

Annual Report

2009-10



Government of India
Ministry of Petroleum & Natural Gas



Hon'ble Prime Minister Dr. Manmohan Singh dedicating Mangala Oil Field, Barmer to the nation on 29.08.2009

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CHAPTER

1

Introduction



Introduction

- 1.1** The Ministry of Petroleum & Natural Gas is concerned with exploration and production of oil and natural gas (including import of Liquefied 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 the Public Sector Oil Undertakings and other organizations under the Ministry are listed in Appendix-II.
- 1.2** During the year under report, Shri Murli Deora held the charge of Minister of Petroleum and Natural Gas and Shri Jitin Prasada assumed the charge as Minister of State for Petroleum & Natural Gas with effect from 29.05.2009.
- 1.3** Shri R.S. Pandey, IAS (NL:72) continued to hold the charge of the post of Secretary in the Ministry of Petroleum & Natural Gas till his superannuation on 31st January 2010.
- 1.4** Shri S. Sundareshan, IAS (KL:76) assumed the charge of the post of Secretary in the Ministry of Petroleum and Natural Gas, with effect from the forenoon of 01.02.2010.
- 1.5** Shri P.K. Sinha, IAS (UP:77) continues to hold the charge of the post of Additional Secretary and Financial Advisor in the Ministry of Petroleum and Natural Gas.
- 1.6** Shri Sudhir Bhargava, IAS (RJ:79) assumed the charge of the post of Additional Secretary in the Ministry of Petroleum and Natural Gas on 03.03.2010.
- 1.7** Shri Sunil Jain (IFS: 81); Shri D.N. Narasimha Raju, IAS (KN:84); Shri L.N. Gupta, IAS (OR:86) and Shri Apurva Chandra, IAS (MH:88) continue to hold the charge of the posts of Joint Secretaries in the Ministry of Petroleum and Natural Gas.
- 1.8 PRINCIPAL ACHIEVEMENTS**
- The important statistical data relating to the physical performance of the oil and gas sector is given in Appendices – III to VII.
- 1.9 PERFORMANCE OF PETROLEUM & NATURAL GAS SECTOR**
- Efficient and reliable energy supplies are a precondition for accelerating the growth of the Indian economy. While the energy needs of the country are going to increase



A view of an ONGC Offshore Platform in the Western Offshore



at a rapid rate in the coming decades, the energy resources that are indigenously available are limited and may not be sufficient in the long run to sustain the process of economic development. The Ministry of Petroleum and Natural Gas is mandated to take measures for exploration and exploitation of petroleum resources including natural gas and coal bed methane, and also distribution, marketing and pricing of petroleum products.

During the current year 2009-10, crude oil production is expected to be around 35.954 Million Metric Tonnes (MMT) and natural gas production at 50.237 Billion Cubic Metre (BCM). This is against crude oil production of 33.51 MMT and natural gas production of 32.85 BCM during financial year 2008-09. Refinery production (crude throughput) during 2008-09 has been of the order

of 160.77 MMT. This is against the refinery production of 156.103 MMT during the financial year 2007-08.

1.9.1 Crude Oil Production

Crude Oil Production in 2009-10 is expected to be around 35.954 MMT, which is 7.3% higher than the previous year. With the inauguration of crude oil production in Rajasthan by Hon'ble Prime Minister, an increase in crude oil production has been witnessed in 2009-10, which has been stagnating in the country during last 10 years. Now, Rajasthan is on the map of crude oil producing States in the country.

1.9.2 Overseas Oil and Gas Operations

In view of unfavourable demand–supply balance of hydrocarbons in the country, acquiring equity oil and gas assets overseas is one of the important components of enhancing energy security. The



The C&MD, EIL, Shri A.K. Purwaha presenting a dividend cheque to the Union Minister of Petroleum and Natural Gas, Shri Murli Deora, in New Delhi. The Minister of State for Petroleum and Natural Gas, Shri Jitin Prasada and the Secretary, Ministry of Petroleum and Natural Gas, Shri S. Sundareshan are also seen

Government is encouraging national oil companies to aggressively pursue equity oil and gas opportunities overseas. ONGC Videsh Limited (OVL) is likely to produce about 8.14 MMT of oil and equivalent gas during the year 2009-10 from its assets abroad in Sudan, Vietnam, Venezuela, Russia, Syria, Brazil and Colombia. Oil PSUs viz., ONGC Videsh Limited, Indian Oil Corporation Limited, Oil India Limited, Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited and GAIL (India) Limited have acquired Exploration and Production assets in about 20 countries with a total investment commitment of the order of Rs. 55,000 crore. It is the endeavour of the Ministry to pursue oil diplomacy aggressively in order to ensure energy security for the country.

1.9.3 Natural Gas Production

During the year 2009-10, natural gas production is expected to be around 50.237 BCM, which is 53% higher than the previous year. The higher growth in natural gas production was achieved mainly owing to major natural gas production from Krishna Godavari deepwater basin. In 2009-10, natural gas production

by Private/JV companies has surpassed natural gas production made by oil PSUs, viz., ONGC and OIL. The share of natural gas production in 2009-10 by Private/JV companies is likely to be 50.6% of total natural gas production in the country as compared with 25% in previous year.

1.9.4 New Exploration Licensing Policy (NELP)

New Exploration Licensing Policy (NELP) provides an international class fiscal and contract framework for exploration and production of hydrocarbons. In the first seven rounds of NELP spanning 2000-2009, Production Sharing Contracts (PSCs) for 203 exploration blocks have been signed. Under NELP, 77 oil and gas discoveries have already been made by private/joint venture (JV) companies in 23 blocks. The largest natural gas discovery in the country has been made in KG deepwater, from where production has commenced in April 2009, which is currently at 60 Million Metric Standard Cubic Metre Per Day (MMSCMD).

Investment commitment under NELP is about US\$ 10 billion on exploration, against which actual expenditure so far under NELP is about US\$ 5.53 billion. In addition,



On November 26, 2009, the Ministry of Petroleum & Natural Gas (MOP&NG) and the Government of Maharashtra paid tribute to the Martyrs of 26/11/2008 by honouring the families of the Army & Police Personnel with the allotment of Petroleum Products Dealerships. Shri P. Chidambaram, Hon'ble Minister of Home Affairs was the Chief Guest of the function while Shri Ashok Chavan, Hon'ble Chief Minister of Maharashtra was the Guest of Honour. The function was presided by Shri Murli Deora, Hon'ble Minister of Petroleum & Natural Gas



US\$ 6.95 billion investment has been made on development of discoveries.

With a view to accelerate the pace of exploration further, in the eighth round of NELP (NELP-VIII), 70 exploration blocks were offered, against which 76 bids were received for 36 exploration blocks. In NELP-VIII, expected investment commitment on exploration is about US\$ 1.3 billion.

1.10 COAL BED METHANE (CBM)

Coal Bed Methane (CBM) is an environment-friendly clean fuel similar to natural gas. Twenty six CBM contracts were signed for exploration of CBM gas with estimated resources of about 1354.45 BCM. As of now, 250 BCM reserves have been established in 5 CBM blocks. CBM gas production in January 2010 was at the rate of 1,19,742 cubic metres. In the fourth round of CBM Policy, Government has received 27 bids for 8 CBM blocks as against 10 offered blocks, from 19 companies including 3 foreign companies.

1.11 POLICY FOR DEVELOPMENT OF NATURAL GAS PIPELINE

The Government of India has enacted 'The Petroleum and Natural Gas Regulatory Board Act, 2006'. The Board has been constituted on 25th June, 2007. The provisions of the Act (except Section 16) have been brought into force w.e.f. 1.10.2007. The Board would regulate refining, processing, storage, transportation, distribution, marketing and sale of petroleum products and natural gas, excluding production of crude oil and natural gas.

1.12 PRODUCTION AND CONSUMPTION OF PETROLEUM PRODUCTS

During the current year 2009-10 (till December 09), production of petroleum products from crude oil and natural gas was 112.01 MMT.

During the current year 2009-10 (till December 09), consumption of petroleum products (in terms of domestic sale) was 102.738 MMT.

Year-wise production and consumption of petroleum products during 2003-04 to 2009-2010 (upto Dec. 2009) may be seen in Appendix-V and VI. It may be

observed that while consumption has broadly shown a steady upward trend, production has varied considerably over the years leading to greater dependence on oil imports, as may be seen in Appendix-VII.

1.13 IMPORTS AND EXPORTS OF CRUDE OIL & PETROLEUM PRODUCTS

The quantity of crude oil imported during 2009-10 (upto December 2009) was 109.3 Million Metric Tonne (MMT), valued at Rs. 248226 crore. During the same period in 2008-09, the imports were 97.7 MMT, valued at Rs. 294056 crore. There was thus an increase in the import of crude oil by 11.9% in quantity terms but a decrease by 15.6% in value terms during 2009-10 (upto December 2009) over the same period in the preceding year.

Petroleum Products: The quantity of petroleum products imported during 2009-10 (upto December 2009) was 10.6 MMT valued at Rs.27413 crore. During the same period in 2008-09, imports of these products were 14.4 MMT valued at Rs. 52882 crore. Hence, during 2009-10 (upto December 2009), imports of petroleum products fell by 26.3% in terms of quantity and 48.2% in terms of value, as compared to the same period during the previous year. Imports of petroleum products are relatively limited with greater focus on importing crude oil to utilize domestic capacity.

During 2009-10 (upto December 2009), a total of 28.6 MMT of petroleum products, valued at Rs.74793 crore, were exported. During the same period in 2008-09, exports of these products were to the tune of 28.7 MMT valued at Rs.101843 crore. Exports of petroleum products during 2009-10 (upto December 2009) were as such lower by 0.3% in terms of quantity and 26.6% lower in terms of value, as compared to the same period in the previous year.

Note: Import/ Export data w.r.t. RIL (SEZ), Jamnagar Refinery was available for the period of April-September 2009 only.

Despite considerable variations in International prices of crude oil, imports have followed a steady growth primarily to meet domestic demand of a burgeoning

economy, apart from re-exports of petroleum products. With substantial increase in refining capacity in India, as seen earlier, exports of petroleum products have picked up during the last four years.

1.14 REFINING CAPACITY

During the year 2009-10 (till December 09), domestic refinery production was 119.252 MMT. By the end of XI plan, refinery capacity is expected to reach 240.96 MMT per annum. Availability of petroleum products during 2009-10 from domestic sources was more than the domestic demand on overall basis demand except for Liquefied Petroleum Gas (LPG). In fact, the country is net exporter of petroleum products and products like Naphtha, Petrol, Diesel and Aviation Turbine Fuel (ATF) etc. were also exported during the year.

tonnes per annum (MMTPA) LNG for a period of 25 years. As per the contract, supply of 5 MMTPA LNG commenced. In addition to the above term-contract, LNG is also being sourced from spot market by PLL and Hazira LNG Private Ltd. (HLPL). During 2008-09, about 8.06 MMTPA LNG was imported, which is equivalent to about 28 MMSCMD of Regasified LNG (RLNG). Further, upto the 3rd quarter of 2009-10, about 6.91 MMT LNG has been imported in the country, out of which the share of HLPL is 1.35 MMT.

Concerted efforts are being made to augment the supply of LNG to the country. PLL has tied up 1.44 MMTPA LNG from ExxonMobil from their share in Gorgon Project, Australia for 20 years term for Kochi LNG terminal. Sale and Purchase Agreement (SPA)



A Panoramic view of IndianOil's Naphtha Cracker at Panipat

1.15 LNG IMPORT

Pursuant to LNG coming under 'OGL', a Joint Venture Company, viz., Petronet LNG Limited (PLL), promoted by Oil and Natural Gas Corporation, Gas Authority of India Limited, Indian Oil Corporation Limited & Bharat Petroleum Corporation Limited, was formed in order to import LNG and to set up an LNG re-gasification plant at Dahej. PLL signed a contract with RasGas, Qatar in July 1999 for import of 7.5 million metric

for the same has been executed in August 2009. In addition, GAIL and PLL are exploring the possibility of import of LNG from various potential suppliers.

In order to handle increased LNG import, additional infrastructure is being created in the country. PLL's Dahej LNG terminal has been expanded from the 5 MMTPA to 10 MMTPA capacity in 2009. Dabhol LNG terminal is expected to be commissioned soon. The terminal however, will become fully operational only



after completion of breakwater facilities in 2012. PLL is setting up an LNG terminal at Kochi which is planned to be commissioned in 2011-12. In addition, LNG terminals are planned to be set up by IOC and ONGC at Ennore and Mangalore respectively.

1.16 IMPORT OF NATURAL GAS THROUGH TRANSNATIONAL GAS PIPELINES

(a) Iran-Pakistan-India (IPI) Gas Pipeline Project

In pursuance of the Cabinet decision of 9.2.2005, the Government is discussing the details of the Iran-Pakistan-India (IPI) Gas Pipeline Project with the Governments of Iran and Pakistan. 60 MMSCMD of gas is proposed to be supplied in Phase-I, to be shared equally between India and Pakistan. 90 MMSCMD of gas is likely to be supplied in Phase-II to India and Pakistan.

(b) Turkmenistan-Afghanistan-Pakistan-India (TAPI) Gas Pipeline Project

The Governments of Turkmenistan, Afghanistan and Pakistan proposed transnational gas pipeline to exploit available gas reserves in Turkmenistan. They designated ADB as the lead development partner. ADB carried out the study and approached India for participating in the project. India has been admitted as an official member of the project during 10th Steering Committee Meeting (SCM) of the project held on April 23-24, 2008 in Islamabad.

The total capacity of the proposed pipeline is about 90 MMSCMD and the length is about 1680 km. The length of pipeline in Turkmenistan, Afghanistan and Pakistan up to Indian border is 145 km., 735 km. and 800 km respectively.

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

Public Sector Oil Marketing Companies (OMCs) viz., Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited and Hindustan Petroleum

Corporation 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 over the years. The number of LPG customers served by OMCs as on 31.12.2009 was about 1122 lakh.

OMCs have released 60 lakh new LPG connections during 2009-10 (till December 09). Total number of LPG distributorship of OMCs in the country, as on 31.12.2009 are 9522. OMCs had advertised 1340 locations for setting up LPG distributorship in their marketing plan 2004-07 out of which interviews have been completed for 1252 locations.

