 110 % of the paid-up capital compared with Rs 324.88 crore for the previous year. The sales turnover and the profit before tax of the Corporation during April-December 2001 have been Rs. 35,710 Crore and Rs. 678 Crore respectively.

4.2.3 During the year 2000-01, the Corporation commissioned 86 retail outlets and 53 LPG distributorships and released 25.66 lakh LPG connections. During April-December 2001, the Corporation commissioned 70 retail outlets and 101 LPG distributorships and released 14.70 lakh LPG connections

4.2.4 PROJECTS

(a) Major projects completed during the year

LPG plants

Two LPG bottling plants of total capacity of 88

TMTPA were set up. Capacity augmentation of one existing plant by 10 TMPTA and 2 LPG TOPs have been completed during April-September, 2001 at a total cost of Rs. 94 crore.

(b) Major projects under implementation

Additional tankage

Construction work is in progress for additional tankage and allied facilities at 6 locations, with a total tankage of 1,31,500 KL - at an estimated cost of Rs. 124 crore.

LPG plants/TOPs

Construction work on an LPG bottling plant of 44 TMTPA capacity and augmentation of 10 LPG bottling plants by a total capacity of 28 TMTPA are in progress. The projects estimated to cost Rs. 51 crore are scheduled to be completed by August 2002.

Vizag – Ssecundrabad Pipeline Project

The project of Vizag - Vijayawada Pipeline (VVPL) capacity expansion and its extension from Vijayawada to Ssecundrabad - to cater to the important consumption zones of Andhra Pradesh - is under construction. The project is estimated to cost Rs. 377.55 crore and scheduled to be completed by May 2002.

Punjab Refinery Project

The project envisages setting up of 9 MMTPA grassroot refinery at an estimated cost of Rs. 9806 crore (at June 1998 prices). All environment clearances for Punjab Refinery project as well as linked projects have been obtained by the Corporation. Land, admeasuring 2000 acres approximately has been acquired at Phulokari, near Bhatinda. All measure statutory approvals have also been obtained. The project will be exhibited through a subsidiary company i.e. Guru Gobindsingh Refineries Limited.

4.3 INDIAN OIL CORPORATION LIMITED



4.3.1 The Indian Oil Corporation Limited (IndianOil) is the largest integrated oil company in the public sector as well as largest commercial enterprise in India. It is the only Indian company in Fortune magazine's 'Global 500' list of world's largest corporations, with a ranking of 209 for fiscal 2000, 23 steps above previous year's position of 232. In the *Forbes International 500* list of largest companies outside U.S.A, IndianOil is ranked 112 and tops the list among four Indian companies appearing in the listing.

4.3.2 IndianOil owns and operates seven Refineries at Guwahati, Barauni, Gujarat, Haldia, Mathura, Panipat and Digboi having a combined installed capacity of 38.15 million metric tonnes per annum (MMTPA). It has also acquired entire Government of India equity in Chennai Petroleum Corporation Ltd. (CPCL) and Bongaigaon Refinery and Petrochemicals Ltd. (BRPL), thereby adding another 9.35 MMTPA to its refining capacity. The Corporation has country's largest network of crude and product pipelines, with a combined



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas, dedicated the Fluidised Catalytic Cracking Unit at IndianOil's Haldia Refinery in West Bengal.

length of 6,523 KM, and a capacity of 43.45 million tonnes per annum. An extensive network of over 21,000 sales points of the Corporation is backed for supplies by 186 bulk storage points, 71 LPG (Indane) Bottling plants and 92 Aviation Fuel Stations. IndianOil also has a world class R&D Centre. The authorised and paid-up capital of the Corporation as on 31.3.2001 were Rs. 2,500 crore and Rs. 779 crore respectively. The Government of India holding in IndianOil is 82.03% as on 31.3.2001.

4.3.3 The refineries of IndianOil achieved a crude throughput of 33.22 million metric tonnes (MMT) during 2000-01 as against 32.42 MMT during 1999-2000. The throughput achieved from April to December 2001 has been 25.03 MMT. IndianOil pipelines achieved a throughput of 39.44 MMT during 2000-01 as against 39.50 MMT during year 1999-2000. The achievement during April-December 2001 has been 30.67 MMT.

4.3.4. The Corporation sold 47.80 MMT of petroleum products during year 2000-01. During April-December 2001, it has sold 35.55 MMT of petroleum products. During this period, 204 new retail outlet dealerships, 11 new kerosene dealerships and 229 new LPG distributorships were commissioned. The Corporation released 56.93 lakh LPG connections in year 2000-01 and approximately 20.21 lakh new connections during April - December 2001. The Corporation also took a lead in setting up Auto-LPG Retail Outlets - with one already commissioned in 2000-01 and another five slated in first half of 2001-02.

4.3.5 The Corporation achieved a turnover of Rs. 1,13,327 crore in 2000-01 as against Rs. 94,141 crore in 1999-2000. The profit before tax was Rs. 2,962 crore and profit after tax was Rs. 2,720 crore for the year 2000-01. The corresponding figures in the previous year were Rs. 2,970 crore and Rs. 2,443 crore respectively. The Corporation declared a

dividend of 95% amounting to Rs. 740 crore for year 2000-01.

4.3.6 The turnover achieved for the period April-December 2001 was Rs. 87,335 crore. The profit before tax and profit after tax (after making provision for deferred tax liability) were Rs. 1,992 crore and Rs 1,587 crore respectively for the period April-December 2001.

4.3.7 PROJECTS

A) Major projects completed during April 2000 - March 2001

1. Once-through Hydrocracker Unit at Mathura Refinery.
2. Second Reactor in Diesel Hydro-Desulphurisation Units at Gujarat, Panipat, Mathura and Haldia refineries.
3. AU-III Revamp from 2.0 to 2.7 MMTPA at Gujarat Refinery.
4. Second Phase Revamp of FCCU from 1.0 to 1.5 MMTPA and Revamp of FPU-I from 2.0 to 2.4 MMT at Gujarat Refinery.
5. Revamp and Modernisation of AU-III and Cracker - A at Barauni Refinery.
6. Yield Energy Optimisation of CDU and DCU at Guwahati Refinery.
7. Modernisation of offsite operation at Mathura Refinery.
8. Revamp of PDA Unit for incorporation of ROSE Technology at Haldia Refinery.
9. Wax Hydrofinishing for production of micro-crystalline wax at Haldia Refinery.
10. Branch line to Meerut from Delhi-Panipat section of Mathura-Jalandhar pipeline.
11. LPG Bottling Plants at 10 locations.
12. New Oil Depot at Leh.

**B) Major On-going Projects
(April 2000-March 2001)**

1. Fluidised Catalytic Cracking Unit at Haldia Refinery
2. Barauni Refinery expansion.
3. Hydrotreater Unit at Guwahati and Digboi refineries.
4. Catalytic Dewaxing unit at Haldia Refinery.
5. Solvent Dewaxing Unit at Digboi Refinery.
6. PX/PTA at Panipat Refinery.
7. Panipat Refinery Expansion.
8. Residue Upgradation Project at Gujarat Refinery.
9. ISOSIV Project for Production of unleaded MS at Guwahati Refinery.
10. Augmentation of Viramgaum-Chaksu, Chaksu-Panipat and Chaksu-Mathura sections of Salaya-Mathura crude oil pipeline.
11. Augmentation of Haldia-Barauni Crude Pipeline from 4.2 to 7.5 MMTPA.
12. Augmentation of Barauni-Patna section of Barauni-Kanpur Pipeline.
13. Terminals at Dumad, Mathura, Navagam and Tundla.

C) Of the above, during the period April – December 2001, the major projects which have been completed are as under :

1. ISOSIV project at Guwahati Refinery
2. Fluid Catalytic Cracking unit at Haldia
3. Marketing terminal at Dumad

The Hydro-treater at Guwahati and the Solvent Dewaxing Unit at Digboi have also been mechanically completed.

**D) Major Projects Planned
(April 2001 – March 2002)**

1. MS Quality improvement facilities - to meet future Euro emission norms at Gujarat, Mathura, Panipat, Haldia and Barauni refineries. (approved for Mathura Refinery during April-December, 2001)
2. Installation of Diesel Hydrotreatment facilities at Mathura Refinery for HSD quality improvement to meet future Euro emission norms (approved during April-December, 2001).
3. Facilities for production of Linear Alkyl Benzene (LAB) at Gujarat Refinery (approved during April-December, 2001).
4. Augmentation of Secondary Processing Facilities for distillate yield improvement at Mathura Refinery.
5. Installation of additional crude handling facilities at West Coast and laying of crude pipeline system.
6. 2x600 mm dia. dockline for Irumpanam Terminal at Kochi.
7. 3 docklines at Paradip.

4.3.8. BUSINESS DEVELOPMENT

Exploration & Production

The Corporation, in consortium with ONGC and OIL, had bid for 9 blocks (8 & 1 respectively) under NELP- II, and has been awarded eight exploration blocks. Further, the Government announced offer of 7 blocks for exploration and production of Coal Bed Methane (CBM) in April, 2001. The Corporation bid for three of these blocks with ONGC and has been awarded 2 blocks.

The Corporation, along with alliance partner ONGC, has been qualified to participate in Kuwait Project for further development of Northern Kuwait Oil Fields. Bid for an exploration field in Iran has also been submitted along with ONGC and Oil India.

Other avenues in the hydrocarbon sector in Iran are also being explored.

The Corporation has been selected by MOP&NG for implementation of Indo-Bangladesh Gas Pipeline Project.

Petrochemicals

As indicated hereinabove, the integrated PX/PTA Project at Panipat is under implementation. A proposal for setting up a Linear Alkyl Benzene Project at Gujarat Refinery has also been approved by the Board of Directors.

- IndianOil had indicated its *Expression of Interest* for participation in the bidding process of IPCL and is one of the pre-qualified bidders.
- IndianOil had shown interest in equity participation alongwith management control in Haldia Petrochemicals Ltd. (HPL) and financial restructuring of the same.

Efforts are also in progress for using DME as Alternate fuel for power generation, in view of its being an environmental friendly fuel.

LNG

The Corporation is a promoter of Petronet LNG Ltd. (PLL) alongwith ONGC, BPCL and GAIL which is putting up LNG import terminals at Dahej in Gujarat and Kochi in Kerala. The Corporation will market 1.5 million metric tonnes of regasified LNG from Dahej and 0.5 million metric tonnes of regasified LNG from Kochi per annum.

Joint Ventures/ Technical Service Agreements/ MOUs

Lubrizol India Pvt. Ltd. has successfully completed the first year of operation after becoming a 50:50 joint venture between

IndianOil and Lubrizol Corporation, USA. During the year 2000-01, the company restructured its activities and, despite difficult market conditions, the performance has been very satisfactory.

Another company "ONGIO International Private Ltd." was formed as a 50:50 joint equity holding company with ONGC for providing training, consultancy services in India and abroad.

The development of infrastructure for import of LPG at Haldia has been completed by IndianOil Petronas Limited, a JV company between IndianOil and Petronas of Malaysia.

The existing Technical Services Agreement with Emirates National Oil Company (ENOC), Dubai and Petrotrin, Trinidad and Tobago are being renewed for the fifth and fourth year respectively.

Consequent to the success of Diesel fuel additives - which IndianOil introduced after signing of MOU with M/s Elf Antar, France for collaboration in R&D and marketing of fuel additives, IndianOil is now planning to introduce Petrol additives too.

Overseas Business

Overseas offices functioning at Dubai, Kuwait, Kuala Lumpur and Mauritius are continuously exploring new opportunities in line with vision of becoming a "Trans-national" company. IndianOil(Mauritius) Limited, a wholly owned subsidiary in Mauritius has been established to aid setting up IndianOil as an independent oil company in Mauritius. Sale of *Servo* brand lubricant has picked up in Bangladesh, Malaysia, Kuwait, Bahrain and Indonesia. Export of lubricants to Sri Lanka and Mauritius also commenced during the year. Initiatives are being taken up to enter downstream marketing in Sri Lanka and for LPG, Bitumen and Special products in Bangladesh.

4.4 SUBSIDIARIES OF INDIAN OIL

4.4.1 Indian Oil Blending Limited (IOBL)

The Indian Oil Blending Limited is a 100% owned subsidiary of IndianOil, engaged in manufacturing of lubricants and greases. The performance of the subsidiary was affected by negative growth of approx. 11% in 2000-01 registered by the lube industry over the previous year. During 2000-01, IOBL earned a net profit of Rs. 198 lakh as against Rs. 634 lakh in 1999-2000. A dividend of 30% was declared for the year 2000-01.

4.4.2 Chennai Petroleum Corporation Limited (CPCL)

51.81% of shares of the company, held by Government of India, were transferred to Indian Oil Corporation Limited (IOCL) on 29.3.2001 making it a subsidiary of the Corporation. The total crude processed in Manali and Cauvery Basin Refineries was 6.625 MMT in 2000-01. The Company exceeded the Rs. 7,000 crore mark in turnover to reach Rs. 7,132.62 crore during the year as against Rs. 5,514.29 crore in the previous year, recording an increase of 29.34%. The profit after tax was Rs. 122.43 crore in 2000-01 as against Rs. 143.14 crore in 1999-2000. A dividend of 25% was paid in 2000-01.

4.4.3 Bongaigaon Refinery and Petrochemicals Limited (BRPL)

Keeping in view the long-standing synergy between BRPL and IOCL, the Government of India disinvested its entire shareholding (74.6%) in BRPL in favour of IOCL. Consequently, BRPL has become a subsidiary of IOCL w.e.f. 29.3.2001. The refinery processed 1.487 MMT of crude oil during the year. This included processing of 0.06 MMT of low sulphur imported crude oil for the first time in BRPL. Pumping of imported crude oil

commenced in December 2000 and processing of the same in refinery started in February 2001. The profit after tax was (-)Rs. 57 crore in 2000-01. Due to net loss in 2000-01, the Company did not propose any dividend for the year.

4.5 IBP COMPANY LIMITED



4.5.1 IBP was incorporated in 1909. It became a subsidiary of IndianOil in 1970. Thereafter, it became an independent Government Company in 1972. Government shareholding in IBP is now limited to 26%. Balmer Lawrie & Company Limited is a subsidiary of IBP Company Limited.