1.18 VISION-2015

With a view to set up long term targets/ action plan for the OMCs, Government has finalized the Vision -2015 for the oil sector for 'Customer Satisfaction and Beyond' which focuses on providing better services to customers. The vision of LPG inter-alia envisages that-

- Pace of new LPG connections to be increased substantially.
- 5.5 crore new connections till 2015 to raise population coverage from 50% to 75%.
- Total number of LPG customers would reach 16 crore with most of the new connections being released in rural areas as urban areas are largely covered.
- Focus would be on areas where LPG coverage is low.

A target of overall 75% LPG population coverage has been fixed. However, to ensure that growth of LPG usage is evenly spread, Oil Marketing Companies will be assessing/ identifying locations under the Rajiv Gandhi Gramin LPG Vitarak Yojana in rural/ low potential areas in all States/ Union Territories so as to achieve target growth of at least 50% LPG population coverage in each district and at least 60% overall LPG coverage in each state over the next five years.

Focus of Vision 2015 is to extend the usage of LPG for cooking purposes in rural/ under-served areas so that the standard of life in rural areas improves and the women folk in the backward/under- served areas of the country can reap the benefits of cooking on LPG stoves rather than use of kerosene/ fire-wood.

1.19 RAJIV GANDHI GRAMIN LPG VITARAK YOJANA

Rajiv Gandhi Gramin LPG Vitarak Yojana (RGGLVY) for small size LPG distribution agencies has been launched on 16.10.2009. Salient features of the scheme are:

- The LPG agencies under the RGGLVY will be of small size requiring lesser finance/ infrastructure.
- The distributor himself will manage the agency with the help of his/ her family member and one or two employees.
- Age limit for the distributor to be between 21 and 45 years.
- All Agencies under this scheme to be in the joint name of husband and wife. In case of applicants who are single the 'spouse' will automatically become a partner after the marriage.
- Reservation for SC/ST categories has also been provided for.
- The selection of the distributor would be by draw of lots from amongst all candidates who have

secured more than 80% marks on the criteria of financial capability and education qualifications.

As a beginning, advertisements inviting applications for distributors under the scheme have been released in 8 States where the reach of LPG is very low namely- Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal covering more than 1200 locations.

The setting up of LPG distributorships under this scheme will now be a continuous process till all parts of the country deficient in LPG coverage are covered by LPG network.

1.20 MARKETING OF 5 KG LPG CYLINDERS BY OMCs

The basic purpose for launching of 5 kg cylinders is that the small size LPG cylinder in the domestic sector helps in fulfilling the demand of low income group in urban, semi-urban and rural pockets and also extends LPG reach to hilly terrain and interior areas on account of convenience in transportation. The LPG connection with 5 kg domestic cylinder in terms of deposit of Rs. 350/- per cylinder and low cost of refills of approximately Rs. 112/- is affordable for the low income groups. This helps in meeting the requirement of economically weaker sections of the society for LPG refills and curbs deforestation thereby ensuring a pollution free and healthy environment. The total number of consumers in this category is 3.61 lakh as on 31.12.2009.



Reaching out - LPG Coverage of 75% by 2015



1.21 LPG AS AUTO FUEL

Government has permitted use of LPG, being a clean and environment friendly fuel, as an auto fuel. For this purpose, Ministry of Petroleum and Natural Gas along with the other concerned Ministries/ Departments has formulated necessary legislative and regulatory framework for safe usage of LPG as an automotive fuel.

Hon'ble Supreme Court has mandated conversion of old vehicles to LPG/CNG in cities which are equally or more polluted than Delhi. Hon'ble Court has mentioned that Ahmedabad, Agra, Bengaluru, Chennai, Hyderabad, Kanpur, Kolkata, Lucknow, Mumbai, Pune, Surat and Sholapur are critically polluted cities.

OMCs had initially identified 228 locations for setting up of Auto LPG Dispensing Stations (ALDS) in various Metros and some other major cities. However, in view of directive of the Hon'ble Supreme Court classifying the cities into three categories, OMCs are at present primarily concentrating on category-I and category-II cities and have commissioned 498 ALDs as on 31.12.2009.

Auto LPG pricing is market determined and there is no subsidy on Auto LPG. Vehicle Manufacturers like Maruti, Hyundai, Tata Motors, Hindustan Motors and Bajaj Auto have already started marketing LPG cars / 3-wheelers with factory fitted Auto LPG Kits. Also, approved testing agencies like the Automotive Research Association of India (ARAI), Pune and Vehicles Research & Development Establishment (VRDE), Ahmednagar, have approved more than 30 LPG conversion kit manufacturers for 3-wheelers and 4-wheelers covering the entire range of petrol driven vehicles for conversion to LPG. At present 25 manufacturers of conversion kits for 4-wheelers and 14 manufacturers of conversion kits of 3-wheelers have been approved by various testing agencies like ARAI Pune, VRDE Ahmednagar and IIP Dehradun.

1.22 SMART CARD SCHEME FOR DISTRIBUTION OF PDS KEROSENE AND DOMESTIC LPG

With the objective of ensuring that the benefit of the subsidy reaches the targeted consumers and to check diversion of supply of PDS kerosene and domestic LPG, this Ministry has taken in-principle decision to issue bio-metric Smart Cards to all users of PDS kerosene and domestic LPG beginning with identified cities. State Governments/ Union Territories have been requested to join hands with the Central Government for successful implementation of this scheme throughout the country.

The pilot project on Smart Card has initially been proposed to be launched in Pune in Maharashtra, Bengaluru in Karnataka and Hyderabad in Andhra Pradesh. Modalities for launch of the scheme are being worked out by the Oil Marketing Companies. Depending upon the success of the pilot project, the scheme will be extended out to other parts of the country.

A project management team headed by ED Retail, IOCL has been constituted for implementation of pilot project on smart card based solution for distribution of PDS kerosene and domestic LPG. The project management team will have overall responsibility for implementation of the above pilot project.

A Steering Committee headed by Additional Secretary, P&NG has also been constituted to deal with the policy level issues, issues relating to inter-Governmental/ Departmental coordination and review the progress of pilot project, monitor its effectiveness and will suggest measures for improvement in the implementation of the project. The project management team will keep the Steering Committee apprised about progress/ constraint, if any, in accordance with the time frame adopted for execution of the pilot project.

Funding of the pilot project is to be provided by the Oil Industry Development Board (OIDB) as decided by the Ministry. The OIDB in its 77th meeting on

3rd August 2009 has approved a grant of Rs. 37.05 crore towards one-time non-recurring cost for the pilot projects at Hyderabad, Pune and Bengaluru.

1.23 STEPS TAKEN TO CHECK ADULTERATION OF PETROL/DIESEL AND STREAMLINING PDS KEROSENE DISTRIBUTION

Checking adulteration is a continuous process and the Ministry of Petroleum & Natural Gas has been reviewing steps taken to curb adulteration from time to time. In the process, several technological and institutional measures have been taken to contain adulteration.

The steps taken by the Ministry are summarised below:

- (i) Under the Control Orders issued by the Government to prevent fuel adulteration, under the Essential Commodities Act, 1955, State Governments are empowered to take action against those indulging in adulteration. Government has requested the State Governments/ Union Territory Administrations to take steps to control adulteration.
- (ii) OMCs undertake regular and surprise inspections of retail outlets and also take action under Marketing Discipline Guidelines and Dealership Agreements against those indulging in adulteration and malpractices.
- (iii) OMCs have introduced new tamper proof tank-truck locking systems to prevent en-route adulteration by transporters.
- (iv) Keeping in view the misuse/diversion of SKO for adulteration, the import of SKO by private parties has been canalized through OMCs.
- (v) As advised by the Government, Oil Marketing Companies (OMCs) have created a separate wing to report to a Director other than Director (Marketing), which will oversee and monitor all activities and operations to curb adulteration and specify norms and guidelines in this regard.

a) Automation of Retail Outlets:

In order to monitor the activities at retail outlets by adopting the latest technological improvements, automation of retail outlets is

being implemented. MOP&NG has directed the oil marketing companies to complete automation of retail outlets selling more than 200 KI. per month.

IOCL has 2357 Retail Outlets (ROs) selling more than 200 KI. per month. Out of this, 1399 ROs have already been automated as on 31.12.09. The remaining ROs will be automated in phased manner. HPCL and BPCL have completed automation of all their ROs, selling more than 200 KI. per month i.e. 1682 ROs and 2044 ROs, respectively by 15.2.2010.

b) Monitoring of Movement of Tank Trucks through Global Positioning System (GPS):

In order to prevent adulteration during transportation, OMCs have been directed to install GPS for complete monitoring of the movement of all the company owned/dealer owned/contractor owned tank trucks.

Out of 19,600 Tank Trucks (TTs) (Co. owned/dealer/contractor TTs), OMCs have completed the installation of GPS system on 16,725 TTs.

c) Third Party Certification of Retail Outlets:

OMCs have been directed to complete third party certification of all the retail outlets selling more than 100 KI. per month and they have completed 86% of the targeted ROs.

d) Revising the Marketing Discipline Guidelines:

The Marketing Discipline Guidelines(MDG) under which the oil marketing companies take penal actions against the erring dealers have been revised during August 2005 making the penal actions more stringent. As per MDG 2005, a dealership would be terminated in the first instance of adulteration itself.

1.24 NATIONAL AUTO FUEL POLICY

As per the road map given in the Auto Fuel Policy, supply of Euro-IV MS and HSD in NCR/Delhi and in the cities of Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad (including Secunderabad), Ahmedabad, Pune, Surat, Kanpur, Agra, Lucknow and Solapur has commenced w.e.f. 1st April, 2010.

Supply of Euro-III MS/HSD in the rest of the country is being implemented in a phased manner between



1st April, 2010 to 1st October 2010. All the oil companies are making necessary arrangements to adhere to these deadlines.

annum, energy conservation assumes special significance.



Hon'ble Minister of State (Independent Charge), Ministry of Environment & Forests, Shri Jairam Ramesh dedicated the Euro IV MS Production Facilities at HPCL's Mumbai Refinery to the Nation in the presence of Hon'ble Minister of Petroleum & Natural Gas Shri Murli Deora, Hon'ble Member of Parliament Shri Eknath Gaikwad, Hon'ble MLA Shri Nawab Malik; Hon'ble MLA & President of Mumbai Regional Congress Committee, Shri Kripa Shankar Singh; Secretary – Petroleum & Natural Gas, Shri S Sundareshan and Joint Secretary (Refineries) – P&NG Shri L. N. Gupta

1.25 CONSERVATION OF PETROLEUM PRODUCTS

Impressive growth rate in Indian economy has resulted in higher demand for various forms of energy and specifically in the petroleum sector. The growing energy demand, coupled with a situation where the country has to depend on import of crude oil to meet a large percentage of the energy needs, puts pressure on economy due to high crude oil prices in the international market. With the projected increase in the demand of petroleum products by 5-6% per

The need of the hour is to create an environment where conservation methods/ techniques/ equipments are adopted in the various sectors. Effective energy conservation measures can go a long way to serve the dual purpose of energy conservation and most importantly environmental protection.

In our country an identified scope of reducing energy consumption by 20% to 25% exists in all major sectors through conservation measures. As there are millions of consumers in the country, any savings achieved by individual consumers will cumulatively amount to large

quantities and obviate the need to produce or import equivalent amount of new energy on a recurring basis.

The transport sector has become a major consumer of petroleum products which has put heavy pressure on the quality of environment. Deteriorating ambient air quality in the urban areas due to emissions from transport vehicles has been a matter of great concern in recent years. Apart from better quality of existing petroleum fuels, the use of less polluting fuels like Hydrogen and blending of bio-diesel and ethanol are some of the steps which have the potential to control the impact on the environment and reduce the burden on the national exchequer.

In association with major national industrial associations, Petroleum Conservation Research Association (PCRA) has initiated steps to approach the Small and Medium Industrial clusters where energy consumption is substantial and a large scope for its optimization exists. Through interaction, the areas where research & development interventions are sought by the industrial clusters, are finalized and then necessary action initiated for required R&D and its implementation.

PCRA has been active in undertaking energy conservation awareness campaigns through the print, electronic and outdoor media. These awareness campaigns are coupled with the direct services leading to improvement in efficient energy utilization across all major sectors of the economy viz. transport, industry, agriculture, domestic and commercial. For enhancing the effectiveness and reach of PCRA's efforts, linkages have been developed with the "Bureau of Energy Efficiency" (BEE) and "Confederation of Indian Industry" (CII) where several joint programmes are planned for implementation.

PCRA team executes several activities like energy audits and institutional training programmes for industries, driver training programmes and Model Depot Project studies for the State Transport Undertakings (STUs) and other large fleet operators and conservation/ safety workshops for the domestic sector. PCRA also bridges the gap between the users of energy and the energy efficient equipments available in our country by sharing their features during the technical seminars and workshops, which are conducted for a wide spectrum of industries depending

on their requirements. Efforts to showcase the results achieved are taken through participation in National exhibitions targeted for the industries and also through kisan melas where information for the farmers is conveyed through the medium of films and literature.

PCRA's efforts are focused towards sharing and motivating the energy users to adopt the conservation techniques and practices. This is achieved through various mass media campaigns, seminars, training programmes, printed literature, essay and quiz competitions.

1.26 HYDROGEN AS AUTO FUEL

The Ministry of Petroleum & Natural Gas has set up a Hydrogen Corpus Fund with a corpus of Rs.100 crore, with contribution from five major oil companies and Oil Industry Development Board (OIDB), for supporting research and development in various aspects of hydrogen, which could substitute part of natural gas as transport fuel in future.

R&D Centre of Indian Oil Corporation Ltd. has taken following steps for promoting Hydrogen as auto fuel with the help of Hydrogen Corpus Fund:

- (i) A Hydrogen-CNG dispensing station has been set up in R&D Centre at Faridabad to cater the re-fueling needs of test/demo vehicles operating on H₂-CNG blends. This project is being partly funded by MNRE (Ministry of New & Renewable Energy)(50%) and partly from Hydrogen Corpus Fund (50%) created by Ministry of Petroleum & Natural Gas.
- (ii) A Project for development and optimization of two heavy duty engines i.e TATA Motors & Ashok Leyland running on H₂-CNG blended fuel has also been initiated by IndianOil R&D.
- (iii) A project has been initiated by IndianOil R&D for conversion of a gasoline fuel injected car (Maruti Swift) to gaseous fuel injection system in collaboration with M/s. Harit Energy Solutions Ltd.
- (iv) IndianOil R&D has signed an MoU with M/s. Korea Gas Corporation (KOGAS) for mutually sharing the data on application of LNG and H-CNG in automotive vehicles. Further, collaborations with the leading organizations of



the world such as National Renewable Energy Laboratory (NREL) of USA have been explored for hydrogen research. NREL and IndianOil R&D have agreed to exchange the expertise in select areas of hydrogen research.

- (v) IndianOil R&D and Mahindra & Mahindra have agreed to jointly develop fuel cell vehicles. In this regard a joint proposal on 'Development of Fuel Cell Vehicles' has been submitted to Scientific Advisory Committee of MOPNG for funding from Hydrogen Corpus Fund.

1.27 BIO-DIESEL PURCHASE POLICY

To encourage production of bio-diesel in the country, the Ministry of Petroleum and Natural Gas has announced a bio-diesel Purchase Policy in

October, 2005, which became effective from 1.1.2006. Under this scheme Oil Marketing Companies will purchase bio-diesel for blending with High Speed Diesel to the extent of 5% at identified purchase centres across the country. OMCs would buy bio-diesel at a uniform landed price, which is to be reviewed every six months. At present, the purchase price of bio-diesel is at Rs. 24.50 per litre w.e.f. 01.09.2009 to 31.03.2010.

The policy has identified 20 purchase centres of the OMCs all over the country. The OMCs would purchase bio-diesel meeting the standards prescribed by the Bureau of Indian Standards (BIS), from those bio-diesel manufacturers who register with them after satisfying the technical specifications, at a specified delivered price.



H-CNG Dispensing station at Dwarka, New Delhi

The bio-diesel industry is still at nascent stage of growth. OMCs have not been able to purchase bio-diesel at the identified purchase centres so far, as the parties who have expressed interest are not willing to supply at the declared price.

1.28 ETHANOL-BLENDED PETROL (EBP) PROGRAMME

Ministry of Petroleum & Natural Gas vide its notification dated 20th September, 2006 has directed the OMCs to sell 5% Ethanol-Blended Petrol (EBP) subject to commercial viability as per Bureau of Indian Standards specifications in entire country except North-Eastern States, Jammu & Kashmir, Andaman & Nicobar Islands and Lakshdweep with effect from 1st November, 2006.

The EBP programme was affected adversely due to shortfall in supply of ethanol by the sugar industry. Due to shortfall in sugarcane production and resultant crushing during the year 2009, the supply of alcohol was mere 15% of the requirement.

Efforts are being made to ensure availability of ethanol on consistent basis for the EBP Programme and OMC's are in discussion with the sugar industry to firm up the status of availability at various locations.

1.29 PLAN OUTLAY

The Tenth Five Year plan (2002-2007) outlay for the Oil & Gas sector had been fixed at Rs.103656.00 crore, against which the actual expenditure has been Rs.114461.27 crore, which is 110.42% of the allocated outlay. The Eleventh Five Year plan (2007-2012) outlay for the Oil & Gas sector has been fixed at Rs.229072.60 crore, which is about 121% more than the Tenth Plan allocation. The Budget Estimate (BE) for the year 2009-10 was approved at Rs.57475.74 crore. The expenditure of Oil PSUs are met from their own internal and extra budgetary resources.

1.30 EARNINGS OF OIL PUBLIC SECTOR UNDERTAKINGS

The Profit Before Tax (PBT) and the Profit After Tax (PAT) earned by Public Sector Undertakings in the Oil Sector during 2008-09, were Rs.45184.54 crore

and Rs. 29638.95 crore, respectively. Oil PSU wise details are given below:

(figures in Rs./crore)

Name of Oil PSU	Profit Before Tax (PBT)	Profit after Tax (PAT)	% of GOI Holdings as on 31.12.2009
	2008-09	2008-09	
ONGC	23980.70	16126.30	74.14
OVL	5356.17	2806.70	Nil
IOC	4328.59	2949.55	78.92
GAIL	4204.00	2804.00	57.34
HPCL	712.00	575.00	51.11
OIL	3386.97	2161.68	78.40
BPCL	1004.11	735.90	54.93
CPCL	- 593.11	- 397.20	Nil
MRPL	1811.66	1192.54	Nil
NRL	319.59	235.64	Nil
EIL	520.00	345.00	90.40
BALMER LAWRIE	151.56	101.61	Nil
BIECCO LAWRIE	2.30	2.23	57.37
Total	45184.54	29638.95	—

1.31 STRATEGIC STORAGE

Taking into account the oil security concerns of India, the Government has decided to set up a Strategic Crude Oil Storage of 5 Million Metric Tonnes (MMT) at three locations in the country viz. Visakhapatnam (1.0 MMT), Mangalore (1.5 MMT) and Padur (2.5MMT). The capacity of Visakhapatnam site has been enhanced to 1.33 MMT. The proposed Strategic Crude Oil Storage would be in underground rock cavern/concrete structures. A special purpose vehicle, namely Indian Strategic Petroleum Reserve Limited (ISPRL), as a subsidiary of OIDB has been created for implementation and management of strategic storage of crude oil. Engineers India Limited has been engaged as a Project Management Consultant. Crude oil from the reserves will be released by a Government-appointed High Powered Committee, in the event of any short-term disruptions in supplies, a natural calamity or any unforeseen global event, leading to an abnormal increase in prices. The project involves a capital cost of approximately Rs. 2400 crore and



crude oil cost of approximately Rs. 9000 crore (calculated at an average crude oil cost of US\$ 55/bbl and exchange rate of 1 US\$=Rs.44/- as estimated in September 2005). The project is likely to be completed by the end of 2012.

The site wise progress is as under:

The Visakhapatnam Project is being executed on 68 acre of land (38 acres belonging to Visakhapatnam Port Trust and 30 acres belonging to Eastern Naval Command). All statutory clearances have been obtained. Underground civil work is in progress. Work order for the above-ground work has also been placed in November 2009. The total project progress was 32.7% as on 31.3.2009 and 44.2% as on 31.12.09. The targeted physical progress of the Project is 63.2% as on 31.3.2010. Mechanical completion of the project is expected by November 2011.



Crude oil storage cavern at Visakhapatnam

The Mangalore Project is being executed on the land (total 100 acres) taken from Mangalore Special Economic Zone Limited (MSEZL). Environmental clearance has been accorded by Ministry of Environment and Forests for the Project. Work order for the underground civil work was awarded on 16.04.2009, with a completion period of 36 months and the work has started. Bidders are being pre-qualified for the above-ground works. The total project progress was 10% as on 31.3.2009 and 17.5%

as on 31.12.2009. The targeted physical progress of the Project as on 31.3.2010 is 28.2%. Mechanical completion of the project is expected by November 2012.

The Padur Project is being executed on Government/ private land at Padur (approx. 160 acres) Land acquisition is being done through Karnataka Industrial Area Development Board (KIADB). Environmental clearances are expected shortly. Work order for the underground civil work has been placed in two parts, to the successful bidders. The total project progress was 5.4% as on 31.3.2009 and 12.5% as on 31.12.2009. The targeted physical progress of the Project as on 31.3.2010 is 15.2%. Mechanical completion of the project is expected by December 2012.

1.32 RIGHT TO INFORMATION ACT – 2005

Right to Information (RTI) Act-2005 has been implemented in the Ministry of Petroleum & Natural Gas as per Gazette Notification of Government of India dated 15th June, 2005. RTI Act is, inter-alia, designed to promote transparency and accountability in the functioning of public authorities.

As per provisions of Section 5 and 19 of the Right to Information Act, 2005 and in supersession of all the earlier orders issued, with effect from 16th May, 2007, all the Under Secretaries (or Section Officers in the Sections where there is no Under Secretary) in the Ministry of Petroleum & Natural Gas have been designated as Public Information Officers (PIOs) in respect of Sections allocated to them. Accordingly, all the Directors / Deputy Secretary / Joint Adviser in the Ministry of Petroleum & Natural Gas have been designated as Appellate Authorities in respect of their concerned Under Secretary / Section Officers (PIOs). All the PSUs under the administrative control of the Ministry of Petroleum & Natural Gas have also implemented RTI Act, 2005 and PIOs/APIOs and Appellate Authorities have been designated by them. Basic information in respect of the Ministry of Petroleum & Natural Gas and its all PSUs along with details of Appellate Authorities, PIOs & APIOs has

been hosted on the websites of the Ministry and Oil PSUs.

During 2009-10 (till December 09), 1290 applications/ receipts including 109 appeals were received under RTI Act, 2005 in the Ministry. Out of 1290 applications/ receipts, 1181 applications / receipts including 105 appeals have been disposed off. The remaining applications/receipts and appeals would be disposed of within the time limit prescribed in the RTI Act.

1.33 PUBLIC GRIEVANCE REDRESSAL SYSTEM IN OIL MARKETING COMPANIES (OMCs)

In order to have a more convenient, easy and effective way for the customer to register their complaints and follow it up, OMCs namely, Indian Oil Corporation Limited (IOC), Bharat Petroleum Corporation Limited (BPCL) and Hindustan Petroleum Corporation Limited (HPCL) started the service of using Unique Toll Free Number :

Indian Oil Corporation Ltd. (IOCL)	18002333555
Bharat Petroleum Corporation Ltd. (BPCL)	18002227255
Hindustan Petroleum Corporation Ltd. (HPCL)	18002333777

In order to make the service more customer friendly, a short code helpline for lodging complaints has now been made available in the country. The common number for all customers of three oil companies, IOCL, BPCL and HPCL is 155233 (6 digit number). The charges towards the calls on this number are borne by OMCs. Through this single common number any customer is able to make any query or register



The Chairman, Unique Identification Authority of India, Shri Nandan Nilekani calls on the Union Minister of Petroleum & Natural Gas, Shri Murli Deora, in New Delhi. The Minister of State for Petroleum and Natural Gas, Shri Jitin Prasada and the Secretary, Petroleum & Natural Gas, Shri S. Sundareshan are also seen

complaint in the call centers being operated by all three oil companies.

The call centers are being operated region wise to facilitate the customers to lodge complaints in local language. Customers are given a registration number and those who wish to know about the status of the complaint can call up the call centers on the same toll free numbers.

The complaint, through the service provider of call center, is uploaded on website for review and initiating action by officers of the company. The complaint normally will be redressed by the respective offices within two working days and thereafter will be closed on the web portal mentioning the action taken. The call center will then given feed back to the complainant whenever he calls again.

1.34 REFILL BOOKING THROUGH SMS/IVRS

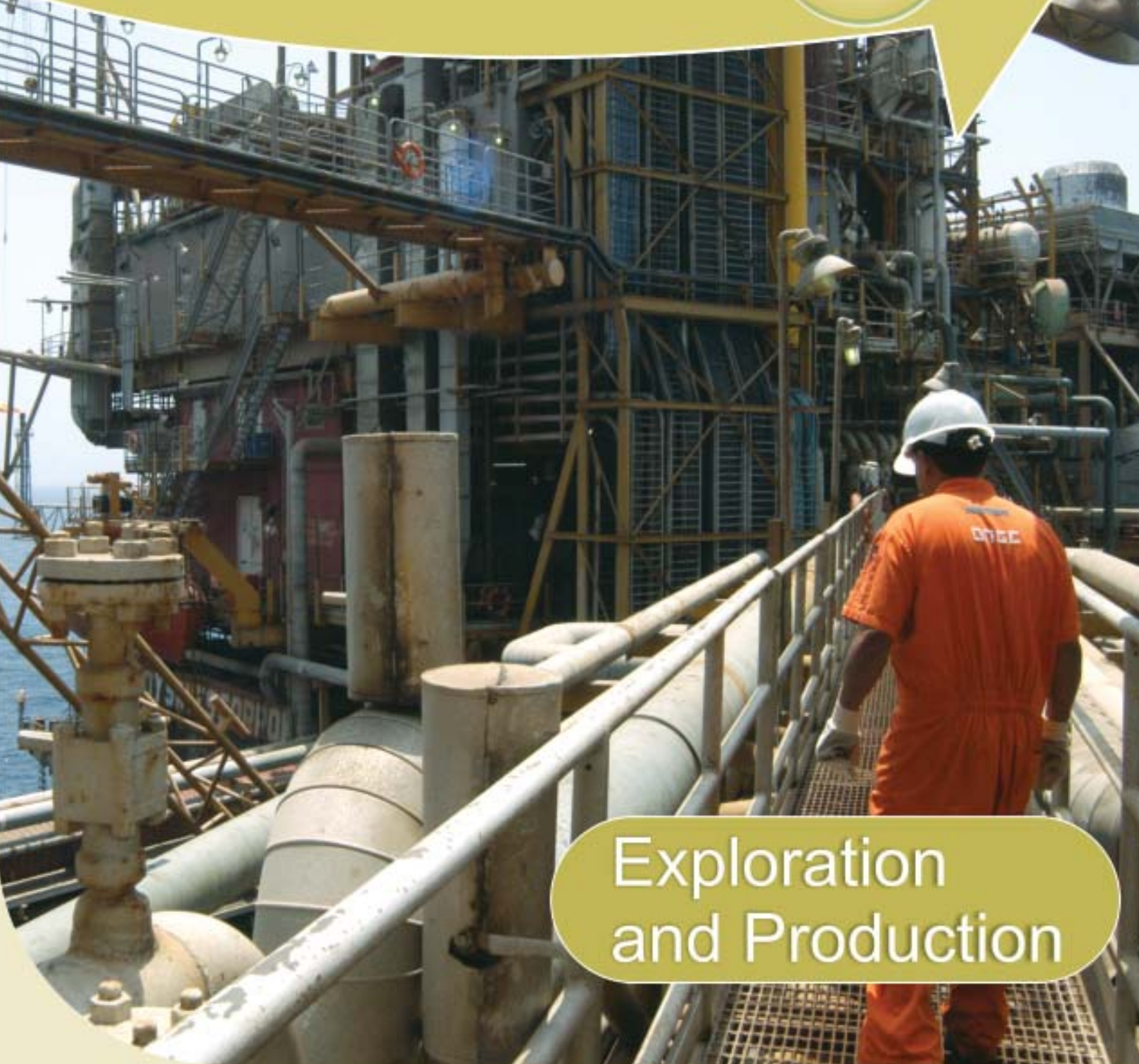
Government and the OMCs have being receiving a large number of complaints from customers about not being able to contact the distributors for refill booking, refill booking not being recorded by the distributors and not supplying the refills according to the waitlist. With a view to provide better services to the customers, the OMCs have decided to introduce Short Message Service and Interactive Voice Response System (IVRS) booking for LPG refills so that the customers can directly book refills through computerized interface without human intervention. Under this system, there is the facility for confirmation of the refill booking and the time of the booking to the customers along with information on the likely date when the refill will be supplied leaving no scope for doubt in the mind of the customers.