The Company participated in three Joint Venture companies. These are Numaligarh Refinery Limited, Indian Oil Tanking Limited and Petronet India Limited. Over the years, the Company has diversified into other activities such as Industrial Explosives and Cryocontainers. It has now three distinct Business Groups i.e. Business Group (Petroleum), Business Group (Chemicals) and Business Group (Engineering).

4.5.2 The physical performance of the Company during 2000-01 in regard to sale of petroleum products to dealers/customers was 49,21,187 KL. The volume anticipated in 2001-02 is around 48,75,000 KL.

4.5.3 The anticipated turnover of the Company for the year 2001-02 is Rs. 8,448 crore. The turnover in 2000-01 was Rs. 8,388 crore. Profit after tax in the current year is expected to be Rs. 150 crore as compared to Rs. 54.22 crore in 2000-01.

Current year's estimated profit after tax is high - mainly due to accounting arrear margins arising out of cost updation upto 2000-01.

4.5.4 The Company has repaid the entire OADB loan amounting to Rs. 371.89 crore during the nine months period (April - December, 2001).

4.5.5 Pursuant to Government of India's decision, the Company's investment in equity shares of Indian oil Tanking Limited has been disinvested in favour of Indian Oil Corporation Limited at a price of Rs. 44 crore as against cost of Rs. 27.50 crore.

4.5.6 Of the 59.58% equity held by the Government in IBP, 33.58% equity has been sold to IOCL as per the decision of Government.

4.6 LPG MARKETING BY PUBLIC SECTOR OIL MARKETING COMPANIES (OMCs)

4.6.1. Four Public Sector Oil Marketing Companies (OMCs) viz., Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited & IBP Company Limited are engaged in marketing of LPG in the country. With

increased availability of LPG, the number of LPG customers enrolled by them has also been increasing. The number of LPG customers served by them, as on 1.1.2002, was about 622 lakh.

4.6.2. Consequent upon liquidation of LPG waiting list in urban areas and availability of new LPG connections across the counter, in existing markets throughout the country, Government had set the target for release of 1.3 crore new LPG connections during the calendar year 2001 - with a thrust on smaller towns/rural areas which were hitherto virgin markets. For this, Government had also envisaged setting up of 540 exclusively rural distributorships under Marketing Plan of 1996-98 and 700 more distributorships at Block/Tehsil level. OMCs have already commissioned 153 distributorships and balance are in progress.



Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas, dedicated IndianOil's Bulk Petroleum Depot-cum-Aviation Fuel Station at Leh, J&K to the Nation.

During the calendar year 2001, OMCs have released about 63 lakhs new LPG connections.

4.7 PARALLEL MARKETING OF LPG AND SKO

In order to increase the availability of LPG and Kerosene (SKO), the private sector was allowed to participate in the scheme of parallel marketing of LPG and Kerosene in April 1993 - by decanalising imports of these petroleum products. Under the scheme, a private party can undertake import of LPG and Kerosene after obtaining a rating certificate from one of the approved rating agencies given in the LPG (Regulation of Supply and Distribution) Order, 2000 and Kerosene (Restriction on Use and Fixation of Ceiling Price) Order, 1993 as amended from time - to - time. These products are to be sold at market-determined prices by the private parties, through their own distribution network. Initially, the public sector oil companies facilitated import of LPG and Kerosene through their facilities. Upto 31.12.2001, a total quantity of 62,57,000 MT of Kerosene and 10,39,000 MT of LPG have been imported by private sector companies under the scheme.

4.8 MISCELLANEOUS ACTIVITIES

- 4.8.1 Decontrol in the marketing of Aviation Turbine Fuel (ATF) has been made w.e.f. 1.4.2001 by

promulgating the Aviation Turbine Fuel (ATF) (Regulation of Marketing) Order, 2001.

- 4.8.2 Marketing Discipline Guidelines, 2001 were issued on 12 April, 2001.

- 4.8.3 A meeting of Secretaries (Food and Civil Supplies), State Governments and Union Territories was convened on 10 August, 2001 to discuss steps to be taken in order to combat 'No purchase-No Sale' campaign threat given by Federation of All India Petroleum Traders (FAIPT).

- 4.8.4 The Solvent, Raffinate and Slop (Acquisition, Sale, Storage and Prevention of use in Automobiles) Order, 2000 was amended listing the Solvents that would come within the purview of the Control Order. The Control Order has come into force w.e.f. 1.1.2002.

- 4.8.5 The PSU Oil Companies did commendable work for relief of victims affected by Gujarat earthquake. Apart from contributing generously to Prime Minister's National Relief Fund. The PSU Oil Companies have constructed 800 temporary shelters for victims of the earthquake. The PSU oil companies have also decided to construct 1,500 permanent dwelling units.



Liquid Cargo Jetty at JNPT, Maharashtra.

EIL recently completed Gasoline Production facilities of ISO Octane Company at Jebel Ali Free Zone, Dubai.



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OTHER UNDERTAKINGS/ ORGANISATIONS

CHAPTER V

5.1 ENGINEERS INDIA LIMITED



5.1.1 INTRODUCTION

Engineers India Limited (EIL) is a leading engineering and consultancy company in India. It has been serving the petroleum, petrochemicals and other process industries since its inception in the mid-sixties. EIL provides a complete range of project services in these fields including process design, engineering, procurement, construction management, project management and supervisory assistance for commissioning and plant start-up. It has played a significant role in setting up of large number of process plants in India and abroad.

The authorised capital and paid-up capital of the company are Rs. 100 crore and Rs. 56.16 crore respectively. The Registered Office and Headquarters of the Company is in New Delhi. In addition, the Company has Regional Engineering Offices in Chennai and Vadodara, Branch Offices in Calcutta and Mumbai, Inspection/Procurement Offices at various locations all over India. EIL has Project Offices at different locations both in India and abroad. The Company has presence in London, as well. The number of employees with the Company is about 3,300.

EIL's quality management system conforms to ISO - 9001.

5.1.2 PROJECT ASSIGNMENTS SECURED

During 2001-02, major assignments were secured in the fields of Refineries, Pipelines, Onshore/Offshore Oil and Gas, Metallurgy and Ports & Terminals. The Refinery jobs secured

included consultancy works viz. Basic Design Engineering Package and Commissioning Assistance for CDU/VDU of Guru Gobind Singh Refineries Ltd., Basic Engineering and Process Design Package for Integration of existing ARI SRUs with DHDS SRU at Vizag Refinery of HPCL, Configuration Study/DFR for Mumbai Refinery Modernisation Project of HPCL, Detailed Feasibility Report and Technology Selection for production of motor spirit from light naphtha at Numaligarh of NRL and Detailed Feasibility Report for FCCU Revamp Project at Chennai of CPCL, Configuration Improvement study for Central India Refinery of BPCL at Bina (M.P), Improvement in Product Quality and Refinery Profitability Study for Vizag Refinery of HPCL and Process Design Package for Naphtha Splitter Facilities Revamp at Guwahati Refinery of IOCL.

The major Pipeline jobs secured included the Jamnagar-Loni Pipeline (Phase-II), HBJ Upgradation, KG Basin (Phase-III) Pipelines and Dabhol-Hazira-Uran Pipeline of GAIL and the Mundra-Bhatinda Crude Oil Pipeline of HPCL and Mumbai-Manmad Pipeline Extension of BPCL.

In the field of Onshore Oil & Gas, the major contracts secured from ONGC includes



Shri Keshav Saran, C&MD, EIL presented the Dividend Cheque to Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas.

Improved Oil Recovery Scheme at Gandhar, Construction & Supervision of GGS-IV at North Kadi, Mehsana and the Construction of Buffer Solution Tank at Uran. In addition, EIL has also been awarded the Upgradation (Phase-I) of Gujarat State Petroleum - Niko Gas Plant at Hazira of GSPC/Niko Resources Ltd. In the Offshore Oil & Gas area, a turnkey contract for Installation of Clamp-On Structures in Mumbai High North Field of ONGC was secured. Other major jobs secured include the Tapti Field Development "STD" Platform and Pipeline Engineering for Enron Oil & Gas, Installation of Pig Barrel at 13 Platforms, Halon System Replacement on NQO, NQD, WIN, IC, SH & BH Complexes at Mumbai High of ONGC and feasibility study for Deep Water Gas Pipeline from Iran to India of GAIL. Salient Ports and Terminal jobs including PMC services for Single Point Mooring (SPM) and Subsea/ Onshore Pipeline between SPM and Crude Oil Terminal at Mundra of HPCL and PMC services for preparation of DFR for SPM and connected facilities at Kochi Refinery of KRL. In the field of Metallurgy, EIL bagged consultancy work from INDAL for Hirakud Smelter Expansion Project.

In the overseas market, EIL was successful in getting major jobs including Development of Engineering Capabilities for SONATRACH, Algeria, Managing Contractor's Services for 9th Olefin Complex of M/s Pars Petrochemicals Company, Iran, Manpower Support Services for Ras Laffan Common Cooling Water Project and Ras Abu Aboud Development Project of Qatar Petroleum, Qatar, Extension of contract for Technical Assistance to NPCC, Abu Dhabi, Technical Assistance to BP North West Java Gas and Conoco Belanak Project of PT McDermott, Indonesia and additional work from KNPC, Kuwait on Revamp of Effluent Treatment Facilities at Mina Abdulla, Shuaiba and Mina Al Ahmedi Refineries in Kuwait. Besides these, EIL has also been awarded smaller assignments from Saudi Arabia, Qatar,

Iran and Singapore. As a step towards boosting its overseas business, EIL established foreign offices at Qatar and Abu Dhabi.

During 2000-01, major assignments were secured in the fields of Refineries, Oil and Gas Processing and Pipelines. These included the Panipat Refinery Expansion Project of IOCL, Refinery Modernisation and FCC Revamp Projects of BPCL, Ph-I facilities of Punjab Refinery Project of HPCL, CDU/VDU, NSU and offsites and utilities for expansion of 3 MMTPA of CPCL. In addition, the company has also been awarded pre-project activities for Refinery Capacity Expansion at Kochi and installation of 2nd Hydro-Desulphurisation Project at Kochi by KRL. Two turnkey contracts in the Offshore area from ONGC for Topsides Modifications Hook-up for Mumbai High Pipeline Replacement Project and Water Injection Pipelines Replacement Project were also secured. In the Onshore Oil and Gas segment, GAIL awarded contracts for installation of CDU at Tatipaka and Mori, NGL Value Addition at Vaghodia and ONGC for the C₄ Mix Hydrogenation alongwith consultancy services for Flare Gas Recovery Project.

In the Pipelines field, major jobs were secured from GAIL which includes Ferozabad City Gas Distribution Expansion Project, KG Basin Ph-II Pipeline, NTPC Jhannore to GPC Gandhar Pipeline, Enhancement/Revamping of the Pipelines Network at Gas Processing Complex at Gandhar and Detailed Feasibility Report for setting up a Gas Pipeline Network from Kochi to Karnataka and Kerala States.

Other significant jobs secured during 2000-01 include EIA/EMP/IBM Plan Applications for Expansion of Rampura-Agucha Mine of NALCO, inspection and expediting services for Smelter Expansion Project of NALCO and consultancy services for LPG Terminal Project at Navlakhi of M/s Dharamsi Morarji Chemical Company.

Outside India, EIL was successful in getting two Managing Contractor services contracts - one from FAJR Petrochemical Co., Iran for Offsites & Utilities Project in Bandar Imam and the another from Bou Ali Sina Petrochemical Co., Iran for the third Aromatics Project. EIL's agreement with NODCO, Qatar for NODCO Refinery Expansion Project was also extended for another one year. Besides these, EIL was also awarded smaller assignments from Indonesia, Kuwait, Nigeria and U.S.A.

5.1.3 POLICY INITIATIVES UNDERTAKEN DURING 2001 - 02

Policy initiatives undertaken during 2001-02 were in the areas of strategic alliances, turnkey assignments, information technology services, organisational development, human resource development and diversification.

5.1.4 EIL FINANCIAL PERFORMANCE

Description	(Rs. in Crore)				
	Actuals 2000-01	B.E. 2001-02	R.E. 2001-02	Actual (Tentative) 04/01 to 10/01	Targets 11/2001 to 03/2002
Turnover	787.63	652.00	550.00	338.84	211.16
Other Income	71.29	80.00	65.00	47.72	17.28
Profit Before Tax	195.68	147.90	110.00	67.00	43.00
Profit After Tax	123.85	97.60	68.70	47.70	21.00

5.2 BALMER LAWRIE & COMPANY LIMITED



5.2.1. Balmer Lawrie & Company Limited became a subsidiary of IBP Co. Ltd in 1972. The authorised capital, paid up capital and reserves & surplus of the company, as on 31.3.2001, was Rs. 30 crore, Rs. 16.29 crore and Rs. 158.08 crore respectively.

5.2.2. The Company is a diversified, medium-sized organisation with operations spread throughout India and overseas. The main activities of the Company are broadly classified in various Strategic Business Units viz., (i) Industrial Packaging (ii) Greases & Lubes (iii)

Performance Chemicals (iv) Travel and Tours (v) Cargo (vi) Tea Exports (vii) Project Engineering and Consultancy and (viii) Research and Development.

5.2.3. During the year 2001-02, the company is expected to manufacture 34 lakh barrels/drums against 37.11 lakh achieved in 2000-01. The company is expected to produce 40,000 tonnes of Greases & Lubricants during 2001-02 as against 38,000 tonnes in 2000-01. Production of leather chemicals is expected to be around 3,200 MT during the year 2001-02, as against 3,038 MT in 2000-01.

5.2.4. The total turnover of the company is anticipated to be Rs. 800 crore in the year 2001-02 as against Rs. 769.56 crore during the last year i.e. 2000-01. The company has achieved profit after tax of Rs. 7.01 crore during the year 2000-01, the anticipated profit after tax during the year 2001-02 is Rs. 10 crore.

5.3 BIECCO LAWRIE LIMITED



5.3.1 Biecco Lawrie Limited, a Government of India enterprise, was established on 23.12.1919. The Company is a Kolkata based medium-sized Engineering Organisation having two factories at Kolkata. The authorised capital and paid-up capital of the Company, as on 31.3.2001, were Rs. 50 crore and Rs. 42 crore respectively.

5.3.2 The physical performance of the company, upto December 2001 with regard to sale of switch gear panels & switch gear spares and others, was Rs. 1,594 lakh and that for electrical repair job Rs. 116 lakh.