With the focus on providing better services to customers, the OMCs have adopted Vision 2015 for Customers Satisfaction wherein it is targeted to introduce SMS booking in all towns with population of more than 5 lakh in phases beginning with the metros.

Indian Oil Corporation Limited and Bharat Petroleum Corporation Limited have introduced the facility of refill booking through SMS/IVRS in Delhi, Mumbai, Kochi and Kerala. Hindustan Petroleum Corporation Limited has made it compulsory to book LPG refills on SMS/IVRS system in the entire State of Kerala and Delhi.

CHAPTER

2



Exploration
and Production

Exploration and Production

2.1 CRUDE OIL & GAS PRODUCTION

2.1.1 Oil and Natural Gas Corporation Limited (ONGC) and Oil India Ltd. (OIL), the two National Oil Companies (NOCs) as well as private and joint venture companies are engaged in the exploration and production (E&P) of oil and natural gas in the country. Crude oil production by the NOCs during 2009-10 is expected to be around 29.334 MMT (81.6% of total crude oil production).

In addition, private and JV companies are likely to produce about 6.62 MMT of crude oil in 2009-10. Thus, total estimated crude oil production in 2009-10 is about 35.954 MMT, which is 7.3% higher than the previous year.

Gas production during the year 2009-10 is expected to be around 50.237 BCM by ONGC, OIL and private/JV companies, which is 53% higher than the previous year. The contribution of private/JV companies in natural gas production is about 25.43 BCM (50.6% of total natural gas production) in 2009-10.

2.1.2 Measures taken to enhance hydrocarbon reserves and increase production:

- i) Major thrust on exploration in the new frontier areas like deep water and other geologically and logistically difficult areas and also ensuring continuation of exploration in the existing and unexplored areas.
- ii) Development of new fields and additional development of the existing fields through implementation of Improved Oil Recovery (IOR) and Enhanced Oil Recovery (EOR) projects in major fields and medium size fields. These projects are being implemented by ONGC & OIL.
- iii) Implementation of specialized technologies like extended reach drilling, horizontal drilling and drain hole drilling.
- iv) Obtaining the services of international experts whenever considered necessary.
- v) Maintenance of reservoir health through work-over operations and pressure maintenance methods.
- vi) Better reservoir delineation through three dimensional (3D) seismic survey of old fields.
- vii) Optimization and redistribution of water injection.

viii) Infill drilling in the unswept areas of the reservoirs.

2.1.3 Consequent upon liberalization in petroleum sector, Govt. of India is encouraging participation of foreign and Indian companies in the exploration and development activities to supplement the efforts of national oil companies to narrow the gap between supply and demand. A number of contracts have been signed with both foreign and Indian companies for exploration and development of fields on production sharing basis.

2.1.4 Since 1991, Government of India has been inviting bids on regular basis with several rounds of bidding carried out till operationalisation of New Exploration Licensing Policy (NELP).

2.1.5 After the operationalisation of NELP under the first seven rounds, Production Sharing Contracts (PSCs) for 203 blocks had been signed.

2.2 THRUST AREAS FOR E&P SECTOR IN XI PLAN

The following thrust areas have been identified in XI Plan for overall development of E&P industry:

- Increasing domestic production by attracting investments, both private and public, in the upstream sector. This needs to be attempted by involving industry participants in formulating an investor-friendly E&P investment regime.
- Taking all steps to increase the production from ONGC's assets including their maturing fields.
- 80% exploration coverage of sedimentary basins.
- Establishment of National Knowledge Hub during XI plan period.

2.3 ACQUISITION OF EQUITY OIL ABROAD

Acquiring equity oil and gas assets overseas is one of the important components of enhancing energy security for the country. The Government is encouraging National Oil Companies to aggressively pursue equity oil and gas opportunities overseas.

ONGC Videsh Limited (OVL) is likely to produce about 8.14 Million Metric Tonnes (MMT) of oil and equivalent gas during the year 2009-10 from its assets abroad in Sudan, Vietnam, Russia, Syria, Venezuela, Brazil and Colombia. OVL has a target to acquire 20 MMTPA of O+OEG production by 2020.



2.4 NEW EXPLORATION LICENSING POLICY

Government of India approved the New Exploration Licensing Policy (NELP) in 1997 and it became effective in February, 1999. Since then licenses for exploration are being awarded only through a competitive bidding system and National Oil Companies (NOCs) are required to compete on an equal footing with Indian and foreign companies to secure Petroleum Exploration Licences (PELs). Seven rounds of bids have so far been invited under NELP, in which, 203 exploration blocks have been awarded. In addition, 28 exploration blocks were signed prior to NELP under various bidding rounds with private Indian and foreign companies and National Oil Companies as Licensee. Under NELP, 77 oil and gas discoveries in 23 blocks have already been made.

First crude oil production from deepwater block D6 in Krishna-Godavari Basin commenced on 17th September, 2008 with production of about 10,000 barrels of crude oil per day by Reliance Industries Limited (RIL) and NIKO Resources Limited. The largest natural gas discovery in the country has been made in KG deepwater, from where production has started in April 2009 with initial production of 5 Million Metric Standard Cubic Metres Per Day (MMSCMD), which is currently at about 60 MMSCMD.

In the eighth round of NELP (NELP-VIII), 70 exploration blocks were offered, comprising of 24 deepwater blocks, 28 shallow water blocks and 18 onland blocks. On the bid closing date on 12th October 2009, 76 bids were received for 36 exploration blocks against the offer of 70 blocks. 45 companies have participated in NELP VIII including 7 foreign companies. In NELP VIII, expected investment commitment on exploration is about US\$ 1.3 billion. The award of NELP blocks is envisaged in 2010 after approval of the Cabinet Committee on Economic Affairs (CCEA).

2.5 COAL BED METHANE (CBM) POLICY

Coal Bed Methane is a natural gas (Methane) absorbed in coal and lignite seams and is an eco-friendly source of energy.

To harness this new source of energy in the country, the Government has approved a comprehensive CBM policy in July, 1997 for exploration and production of CBM gas.

As of now, 23 CBM Blocks have been awarded through competitive international bidding under first three rounds of CBM policy, under which blocks are being operated by technically competent companies. Two blocks were awarded on nomination basis and one block through the FIPB route. Twenty six CBM



Sagar Samrat, India's first Jack-up Rig in operation of ONGC

contracts were signed for exploration of CBM gas. As of now, 8.3 TCF reserves have been established in 5 CBM blocks.

First commercial production of CBM commenced in July 2007 with production of about 6,800 cubic metres per day, which has gone upto 1,19,742 cubic metres per day in January 2010.

In the fourth round of CBM Policy, 10 CBM blocks covering an area of about 5,000 sq. km. shall be offered. These CBM blocks fall in the States of Assam (1), part Chhattisgarh & part Madhya Pradesh (1), Jharkhand (1), Madhya Pradesh (2), Maharashtra (2), Orissa (2) and Tamil Nadu (1). Government has received 27 bids for 8 CBM blocks from 19 companies including 3 foreign companies. The award of CBM blocks is envisaged in 2010 after approval of the CCEA.

2.6 OIL AND NATURAL GAS CORPORATION LIMITED (ONGC)



Oil & Natural Gas

Commission was established on 14th August, 1956 as a statutory body under Oil & Natural Gas Commission Act (The ONGC Act), for the development of petroleum resources and sale of petroleum products. ONGC was converted into a Public Limited Company under the Companies Act, 1956 and named as "Oil and Natural Gas Corporation Limited" with effect from 1st February, 1994. The Government disinvested around 10% of the equity shares of ONGC in March 2004 through a public offer in the domestic capital market at Rs. 750 per share. After the above disinvestment, the shareholding of the Government in ONGC came down to around 74.15%. The authorized and



ONGCians at work at CTF, Cauvery Asset

paid-up capital of ONGC as on 31.3.2009 is Rs. 15000 crore and Rs. 2138.87 crore respectively.

2.6.1 HIGHLIGHTS FOR THE YEAR 2009-10 UPTO DECEMBER 2009

- ONGC has made 15 oil & gas discoveries in the areas under its operative control.
- State-of-the-art technologies inducted in hardware & software for seismic data acquisition, processing & interpretation, and in well logging.
- Advanced drilling techniques for sidetracks, multilateral and extended reach wells absorbed and implemented on fast track. Engineering design audit introduced with significant cost savings.
- ONGC registered its fifth Clean Development Mechanism (CDM) project with the United Nations Framework Convention on Climate Change (UNFCCC) on September 22, 2009. The project, 'Energy Efficiency of Amine Circulation Pumps at Hazira' involves enhancing energy efficiency achieved in the Amine Circulation Pumps of Hazira Plant. The project will fetch an estimated Certified Emission Reduction (CER) of 4043 per year for a period of 10 years. With this, ONGC achieves a total annual CER of about 1.24 lakh.
- **National Safety Awards in Oil Mines Category:** ONGC has bagged four National Safety Awards in Oil Mines Category for year 2007. This is fourth consecutive years that ONGC has bagged these awards, instituted by the Ministry of Labour & Employment, Government of India to motivate, appreciate and recognize the extraordinary performance in the area of mines safety. These awards were given by the Hon'ble Vice President of India in New Delhi on October 23, 2009. These awards are based on Longest Accident Free Period (LAFFP) and Lowest Injury Frequency Rate (LIFR) and were judged by jury of Director General of Mines Safety, Management Representatives and Trade Union Representatives.
- **PCRA Award for Oil and Gas Conservation:** ONGC bagged the Best Overall Performance PCRA Award amongst the Upstream Oil Companies for the Oil and Gas Conservation Programmes during the year 2009.



2.6.2 PHYSICAL PERFORMANCE DURING 2008-09 & 2009-10

	Unit	2008-09 Actual	2009-10 BE Target	2009-10 Actual Apr.-Dec.'09*	Projections Jan.-Mar. 2010
Seismic Survey					
On-land	2D (GLK/LK)	2275.51	1502	2004.58	3045.42
	3D (Sq. Kms.)	5526.86	5090	2892.28	1009.72
Offshore	2D (GLK/LK)	74850.89	26628	16146.40	9471.60
	3D (Sq. Kms.)	21258.14	24276	9066.29	11862.71
Drilling					
Exploratory	Meterage ('000m)	298.95	458.55	258.25	182.18
	Wells (Nos.)	106	148	78	72
Development	Meterage ('000m)	477.15	491.45	391.56	71.76
	Wells (Nos.)	218	225	186	39
Total (Expl.+Dev.)	Meterage ('000m)	776.10	950.00	649.81	254.14
	Wells (Nos.)	324	373	264	111
Production					
Crude Oil	MMT	25.367	26.950	18.639	7.125
Natural Gas	MMM ³	22486.42	22248.23	17467.34	4826.66
Value Added Products (VAP)					
LPG	000'T	1026.32	1072.0	815.84	237.16
C2-C3	000'T	496.66	510.0	398.25	111.75
SKO	000'T	177.76	160.54	124.07	32.17
ARN/ LAN	000'T	1553.01	1511.46	1196.07	297.39
Others	000'T	59.7	55.0	45.59	8.15
TOTAL VAP	000'T	3313.45	3309.0	2579.82	686.62

2.6.3 FINANCIAL PERFORMANCE DURING 2008-09 AND 2009-10

(Rs. in Crore)

Parameters	2008-09 (Actual)	2009-10 (BE)	2009-10 (Actual) Apr.-Dec.'2009*	Projections Jan.'10 - Mar.'10 (Estimates)
Plan Outlay	21820.11	20867.58	14959.82	9760.39
Total Income (Incl. Interest Income)	60252.54	64731.06	47743.54	14917.04
Net Profit	16126.32	17556.23	12991.14	2550.48

2.6.4 PROGRESS OF PROJECTS

The progress of major projects of ONGC are as under:

MAJOR PROJECTS COMPLETED DURING THE YEAR

Sl. No.	Project	Date of Completion	Approved Cost (Rs. in crore)
1.	Additional Development of Bassein field & installation of 2nd stage booster compressor	26.07.09	2937.01
2.	Development of Vasai East	30.09.09	1688.38

MAJOR PROJECTS APPROVED DURING THE YEAR

Sl. No.	Project	Approved Cost (Rs. in crore)	Status/Anticipated Completion
1.	Heera Re-construction	706.70	April 2010
2.	Neelam Re-construction	305.08	April 2011
3.	Addl. Gas processing facility at Hazira	370.11	April 2011
4.	Addl. processing units at Uran	1797.35	Dec. 2011
5.	Assam renewal project (Group A: Lakwa-Lakhmani & Moran CTF)	2465.15	March 2013
6.	MHN Re-development Ph-II	6855.93	Sept. 2010

2.6.5 MAJOR INITIATIVES

i. Strategic goals set for two decades 2001-2020

- Doubling Reserve Accretion to 12 Billion MT O+OEG
- Improving Recovery Factor to the order of 40%
- Production of 20 MMTPA O+OEG equity oil and gas from acquisitions abroad.

ii. Short-term Strategy

- Time scheduled exploration activities for prospect recognition and drilling.
- Prioritisation of exploration activities on fast track basis for enhancing reserves accretion.
- Pre-drill 3D seismic in deepwater and blanket 3D in key growth areas.
- Knowledge building in new sectors of producing as well as frontier basins.

iii. Medium-long-term Strategy

- Further intensification of exploration in the producing basins to realise the hydrocarbon resources to in-place volume conversion.
- Exploration spread in non-producing basins and yet to be explored basins to establish their potential and knowledge building.
- Major shift to deep offshore as the major thrust and contributing sector.

iv. Strategic Initiatives

- Major development projects including IOR/ EOR schemes with an approved cost of

Rs. 30,000 crore are under various stages of implementation to enhance crude oil and natural gas production.

- A new and dedicated business unit viz. Eastern Offshore Asset has been constituted with an aim to put east coast discoveries on a fast track development through an integrated east coast hub.
- Substantive decentralization of administrative authorities together with delegation of financial authorities carried out to empower the field executives.
- Induction of new technologies in core areas of E&P activities like:
 - Acquisition, processing and interpretation of seismic data
 - Drilling and production technology
 - IT and communication.

v. Materials Management

Inventory Management and codification procedure have been implemented and computerized to track and identify the materials efficiently.