5.3.3 The total income of the company for 2000-01 was Rs. 6,358.07 lakh. Performance during the year 2001-02 is anticipated to be Rs. 4,922 lakh. Company incurred a loss of Rs. 866.96 lakh during the year 2001-02.

5.3.4 Due to incurring loss of Rs. 8.67 crore in this year, the networth of the company has become negative and the company became sick and hence submitted application on 5 March, 2002 for registration with BIFR. The Government has also decided to refer the Company to Ministry of Disinvestment for its disinvestment

5.4 PETROLEUM INDIA INTERNATIONAL



5.4.1 The Petroleum India International (PII) was established in 1986 with the common objective of mobilizing individual capabilities of its member companies into a joint endeavour for providing technical, managerial and other human resources on a global basis in the petroleum & petrochemical sectors.

Following companies are associated with PII.

- (i) Bharat Petroleum Corporation Limited
- (ii) Bongaigaon Refinery & Petrochemicals Limited
- (iii) Kochi Refineries Limited
- (iv) Engineers India Limited
- (v) Hindustan Petroleum Corporation Limited
- (vi) IBP Co. Limited
- (vii) Indian Petrochemicals Corporation Limited
- (viii) Chennai Petroleum Corporation Limited

5.4.2 The range of PII services includes:

- (i) Technical back-up services
- (ii) Management and Technical Consultancy
- (iii) HRD & Training Services
- (iv) Turnaround Maintenance

(v) Information Technology

5.4.3 In the last 15 years, PII has provided its services to well-known national oil companies, Refining & Engineering companies abroad.

PII has been able to extend its activities to USA, Madagascar, Kuwait, Malaysia, Nigeria, UAE, Egypt, Brazil etc. During the year 2001-02, some of the important activities are briefly indicated as under:

United States of America

During the year 2001-02, PII entered into Memorandum of Understanding (MoU) with Sharp Technology specializing in Internet & e-Commerce.

Madagascar

After partnering with a strategic investor and successful takeover of SOLIMA Refinery, PII took over the Management Contract of the Refinery with performance contracting clause.

PII also secured a contract to rehabilitate and construct 12 tanks in the refinery. It has set up an LPG Bottling plant and has also been awarded the works to develop and execute a Management Information System (MIS) for Galana refinery at Madagascar, consisting of Financial Management System and oil accounting system.

Additionally, PII has been a preferred vendor to supply LPG cylinders, petrol dispensing pumps and signages for Oil Company retail outlets.

Bahrain

PII has provided consultancy in design and construction management to Bahrain Petroleum Co. B.S.C. (BAPCO). During this period, PII has also provided its consultancy services to BANAGAS & GPIC.

Nigeria

During the year, PII has conducted training programmes on various engineering software in Nigeria.

Kuwait

In the year 2001-02, about 50 engineers worked in Kuwait National Petroleum Company (KNPC) in various disciplines of three refineries with a total capacity of 46 MMTPA, and a marketing depot rendering backup services to KNPC on long term basis.

PII has been providing engineers to China Petroleum Engineering and Construction company (CPECC) - which is a China Government owned EPC contractor for Kuwait Oil Company.

TOYO Projects

There were five Toyo Projects, which were running in the financial year 2001-02. They were KR₂ Project & MBOX Project in Malaysia; SEP & EPP Projects in Egypt and BGP Project in Brazil.

United Arab Emirates (UAE)

PII has provided training and inspection services to various oil companies in Abu Dhabi. During 2001-02, PII has conducted more than 25 technical and 7 management training programmes for staff of National Drilling company, UAE where more than 300 participants have been trained.

PII is also pursuing business ventures with other oil companies in Abu Dhabi, Dubai and Sharjah.

Qatar

PII has conducted training programme for staff of Qatar Petroleum (QP). PII is also pursuing

business association with QP in other areas like technical back-up services, technical consultancy and information technology.

5.4.4. FINANCIAL PERFORMANCE

On the basis of audited accounts for the last two years, the income generated by PII during this period, the approved budget for 2001-02 and estimates for 2002-03 are given below:

Particulars	Rs. In lakh			
	Audited	Approved	Budget	Estimates
	1999-2000	2000-01	2001-02	2002-03
Project Income	2,874	4,210	5,050	6,060
Profit before Tax	1,530	1,730	1,900	2,060
Profit after Tax	1,060	1,187	1,250	1,350

5.5 OIL INDUSTRY DEVELOPMENT BOARD



5.5.1 Objectives of Oil Industry (Development) Act, 1974

The Oil Industry (Development) Act, 1974 was enacted following successive and steep rise in international price of crude oil and petroleum products since early 1973, when the need of progressive self-reliance in petroleum and petroleum based industrial raw-material assumed great importance.

5.5.2 FUNCTIONS OF THE BOARD

The Oil Industry Development Board (OIDB) was set up in January, 1975 under the Oil Industry (Development) Act, 1974 to provide financial assistance for development of Oil Industry. Its organisational set up consists of:-

a) Chairman (b) Members and (c) Secretariat.

The functions of the Board, as defined in section 6 of the Act, involve rendering financial assistance to the promotion of all such activities

as are, in its opinion, conducive to the development of the Oil Industry. The financial assistance is extended by way of loans and grants for activities such as prospecting, refining, processing, transportation, storage, handling and marketing of mineral oil, production and marketing of oil products and production of fertilizers and chemicals.

5.5.3 RESOURCES OF THE BOARD

The funds required for various activities, envisaged under the Act, are made available by the Central Government after due appropriation by Parliament from the proceeds of cess levied and collected on indigenous crude oil. The proceeds of this duty are credited to the Consolidated Fund of India and sums of monies, as the Central Government deem fit, are made available to OIDB after appropriation by the Parliament. The current rate of cess on crude oil produced in the country is Rs. 1,800/- per tonne (w.e.f. 1 March, 2002). OIDB has, so far, received an amount of Rs. 902 crore till date, from the cess collection. OIDB has not received any amount from cess so generated during the years from 1983-84 to 1987-88 and 1992-93 onwards.

The internal resources generated by way of interest receipts on loans supplement the OIDB Fund. As on 31 March, 2001, an amount of Rs. 6,453 crore (approx.) has accrued to the Oil Industry Development Fund. During 2000-01, internal resources contributed Rs. 565 crore to the total resource availability. The Board has been exempted from liability to pay tax on its income.

5.5.4 ASSISTANCE TO OIL INDUSTRY

The OIDB has been entrusted with the responsibility to render, in such manner, to such an extent and on such terms and conditions, as it may deem fit, financial and other assistance for the promotion of all such measures as are, in its opinion, conducive to



ONGC received the OISD Safety Award and certificate from Shri Ram Naik, Hon'ble Minister of Petroleum & Natural Gas on 18.1.2002 at New Delhi.

the development of oil industry. The Board renders assistance by way of grant of loans for Projects, disbursements of grants for Research & development programmes, refinancing of loans and funding expenditure of scientific advisory committees, study groups, task forces, etc. In order to encourage significant initiatives in the area of oil exploration, the OIDB's financial assistance for exploration work in high-risk areas carries an interest rate of 5% p.a. and the funds provided for exploration in low-risk areas attract an interest rate of 10% p.a. However, in the event of commercial discovery being made, usual interest, as on term loans, is charged. Funds made available for projects in areas other than exploration carry an interest rate of 10% to 11.25% p.a. The working capital loans are made available, in exceptional circumstances, at an interest rate of 15% p.a.

5.5.5 DEPLOYMENT OF FUNDS

The OIDB has accorded highest priority to programmes connected with exploration, production, refining and storage of crude oil/ natural gas.

The OIDB has, up to 31 December, 2001, extended following financial assistance to the oil industry.

Disbursement of Loans/Grants during the year 2001-02
(upto 31 December, 2001)

		(Rs. in crore)	
Sl. No.	Organisation	Allocation of Funds (2001-02 BE)	Funds released Upto 31.12.2001
Plan Projects			
1.	Indian Oil Corpn. Ltd	1500.00	1175.25
2.	BPCL	350.00	0.00
3.	BRPL	40.00	10.00
4.	Balmer Lawrie & Co.	20.00	0.00
5.	Biecco Lawrie Limited	13.75	0.00
6.	KRL	300.00	0.00
7.	GAIL	250.00	0.00
8.	IBP	155.71	0.00
9.	CPCL	500.00	135.00
10.	OIL	120.00	30.00
11.	ONGC	146.16	0.00
12.	HPCL	600.00	0.00
Total (A)		3995.62	1350.25
Non-Plan Projects			
13.	Indraprastha Gas Ltd.	200.00	21.00
14.	Mahanagar Gas Ltd.	43.00	12.00
15.	ONG Videsh Ltd.	200.00	0.00
16.	Tripura Natural Gas Co.	4.74	0.00
17.	Balmer Lawrie Freight Container Ltd.	17.95	0.00
Total (B)		465.69	33.00
18	Exploration Activities	100.00	0.00
Total (C)		100.00	0.00
Grant-in-aid (Regular Grantee Institutions)			
19.	CHT	11.90	2.54
20.	DGH	38.95	30.68
21.	OISD	4.05	1.80
22.	PCRA	18.69	12.55
(Other R&D projects approved by OID Board/Central Government)			
a)	Balmer Lawrie & Co. Ltd.	4.33	1.65
b)	IIT - Delhi	0.78	0.37
c)	IIT - Kanpur	0.04	0.00
d)	ONGC	15.00	3.32
e)	GAIL	0.76	0.69
f)	NGRI	2.60	1.50
g)	IBP	1.15	0.00
h)	Govt. of Rajasthan	2.20	0.15
i)	RRL - Jorhat	0.11	0.03
Others			
23.	Delta Studies Institute	0.50	0.00
24.	CIPET	5.46	3.00
25.	Anna University	0.50	0.50
26.	Fuel Testing Lab. NCT	5.55	5.55
27.	Biecco Lawrie	4.74	0.00
Total (D)		117.31	64.33
Total (A+B+C+D)		4678.62	1447.58

Financial assistance since 1975

	Rs. /crore
Loans	13,831
Grants	446
Total:	14,277

A major portion of the loan assistance has been utilised for meeting capital outlay on Plan projects approved by Ministry of Petroleum & Natural Gas in consultation with Planning Commission and Ministry of Finance. The loan outstanding from oil companies to OI DB, as on 31 December, 2001 is Rs. 6,064.40 crore approximately. Loans and grants given during 2001-02 upto 31.12.2001 are approximately Rs. 1,383 crore and Rs. 64 crore respectively.

Details of financial assistance given in last few years

Year	Loans	Grants	Rs. /crore Total
1992-93	706.20	11.29	717.49
1993-94	916.62	12.22	928.84
1994-95	276.27	26.15	302.42
1995-96	822.38	27.29	849.67
1996-97	1428.21	44.24	1472.45
1997-98	1423.65	37.80	1461.45
1998-99	1107.15	51.24	1158.39
1999-2000	980.32	45.41	1025.73
2000-01	1144.83	57.15	1201.98
2001-02	1383.25	64.33	1447.58

(upto 31/12/2001)

5.5.6 SPECIAL ACTIVITY DURING THE YEAR

**Deep Tech 2001 – Seminar on Deepwater
Production Technologies**

Institute of Oil & Gas Production Technology (IOGPT), Panvel in association with Oil Industry Development Board (OIDB), New Delhi organised a seminar on Deepwater Production Technologies at New Delhi on 6-7 April, 2001.

5.5.7 MAJOR PROJECTS FUNDED BY OI DB

Indian Oil Corporation Ltd.

An amount of Rs. 1,500 crore has been sanctioned by OI D Board for meeting capital expenditure for its on-going projects. The OI DB till date, has disbursed Rs. 1,175.25 crore @10.50% p.a. for a period of one year.

CPCL Refinery Expansion Project

CPCL is expanding its refining capacity by 3MMTPA at Manali Refinery at an estimated cost of Rs. 2,360 crore. The OI DB is assisting CPCL to put up the facilities.

Mahanagar Gas Limited (MGL)

MGL is setting up infrastructure facilities to supply Piped Natural Gas (PNG) to domestic, industrial & commercial sector and Compressed Natural Gas (CNG) and to transport sector in Greater Mumbai. The OI DB is assisting MGL in its efforts.

Indraprastha Gas Limited (IGL)

For the first time since the formation of OI DB, funding has been provided for JVs like Indraprastha Gas Limited. This project is being given an assistance of Rs. 200 crore. The company will supply Natural Gas to the domestic and commercial sector and Compressed Natural Gas (CNG) to the automobile sector. Thus, this is a step towards providing citizens of Delhi with clean and pollution free environment, as well as to have alternative fuel for public and private transport vehicles.

**Diesel Hydrodesulphurisation Project
(DHDS)**

In the wake of Hon'ble Supreme Court's directives, the refineries are required to reduce sulphur content in High Speed Diesel (HSD)

being produced in India from 1% by weight to 0.25% by weight. The OI DB has provided an assistance of Rs. 1,443 crore to three refineries viz. CPCL, KRL & BPCL for setting up required facilities.

5.6 **DIRECTORATE GENERAL OF HYDROCARBONS**



The Directorate General of Hydrocarbons (DGH) was established under the administrative control of Ministry of Petroleum & Natural Gas, by Government of India Resolution in 1993. Objectives of DGH are to promote sound management of indian oil & natural gas resources - having a balanced regard for environment, safety, technological and economic aspects of the Petroleum activity. In addition, DGH has been entrusted with certain responsibilities concerning the Production Sharing Contracts for Discovered fields and Exploration blocks, promotion of investment and monitoring of E&P activities. Details of the main activities undertaken by DGH during 2001-02 are as under:

5.6.1. **OPENING UP OF NEW AREAS FOR FUTURE EXPLORATION:**

In order to open up new areas for future exploration, DGH has undertaken pre-exploratory seismic survey works in Deep water areas along Southern tip of India, East coast & in Andaman offshore and a total 11,462 LKM of 2D seismic data in the above areas was acquired, processed and interpreted. Additionally, actions are in hand in order to acquire new seismic surveys in Western offshore deep waters and Ganga basin on land part.

In order to facilitate the prospective bidders viewing the data of NELP-II blocks, DGH opened up Data Rooms at Delhi, London and Houston. By 31.3.2001, a total of 44 number of bids were received for 23 blocks, out of total

25 blocks offered under NELP-II. All the bids were evaluated at DGH and recommendations made - in order to award the blocks.