2.6.6 NON-CONVENTIONAL SOURCES OF ENERGY

(i) Wind Power Project:

Wind Farm Project of 50 MW at Motisindoli in Kutch district of Gujarat is an initiative of ONGC towards its commitment for environment-friendly and pollution-free energy production. The power generated from this wind power project is being wheeled to 101 locations of ONGC's oil field



installations/ offices/ residential quarters in the state of Gujarat. ONGC shall be saving about Rs. 30 crore per year on electricity charges in Gujarat, considering the present purchase price of electricity.

(ii) Installations of Solar thermal plants:

Solar thermal plants in ONGC guest house, hospital, academy hostel, officers' club, central workshop, Baroda and colony are already installed. Initiatives have been taken to install the solar water heating system at other locations of ONGC also. Solar panels were installed at well heads of (Bokaro) Jharkhand. 9600 lakhs per day (LPD) capacity of solar water heating system is added in this year and total capacity installed is 38100 LPD.

2.6.7 HEALTH, SAFETY AND ENVIRONMENT (HSE)

Environmental initiatives encompassed solid waste, liquid effluent, air emission monitoring mechanism for proactive planning to manage waste through environment-friendly technologies like

bio-remediation, reduction and recycling options and environmental reporting based on global reporting initiative principles. Several initiatives of long-term and continuous nature like bio-remediation of oily sludge, effluent management, ISO certification of installations on international benchmark standards, Mangroove and Hingal plantations etc. are also being carried out in ONGC.

2.6.8 CONSERVATION OF ENERGY AND PETROLEUM PRODUCTS

ONGC is actively pursuing energy conservation measures. The conservation of petroleum products namely HSD, Lube oil and natural gas are important activities. These measures include:

- Phasing out of old diesel engines more than 15 years old.
- Awareness campaign on use of bio-diesel as alternate fuel.
- Use of small DG sets during lean periods in rigs, proper capacity utilization, rationalization and efficiency improvement of equipments, use of energy efficient devices.



Cover Green - an ONGC project for revival of coastal vegetation, where 5000 mangrove saplings have been planted along the Coast of Khambhat, Gujarat

- Substitution of diesel engines with gas engines at installations where gas is available.
- Increase in lube oil change period resulting in substantial saving.
- Natural gas flaring has been reduced and the same is being supplied to consumers.
- Use of small DG sets and waste heat recovery equipment at offshore platforms, rigs, LPG plants at Hazira and Uran.
- Use of energy efficient equipment and devices such as top drives, linear motion shale shakers, electronic diesel engines, soft start systems and energy efficient lamps etc.
- Use of gas engines in place of diesel ones for power generation.
- Thermal energy cost reduction achieved by maintenance of steam traps at processing plants.
- Conducting energy audit on regular basis and Petroleum Products Conservation Opportunities (PPCOs) are identified.

- Harnessing solar energy by using solar water heaters/ photo-voltaic panels at various locations.

2.7 ONGC VIDESH LIMITED (OVL)

ONGC Videsh Limited (OVL), a wholly-owned subsidiary of ONGC, was incorporated as Hydrocarbons India Private Limited on 5th March, 1965 with an initial authorised capital of Rs. 5 lakh, for the business of international exploration and production. Its name was changed to ONGC Videsh Limited on 15th June, 1989. The authorised and paid-up share capital of OVL as on 31st March, 2007 was Rs. 1,000 crore. The primary business of the company is to prospect for oil and gas acreages abroad. These include acquisition of oil and gas fields in foreign countries as well as exploration, production, transportation and sale of oil and gas.

OVL currently has participation in 39 projects in 15 countries namely, Vietnam (3 projects), Russia (2 projects), Sudan (3 projects), Iran (1 project), Iraq (1 project), Libya (3 projects), Myanmar (5 projects), Syria (2 projects), Egypt (2 projects), Cuba (2 projects),



A view of Multi-product Sudan Pipeline, A joint venture of ONGC Videsh Ltd. (OVL) and Govt. of Sudan



Nigeria Sao Tome Principe JDZ (1 project), Brazil (5 projects), Nigeria (2 projects), Colombia (6 projects), and Venezuela (1 project).

OVL's share of crude oil and natural gas production is currently from 9 projects in seven countries, viz., Russia, Sudan, Vietnam, Syria, Colombia, Venezuela and Brazil. OVL's share of crude oil and natural gas production in 2009-10 is expected to be 8.142 Million Metric Tonne of oil equivalent (MMTOE) including of 2.017 BCM of natural gas. The other 30 projects being implemented by OVL are at various stages of exploration and appraisal.

The gross revenue of Rs.13,444 crore is estimated by OVL during the financial year 2009-10 with net profit of Rs.412 crore.

Further, OVL is pursuing acquisition of various oil and gas exploration and production opportunities in Russia, Central Asia, Latin America, Africa, and Middle East, which are at different stages.

2.8 OIL INDIA LIMITED (OIL)

Oil India Limited (OIL), a Government of India Enterprise, under the administrative set-up of Ministry of Petroleum and Natural Gas, is engaged in the business of exploration, production and transportation of crude oil and natural gas.

Prior to the Public Issue, Government holding in OIL was 98.13 % of the paid-up equity share capital of Rs. 214 crore. OIL came up with the Public Issue of 26,449,982 shares from 7th September, 2009 to 10th September, 2009. Upon the completion of the Public Issue, the Government holding of share in OIL has reduced to 78.43%, of fully diluted post-Issue paid-up Equity Share capital of Rs 240.45 crore. Additionally, upon completion of the Issue, IOC, HPCL and BPCL, own in aggregate approximately 21.40 million shares, or 8.91% of fully diluted post-Issue paid up equity in the ratio of 2:1:1 respectively. The authorized capital of the Company is

Rs. 500 crore and the current paid-up capital is Rs. 240.45 crore.

OIL produces crude oil and natural gas from its oilfields in Assam and Arunachal Pradesh, non-associated gas from its fields in Western Rajasthan and processes LPG from the natural gas in Assam. The Company presently has operational areas in Andhra Pradesh, Assam, Arunachal Pradesh, Mizoram, Orissa, Uttar Pradesh, Uttarakhand, Rajasthan and Puducherry in the country.

OIL holds 26% stake in Numaligarh Refinery Limited, Assam, 10% stake in Brahmaputra Cracker and Polymer Limited (Assam Gas Cracker Project) and 23% Participating Interest (PI) in Duliajan - Numaligarh Gas Pipeline (DNPL) project undertaken by M/s Assam Gas Company Limited. OIL also holds 10% stake in 741 Km. long product pipeline in Sudan.

OIL has acquired Participating Interest (PI) in 22 NELP blocks including the right of Operatorship in 10 blocks. Besides, the Company holds PIs in another two Pre-NELP in-country JV blocks and Production Sharing Interest (PSI) in one Joint Venture Contract with other partners in Arunachal Pradesh.

OIL is also pursuing exploratory activities outside the country in partnership with Indian as well as overseas companies. OIL is currently holding overseas exploration blocks/ projects in eight countries, viz., Libya, Gabon, Iran, Nigeria, Yemen, Sudan, Timor Leste and Egypt. In addition, the Company is continuously scouting for suitable E&P opportunities in other countries like Africa, Middle East, Australia etc., either alone or with suitable partners.

The Company owns and operates a trunk crude oil pipeline in the North-East Region of the country for transportation of crude oil produced by OIL, ONGC and other Joint Ventures in the region to feed Numaligarh, Guwahati and Bongaigaon Refineries. OIL also owns and operates a branch line to feed Digboi Refinery. The Company continues reverse pumping of RAVVA crude to Bongaigaon Refinery through its existing Barauni-Bongaigaon Trunk Pipeline.



The natural gas produced in Assam is sold to different customers, viz. BVFCL, APGCL, NEEPCO, IOC (AOD), APL, nearby tea gardens and other small consumers. The non-associated gas produced by the Company in Rajasthan is sold to Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL). OIL also produces Liquefied

Petroleum Gas (LPG) in its Plant at Duliajan in Assam.

In view of the opening up of the hydrocarbon sector as well as to keep pace with the changing petroleum scenario, OIL has formulated its Strategic & Corporate Plan, which is presently under implementation.



Machinist at work in OIL's Engineering Workshop in Duliajan

2.8.1 PHYSICAL PERFORMANCE

Parameter	Unit	2008-09 (Actual)	2009-10		
			Target	Actual upto 31.12.2009	Anticipated (2009-10)
Seismic Survey					
Onshore 2D	Km.	1,512.31	2,875	943.64	2,032.08
3D	Sq.Km.	3,494.50	2,065	412.71	1,002
Aero-Magnetic	Sq.Km.	-	4,299	-	6,165
Drilling					
Exploratory	‘000 Mtr.	44.609	78.82	50.25	77.357
Well	No.	13	25	12	22
Development	‘000 Mtr.	71.258	121.68	57.074	109.35
Well	No.	28	44	20	39
Crude Oil Production	MMT	3.468	3.57	2.68	3.57
Natural Gas Production	MMSCM	2,268.38	2,528	1,831.15	2,514
Natural Gas Sale	MMSCM	1,737.33	2,027	1,416.44	1,994
LPG Production	‘000 Tonnes	47.61	43.60	32.319	43.60



2.8.2 FINANCIAL PERFORMANCE

(Rs. in crore)

Parameter	2008-09 (Actual)	2009-10		
		Target (BE)	Achievement upto 31.12.2009	Anticipated (RE) (2009-10)
Plan Outlay	1,631.89	2,276.31	1,183.60	2,375.35
Total Income	8,137.88	6,401.43	6,780.69	9,072.11
Net Profit	2,161.68	1,316.16	2,179.53	2,422.42

2.8.3 OTHER ACHIEVEMENTS

- Crude oil production of 3.57 MMT during 2009-10 is expected
- OIL has made one hydrocarbon discovery in Assam during 2009-10.
- OIL achieved daily rate of natural gas production (6.5 MMSCMD) in North-East.

2.8.4 PROGRESS OF OVERSEAS PROJECTS

Details of overseas projects are as under:

a) Exploration Service Contract – Farsi Offshore Block

OIL has 20% Participating Interest along with IOC (40%) and ONGC Videsh Ltd. (40% and Operator) in the block. The consortium drilled / completed 4 wells, where crude oil was discovered in 2 wells and gas in one well. Study to assess the commerciality of gas discovery is currently under progress. Crude oil discovery has been found to be non-commercial.

b) Product Pipeline, Sudan :

The construction of the 741 km. long product pipeline by OVL was completed in August, 2005, ahead of scheduled time and handed over to the Ministry of Energy and Mines (MEM), Sudan. OIL has 10% PI in the Sudan Product Pipeline Project.

c) Block 86 and 102 (4), Libya :

OIL is having 50% PI and the Operator in the Block and IOC is partner with 50% PI, awarded in EPSA-IV Bid Round 1 in the year 2004. OIL



Production people checking the flow lines of OIL in Assam

has acquired 3,076 Km. of 2D seismic and 700 sq. km. of 3D seismic data. One exploratory well has already been drilled and drilling of another 3 wells in 2010-11 is envisaged.

d) Block 95/2, 96/1, 2, 4, Libya:

OIL-IOC in consortium with M/s Sonatrach, National Oil Company of Algeria, signed the EPSA on 25.05.2008. Seismic survey is in progress.

e) Block – Shakthi, Republic of Gabon:

OIL-IOC signed farm-in-agreement on 17.04.2006 for acquiring 45% PI (with Operatorship) in the block “Shakti” from M/s Marvis Pte. Ltd. Other parties in the block

are IOC (with 45% PI) and Marvis Pte. Ltd. (with 10% PI). OIL carried out 33,912 km. of aero-magnetic survey. Processing/ interpretation of the data completed. Acquisition of 1,039 km. of 2D seismic data has been completed. Actions are in-hand to acquire 3D seismic data.

f) Block OPL 205, Nigeria:

OIL has signed Share Purchase Agreement (SPA) and Shareholders Agreement (SHA) on 31.08.2006 for acquiring 25% equity shares of Suntera Nigeria 205 Limited from M/s Suntera Resources Limited. Suntera Nigeria 205 Limited is a Nigerian company having 70% interest in Onshore Exploration Block OPL 205, Nigeria. One well was drilled by the Operator. The block license has been converted to Oil Mining Lease (OML) based on the old gas / condensate discovery present within the block.

g) Block 82 & 83, Yemen:

OIL (with 15% PI) has been awarded Blocks nos. 82 and 83 in the year 2006 in the 3rd Bidding Round along with its consortium partners – MEDCOENERGI (45% PI- Operator), Kuwait Energy Company (25% PI) and IOC (15% PI).

The consortium led by MEDCOENERGI, Indonesia signed the PSC agreement with Yemen Government on 13.04.2008. Ratification of PSC by the Yemen Parliament was accorded on 17.03.2009.

h) Block K-1, Timor Leste :

A consortium of OIL(12.5%) , M/s Reliance Energy Limited (75%) and IOC (12.5%) acquired 1,300 sq. km. of 3D seismic survey. Processing and interpretation of the data has been completed.

i) Extent of Globalization:

OIL is actively pursuing opportunities for acquiring producing E&P assets, exploration acreages etc. in Africa, Middle East, South East Asia, South America, CIS countries and Russia. The Company would also associate with reputed companies for fulfilling the above objective jointly.

2.9 GAIL (INDIA) LIMITED

2.9.1 INTRODUCTION



Gail (India) Limited
(A Government of India Undertaking
– A Navratna Company)

The setting up of GAIL (India) Limited, formerly known as Gas Authority of India Limited in August, 1984 heralded a new era of natural gas in the country. GAIL is now completing 26 glorious years of service to the nation.



Night View of LPG Recovery Unit at Pata, Distt Auraiya, U.P.



GAIL has completed two-and-half decades of an eventful journey. Starting with a natural gas transmission company, it is today an integrated energy company along the Natural Gas value chain with global footprints. Having started as a gas transmission company during the late eighties, it grew organically over the years by building a large network of Natural Gas Trunk Pipelines covering a length of over 7000 km. Today, GAIL has interests in the business of Natural Gas, LPG, Liquid Hydrocarbons and Petrochemicals, the latter being value-added products. The Company has also entered in telecom sector by leasing bandwidth available through the OFC which is laid along the gas pipelines for their operation and maintenance. GAIL has also diversified into Exploration & Production, City Gas Distribution and is steadily developing an overseas presence etc.

These are exciting times for GAIL with the Company recording revenue of Rs. 237.76 billion and a PAT of Rs. 28.04 billion in FY 2008-09. The Company implementing projects for laying 5 new pipelines and in addition, augmentation of two existing pipelines is also being taken up. This will lead to doubling of pipeline length and transmission capacity in the next 3 to 4 years.

2.9.2 MAJOR BUSINESS SEGMENTS OF GAIL

2.9.2.1 Natural Gas

GAIL today owns and operates a network of over 7,000 km. of natural gas high pressure trunk pipeline with a capacity to carry 155 MMSCMD of natural gas across the country. It supplies natural gas as fuel to power plants, as feedstock for gas based fertilizer plants and to over 500 other small, medium and large industrial units to meet their energy and process requirements.

Natural Gas continues to constitute the core business of GAIL. During the year 2008-09, natural gas sales were 79.06 MMSCMD. The Gas transmission was 83.29 MMSCMD.

Today, the major focus for GAIL is to maintain its dominant position in the gas business, especially the

transmission segment and continue the relationship with existing customers and also add more customers. Therefore, during the 11th plan period, GAIL would build 5000 km. of pipelines. These would include large trunk pipelines along with smaller pipelines which would provide connectivity among trunk lines so that the Company is able to have some sort of a grid.

One of the notable developments has been the approval from the Ministry of Petroleum and Natural Gas (MoP&NG) received by GAIL for five new natural gas pipelines in the country. In addition to these, GAIL will be augmenting the capacities of two existing pipelines. The total length of the new pipelines will be around 5000 km. and the estimated investment on these would be nearly Rs. 200 billion. When these pipelines are commissioned, the capacity is expected to increase from 155 MMSCMD at present to around 300 MMSCMD.

2.9.2.2 LPG and other Liquid Hydrocarbons

In 2008-09, total Liquid Hydrocarbon production including LPG was 1.4 million MT. LPG transmission through pipelines was 2.744 million MT in the year 2008-09.

2.9.2.3 Petrochemicals

GAIL owns and operates a gas-based integrated petrochemical plant at Pata, Uttar Pradesh with a capacity of producing 400,000 TPA of Ethylene and 410,000 TPA of Polymers i.e. HDPE and LLDPE. During 2008-09, the production of polymers was 4.20 lakh MT.

GAIL (India) Limited led Joint Venture Company (JVC), **Brahmaputra Cracker and Polymer Limited (BCPL)** is implementing the Rs. 54.61 billion Assam Gas Cracker Project to set-up an Integrated Petrochemical Complex at Lepetkata, District Dibrugarh. The Joint Venture Company (JVC) promoted by GAIL with 70% equity participation and the remaining 30% equity is shared equally among OIL, NRL and Govt. of Assam. The project will be completed in 60 months from the date of approval.

The complex has been configured with a capacity of 220,000 Tonnes Per Annum (TPA) of Ethylene and 60,000 Tonnes Per Annum of Propylene with Natural Gas and Naphtha as feed stock.

2.9.2.4 City Gas Projects

GAIL is the pioneer of City Gas Distribution projects in India for supplies to households, commercial users and for the transport sector by forming Joint Venture Companies. With natural gas emerging as the fuel of choice in the country, GAIL believes that the next decade will belong to the city gas.

GAIL has formed eight Joint Venture companies for city gas projects in various part of the country: On the global front, GAIL has established its CNG and city gas presence in Egypt through equity participation in Fayum Gas, Shell CNG and Natgas, Egypt. It has also acquired stake in China Gas Holdings for CNG opportunities in mainland China.

GAIL has set up a subsidiary company, GAIL Gas Limited for City Gas Distribution (CGD) and CNG corridor business. The subsidiary company will take up Distribution and Marketing of CNG as fuel for vehicles (inter-city as well as intra-city), Piped Natural

Gas for domestic/ commercial/ industrial purposes and Auto LPG as fuel for transport vehicles in the various cities of India and abroad. The subsidiary company will also take up investment in and setting up of infrastructure, in the various cities of India and along the national highways for building CNG corridors which includes, among others, natural gas compressor stations, laying of the pipelines from City Gate Station(s) to the consumption areas and associated facilities, setting up of distribution points / retail outlets for CNG/ Auto LPG and transport gas through mobile cascades/ lorries. The new subsidiary will also carry out allied retail business activities at CNG / Auto LPG retail outlets within the cities and along the highways. The subsidiary will also form alliances with Gas Producers/ Strategic Partners for implementation of the City Gas Projects as per the strategic decisions taken by GAIL.

2.9.2.5 Exploration and Production

In a move towards integration along the energy chain and for sourcing supply, GAIL has entered into the area of exploration & production. Currently, the company is involved in oil and gas exploration activities over an acreage of 1,64,637 sq. km.



Gas Processing Unit of GAIL at Pata, District Auraiya, U.P.



GAIL now holds a participating interest between 10 to 80 per cent in 27 oil and gas exploration blocks. Of these, 9 are on-land blocks and 18 are offshore blocks. In India there are 24 blocks which are in Basins such as Mahanadi, Bengal, Gujarat - Saurashtra, Mumbai, Cambay, Assam-Akaran and Cauvery. Furthermore, GAIL has also got stake in the A-1 and A-3 blocks in Myanmar and Block No. 56 in Oman.

GAIL consortium has participating interest in three CBM blocks in the country in collaboration with Arrow Energy of Australia, EIG Energy Infrastructure Group and Tata Power.

2.9.2.6 Overseas presence

Apart from its equity participation in three retail gas companies in Egypt and in China Gas Holdings in China, participating interest in offshore blocks in Myanmar and one onland block in Oman, GAIL is pursuing business opportunities in regions such as South / South-East Asia, West Asia, Russia and Central Asian Republics and African continent in the areas of exploration and production, gas transmission, CNG and city gas distribution, LNG and petrochemicals. GAIL has set up a wholly-owned subsidiary company viz. GAIL Global (Singapore) Pte. Ltd. in Singapore.

GAIL has incorporated its first Joint Venture abroad – GAIL China Gas Global Energy Holdings Limited - wherein GAIL and China Gas are equal partners and has been registered in Bermuda. In order to have a long term association with China Gas and also to expand business in the fast downstream Chinese gas sector, the Joint Venture (JV) will pursue opportunities in CNG, City Gas, Pipeline, CBM, LNG and E&P projects.

2.9.3 GAS TRANSMISSION

GAIL is presently operating approximately 6778 km. of pipeline network in the country with a capacity of around 153.81 Million Standard Cubic Metres Per Day (MMSCMD) for transportation of natural gas. The details of the present pipeline network is as follows:

Sl. No.	Pipeline Network	Length (in Km.)
1.	DVPL	770
2.	HVJ/GREP	3397
3.	ASSAM	8
4.	TRIPURA	61
5.	GUJARAT REGION	742
6.	MAHARASHTRA REGION	125
7.	AP REGION	834
8.	TN REGION	260
9.	DUPL/DPPL	581
	TOTAL	6778

2.9.4 PERFORMANCE

The physical and financial parameters of the years 2007-08 & 2008-09 are given below:

A) Physical

Parameters	Units	Actual Performance in 2008-09	Performance in 2009-10 upto Dec'09	Projected Performance in 2009-10 (As per RE figures)
Gas Transportation	MMSCMD	83.29	104.12	106.60
Liquid Hydrocarbon Production	'000 MT	1401	1082	1320
Petrochemical Production	'000 MT	420	305	400
LPG Transportation	'000 MT	2744	2289	2759

B) Financial

Description	Unit	Actual Performance in 2008-09	Performance in 2009-10 Dec.'09	Estimated Performance in 2009-10 (RE)
Turnover (Net of ED, Other Income, IC etc.)	Rs. crore	23776	18411	24409
Profit Before Tax	Rs. crore	4204	3272	3894
Profit After Tax	Rs. crore	2804	2229	2570
Dividend (including Tax)	Rs. crore	1039	297	902
Gross Internal Generation (PAT+ Depreciation)	Rs. crore	3364	2652	3152

2.9.5 PROJECTS

2.9.5.1 Major pipeline projects completed during 2009 – 10 (as on 31.12.2009)

1. Dadri-Bawana Pipeline (36"x40 Km. 20"x55km.) which will supply gas to M/s PPCL–Bawana ahead of Common Wealth Games 2010.
2. Interconnection with RIL network at Akot at Ankot (Gujrat) and Mhaskal (Maharashtra)
3. Connectivity to
 - a. M/s HPCL, Tata Power at Trombay.
 - b. M/s MGI at Mahape
 - c. M/s IOCL LPG botting plants at Gurgoan and Gandhar
 - d. M/s Haryana City Gas, Gurgoan, M/s IGL-Greater Noida
 - e. Tranche A R-LNG customer in 3 in NCR and 4 in MP.



Night View of Cold Section Column of Gas Cracker Unit of GAIL at Pata, Distt Auraiya, U.P.

2.9.5.2 Major pipeline projects approved during 2009-10 (31.12.2009)

1. Focus Energy to RRVUNL Pipeline (10"x90 Km.) approved on 28.01.2009 with project cost of Rs.99 crore.
2. Dabhol-Bangalore Pipeline (30"/18"/10"/8"x1389 km) approved on 22.06.2009 with project cost of Rs 4543 crore.
3. Kochi-Kootanad-Bangalore Pipeline (24"/12"x8" x 1114 km.) approved on 22.06.2009 with project cost of Rs. 3032 crore.
4. Jagdishpur-Haldia Pipeline (36"/30"/24"x18"/12x2050 km.) approved on 24.07.2009 with project cost of Rs. 7596 crore.
5. Muradabad-Kashipur-Rudrapur Pipeline (12"/105km., 8"x54km.) approved on 24.07.2009 with project cost of Rs. 252 crore.
6. Capacity Augmentation of Agra-Ferozabad Pipeline (12"/10"x65 km.) approved on 24.07.2009 with project cost of Rs. 119 crore.
7. Vijaipur-Borari, Spur Pipeline to Bhairwar & Chittorgarh (18"x16"/12"x290 km.) 21.12.2009 with project cost of Rs. 463 crore.
8. Spur Pipeline to Jalandhar and Consumer Network to Ludhiana & Jalandhar (24"/4"x85 km.) and Spur Pipeline from Saharnpur to Hariwar-Roorkee-Rishikesh-Dehradun (16"/10"/8"/4"x176) approved on 21.12.2009 with project cost of Rs.540 crore.



2.9.5.3 Major On-going Pipeline Projects - 2008-09

Name of Projects	Sanctioned cost (Rs. in crore)	Schedule completion/ commissioning	Present Status	
			Physical Progress (%)	Financial Progress (%)
Vijaipur—Dadri Pipeline (48" x 500 km.)	3720	April'2010	94	80
Chainsa-Jhajjar-Bamnoli Pipeline (36" x 86km, 16"x18 km.)	572	March' 2010	65	12
Chainsa-Jhajjar Spur lines project (Sultanpur-Neemrana) (18"- 4" x 234 km.)	396	March' 2010	46	7
Dahej-Vijaipur P/L Ph-II (48" x 610 km.)	4429	April' 2011	44	2
Bawana-Nangal P/L (30" x 177 km., 18" x 187 km.)	1816	April' 2011	11	1
Compressors at Jhabua & Vijaipur	1512	October' 2010	4	0
Compressors at Kailaras & Chainsa	1166	30.04.2011	65	45
Moradabad Augmentation of Agra-Ferozabad Pipeling (12"/10" x 65 km.)	252			
Capicity Augmentation of Agra-Ferozbad Pipeline (12"/10" x 65 km.)	199	Jaunary'2011	4	0
Kandla-Samakhiali Pipeline (10" x 61 km.)	58	Jaunary'2011	65	25
Focus Energy to RRVUNL Pipeline (10" x 90 km)	99	June'2010	58	25

2.9.6 POLICY INITIATIVES UNDERTAKEN:

GAIL has undertaken several initiatives in the area of HR/HRD. A list of the major ones are given below:

- Implementation of pay revision for Board and below Level Executives w.e.f. 1.1.2007 in-line with DPE guidelines and Presidential Directives received from MoP&NG.
- Review of Performance Management System for Executives.
- Review of various facilities, benefits and welfare measures for employees in-line with the prevailing best HR practices and Government guidelines.

- Leveraging information technology in HR process, systems and procedures through augmentation of SAP modules with additional functionalities.
- Project next wave started for formulation of long-term corporate strategy (up to 2020)
- Review of contract & procurement procedures for bringing efficiency in the systems and procedures to meet the business challenges in the present environment.
- Revision of DOP (below Board Level) to empower executives for prompt and effective decision making.

- Set-up of regulatory cell-o-map regulatory framework for its compliance.
- Formation of technology cell for scanning of new technologies its adoption in GAIL business.
- An IT Policy and an IT Strategy have put in place to achieve work efficiency and transactional efficiency, leading to cost-reduction and increased customer satisfaction.

2.9.7 JOINT VENTURES PROJECTS OF GAIL:

GAIL has formed a number of Joint Venture Companies for city gas distribution as also in other sectors. GAIL has plans of developing CNG infrastructure across the country as well as abroad. The domestic Joint Venture Companies are as under:

2.9.7.1 MAHANAGAR GAS LIMITED (MGL):

MGL, a Joint Venture with British Gas (BG) and Government of Maharashtra, was incorporated in May 1995 and has its operations in Mumbai and its suburbs. GAIL holds 49.75% stake in the Company, with an investment of Rs.44.45 crore.

2.9.7.2 INDRAPRASTHA GAS LIMITED (IGL):

IGL, a Joint Venture with Bharat Petroleum Corporation Limited (BPCL) and Government of National Capital Territory (NCT) of Delhi, was formed in December 1998. GAIL holds 22.5% stake in the Company, with an investment of Rs.31.50 crore. IGL has its operations in Delhi. It is catering to the world's largest CNG bus fleet.

2.9.7.3 BHAGYANAGAR GAS LIMITED (BGL):

BGL, is a Joint Venture with Hindustan Petroleum Corporation Limited (HPCL), incorporated in August 2003. GAIL holds 22.5% stake in the Company. BGL presently has its operations in Vijaywada and Hyderabad. An investment of Rs.9.99 crore has been made in the Company.

2.9.7.4 TRIPURA NATURAL GAS COMPANY LIMITED (TNGCL):

TNGCL is a Joint Venture of Tripura Industrial Development Corporation and Assam Gas Limited. GAIL acquired 29% equity stake in TNGCL in August 2005.

2.9.7.5 CENTRAL U.P. GAS LIMITED (CUGL):

CUGL is a Joint Venture of GAIL and Bharat Petroleum Corporation Limited (BPCL). It was

incorporated in February 2005 for implementation of City Gas Projects in Kanpur and other cities of Central U.P. GAIL has 22.5% stake in the Company.