For offering in NELP-III rounds, the Basin Information Dockets and data packages of the identified blocks have already been prepared by DGH - both as hard copies, and in digital form.

In the first round of CBM, seven blocks in the States of West Bengal, Jharkhand, Madhya Pradesh & Rajasthan were identified and Information Dockets and Data Packages for the same were prepared and made available in digital form. An international website was launched for viewing the key data of the offered blocks. Additionally, data viewing rooms were opened at New Delhi and Houston. A total no. of sixteen bids were received from 5 companies for 6 blocks, evaluation of which were carried out by DGH for awarding the blocks.

Towards implementation of National Gas Hydrate Programme (NGHP), as the Technical Committee of NGHP, DGH in association with representatives from MOP&NG, ONGC, OIL, GAIL, NGRI, NIO has examined all the relevant available data, prioritized the works on ground, put up proposals to Steering Committee and prepared a Road map for NGHP.



DGH used this Seismic Survey Vessel "MEZEN" to carry out Seismic Surveys in Deepwater area of Southern Tip of India, East Coast and Andaman Offshore.

5.6.2. **MONITORING OF PRODUCTION SHARING CONTRACTS:**

The Government of India signed contracts for a total of 27 discovered fields and 74 Exploration blocks with private/Joint venture and National oil companies. Out of these, contracts for 70 exploration blocks and 26 fields are currently under operation. DGH monitored the execution and management of these Production Sharing Contracts on behalf of Government of India. During the year 2000-01, Pvt./JV sector produced 12.6% and 12.2% of country's oil and gas production respectively.

5.6.3 **FIELD DEVELOPMENT, RESERVOIR AND PRODUCTION MONITORING**

DGH is monitoring reservoir and production performance, especially of Mumbai High field, and also for the fields operated by joint ventures and private companies. The redevelopment Plan of Mumbai High South of ONGC prepared alongwith the consultants GCA was reviewed by DGH and from October, 2001, ONGC is implementing the plan as agreed with DGH.

DGH alongwith IRS have completed the Geological modelling and reservoir simulation studies of South and Mid Tapti gas fields. 'Hazira Development Plan Phase-I' study was also completed by IRS in association with DGH.

5.6.4. **SAFETY & ENVIRONMENT:**

Safety and Environment related aspects of all the private and joint venture companies are monitored by DGH through periodic safety audits and inspections.

5.6.5. **COMPUTER SYSTEM FOR E&P ACTIVITIES:**

The interactive interpretation and monitoring system for Oil Exploration and Production

activities comprising Sun Workstations, Power Macintosh machine, alongwith the latest software were installed. Technical studies such as Reservoir simulation, log interpretation and loading of seismic and other related technical data apart from seismic interpretation are being carried out on these workstations.

5.6.6. **ESTABLISHMENT OF NATIONAL DATABASE AND MANAGEMENT CENTRE**

In line with the strategy for improving archival practices for data management, action is being taken to create a national database and archive. The project on implementation will help in on-line loading and generation of new data with respect to exploration activities.

5.7 **OIL INDUSTRY SAFETY DIRECTORATE**

5.7.1 The Oil Industry Safety Directorate (OISD) assists Safety Council of Ministry of Petroleum & Natural Gas (MOP&NG) headed by Secretary, MOP&NG as Chairman and includes the Joint Secretaries. Advisors in MOP&NG, Chief Executives of all the Public Sector Undertakings (PSUs) under the Ministry. Chief Controller of Explosives (CCE), Adviser (Fire) of the Govt. of India and the Director General of Factory Advice Service & Labour Institute as members.

5.7.2 **REVIEW/REVISION OF STANDARDS**

OISD standards are generally reviewed every 4 years after first publication to incorporate the latest technological changes and experience gained in their implementation, so as to update them in line with the current international practices.

During last Safety Council Meeting, the process to issue amendments to OISD standards was approved. Accordingly, amendments to 25 standards were approved by the steering committee.

As of December, 2001, overall status of Standardisation is as follows:

Total no. of Standards identified	107
a) Published & Distributed	93
b) Standards under various stages of preparation	14
	107

5.7.3 EXTERNAL SAFETY AUDITS

The External Safety Audits are being conducted regularly. During the period, External Safety Audit of four refineries, two LPG Recovery Plants, 26 marketing locations i.e. POL Terminals Depots, LPG Plants, 66 E&P Installations and 2,688 KM of cross-country pipelines were carried out.

Further, Pre-commissioning safety audit of 6 projects in refineries and acceptance committee inspections of 14 new marketing locations i.e. POL/ LPG were carried out during the period.

5.7.4 MONITORING OF EXTERNAL SAFETY AUDIT RECOMMENDATIONS

The External Safety Audit reports are sent to Chief Executives of the concerned oil companies for implementation. OISD, on its part, regularly monitors the progress of implementation of recommendations of these audits.

5.7.5 OISD WEB SITE

OISD at its website i.e. www.oisd.org provides details on the various activities carried out by them. The web site also provides schedule of safety audits, latest list of standards, "Petrosafe", "Monthly Newsletter", and highlight major incidents in industry. It also provides access to web sites of other petroleum companies, petroleum ministry etc.

5.8 CENTRE FOR HIGH TECHNOLOGY



5.8.1 The Centre for High Technology (CHT), a registered Society functioning under Ministry of Petroleum & Natural Gas, Govt. of India, acts as a focal point of oil industry for co-ordinating and funding of research work in refining and marketing areas, exchange of information and experience, assessing technology requirements and getting them developed indigenously etc. Major functions and responsibilities of CHT include:

- Advise and implement the scientific and technological programmes of Ministry of Petroleum & Natural Gas and be its executive wing for co-ordination, import, acquisition and up-gradation of technology.
- Assess the operational performance of Refineries, specifically from the point of view of energy utilisation in the process units, and advise the Ministry.
- To Identify the gaps in refining processes and products as well as identify the organisation that can take up that work, fund the project work and monitor the progress on its implementation.
- Develop programmes in consultation with the industry for improving the performance through up-gradation, use of new techniques and advanced technologies.
- Develop a centralised pool of information on the operational, maintenance and technical experiences of Refineries for use by industry members.
- Co-ordinate and pursue the programmes of Scientific Advisory Committee of MOP&NG and other Government bodies / agencies as required.

5.8.2 CHT SPONSORED PROJECTS

CHT, in line with the recommendations of Scientific Advisory Committee on Hydrocarbons of Ministry of Petroleum & Natural Gas, sponsors important R&D programmes for developing indigenous technologies and for absorption of new technologies. These projects are financed by Oil Industry Development Board through CHT.

Projects approved during 2001-02:

- Development of Polymer modified Bituminous Binder
- Development of catalyst for reducing sulphur in FCC gasoline
- Identification and estimation of polycyclic hydrocarbons in diesel fuel

5.8.3 ACTIVITIES RELATED TO ENERGY CONSERVATION IN REFINERIES

➤ Energy Conservation Awards

Energy conservation Awards for best performing refinery in respect of minimum specific energy consumption (in terms of MBTU / BBL / NRGF) and for best improvement in energy conservation for the year 1998-99 and 1999-2000 are under finalisation.

➤ Oil Conservation Awards

Surveys for steam leaks during the OCF-2001 were carried out at Refineries, and awards finalised for presentation in Jan' 2002 during OCF - 2002.



First Meeting of recently constituted "Scientific Advisory committee for Hydrocarbons" headed by Dr. R.A. Mashelkar - as its Chairman. Dr. S.J. Chopra, ED (CHT) is sitting next to Shri V.N. Kaul, then Secretary Petroleum, MoP&NG

➤ **Fuel & Loss for Refineries**

Quarterly and annual performance review of Fuel & Hydrocarbon loss at refineries is done.

➤ **Energy Audit**

Energy Audit of Gujarat refinery alongwith TERI and EIL is at final stage of completion.

➤ **Joint Energy Audit (JEA) of Refineries**

A proposal for Joint Energy Audit of PSU Refineries is approved by MOP&NG. Job is to start soon.

➤ **Bench Marking**

Bench marking of energy consumption of additional process units and offsite to develop new methodology for comparative performance evaluation has been awarded to EIL in Aug' 2001.

➤ A technical paper on “**Fuel cell – the Green Power for You**” is being published in *Chemical Engineering World*.

➤ Joint survey for “Furnace / Boiler efficiency and insulation effectiveness of furnace / boiler” is scheduled to be carried out at PSU Refineries during OCF - 2002 in Jan' 2002.

5.8.4 ASSISTANCE TO MOP&NG / INDUSTRY

CHT has been actively involved in the following activities:

➤ Fuel quality issues and implications of changes in the specification of Petrol and Diesel. CHT was actively associated with *Inter Ministerial Task Force* appointed by Ministry of Petroleum & Natural Gas as per the advice of Committee of Secretaries. Presently, it is actively associated with the

Expert Committee constituted for formulation of **Auto Fuel Policy**.

➤ As the convenor of BIS working Group for recommending Diesel flash point, submitted the report in time after due deliberations.

➤ As a member of Technical Evaluation Committee (TEC), for evaluation of proposals received from SSIs for use / manufacture of speciality petroleum products.

➤ Monitoring the progress / status of various projects undertaken by the oil companies for improvement in distillate yields / product quality

➤ Review of proposals from oil companies for entering into Foreign Technical Collaboration

➤ Regularly holding Activity committee Meetings on various critical refining areas of operation / maintenance / power & utilities with members from refineries & pipelines for dissemination of information and trouble shooting through collective efforts.

5.8.5 CHT PUBLICATIONS

With a view to keep abreast with the latest developments / trends that are taking place worldwide in the field of Petroleum Refining and for dissemination of information, CHT publishes a quarterly technical journal *Hydrocarbon Technology*. CHT also circulates a quarterly *Technology Scan* which incorporates a consolidated list of articles, categorised under major subject heads, with journal reference and a brief abstract - based on scanning of some of the important journals published in the field of Petroleum Refining. These publications have a wide circulation and are well acknowledged for their technical content.

5.9 OIL CO-ORDINATION COMMITTEE



5.9.1. The Oil Co-ordination Committee (OCC) was set up on 14.7.1975 through a Government of India Resolution on recommendation of the Interim Report of the Oil Prices Committee (OPC).

5.9.2. The Secretary, Petroleum & Natural Gas is the Chairman of the OCC Apex Body and Additional Secretary, Joint Secretary (Refineries), Joint Secretary & Financial Advisor of Ministry of Petroleum & Natural Gas, Chief Executives of Oil Companies and ED - Oil Industry Safety Directorate are its members. The day-to-day functions are handled by the OCC Secretariat under Executive Director - OCC, who is also a Member Secretary of the

Committee.

5.9.3. The main functions of OCC are as under:

- Monitoring the performance of Oil Industry to achieve optimality.
- Preparing estimates for supply/demand and import plans for petroleum products.
- Assisting the Ministry - in preparation of Oil Economy Budget (OEB).
- Co-ordination of supply of crude oil to Refineries.
- Operation and maintenance of pool accounts.
- Co-ordination of major marketing activities of the oil industry.



10th K.D. Malviya Memorial Lecture was organised in the capital on 7.12.2001 seen in the picture are Mrs. Asha Malviya Sheth daughter of Late Shri K.D. Malviya, Shri G.V. Ramkrishnan former chairman - Disinvestment Commission.

- Co-ordination with various Government departments/agencies to facilitate co-ordination with Railways so as to optimise tank wagon as well as product movement.
- Assisting the Ministry in management of crisis situations and special situations such as strikes, *bandhs*, floods, elections etc. for un-interrupted supply of petroleum products.

5.9.4. OCC has set up a Computers and Communication Wide Area Network (OILCOMNET) for entire Oil Industry, which supports e-mail, transmission of Hindi messages, fax messages and file transfer facility. It caters to all Computer & Communications requirement of OCC and MOP&NG. All the oil Companies, MOP&NG, EIL, CHT, PCRA etc are connected to this network and can exchange their messages and data. The network also retains a large number of database.



Panoramic view of HPCL Refinery

5.10 ANTI - ADULTERATION CELL

In order to strengthen the vigilance machinery to check adulteration of motor spirit and high speed diesel at Retail Outlets, Anti adulteration Cell has been set up in Ministry of Petroleum & Natural Gas. The Cell is headed by Director General at the level of Joint Secretary to the Government of India. The Cell has 4 regional offices i.e. at Chennai, Kolkata, Mumbai and Delhi - headed by Regional Directors. Officers of the Cell carry out inspections of Oil Company Retail Outlets to check adulteration of petroleum products namely petrol and diesel. Action against erring dealers is taken under the Marketing Discipline Guidelines and/or Dealership Agreement in the light of the report submitted by the Cell.

The Ministry of Petroleum & Natural Gas have issued, under the various Control Orders promulgated under the Essential Commodities Act, conferring the power of Search and Seizure on officers of the Anti Adulteration Cell.

Oil conservation fortnight organised by PCRA on 15.1.2002.



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CONSERVATION OF PETROLEUM PRODUCTS

CHAPTER VI

6.1 In the light of declining degree of India's self-reliance in petroleum sector, the need for conservation of petroleum products is of paramount importance. Hydrocarbons constitute a primary source of energy in India. However, our indigenous production has stagnated at an annual 32 MMT vis-a-vis our requirement of around 100 MMT in 2000-01. Thus, our oil requirement has been largely met through imports and our import dependence is around 70%.

6.2 IN - HOUSE CONSERVATION EFFORTS

6.2.1 IN UPSTREAM SECTOR

Oil Sector Undertakings in the upstream sector adopt various effective and result - oriented conservation methods including

- Reduction of Gas flaring by re-injection of gas to underground reservoir
- Installation of waste heat recovery systems
- Use of dual fuel/natural gas engines to



Truck Sammelan organised by PCRA, during Oil conservation fortnight 15-31 January, 2002.

achieve substitution of diesel by low pressure associated natural gas

- Use of solar power cathodic protection systems
- Use of self - loading type of skids for mounting rig equipment, etc.

6.2.2 IN REFINERIES

The oil refineries have undertaken various schemes like:

- Revamping and replacing low efficiency Furnaces and Boilers
- Saving steam in Refinery operations
- Installation of heat exchangers, economisers, recuperators & co-generation equipment
- State-of-art equipment to arrest hydrocarbon leakage
- Improved house - keeping practices
- Phased action plan to produce and sell high-grade lubricants
- Constant upgradation of lubricants in line with international developments meeting EURO standards.

6.2.3 IN TRANSIT

Ocean losses incurred during movement of petroleum products by import tankers and coastal tankers over sea-routes and at ports while unloading have been progressively reduced through various steps taken by the oil companies.

6.3 END - USE CONSERVATION EFFORTS

These efforts are coordinated by PCRA under

the aegis of Ministry of Petroleum & Natural Gas. The need for conserving petroleum products by using them judiciously and efficiently has been felt since the first oil crisis in 1973. This led to the setting up of Petroleum Conservation Action Group (PCAG) on 6 January, 1976 which in August 1978 was registered with Registrar of Societies as "Petroleum Conservation Research Association" (PCRA). Sectoral programmes undertaken are set out below:

i) Transport Sector

- Propagation of good driving habits conducive to increased fuel-efficiency supplemented by training programmes.
- Study of Transport depots undertaken to improve operation and maintenance practices and establish effective MIS for improving the KM/Litre of the depot
- Studies/Awareness Programmes related to vehicular pollution
- Action Group Meeting to disseminate information on transport sector
- Soft loan schemes for promoting energy efficiency
- Promoting high performance lubes/ additives

ii) Industrial Sector

- Promotion of Fuel - efficient practices and equipment
- Energy audits in industry for improving the fuel efficiency
- Development of Energy Auditors and their empanelment
- Technology upgradation projects in industry clusters

- Action Group Meeting to disseminate information on industrial sector
- Soft loan schemes for promoting energy efficiency

iii) Agricultural Sector

- Rectification/replacement and promotion of ISI mark fuel-efficient /lift irrigation pump sets and foot valves
- Education/training of farmers, rural and semi-urban users through participation in *Kisan Melas* and Van publicity campaigns
- Action Group Meeting to disseminate information on agriculture sector

iv) Household Sector

- Development and promotion of high efficiency appliances like kerosene and LPG stoves
- Education and awareness of housewives for saving kerosene / LPG through good cooking habits
- Promotion of fuel conservation practices in use of personal motor vehicles

6.4 MASS AWARENESS CAMPAIGNS

6.4.1 MULTIMEDIA

Mass awareness campaigns have been conducted by PCRA through the media and associating the oil companies.

6.4.2 OIL CONSERVATION FORTNIGHTS

Since 1991, every year PCRA and the entire oil sector under MOP&NG, devote a time span of full fortnight for improving awareness on importance and need for oil - conservation throughout the country. Accordingly, Ministry

of Petroleum & Natural Gas, in association with Petroleum Conservation Research Association (PCRA) and all Public Sector Oil companies under its ambit, observed Oil Conservation Fortnight from January 15 to 31, 2002 throughout the country. Over 3,70,000 activities were organised to promote conservation of petroleum products.

6.5 OTHER ACTIVITIES UNDERTAKEN BY PETROLEUM CONSERVATION RESEARCH ASSOCIATION



6.5.1 The Petroleum Conservation Research Association sponsors R&D projects for development of fuel-efficient equipment / devices and organise campaigns for creating mass enthusiasm for conservation. The Conservation Cell in the Ministry reinforces PCRA's efforts.

6.5.2 The highlights of PCRA's activities undertaken during the year are as follows:

i) Energy Studies

During the year 2000-01, 207 energy audit studies and 344 fuel oil utilisation studies were undertaken. A total number of 152 energy audit studies and 285 fuel oil utilization studies have already been completed between April - December 2001. 394 small-scale industries were helped to achieve fuel oil conservation during 2000-01 and 1,829 follow-up studies were conducted in the industries surveyed by PCRA.

ii) Model Depot Projects

During 2000-01, PCRA completed 199 model depot development studies in various States across the country. Further, 188 such studies have already been completed during the period April-December, 2001.

iii) Driver Training programmes

473 driver training programmes have been

completed during 2000-01 and 479 DTPs have been completed between April - December, 2001.

iv) Demonstration Clinics / Workshops / Exhibitions

During the year 2000-01, a total number of 1,322 save fuel clinics / workshops and 58 exhibitions were organised. Further 1,219 save - fuel clinics /workshops and 35 exhibitions have been conducted between April - December 2001.

v) Consumer Meets

During the year 2000-01, 25 consumer meets were organized by PCRA - to bring together energy consumers, equipment manufacturers and energy consultants to solve the energy conservation problems and to create awareness. During the period April-December 2001, PCRA organized 10 such consumer meets.

vi) Promotional Schemes

- Three garages were upgraded during the year 2000-01 and six between April - December 2001.
- Soft loan facility for transition from non-ISI foot valve manufactures to production of energy efficient ISI mark foot valves is being provided.

vii) Educational Films / TV Spots /Radio Jingles

Educational films and TV spots on themes of conservation were screened on *Doordarshan* and satellite channels and being broadcast on All India Radio in Hindi, English and other regional languages.

viii) Outdoor Publicity Media

PCRA's conservation messages were spread out

throughout the country by using various outdoor publicity media like bus panels, kiosks, road safety railings, electronic display boards etc.

ix) Press campaign and distribution of printed literature

PCRA's advertisements are released in small / medium / leading publications in every part of the country. Printed literature containing educative information/simple tips were also distributed across the country.

x) Major R&D Projects completed and Prototype equipment under field trials during the year 2001-02

Industrial Sector

- Design & Development of Fuel - Efficiency Monitor for fuel fired furnaces/boilers.

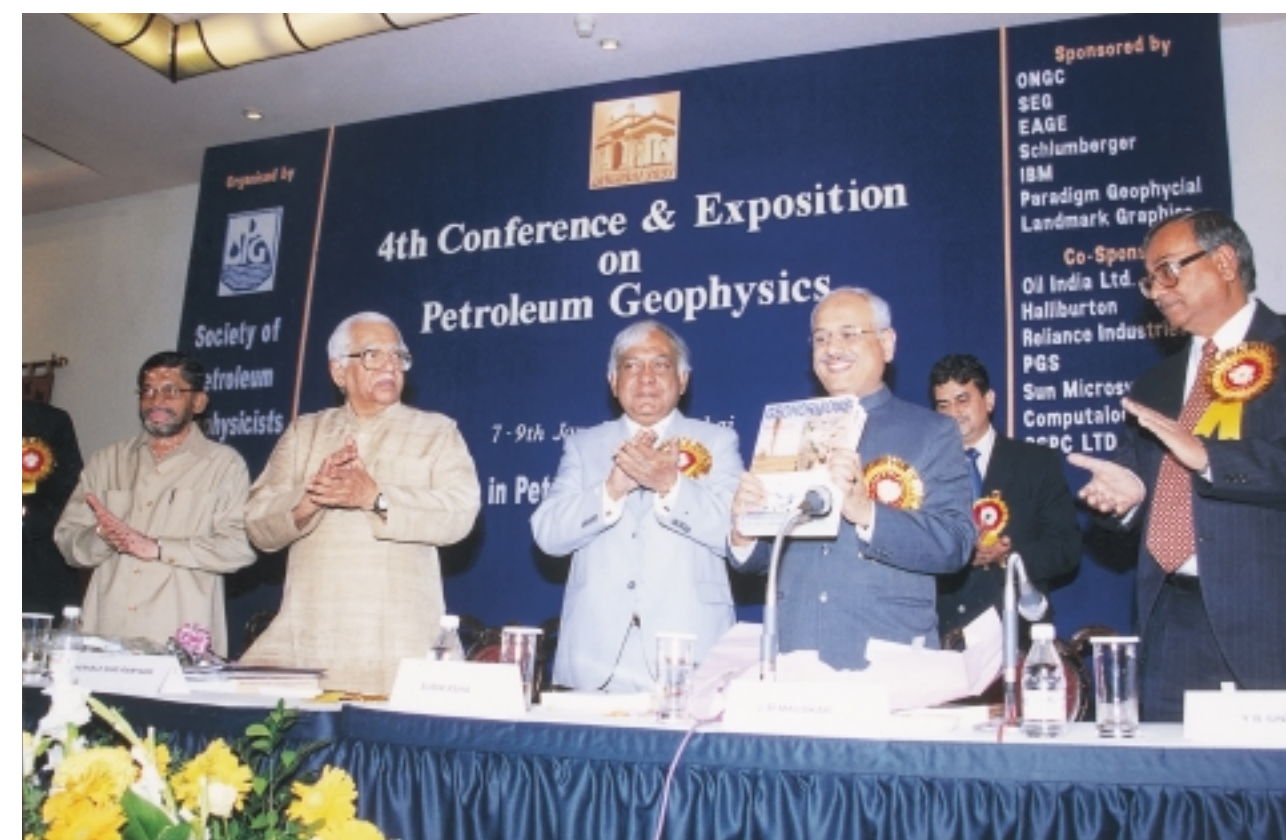
- Upgradation of re-heating furnaces for improving energy efficiency and reduction of GHG emissions in steel re-rolling mills (small and medium sector).

Transport Sector

- Design/Development of Fuel Injection System for existing passenger car engines.
- Design/Development of Smoke Density Meters for diesel automobiles.

Domestic Sector

- Design/Development of offset burner type Kerosene Pressure Stoves having 60% plus thermal efficiency.
- xi) On - going R&D Projects
- Design/development of energy efficient processes for recovery/recycling of waste lube oils.



Shri J.M. Mauskar, Joint Secretary (Exploration), Ministry of Petroleum & Natural Gas, releasing the book "Geohorizons" at 4th Conference and Exposition on Petroleum Geophysicists on 7.1.2002 at Mumbai.

- b) Design/Development of SONA - Energy Saving Devices for domestic and commercial appliances like kerosene wick stoves and LPG stoves.

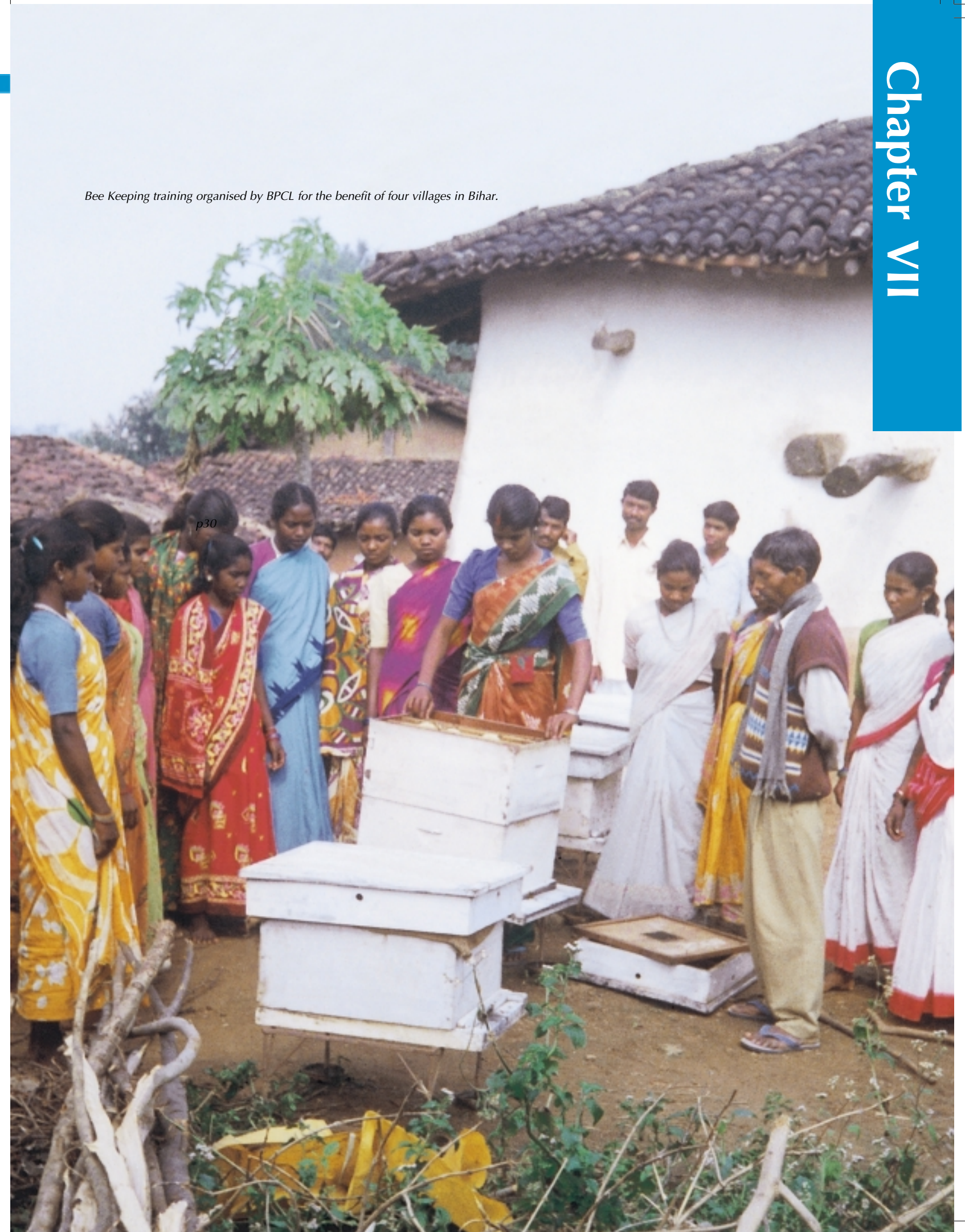
xii) Additives/Devices evaluated

PCRA also undertakes evaluation of additives/devices in the accredited labs to assess their potential for giving effective fuel economy and emissions reduction. During the year, one diesel fuel additive and four gasoline fuel additives were evaluated in accredited labs.

Based on their potential for cost effective fuel economy and emissions reduction during lab trials, these were recommended for extensive field trials on a fleet of vehicles - in association with engine/vehicle manufacturers and oil companies to establish actual fuel economy and emissions reduction when the product is used by final beneficiaries like STUs, Fleet operators.

In addition, field trials of 13 gasoline fuel additives and 7 diesel fuel additives continued during the year 2001-02.

Bee Keeping training organised by BPCL for the benefit of four villages in Bihar.