2.9.7.6 GREEN GAS LIMITED (GGL):

GGL is a Joint Venture Company of GAIL and Indian Oil Corporation Limited (IOCL). It was incorporated in October 2005 for implementation of City Gas Projects in Agra & Lucknow cities. GAIL has 22.5% stake in the Company.

2.9.7.7 MAHARASHTRA NATURAL GAS LIMITED (MNGL):

MNGL is a Joint Venture of GAIL and Bharat Petroleum Corporation Limited (BPCL). It was incorporated in January 2006 for implementation of City Gas Projects in Pune and other cities of Maharashtra (excluding Mumbai). GAIL has 22.5% stake in the Company.

2.9.7.8 AVANTIKA GAS LIMITED (AGL):

AGL, a Joint Venture with Hindustan Petroleum Corporation Limited, has been incorporated in June, 2006 for City Gas Distribution Projects in the state of Madhya Pradesh. GAIL has 22.5% stake in the company.

2.9.7.9 BRAHMAPUTRA CRACKER & POLYMER LIMITED (BCPL):

This Joint Venture Company, with GAIL as the main promoter with equity participation of 70% and OIL, NRL and Assam Industrial Development Corporation (Government of Assam) holding 10% equity each, has been incorporated on 8.01.2007 with authorized capital of Rs.1200 crore.

A Feedstock Supply Agreement has been signed between BCPL, and all three feedstock supplier (Oil and Natural Gas Corporation Limited, Oil India Limited and Numaligarh Refinery Limited).

2.9.7.10 RATNAGIRI GAS AND POWER PRIVATE LIMITED (RGPPL):

RGPPL is a Joint Venture Company between GAIL, NTPC, Financial Institutions and MSEB. GAIL holds 28.337% equity. The capacity of Ratnagiri Gas and Power Station is 2,150 MW. LNG Storage Block is near completion. Two LNG Tanks out of three are completed.



2.9.7.11 PETRONET LNG LIMITED (PLL):

PLL is a joint venture company between GAIL, BPCL, IOCL, ONGCL, Gaz De France and ADB. GAIL holds 12.5% equity at an investment of Rs.98.75 crore.

2.9.7.12 GAIL GAS LIMITED

GAIL (India) Limited has incorporated a wholly-owned subsidiary in the name of GAIL Gas Ltd. on 27th May, 2008 for implementation of the City Gas Distribution (CGD) projects as a Limited Company under the Companies Act, 1956. GAIL Gas Ltd. shall be working as holding company to implement City Gas Distribution projects through branch/ unit offices. The setting up of this subsidiary will also help in part for compliance of requirement of unbundling of the business for GAIL which may come in future.

GAIL Gas Limited shall take up Distribution and Marketing of CNG as fuel for vehicles (inter-city as well as intra-city), Piped Natural Gas for domestic/ commercial/ industrial purposes and Auto LPG as fuel for transport vehicles in the various cities of India and abroad. The subsidiary company will also take up investment in and setting up of infrastructure, in the various cities of India and along the national highways for building CNG corridors which includes, among others, natural gas compressor stations, laying of the pipelines from City Gate Station(s) to the consumption areas and associated facilities, setting up of distribution points / retail outlets for CNG/ Auto LPG and transport gas through mobile cascades/ lorries. It will also carry out allied retail business activities at CNG / Auto LPG retail outlets within the cities and along the highways. GAIL Gas Limited will also form alliances with Gas Producers/ Strategic Partners for implementation of the City Gas Projects as per the strategic decisions taken by GAIL. The equity holding of GAIL in the City Gas Joint Venture Companies is also proposed to be transferred to GAIL Gas Limited. The initial authorized share capital of the subsidiary is Rs. 200 crore.

GAIL Gas Ltd. participated in the bidding process initiated by PNGRB for grant of authorization for implementing CGD projects in 6 cities and emerged as winner for 4 cities namely Kota, Dewas, Sonapat and Meerut.

2.9.8 EXPLORATION AND PRODUCTION OF GAIL

E&P activities continued to remain in focus during the year. The production of crude oil in the Cambay Onland Block in Gujarat is in progress, where the company holds 50% participating interest.

At present, GAIL has participating interest in 27 E&P blocks of which 3 are overseas (2 in Myanmar and 1 in Oman). GAIL is the Operator in one block in Cauvery Basin awarded during NELP-VII bidding round and the Joint Operator in one onland block in Rajasthan Basin awarded during NELP-VI bidding round. Hydrocarbon discoveries have been made in 9 E&P blocks including 3 overseas blocks.

Out of these 9 blocks, commercial production is in progress from one block, Cambay Onland – Ahmedabad, Development activities are in progress in blocks A-1 and A-3 in Myanmar and appraisal activities are in progress in other 6 blocks.

GAIL is also participating in 3 Coal Bed Methane blocks. Core hole sample analysis is in progress in these blocks. Test wells are planned to be drilled in one block.

2.9.9 INTERNATIONAL COOPERATION AND ENGAGEMENTS ABROAD

2.9.9.1 Blocks acquired during the year (2009-10)

No blocks have been acquired during the year 2009-10. GAIL participated in the NELP-VIII bidding round.

2.9.9.2 Special achievements during the year

- Myanmar Project - Participation in E&P & Offshore and Onshore Pipeline projects: GAIL is having 10% Participating Interest (PI) in two offshore E&P blocks A-1 & A-3 in Myanmar. Commercial production of gas shall start from

May 2013. GAIL is planning to participate in the upstream project which also includes offshore pipeline. GAIL is also planning to participate (PI 4.17%) in onshore pipeline project for transportation of gas to China

- Gas Sector Project in Nigeria- NGMP Project: GAIL as part of the consortium of companies submitted the bid for design, construction and operation of gas gathering and processing facilities under the Nigerian Gas Master Plan (NGMP) in Nigeria in December '09. The results of the bidding shall be announced by February 2010.
- Business Opportunity in Papua New Guinea (PNG): GAIL is exploring investment opportunity in E&P and LNG project in Papua New Guinea (PNG).
- Ghana Project: GAIL is under discussion with Govt. of Ghana / Ghana National Petroleum Corporation (GNPC) for participating in gas infrastructure development projects in Ghana.
- GAIL is also exploring business opportunities in gas value chain in Africa, Russia & CIS countries.

2.9.9.3 Investment made during the year

24.44 crore investment (Myanmar and Oman) has been made till 31st December 2009 in E&P Blocks.

2.9.9.4 Import/Export of POL and Natural Gas

- Long-term Liquefied Natural Gas (LNG) from PLL by GAIL, IOCL, BPCL : 5.28 MMTPA (1 MMTPA =3.8 MMSCMD)

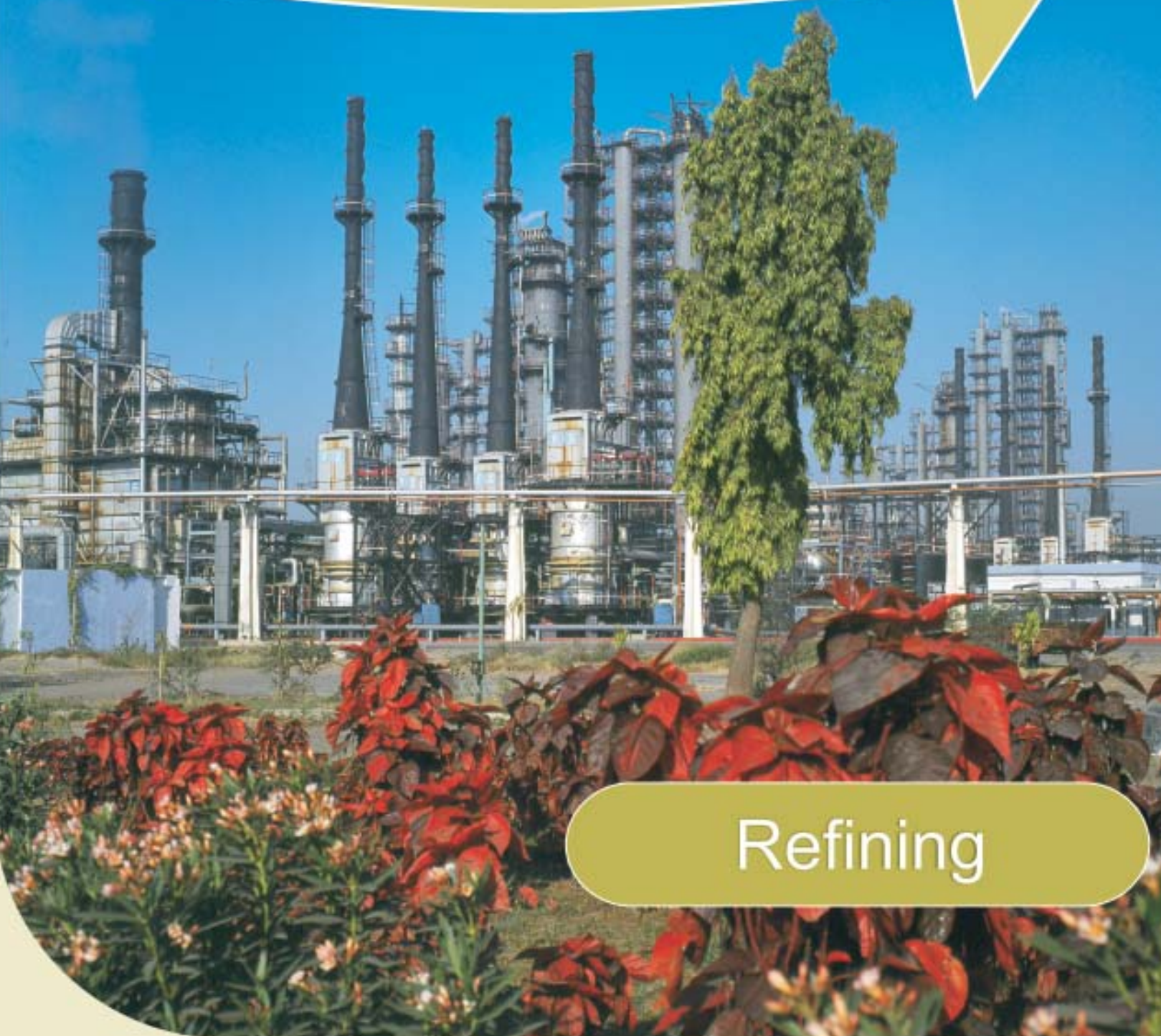
- Spot Regassified-LNG (RLNG) imported by GAIL : 280 MMSCM i.e. 0.76 MMSCMD or 0.20 MMTPA
- MOU with NNPC: GAIL is under discussion with Nigerian National Petroleum Corporation (NNPC) for signing a MOU for cooperation in gas sector.

2.9.9.5 Agreements / MOU signed during the year

- MOU with NNPC: GAIL is under discussion with Nigerian National Petroleum Corporation (NNPC) for signing a MOU for cooperation in gas sector.
- MOU with EGAS: GAIL is under discussion with Egyptian Natural Gas Holdings Company (EGAS) for signing an MOU for cooperation in gas sector in Egypt.
- Master Sales & Purchase Agreement signed with following LNG suppliers
 - a) BG India Energy, India
 - b) Mitsubishi, Japan/India
 - c) Repsol, Spain
 - d) Gas Natural, Spain
 - e) Marubeni, Japan
 - f) Qalhat LNG, Oman
 - g) Union Fenosa Gas, Spain
 - h) Mitsui & Co., Ltd.

CHAPTER

3



Refining

Refining

3.1 REFINING CAPACITY

The present refining capacity is 182.086 Million Metric Tonnes Per Annum (MMTPA) comprising of 107.456 MMTPA by PSUs and 72.50 MMTPA by private sector. At present, there are 20 refineries operating in the country, out of which 17 are in public sector and 3 are in private sector. Out of the 17 public sector refineries, 8 are owned by Indian Oil Corporation Limited (IOCL), 2 each by Chennai Petroleum Corporation Limited (a subsidiary of IOCL), Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL) and Oil and Natural Gas Corporation Limited (ONGC) and 1 by Numaligarh Refinery Limited (a subsidiary of BPCL). The private sector refineries belongs to Reliance Industries Limited and Essar Oil Limited.

3.2 CHENNAI PETROLEUM CORPORATION LIMITED (CPCL)



Chennai Petroleum Corporation Limited (CPCL) (formerly known as Madras Refineries Limited) was formed as a joint venture in 1965 between the Government of India (GOI), AMOCO India Inc., U.S.A. and National Iranian Oil Company (NIOC) Iran having a share holding in the ratio 74:13:13. In 1985, AMOCO disinvested in favour of GOI and the shareholding percentage of GOI and NIOC stood revised at 84.62 and 15.38 respectively. Later, GOI disinvested 16.92% of the paid-up capital in favour

of Unit Trust of India, Mutual Funds, Insurance Companies and Banks on 19th May, 1992, thereby reducing its holding to 67.7%. A public issue of CPCL shares was also made in 1994. As a part of the restructuring steps taken by the Government of India, Indian Oil Corporation Limited (IOCL) acquired equity from GOI in 2000-01. Currently, IOCL holds 51.89% while Naftiran Inter-trade Company Limited, (an affiliate of NIOC) continued its holding at 15.40%.

CPCL has two refineries, with a combined refining capacity of 10.5 Million Metric Tonnes Per Annum (MMTPA). The Manali Refinery in Chennai has a capacity of 9.5 MMTPA and is one of the most complex refineries in India with Fuel, Lube, Wax and Petrochemical feedstocks production facilities. The second refinery at Cauvery Basin, Nagapattinam was set-up initially with a capacity of 0.5 MMTPA in 1993 and later enhanced to 1.0 MMTPA capacity in 2002.

3.2.1 PHYSICAL PERFORMANCE

During the year 2009-10 (upto December 2009), the company processed 8.20 Million Metric Tonnes (MMT) of crude oil.