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WELFARE OF SCHEDULED CASTES/SCHEDULED TRIBES, OTHER BACKWARD CLASSES AND PHYSICALLY HANDICAPPED PERSONS

CHAPTER VII

- 7.1 The orders relating to reservation for Scheduled Castes/ Scheduled Tribes, Other Backward Classes and Physically Handicapped persons issued from time-to-time by the Department of Personnel & Training, the Department of Public Enterprises and Ministry of Welfare are being implemented in Ministry of Petroleum & Natural Gas and Public Sector Undertakings under its administrative control.

The SC/ST Cell of this Ministry monitors implementation of reservation policy in PSUs as well as in the Ministry. The PSUs have also constituted Implementation Cells under the supervision of their Liaison Officers to safeguard interests of SC/ST, OBCs and Physically Handicapped (PH) employees and to redress their grievances. The Liaison Officers of PSUs are responsible for ensuring implementation of Presidential Directives as well as various orders of the Government. Remedial action on the grievances of SC/ST, OBC and PH employees of PSUs, received through Members of Parliament and from Commission for SCs/STs, are taken wherever necessary.

The status of appointment of SC/ST/OBC/ Physically Handicapped persons is monitored by the Ministry through Quarterly reports furnished by PSUs separately.

7.2 SPECIAL COMPONENT PLAN (SCP) AND TRIBAL SUB PLAN (TSP)

In accordance with the Government policy, all Public Sector Undertakings under the

administrative control of the Ministry have made allocation in their Annual Plan for the year 2001-02 for various activities related to welfare and economic development of Scheduled Castes, Scheduled Tribes and people of weaker sections residing in neighbourhood of project locations - through Special Component Plan and Tribal Sub-Plan which are as follows:

- Construction of community latrines on the lines of *Sulabh Shouchalaya* etc., in villages inhabited mainly by SC/ST and weakers sections of society.
- Construction of school/college buildings, scholarship, adult education, distribution of teaching material, establishment of libraries and other aids to SC/ST students.
- Financial assistance to SC/ST women through co-operative societies for providing facilities of handlooms, weaving, etc., so as to enable them to be self employed.
- Provision of drinking water facilities to nearby villages through ring wells/tube wells etc.
- Provision of community health facilities, free medical services, medicines through medical camps and family planning camps etc.
- Financial assistance to Physically Handicapped persons for their rehabilitation.
- Economic development/self employment by organising entrepreneurship development training programmes.
- Vocational training/guidance to enable SC/ST persons to become self-reliant under the scheme "Earn while you learn". Training programmes are arranged in various trades, like basket weaving, coir rope making, sewing, poultry farming, fishing, tailoring, typing, motor vehicle

driving as well as supply of necessary tools, machines, etc.

- (ix) Welfare programmes such as distribution of seeds and fertilizers free of cost to SC/ ST farmers, distribution of smoke-free

Chulhas and solar cookers to SC/ST women, construction of approach roads and adoption of villages.

- (x) Social forestry schemes like distribution of fruit bearing trees, saplings and other plants etc.

The expenditure incurred by Public Sector Undertaking on the activities under Special Component Plan and Tribal Sub-Plan upto 31.12.2001 is as under:-

Rs. in Lakh

S.No.	Name of PSU	Expenditure Incurred		
		SCP	TSP	Total
1.	ONGC	44.53	24.58	69.11
2.	IOCL	39.80	20.20	60.00
3.	HPCL	150.86	Combined	150.86
4.	BPCL	15.49	- do -	15.49
5.	GAIL	3.14	- do -	3.14
6.	EIL	2.21	0.63	2.84
7.	OIL	34.04	4.02	38.06
8.	CPCL	2.79	Combined	2.79
9.	KRL	14.53	- do -	14.53
10.	IBP	6.33	3.63	9.99
11.	BRPL	2.35	9.80	12.15
12.	Biecco Lawrie	-	-	*
13.	NRL	6.83	Combined	6.83
14.	Balmer Lawrie	2.75	- do -	2.75

*Due to substantial loss during 2000-01, earmarked Funds could not be utilised.

Recruitment backlog position of SCs/STs/OBCs as on 31.12.2001

S.No.	Name of PSU	SC		ST		OBC	
		Excess	Shortfall	Excess	Shortfall	Excess	Shortfall
1.	ONGC	Nil	310	Nil	482	Nil	Nil
2.	IOCL	Nil	24	Nil	12	Nil	92
3.	HPCL	410	Nil	42	4	1	90
4.	BPCL	387	Nil	2	11	Nil	1181
5.	GAIL	Nil	24	Nil	23	Nil	52
6.	EIL	Nil	1	Nil	9	Nil	15
7.	OIL	44	20	44	52	153	79
8.	CPCL	Nil	Nil	Nil	1	Nil	Nil
9.	KRL	Nil	Nil	Nil	Nil	Nil	Nil
10.	IBP	20	Nil	03	Nil	Nil	17
11.	BRPL	Nil	Nil	Nil	Nil	Nil	Nil
12.	Biecco Lawrie	Nil	19	Nil	30	Nil	23
13.	NRL	Nil	20	2	Nil	Nil	7
14.	Balmer Lawrie	31	49	Nil	32	2	21

No backlog

No backlog

No. of Women Employees Vis-a-Vis Total no. of Employees - as on 31.12.2001

Sl. No.	Name of PSU	Total No. of Employees	Total No. of Women Employees
1.	ONGC	40,478	4,230
2.	IOCL	32,050	2,409
3.	HPCL	11,391	694
4.	BPCL	12,643	1,144
5.	GAIL	3,313	152
6.	EIL	3,341	326
7.	OIL	9,459	335
8.	CPCL	1,695	72
9.	KRL	4,003	161
10.	IBP	2,210	216
11.	BRPL	1,816	78
12.	Biecco Lawrie	671	6
13.	NRL	641	23
14.	Balmer Lawrie	2,001	103



BPCL extended financial assistance for development of educational facilities in Srinivasapura village in Karnataka.



Water storage tank for fire protection at Kochi Refineries Limited, Kerala.

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POLLUTION CONTROL

CHAPTER VIII

8.1 The Refining industry has been classified as one of the major industries in the country. The compliance with prescribed standards in respect of liquid effluents and gaseous emissions is, therefore, a statutory requirement. All the refineries in the country are fully equipped with adequate pollution control facilities to meet the prescribed environmental standards. And pollution abatement measures are accorded the top most priority by the refinery management. The existing facilities are reviewed and upgraded as and when required and in case of new projects/ process units, actions are taken at design stage itself to build necessary safeguards and facilities for improving the overall performance and compliance with the environmental standards

8.2 Effluents generated in the Refineries can be classified under 3 categories viz. i) liquid effluents ii) gaseous emissions and iii) oily sludge. The compliance with respect to the statutory stipulations with regard to these as well as the actions taken by the refineries for environmental management are summarized as under:

8.2.1 LIQUID EFFLUENTS

The water used in the refining process gets contaminated with oil and other pollutants and has to be treated before discharging from the refineries. The Government has prescribed Minimal National Standards (MINAS) for discharge of effluents from refineries with respect to critical parameters, viz., oil and grease, phenols, sulphides, Biochemical Oxygen Demand (BOD), total suspended solids (TSS). The standards also specify the quantum limits for discharge of these pollutants in terms of crude throughput.

All the Refineries in the country are equipped with full - fledged Effluent Treatment Plants, comprising physical, chemical and biological treatment facilities for removal / control of pollutants from waste water. The treated water fully meets the prescribed stringent MINAS standards in all the Refineries.

Effluent Reuse

Keeping in view the growing shortage of fresh water, all Refineries have accorded importance for maximizing the reuse of treated effluent within their plants and thereby conserving fresh water. With this objective, refineries have implemented various schemes to reuse part of treated effluent within their plants in cooling towers, fire water network, coke cutting operations, service water, development of green belts etc. It is worthwhile to mention that treated effluents from Mathura refinery and treated domestic effluents from Gujarat Refinery Township are being gainfully used by local farmers.

8.2.2 GASEOUS EMISSIONS

Controlling of gaseous emissions, particularly with respect to Sulphur dioxide (SO₂), is one of the major tasks of the Refineries. The Government has prescribed limit for SO₂ emissions from three major processing units in the Refineries - in terms of SO₂ emission per tonne of feed processed - as well as for the boilers in the Captive Power Plants. The stipulation for boilers is in terms of minimum stack height requirements, so as to minimise ground level concentration of SO₂. Further to the above, an overall limit for SO₂ emission from Refineries is also stipulated by the State Pollution Control Boards / MOE&F.

All the Refineries in the country fully comply with applicable process units' SO₂ emission standards as well as total SO₂ emission limits. The measures adopted by the Refineries for controlling SO₂ emissions include:

- Use of low sulphur fuel oil
- Desulphurisation of refinery fuel gas in Sulphur Recovery Unit / Use of Natural Gas
- Advanced Process Control Systems
- Adoption of energy conservation measures to reduce fuel consumption which in turns reduces gaseous emissions
- Taller stacks for better dispersion of fuel gases etc.

8.2.3 SOLID WASTE MANAGEMENT

Oily sludge is the main hazardous solid waste generated in the refineries. Treatment / disposal of oily sludge generated during the refining operations is of major concern to the refineries. Refineries have adopted various methods like installation of improved mixers for reducing formation of sludge in the crude storage tanks and use of hot gas oil circulation/use of chemicals for recovery of oil from tank bottom sludge. The refineries use melting pits to further extract oil from the sludge before its disposal. The treated sludge after gas oil treatment / melting pit is either stored in lined pits or disposed of through land fill in low-lying areas inside the Refineries. Some of the refineries viz. Mathura, Barauni and BPCL have successfully tried Bio-remediation Method for disposal of oily sludge. The oily sludge is sometimes sold to micro-crystalline wax manufacturers, approved by the Technical Evaluation Committee of MOP&NG, by BPCL, HPCL & KRL.

8.3 MONITORING FACILITIES

All the refineries have full-fledged environmental cells to monitor quality of effluents and emissions. Continuous ambient air monitoring stations/High Volume Samplers have been provided in and around Refineries to monitor SO₂ level and it has been observed that the emissions are well within the stipulated limits.

Mathura refinery, located in the Taj Trapezium area, has considerably reduced the SO₂ emissions over the years and has put up a Once-through Hydrocracker unit to increase the yield of middle distillates as well as to reduce SO₂ emission from the refinery.

8.4 CERTIFICATION WITH ISO-14001 ENVIRONMENTAL MANAGEMENT SYSTEM

IOC-Mathura refinery was the first refinery in Asia - and one of the few in the world - to achieve distinction of ISO - 14001 certification in July' 1996. Since then, all other IOC refineries viz. Guwahati, Barauni, Gujarat, Haldia, Digboi & Panipat have also obtained ISO-14001 certification. BPCL, KRL and CPCL Refineries have also been certified with this International Environmental Management System. As regards to rest of the Refineries in the country, actions have been initiated to secure this certification.

8.5 FUEL QUALITY IMPROVEMENT

Refineries have implemented major programmes for up-gradation of petrol and diesel quality in the past few years. Following are the major improvements made in this direction:

8.5.1 PETROL

8.5.1.1 PHASING - OUT OF LEAD

Lead was added in petrol to increase the octane number. The specification of lead in Indian petrol used to be 0.56 gm / litre (max) in 1994. In order to reduce environmental pollution due to emission from petrol vehicles, lead has been removed in phases in the last 6 years. From 1.2.2000, only unleaded petrol is produced and sold in the entire country.

8.5.1.2 INCREASING THE OCTANE NUMBER

The octane number of petrol signifies the improved performance of automobile engines.

Increase in octane number has been done from 87 to 89 with effect from 1.4.2000.

8.5.1.3 REDUCTION OF SULPHUR CONTENT

The sulphur content in petrol has been reduced from 0.20% max. to 0.1% max. in the entire country w.e.f. 1.4.2000. Besides this, the 4 metro towns are being supplied petrol with 0.05% max sulphur content i.e. NCT / NCR from 1.4.2000, Kolkata from 1.10.2000, Greater Mumbai from 1.1.2001 and Chennai from 1.7.2001.

8.5.1.4 INTRODUCTION OF BENZENE CONTENT LIMIT

In India there was no limit for addition of benzene in petrol. This has been introduced from 1.4.2000 as 3% max for the metros and 5% for the entire country. The actual benzene content is substantially lower than the maximum limits prescribed. Besides this, benzene content in petrol for NCT, NCR and Mumbai has been reduced to 1% max w.e.f. November 2000, March 2001 and October 2000 respectively.

8.5.2 DIESEL

8.5.2.1 REDUCTION OF SULPHUR CONTENT

The sulphur content in diesel has been reduced from 1.0% max in 1996 to 0.25% max in the entire country within a period of four years i.e. from 1.4.1996 to 1.1.2000. Further, sulphur in diesel for metros has been reduced from 0.25% max to 0.05% max starting for NCT/ NCR at select Retail Outlets w.e.f. 1.4.2000, NCT all outlets from 1.3.2001, NCR all outlets from 30.6.2001, Greater Mumbai from 1.1.2001 and Kolkata & Chennai from 1.7.2001.

8.5.2.2 INCREASE IN CETANE NUMBER

The Cetane number signifies the ignition performance of diesel engines. A higher cetane number indicates better performance. The cetane number has been increased from 45 to 48 from 1.4.2000. This cetane number is very high as compared to most of the countries in the world where it is between 40 to 49.

8.5.2.3 IMPROVEMENTS IN THE DISTILLATION SPECIFICATION

Improvements have been done in the distillation specification of diesel from 1.4.2000, thereby improving performance and life of Diesel engines. The 95% volume distillation recovery has been made at 370 °C max from earlier of 90% at 366 °C.

8.6 AUTO FUEL POLICY

The Government set up the Committee under the Chairmanship of Dr. R.A. Mashelkar, Director General, Council of Scientific & Industrial Research on 13.8.2001. The Committee submitted its interim Report on 1.1.2002. The Committee inter alia recommended that:

- Bharat Stage-II emission norms be implemented in Bangalore, Hyderabad and Ahmedabad cities by the end of year 2003
- Extension of Bharat Stage-II emission norms in the entire country from 1.4.2005
- Introduction of Euro-III equivalent emission norms in four metros and Bangalore, Hyderabad and Ahmedabad cities from 1.4.2005; and
- Extension of Euro-III equivalent emission norms to other parts of the country from year 2010.

The recommended vehicular emission norms and auto fuel quality would, alongwith other attendant measures, would help in achieving the desired air quality in major Indian cities and the country as a whole.

CNG on-line compressor installation at CGS, Mahanagar Gas Limited Mumbai.



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GENERAL

CHAPTER IX

9.1 PROGRESSIVE USE OF HINDI

9.1.1. The Ministry of Petroleum & Natural Gas is implementing provisions of the Official Language Act, 1963 and Rules framed thereunder. It is also responsible for the implementation of Official Language Policy in various offices of Public Sector Undertakings under its administrative control.

9.1.2 This Ministry has been notified under Rule 10(4) of the Official Language (Use for Official Purpose of the Union) Rules, 1976. Three sections of the Ministry viz. Administration Section, Library and SC/ST Cell have been identified under Rule 8 (4) for doing their entire work in Hindi. The Establishment Section is also required to do entire work in Hindi in respect of group 'C' and 'D' employees. Eleven type of works have been identified under the aforesaid Rule for doing in Hindi only. Further, instructions have been issued, under the said Rules to all officers/employees of the Ministry who are proficient in Hindi, to prepare and submit drafts etc. of following categories of communications in Hindi language only:

- All communications to State Government & Union Territory Administrations in Region 'A' and Region 'B' and all offices, Undertakings, etc. of Central Government situated in these Regions or to any person in these Regions.
- Replies to all incoming communication written in Hindi.
- Reply to and application, appeal or representation written or signed by an employee in Hindi.

9.1.3 The Ministry has prepared a time-bound programme to impart in-service training to all

its employees who do not possess working knowledge of Hindi. Under this programme, 2 officers and 3 employees were nominated for *Probodh* class under Hindi Teaching Scheme during 2001-02. A time - bound programme for imparting Hindi Stenography/ Hindi typing training to Stenographers and Lower Division Clerks (LDCs) of the Ministry has also been prepared, under which 4 Stenographers and 6 LDCs were nominated for training.

9.1.4 The first working day of every month is observed as *Hindi Divas* in the Ministry. All the officers/employees are expected to undertake official work only in Hindi on that day. Similarly, the PSUs under the Ministry have also been advised to observe *Hindi Divas* every month in their offices.

9.1.5 The 'Hindi Fortnight' was celebrated in the Ministry during 14 - 28 September, 2001 and a number of competitions viz., Hindi essay writing competition, Hindi noting/drafting competition and competition in good hand - writing in Devanagri, Hindi typing and Stenography were organised. 9 participants were given cash awards.

9.1.6 The Parliamentary Committee on official Language Committee inspected 35 offices of PSUs under the administrative control of the Ministry scattered throughout the country. 16 PSU offices were entrusted upon with the co-ordination work also. The location in-charge and offices of official Language actively participated in the inspections. All the PSUs were made aware of findings of the Committee and orders were issued for removing short comings.

9.1.7 Most of the computers were provided with Hindi typing software during the year.

9.1.8 In order to undertake the Official Language Implementation work effectively, an Official Language Implementation Committee (OLIC)

is functioning in the Ministry under the chairmanship of Joint Secretary (Admn.). All the Public Sector Undertakings under the Ministry are members of the Committee. This Committee reviews the overall progress of implementation of the Official Language Policy in the Ministry and the Public Sector Undertakings, as also the progress of implementation of the Annual Programme circulated by Department of Official Language.

9.1.9 Gas Authority of India Limited under the administrative control of the Ministry received the *Indira Gandhi Rajbhasha Shield* IInd Prize for the year 2000-01 under PSUs in region "A".

9.1.10 Quarterly progress reports on progressive use of Hindi are sent to Department of Official Language, and Quarterly progress reports received from Public Sector Undertakings are reviewed in the OLIC meetings of the Ministry.

9.1.11 So far, 224 offices of the Public Sector Undertakings, in which 80 percent staff acquired working knowledge of Hindi, have been notified in pursuance of Rule 10(4) of the Official Language (Use for Official Purposes of the Union) Rules, 1976. The Public Sector Undertakings have been advised to conduct survey of their offices with a view to ascertain the number and percentage of employees who have acquired working knowledge of Hindi.

9.1.12 The Annual Programme for the financial year 2001-02 received from the Department of Official Language was circulated to all officers of the Ministry and Chief Executives of PSUs/ Offices. Various Sections in the Ministry and all PSUs were instructed to ensure its proper implementation.

9.1.13 Books, magazines and newspapers published in Hindi are available in Ministry's Library. Help books, such as Administrative and Technical Terminology in Hindi, English-Hindi Dictionaries etc. have been provided to various Sections and Desks.

9.1.14 With a view to assess position of compliance of Official language Rules and use of Hindi in the various offices of PSUs in different parts of the country, an inspection Team has been constituted under the Chairmanship of a Joint Secretary who is also the Chairman of OLIC of the Ministry. The Committee inspected 13 offices during the year 2001-02.

9.1.15 The Hon'ble Prime Minister's Guidelines, as the Chairman of *Kendriya Hindi Samiti* were brought to the notice of all officers of the Ministry and PSUs under its administrative control and they were requested to ensure implementation of these guidelines.

9.2 ORGANISATIONS AND METHODS

With a view to ensuring smooth and systematic functioning of the Ministry, various organisations and methods programmes are carried out every year.

Achievements during 2001-02, so far, have been as follows:

- A detailed study of CR Section of the Ministry was carried out to examine effectiveness of receipt and despatch of communication.



The Parliamentary Standing Committee on Petroleum & Chemicals visited Institute of Petroleum Safety and Environment Management during 12-14 October, 2001.

2. Instructions - reiterating the compliance to various provisions of Manual of Office Procedure were issued from time - to - time.
3. Level of disposal/channel of submission of cases was reviewed and compiled and a copy thereof circulated to Co-ordinating Officers of the respective Divisions.
4. Orders/instructions issued by different Divisions of the Ministry were consolidated and compiled. A copy of the compilation was sent to Co-ordinating Officers of the respective Divisions.
5. A Manual of Acts/Rules/Regulations issued by this Ministry was brought out - in order to make them easily accessible to various oil sector companies. A copy of compilation was sent to co-ordinating officers of the respective Divisions and two copies were sent to Facilitation Counter of Ministry of Petroleum & Natural Gas for reference by general public.
6. Special drives were launched for recording, reviewing and weeding out of old records.
7. Action has been initiated to update Induction Material of the Ministry.
8. In order to ensure expeditious disposal of work in the Ministry, a close watch was kept on performance of each Desk/ Section.
9. O&M Inspection schedule of various Desks/Sections was drawn and inspecting officers were designated for the inspection work.

9.3 OUTSTANDING AUDIT OBJECTIONS

Audit had shown a total number of 25 points as outstanding. Ministry had already furnished replies to the Audit. However, final reply from them in response to replies given by the Ministry, is still awaited.

9.4 GRIEVANCE REDRESSAL

The Public Grievance Cell is working in the Ministry for attending to grievances of members of public in respect of services rendered by the Ministry or Public Sector Oil Companies under its control. In order to give proper attention to the public grievances, Grievance Officers have been nominated in all the Public Sector Oil companies, who attend to public grievances in an efficient manner. Disposal of public grievances is monitored regularly. A separate grievance cell for Redressal of the grievances of members of staff of the Ministry is also functioning under the charge of Director (Administration). The jurisdiction of Directorate of the Public Grievances setup in the Cabinet Secretariat has already been extended to Ministry of Petroleum & Natural Gas.

During the year 2001, the Public Grievances Cell of this Ministry received a total of 54 grievances, out of which, 38 have been resolved.

The Director of Public Grievances in the Ministry is empowered to call for files/papers or the documents connected with grievances pending for more than 3 months in the Ministry and with Oil Sector Public Undertakings and to take a decision thereon with approval of Secretary, Ministry of Petroleum & Natural Gas or Head of the Organisation. He is empowered to communicate final decision to aggrieved parties. The computerised monitoring of public grievance Redressal through on-line transmission facility provided by NIC for reporting the same to the Hon'ble Prime Minister's Office (PMO) and the Cabinet Secretariat is also being done by the Ministry.

9.5 FACILITATION COUNTER

The Ministry of Petroleum & Natural Gas set up the Information Facilitation Counter on 30 June, 1997. During the year 2001-02, the Information Facilitation Counter has been

engaged in projecting transparency in working of Government of India in the Ministry of Petroleum & Natural Gas and provided information on all major aspects of Oil Industry. The Citizens' Charter drafted by Experts of the Oil Industry under the aegis of this Ministry is the guiding force which aims at educating the common man about consumers' entitlement to public services, including the standards of performance, quality of products, mode of access to information etc.

The type of information provided to the public has been ranging from supply of Basic Petroleum Statistics to the provision of information on various locations in the country rostered under various Marketing Plans for establishment of Retail Outlets, LPG Distributorships, Kerosene Agencies. Dealer Selection Guidelines (both in Hindi and English) to enlighten public on eligibility criteria. Material published by Petroleum Conservation Research Association on *SAVE OIL* is available at the counter and supplied to visitors on request.

During the year 2001-02, due publicity was given in regard to various Control Orders issued by Ministry of Petroleum & Natural Gas. These are Naphtha (Acquisition, Sale, Storage & Prevention of Use in Automobiles) Order 2000 and The Solvent, Raffinate and Slop (Acquisition, Sale, Storage and Prevention of Use in Automobiles) Order, 2001 to check adulteration of automobile fuels, viz., Motor spirit and High Speed Diesel Oil by Naphtha, Solvents, Raffinate and slop, and the Liquefied Petroleum Gas (Regulation of Use in Motor Vehicles) Order, 2001 to use LPG as automotive fuel.

In addition to above, information on phased Dismantling of Administered Pricing Mechanism (APM), New Exploration Licensing Policy (NELP), the various Blocks available for bidding is provided to the persons interested. During this year about 4,500 members of the

public got benefited through this Counter by personally visiting this Counter and/or getting information over telephone.

Guidance to the visiting Public is also provided on - how to avail of the information through petroleum Ministry's Website - www.petroleum.nic.in launched in January 2000. The e-mail address of the Counter is fc.png@sb.nic.in. Enquiry messages have started pouring in through the Internet also.

9.6 WOMEN CELL

A Women Cell has been constituted in the Ministry of Petroleum & Natural Gas since January 1998 to cater to Women's issues/ grievances and to look into complaints of sexual harassment, if any. The guidelines of the Supreme Court, the Ministry of Human Resources Development and Ministry of Labour are implemented in this regard. Ms. Pushpa Thottan, Deputy Adviser is its Chairperson. However, no complaint was received by the Cell during the year.

9.7 DISMANTLING OF APM

Based on the recommendations of the "R" Group and the Expert Technical Group (ETG), the Government, in November 1997, approved - the time-table for phased dismantling of APM over a period of four years. The transition phase commenced from 1.4.1998 onwards.

Status of the implementation of the programme is given below:

ACTIONS COMPLETED

Upstream Sector

Effective 1.4.1998, cost plus formula for crude oil produced by national oil companies has been withdrawn. The crude oil producers are being paid a pre-determined percentage of FOB price of imported crude oil, that was 75% in

1998-99 and would increase to 82.5% in 2001-02. Since the FOB prices of crude oil prevailing in the international markets during 1998-99 were very low, strict application of the above percentage would have resulted in ONGC and OIL getting a price for their crude oil lower than what they were getting under APM. Accordingly, it was decided that the rates under APM i.e., the basic price of Rs. 1,991per MT (total price including royalty and cess was Rs. 3,469 per MT) would serve as the floor benchmark price with adjustments to be made later on. Similarly, after November 1999 due to steep rise in international price of crude oil. Government, on an ad-hoc basis, decided to keep the compensation for ONGC/OIL crude oil at a maximum of Rs. 5,570 per MT inclusive of royalty and cess.

Downstream Sector (Refining)

Effective 1.4.1998, retention pricing concept for the Refineries has been abolished. Refinery gate prices for controlled products are being fixed - based on import parity.

The Refining sector has been delicensed in July 1998.

Since July 1998, private and Joint Sector Refineries have been permitted to import crude oil for their actual requirement.

Downstream Sector (Marketing)

Effective 1.4.1998, prices of only Petrol, diesel, Kerosene for public distribution, domestic LPG and Aviation turbine Fuel (ATF) were being controlled. Prices of all other petroleum products have been decontrolled and are fixed by oil companies on market considerations.

Subsequently, ATF price has also been deregulated w.e.f. 1.4.2001.

Downstream Sector (Phasing of Subsidies, Price adjustments and other items)

Price of Kerosene for public distribution has been increased as envisaged in March 2000, September 2000 and March 2002.

Domestic LPG prices have been increased in February 1999, March 2000, September 2000 and March 2002.

Effective 1.4.1998, cost plus formula for shipping of crude oil has been done away with.

Downstream Sector (Rationalisation of Tariffs)

Customs duty on crude oil has been reduced from 27% to 10% and customs duty on products has been reduced from a maximum rate of 32% to a maximum rate of 20%.

Exim Policy

Import and export of Furnace Oil has been decanalised in July 1998. Similarly, Nephtha exports have been decanalised in July 1998. Further, export of Petrol, Diesel and ATF have been decanalised in October 1999.

ACTIONS TO BE COMPLETED BEFORE DISMANTLING OF APM

As per approved programme

Rationalisation of customs duties on crude oil and products is to be completed as per Government decision of November 1997, wherein, the customs duties need to be fixed at 0 - 5% on crude oil and 15% on transportation fuels in the ensuing budget.

Price of Kerosene for public distribution is to be adjusted so as to have subsidy at the level approved in November 1997.

Regulatory mechanism is to be put-up in place.

Scheme for administering subsidies is to be worked out before transfer of subsidy on Kerosene for public distribution, domestic LPG and freight for supplies to far - flung areas, to the fiscal budget.

Accumulated pool deficit is to be liquidated or to be transferred to the central budget on the date of dismantling.

APPENDIX – I

WORK ALLOCATED TO MINISTRY OF PETROLEUM & NATURAL GAS

1. Exploration and exploitation of petroleum resources, including natural gas and coal Bed Methane.
2. Production, supply, distribution, marketing and pricing of petroleum, including Natural Gas and other petroleum products.
3. Oil refineries including Lube Plants.
4. Additives for petroleum and petroleum products.
5. Lube Blending and Greases.
6. Planning, development and control of and assistance to all industries dealt with by the Ministry.
7. All attached or subordinate offices or other organisations concerned with any of the subjects specified in the list.
8. Planning, development and regulation of oilfield services.
9. Public sector projects falling under the subject included in this list. Engineers India Limited and IBP Company together with its subsidiaries, except such projects are specifically allotted to any other Ministry/Department.
10. The Oil Fields (Regulation and Development) Act, 1948 (53 of 1948)
11. The Oil and Natural Gas Commission Act, 1959 (43 of 1959)
12. The Petroleum Pipelines (Acquisition of Right of User in Land) Act, 1962 (50 of 1962)
13. The Esso (Acquisition of Undertakings in India) Act, 1974 (4 of 1974)
14. The Oil Industry (Development) Act, 1974 (47 of 1974)
15. The Burmah-Shell (Acquisition of Undertakings in India) Act, 1976 (2 of 1976)
16. The Caltex (Acquisition of Shares of Caltex Oil Refining (India) Limited and of the Undertakings in India of Caltex (India) Limited Act, 1977.
17. Administration of the Petroleum Act, 1934 (30 of 1934) and the rules made thereunder.

APPENDIX – II

LIST OF PUBLIC SECTOR UNDERTAKINGS AND OTHER ORGANISATIONS UNDER ADMINISTRATIVE CONTROL OF THE MINISTRY OF PETROLEUM & NATURAL GAS

I. Oil Companies in which Government of India has a shareholding (as on 15 March, 2002)

1. Oil & Natural Gas Corp. Ltd.	84.10%
2. Indian Oil Corp. Ltd.	82.03%
3. Hindustan Petroleum Corporation Limited	51.01%
4. Bharat Petroleum Corporation Limited	66.20%
5. Gas Authority of India Limited	67.35%
6. Engineers India limited	90.39%
7. Oil India Limited	98.13%
8. IBP Company Limited	26.00%
9. Biecco Lawrie & Company Limited	57.00%

II. Subsidiaries and other Companies

1. ONG Videsh Ltd.	Wholly owned by ONGC
2. Indian Oil Blending Ltd.	Wholly owned by IOCL
3. Balmer Lawrie & Co. Ltd.	Subsidiary of IBP
4. Certification Engineers International Ltd.	Wholly owned by EIL
5. EIL Asia Pacific Sdn. Bhd.	Wholly owned by EIL
6. Bongaigaon Refinery & Petro-Chemicals Ltd.	Subsidiary of IOCL
7. Chennai Petroleum Corporation Limited	Subsidiary of IOCL
8. Numaligarh Refinery Ltd.	Subsidiary of BPCL
9. Kochi Refineries Limited	Subsidiary of BPCL
10. IBP Company Limited	Subsidiary of IOCL

III. Other Organisations

1. Oil Industry Development Board.
2. Oil Co-ordination Committee
3. Petroleum Conservation Research Association.
4. Oil Industry Safety Directorate
5. Centre for High Technology
6. Petroleum India International
7. Directorate General of Hydrocarbons.

PRODUCTION OF CRUDE OIL AND NATURAL GAS

APPENDIX - III

	1990-91	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01 (Apr-Dec 2001)*	2001-02
1. CRUDE OIL PRODUCTION ++ ('000 Metric Tonnes)								
(a) Onshore:								
Gujarat	6398	6362	6158	5950	5828	5665	5785	4490
Assam/Nagaland	5076	5044	4796	5116	5080	4972	5200	3874
Arunachal Pradesh	43	28	36	25	38	44	31	20
Tamil Nadu	302	374	330	324	364	377	436	335
Andhra Pradesh	11	44	52	66	85	146	262	208
Total (a)	11830	11852	11372	11481	11395	11204	11714	8927
of which								
OIL	2649	2882	2870	3094	3295	3283	3286	2436
ONGC	9181	8970	8502	8387	8100	7921	8428	6491
(b) Offshore:								
ONGC	21191	22665	20183	19863	18285	16727	16629	11999
(c) Private/JVCs	Nil	650	1346	2514	3042	4018	4083	3089
GRAND TOTAL (a+b+c)	33021	35167	32901	33858	32722	31949	32426	24015
2. NATURAL GAS PRODUCTION								
(Million Cubic Metre)								
(a) Onshore:								
Gujarat	1696	2878	2932	3115	3166	3096	2850	1932
Assam/Nagaland	2011	1880	1941	2017	2055	2083	2204	1530
Arunachal Pradesh	29	32	23	24	24	23	23	#
Tripura	70	131	154	196	306	353	376	316
Tamil Nadu	64	117	92	95	107	138	200	265
Andhra Pradesh	46	679	799	1022	1218	1363	1604	1315
Rajasthan	Nil	12	10	149	164	151	159	100
Total (a)	3916	5729	5951	6618	7040	7207	7416	5458
of which								
OIL	1518	1433	1467	1670	1713	1729	1861	1245
ONGC	2398	4296	4484	4948	5327	5478	5555	4213
(b) Offshore:								
ONGC	14082	16579	16794	18102	17514	17774	18465	13900
(c) Private/JVCs	Nil	331	510	1681	2874	3465	3596	2941
GRAND TOTAL (a+b+c)	17998	22639	23255	26401	27428	28446	29477	22299

* provisional

++ includes condensates

included in Assam

Source: PSUs, JVCs and Private Companies.

REFINERY CRUDE THROUGHPUT

APPENDIX - IV

Refinery	('000 Metric Tonnes)							
	1990-91	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01 (Apr-Dec 2001)*	2001-02
(a) PUBLIC/JOINT SECTOR	51772	58741	62870	65166	68538	74052	77411	57926
IOC, Guwahati	783	839	848	856	836	914	707	472
IOC, Barauni	2416	2322	1895	2181	2204	3411	3122	2101
IOC, Gujarat	9334	10167	10352	10694	10935	11109	12006	8640
IOC, Haldia	2835	3416	3451	4706	4714	4105	3873	2951
IOC, Mathura	7808	8332	8113	8565	8909	8125	7133	6118
IOC, Digboi	566	559	477	502	553	603	678	475
IOC, Panipat (2)	-	-	-	-	2208	4153	5707	4338
BPCL, Mumbai	6957	7460	7640	7996	8878	8907	8683	6676
HPCL, Mumbai	5766	5965	6534	6378	5203	6007	5575	4258
HPCL, Visakh	3464	5037	4847	2467	3861	4555	6405	5022
KRL, Kerala	5006	7421	7293	7729	7770	7830	7520	4987
CPCL, Manali	5698	5599	6621	6965	6101	6377	6046	4567
CPCL, Narimanam	-	370	345	556	644	636	579	370
BRPL, Assam	1139	1215	1542	1718	1653	1905	1488	1259
NRL, Numaligarh (3)	-	-	-	-	-	215	1451	1698
MRPL, Mangalore (1)	-	39	2912	3853	4069	5200	6438	3994
(b) PRIVATE SECTOR	0	0	0	0	0	11912	26033	22285
RPL, Jamnagar (4)	-	-	-	-	-	11912	26033	22285
TOTAL (a+b)	51772	58741	62870	65166	68538	85964	103444	80211

*provisional figures

(1) Commenced production from 25.3.1996

(2) Commenced production from May 1998

(3) Commenced production from April 1999

(4) Commenced production from July 1999.

Source: PSUs, JVCs and Private Companies.

APPENDIX - V
PRODUCTION OF PETROLEUM PRODUCTS

Products	('000 Metric Tonnes)							
	1990-91	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02 (Apr-Dec 2001)*
(a) From Crude Oil								
1. Light Distillates	10023	12433	12884	13032	13776	18314	25048	19760
of which								
LPG	1221	1539	1598	1666	1724	2487	4088	3516
Mogas	3552	4462	4704	4849	5573	6232	8070	7160
Naphtha	4859	5975	6123	6103	6081	8170	9908	6919
Others		391	457	459	414	398	1425	2982
2165								
2. Middle Distillates	26344	29941	32423	33933	36168	44995	52445	40711
of which								
Kerosene	5471	5267	6236	6701	5341	5735	8714	7246
ATF/RTF/Jet A-1	1801	2127	2119	2147	2289	2292	2513	1940
HSD	17185	20661	22202	23354	26716	34793	39015	29826
LDO	1509	1351	1286	1246	1336	1624	1481	1184
Others		378	535	580	485	486	551	722
515								
3. Heavy Ends	12195	12707	13698	14343	14600	16102	18121	14289
of which								
Furnace Oil	4879	5351	5980	6771	6407	6559	6479	5673
LSHS/HHS/RFO	4550	4228	4318	4309	4623	4793	4913	3564
Lube Oils	561	633	619	593	586	728	684	500
Bitumen	1603	2032	2283	2158	2419	2485	2721	1743
Petroleum Coke	229	256	246	282	286	465	2473	2196
Paraffin Wax	49	43	31	27	40	47	51	32
Others Waxes	46	63	56	45	63	70	61	32
Others		278	101	165	158	176	955	739
549								
Total (1+2+3)	48562	55081	59005	61308	64544	79411	95614	74760
(b) From Natural Gas								
LPG	929	1715	1780	1787	2207	1986	2045	1625

* provisional figures
Source: PSUs, JVCs and Private Companies.

APPENDIX - VI
CONSUMPTION OF PETROLEUM PRODUCTS

Products	('000 Metric Tonnes)								% to total
	1980-81	1990-91	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02 (Apr-Dec 2001)*	
1 Light Distillates	4388	9801	14384	15742	17958	20473	21770	16958	23.0
of which									
LPG	405	2415	4184	4581	5041	6029	6613	5343	7.3
Mogas	1522	3545	4955	5182	5507	5909	6613	5264	7.1
Naphtha	2325	3446	4015	4716	6652	7970	8059	6115	8.3
NGL	-	-	682	768	330	91	6	6	0.0
Others	136	395	548	495	428	474	479	230	0.3
2 Middle Distillates	17056	33106	48544	49716	51686	54259	52854	38418	52.2
of which									
SKO	4228	8423	9646	9878	10599	10731	10714	7581	10.3
ATF	1125	1677	2158	2108	2112	2197	2249	1671	2.3
HSDO	10345	21139	35019	36071	37217	39287	37938	27795	37.7
LDO	1122	1506	1223	1235	1278	1512	1399	924	1.3
Others	236	361	498	424	480	532	554	447	0.6
3 Heavy Ends	9452	12128	14296	14380	15122	15919	15362	11395	15.5
of which									
Furnace Oil	5406	4462	6534	6651	6767	6816	6371	5200	7.1
LSHS/HHS	2067	4524	4313	4323	4537	4763	4989	3516	4.8
Lubes/Greases	593	892	705	835	885	915	797	555	0.8
Bitumen	1064	1581	2273	2178	2412	2879	2618	1635	2.2
Petroleum Coke	137	290	276	227	315	328	414	310	0.4
Paraffin Wax		70	58	28	36	53	43	41	0.1
Other Waxes		47	57	45	76	89	62	33	0.0
Others	185	262	80	93	94	76	68	105	0.1
Total (1+2+3) (Excl. RBF)	30896	55035	77224	79838	84766	90651	89986	66771	90.7
4 Imports by private parties	-	-	1944	4452	5796	6435	9638	6868	9.3
Grand Total (1+2+3+4)	30896	55035	79168	84290	90562	97086	99624	73639	100.0

* provisional figures
Source PSUs, JVCs and Private Companies.

APPENDIX - VII
IMPORTS/EXPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS

(Qty : '000 MetricTonnes)
(Value in Rs. Crore)

	1997-98		1998-99		1999-00		2000-01		2001-02 (Apr-Dec 2001)*	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
GROSS IMPORTS										
A. Crude Oil	34493	15872	39808	14917	57805	40028	74097	65932	59405	46559
B. POL Products										
I. Light Distillates	3458	2415	4380	2800	3504	3766	4018	5438	2739	2970
1. LPG	1226	1007	1722	1273	1587	1801	853	1332	470	595
2. Naphtha	1874	1136	2407	1336	1917	1965	3165	4106	2269	2375
3. Others	358	272	251	191	0	0	0	0	0	0
II. Middle Distillates	18226	11340	17300	8725	11319	9260	1919	2389	219	238
1. ATF	59	39	3	4	1	4	1	3	1	4
2. SKO	4391	2905	7066	3913	6312	5543	1918	2386	197	217
3. HSD	13776	8396	10231	4808	5006	3713	0	0	9	6
4. Others	0	0	0	0	0	0	0	0	12	11
III. Heavy Ends	1286	554	2092	751	1785	1160	3330	4266	1685	1812
1. FO / LSHS	634	254	1696	603	1378	865	1728	1309	807	584
2. Lubes	652	300	396	148	407	295	1602	2957	261	519
3. Others	0	0	0	0	0	0	0	0	617	709
TOTAL (B)	22970	14309	23772	12276	16608	14186	9267	12093	4643	5020
GRAND TOTAL (A+B)	57463	30181	63580	27193	74413	54214	83364	78025	64048	51579
EXPORTS										
A. Crude Oil	0	0	0	0	0	0	0	0	0	0
B. POL Products										
I. Light Distillates	2048	1185	720	306	714	659	4084	4715	3313	3253
1. Naphtha / NGL	2048	1185	720	306	583	520	2882	3273	1650	1471
2. LPG	0	0	0	0	131	139	1202	1442	0	0
3. Others	0	0	0	0	0	0	0	0	1663	1782
II. Middle Distillates	0	0	0	0	0	0	1757	2046	2316	2114
1. HSD/LDO	0	0	0	0	0	0	1597	1872	2202	2006
2. Others	0	0	0	0	0	0	160	174	114	108
III. Heavy Ends	333	81	0	0	32	39	2524	911	1525	477
1. FO/LSHS	333	81	0	0	0	0	508	320	216	115
2. Others	0	0	0	0	32	39	2016	591	1309	362
TOTAL (B)	2381	1266	720	306	746	698	8365	7672	7154	5844
GRAND TOTAL (A+B)	2381	1266	720	306	746	698	8365	7672	7154	5844
NET IMPORTS										
A. Crude Oil	34493	15872	39808	14917	57805	40028	74097	65932	59405	46559
B. POL Products	20589	13043	23052	11970	15862	13488	902	4421	(-)2511	(-)824
GRAND TOTAL	55082	28915	62860	26887	73667	53516	74999	70353	56894	45735

* provisional figures
Note : Value of private imports based on actual value of PSU imports.
Source : Oil Coordination Committee, New Delhi.