3.2.2 FINANCIAL PERFORMANCE

During the year 2009-10 (upto December 2009), the company achieved a turnover of Rs.22846.34 crore as against Rs. 36517 crore in the previous year. The



Inauguration of Desalination Plant of CPCL by the Hon'ble Minister of Petroleum & Natural Gas



details of physical and financial performance are given below:

PHYSICAL AND FINANCIAL PERFORMANCE

	2007-08	2008-09	2009-10 (till Dec.'09)
Crude Throughput in TMT	10266	10125	8192
Total Distillate %	67.5	67.8	68.9
Turnover (Rs. cr.)	32889	36517	22846
Lube	202.3	172.4	148
Wax	28.0	27.7	20
Profit Before Tax (Rs. cr.)	1721.63	(593.11)	778
Profit After Tax (Rs. cr.)	1122.95	(397.28)	664

Figures in brackets represent loss

3.2.3 PROJECTS COMPLETED DURING THE YEAR 2009-10

(A) 5.8 MGD Sea Water Desalination Plant:

With a mission to achieve self-sufficiency for meeting the water requirement of the refinery, a project of a 5.8 MGD Desalination Unit at an estimate cost of Rs. 243.94 crore was commissioned in June 2009. All the 4 Reverse Osmosis Banks have been commissioned.

3.2.4 MAJOR PROJECTS UNDER IMPLEMENTATION

(a) Euro-IV Preparedness on Auto Fuels

Auto Fuel Quality Upgradation Project has been undertaken at an estimated cost of Rs.2615 crore in Manali Refinery to produce MS/HSD meeting Euro-IV specifications for Chennai and Bangalore and Euro-III equivalent specifications for the rest of the location from April 2010 onwards, as per the Auto Fuel Policy of the Government of India.

The NHDT/ISOM unit for MS production is expected to be mechanically completed during May'10 and DHDT unit is expected to be mechanically completed by July 2010.

(b) Refinery-III capacity augmentation at Manali

CPCL has undertaken capacity augmentation of its Crude Distillation Unit (CDU) – III from 3.0 MMTPA to 4.0 MMTPA of crude processing. The expected cost of this project is Rs.200 crore and is expected to be completed by March 2010.

(c) Revamp of existing Naphtha Hydrotreating / Catalytic Reforming Unit

To produce high quality Motor Spirit (higher Octane) for meeting Euro-IV specifications, the existing Naphtha Hydrotreating/ Catalytic Reforming Unit at Manali Refinery Unit is being revamped at an estimated cost of Rs.272.77 crore and is expected to be completed by March 2010.

(d) Installation of Additional Crude Oil Tanks (2x50 TKL)

A project for installing two additional crude tanks to augment implementations to augment crude storage capacity at the Manali Refinery at an estimated cost of Rs. 81 crore. This project is expected to completed by February 2010.

(e) New Crude Oil Pipeline

To overcome the risk associated with transportation of crude oil through the aging existing 30" crude oil pipeline, laying of an new 42" crude oil pipeline as replacement, from Chennai Port to Manali Refinery along the route of the proposed Port Connectivity Road is under implementation.

3.2.5 FUTURE PLANS

(a) Resid Upgradation Project

To improve the distillate yield of Manali Refinery, CPCL has undertaken Resid Upgradation Project. The Process Packages for all the Process units have been completed. Detailed design of Coke drums and Conceptual design of Coke drum structure has been completed. Action has been initiated for PMC preparation of the Process Packages for Utilities and Offsite facilities shortly. The project is expected to be completed by the middle of 2012.

(b) Single Point Mooring:

CPCL is proceeding with the installation of an SPM off-Ennore for Crude Oil imports for its Manali Refinery at estimated cost of Rs. 1000 crore. The project is expected to be commissioned by March 2013.

(c) Propylene Unit Expansion

To enhance Propylene production capacity of Manali refinery, a feasibility study has been undertaken. The project will be implemented after establishing the economic viability and marketing tie-ups.

(d) 15 MMTA Refinery-cum-Petrochemical Complex

A pre-feasibility study for setting up of a New Integrated 15 MMTA Refinery-cum-Petrochemical Complex at Ennore near Channai has been completed. CPCL is jointly working with Indian Oil Corporation Limited for finalizing the Project Configuration. As the lands near Ennore are not suitable for this Project from environmental angle, CPCL is exploring the possibility of putting up this project in the PCPIR being developed by TIDCO in Cuddalore-Nagapattinam Region.

3.3

NUMALIGARH REFINERY LIMITED (NRL)



Numaligarh Refinery was set-up as a grass-root refinery at Numaligarh in the District of Golaghat (Assam) in fulfillment of the commitment made by Government of India in the historic "Assam Accord",



Panoramic view of Numaligarh Refinery

signed on 15th August, 1985 for providing the required thrust towards industrial and economic development of Assam. Both the Refinery and its

adjacent Marketing Terminal were completed within the approved project cost of Rs.2724 crore. Commercial production in the Refinery commenced from 1st October, 2000.

3.3.1 PHYSICAL PERFORMANCE

During the year 2009-10 (upto December 2009), the crude throughput was 2.06 MMT. The projected crude throughput for the year 2009-10 is 2.51 MMT. Distillate yield during 2009-10 (upto December 2009) was recorded at 85.16%.

3.3.2 FINANCIAL PERFORMANCE

During the year 2009-10 (upto December 2009), the company registered a Profit After Tax of Rs.158.20 crore. Sales Turnover during the period 2009-10 (upto December 2009) was Rs.5954 crore.

3.3.3 PROJECTS

3.3.3.1 Projects completed:

(i) Motor Spirit Plant

During 2006-07, NRL had commissioned a Motor Spirit (MS) Plant with a capacity of producing 185 TMT of MS per annum. The plant has been set up with technology from M/s Axens, France within the approved project cost of Rs. 296.86 crore. The MS plant had since operated beyond its rated capacity, producing BS-II and Euro-III grade MS, contributing significantly to the Company's profitability. The MS plant has facilitated conversion of Naphtha into MS, resulting in value addition to the Company's product slate.

(ii) Siliguri Marketing Terminal Project

NRL has constructed a Marketing Terminal at Siliguri at a project cost of Rs. 186.23 crore. The Siliguri Marketing Terminal of NRL was implemented as a linked project to the Numaligarh-Siliguri Product Pipeline which was implemented by Oil India Limited. Transportation of white oil products (MS, HSD, SKO) from Numaligarh to Siliguri through the pipeline has resulted in a smooth, reliable and economical mode product evacuation ex-Numaligarh. The Siliguri Marketing Terminal is in operation since May 2009.

(iii) 12 MW Steam Turbine Generator (STG) Project: For energy conservation and overall efficiency of plant operations, NRL has installed



and commissioned a 12 MW STG at a cost of Rs.39 crore to generate power from surplus steam available in the refinery. The project has been successfully registered with United Nations Framework Convention on Climate Change (UNFCCC) as Clean Development Mechanism (CDM) project.

3.3.3.2 PROJECTS UNDER IMPLEMENTATION

(i) Diesel Quality Up-gradation Project

In-line with Auto Fuel Policy, NRL has been producing HSD conforming to BS-II and Euro-III grade upto 90% capacity utilization of the Crude Distillation Unit (CDU). To facilitate production of Euro-III HSD and limited quantities of Euro-IV HSD at 100% capacity utilization, NRL is implementing a Diesel Quality Up-gradation Project at a cost of Rs. 434.94 crores. The project involves revamp of the CDU/VDU, Hydrocracker, Hydrogen and Sulphur Recovery units. Overall progress of the project as on 31.12.2009 was 67.76% against schedule of 82.27% and 62 out of scheduled 68 milestones were achieved. Cumulative expenditure on the project upto 31.12.2009 was Rs. 155.60 crore. The project is targeted for completion by April 2010.

3.3.3.3 FUTURE PROJECTS

Wax Project

NRL has identified a project for production of high value paraffin and micro-crystalline wax utilizing inherent properties of Assam Crude. Financial appraisal and a market survey pertaining to the project have been completed. Implementation of the project would add value to the product slate of the Company.

3.3.3.4 JOINT VENTURES

(i) M/s Brahmaputra Cracker & Polymer Limited (Assam Gas Cracker Project)

In order to implement the proposed Assam Gas Cracker Project in Dibrugarh, Assam at an estimated cost of Rs.5461 crore, a new joint venture company, M/s.Brahmaputra Cracker & Polymer Limited (BCPL), was incorporated on 08.01.2007 with equity participation from GAIL (70%), OIL (10%), Government of Assam (10%) and NRL (10%). Besides equity participation, NRL has also planned to supply around 160 TMTPA of petrochemical grade naphtha as feed to the Gas Cracker. An amount of Rs.110.00 crore has been earmarked by NRL in the 'XIth Five Year Plan' for this joint venture project, out



Launch of BS IV fuels in Delhi

of which NRL has contributed Rs.32.47 crore towards equity for the project. The project is scheduled for completion by 2012.

(ii) M/s DNP Limited (Natural Gas Pipeline from Duliajan to Numaligarh)

NRL has initiated action for substitution of naphtha by natural gas as feed fuel in the refinery for improving the Company's refining margin. For implementation of the natural gas pipeline project from Duliajan to Numaligarh, a joint venture company M/s DNP Limited was incorporated on 15.6.2007. Equity pattern of the joint venture company is M/s AGCL (51%), NRL(26%) & M/s OIL (23%). Project cost of the pipeline is estimated at Rs.318 crore. NRL has already contributed Rs. 27.56 crore towards equity in the joint venture project. The natural gas pipeline project is expected to be completed in the fourth quarter of 2009-10.

3.4 MANGALORE REFINERY & PETROCHEMICALS LIMITED (MRPL)



Mangalore Refinery and Petrochemicals Limited (MRPL), the first Joint Venture Petroleum Refinery in India, formed in 1987 jointly by M/s Hindustan Petroleum Corporation Limited, a public sector company and M/s Indian Rayon and Industries Limited and its associate companies (A.V. Birla Group), was set up with initial processing capacity of 3.69 Million Metric Tonnes Per Annum. This became operational in 1996 and subsequently expanded to the present capacity of 9.69 Million Metric Tonnes Per Annum in September, 1999.

The refinery is located on the western coast of India close to Middle East and Far East Crude and product markets, primarily conceived to maximize middle distillates and fuel oils which was in short supply in

India. Refinery is designed to process light to heavy and sour to sweet crude.

On 3rd March 2003, M/s Oil & Natural Gas Corporation Limited (ONGC), the premier up stream Indian Oil and Gas major, acquired entire 37.39% of equity capital held by M/s Indian Rayon and Industries Limited and its associates (A.V. Birla Group) in MRPL heralding a new era. Debt Re-structuring Package (DRP) for MRPL Loans was implemented with lenders consent. ONGC infused equity capital of Rs. 600 crore on 30th March, 2003 as envisaged under the DRP, increasing ONGC's equity holding to 51% and making MRPL a subsidiary of ONGC. ONGC subsequently bought the equity holding of Financial Institutions / Banks raising its equity holding in MRPL to 71.62% in June/ July 2003, converting MRPL from a private sector Company to a Public Sector Company.

3.4.1 PHYSICAL AND FINANCIAL PERFORMANCE OF MRPL

The refinery throughput increased from 12.55 MMT during 2007-08 to 12.59 MMT during 2008-09 thereby achieving a capacity utilization of 130%. Profit Before Tax increased from 1733 crore to Rs. 1812 crore. However Profit After Tax (PAT) was lower than the previous year due to MAT credit being fully absorbed by 2007-08. The PAT was Rs. 1193 crore in 2008-09 as compared to Rs.1272 crore in the 2007-08. The turnover increased from Rs. 37339 crore in 2007-08 to Rs. 42719 crore during 2008-09 at CAGR of 14.79% for 3 years.

The refinery remained as the second largest exporter of petroleum products (largest exporter amongst PSUs). About 40% of the products are exported. MRPL has term supply contracts with State Trading Corporation, Mauritius for supplying the products. Total petroleum products demand of Petrol, Diesel, ATF & FO of Mauritius is being met by MRPL since August 2006.

MRPL set up Isomerization unit to produce Euro-III and IV grade petrol. Mixed Xylene unit was also set up to improve refinery economics by producing Mixed Xylene along with additional offsite infrastructure facilities. Both units were commissioned in December 2006. It is worth-mentioning here that MRPL was the first refinery to produce Euro-III grade Petrol and Diesel 4 months ahead of the stipulated target.



A night view of MRPL's Refinery



Key performance parameters of MRPL for last 4 years are given in the following table:

Year	2007-08	2008-09	2009-10 Upto Dec.'09
Physical performance			
Throughput (MMT)	12.547	12.568	9.438
Exports (MMT)	4.83	4.46	3.12
Total Distillates	71.67%	71.94%	71.80%
Fuel & Loss	6.71%*	6.42%	6.51%
Specific Energy Consumption (MBN)	61.55	59.07	57.75
Capacity Utilisation	129%	130%	130%
Financial Performance			
Turnover (Rs. crore)	37339	42719	26358
Exports (Rs. crore)	11141	11636	637
Net Profit (Rs. crore)	1272	1193	859
GRM, \$/bbl	6.9	5.33	5.34

* Increased due to addition of ISOM & Mix Xylene units.

3.4.2 MAJOR PROJECTS UNDER IMPLEMENTATION

The strategic plans evolve around the basic objectives of GRM improvement, value addition to products, compliance of Euro-III/V product norms and get better distillate yield.

The Company has taken up implementation of Refinery Expansion and Up-gradation Project (Phase-III Refinery Project) costing Rs. 13964 crore including Polypropylene Unit with the following objectives.

- Increase the distillate yield total elimination of Black Oil (FO & Bitumen) having lower price realization than crude oil.
- Additional facility to meet Euro-III/ Euro-IV norms for total HSD production.
- Capacity to process more sour and heavy crude and high TAN crude which are having price advantage.

- Supplement secondary processing facilities.
- Production of Polypropylene (440 TMT) to add further value to Propylene which will be produced from PFCC Unit.
- Capacity Expansion to 15 MMTA.

The project activity has already commenced and orders for approximately Rs. 10120 crore have been placed as on 07.01.2010. The Project is being funded with 2:1 debt equity ratio and equity portion is coming from internal accruals. Arrangement for raising debts is in progress.

3.4.3 JOINT VENTURES

MRPL has entered into two joint ventures viz Shell MRPL Aviation Fuel & Services Pvt. Limited (with Shell BV, Netherland, an international oil major and Mangalam Retail Service Limited (with Ashok Leyland Project Ltd. (Hinduja Group). The joint venture agreements for these JV's have been signed by MRPL on 05.02.2008 and 20.03.2008 respectively. The commercial operations of Shell MRPL Aviation Fuel Service Limited have commenced from July 2008 and the commercial operations of Mangalam Retail Services Limited are yet to commence due to deferral of Retail marketing of Transportation Fuels by MRPL in view of Govt's decision to give Oil Bonds & Crude Discounts to compensate under-recoveries in sales of Petrol, Diesel only to IOC, BPC & HPC.

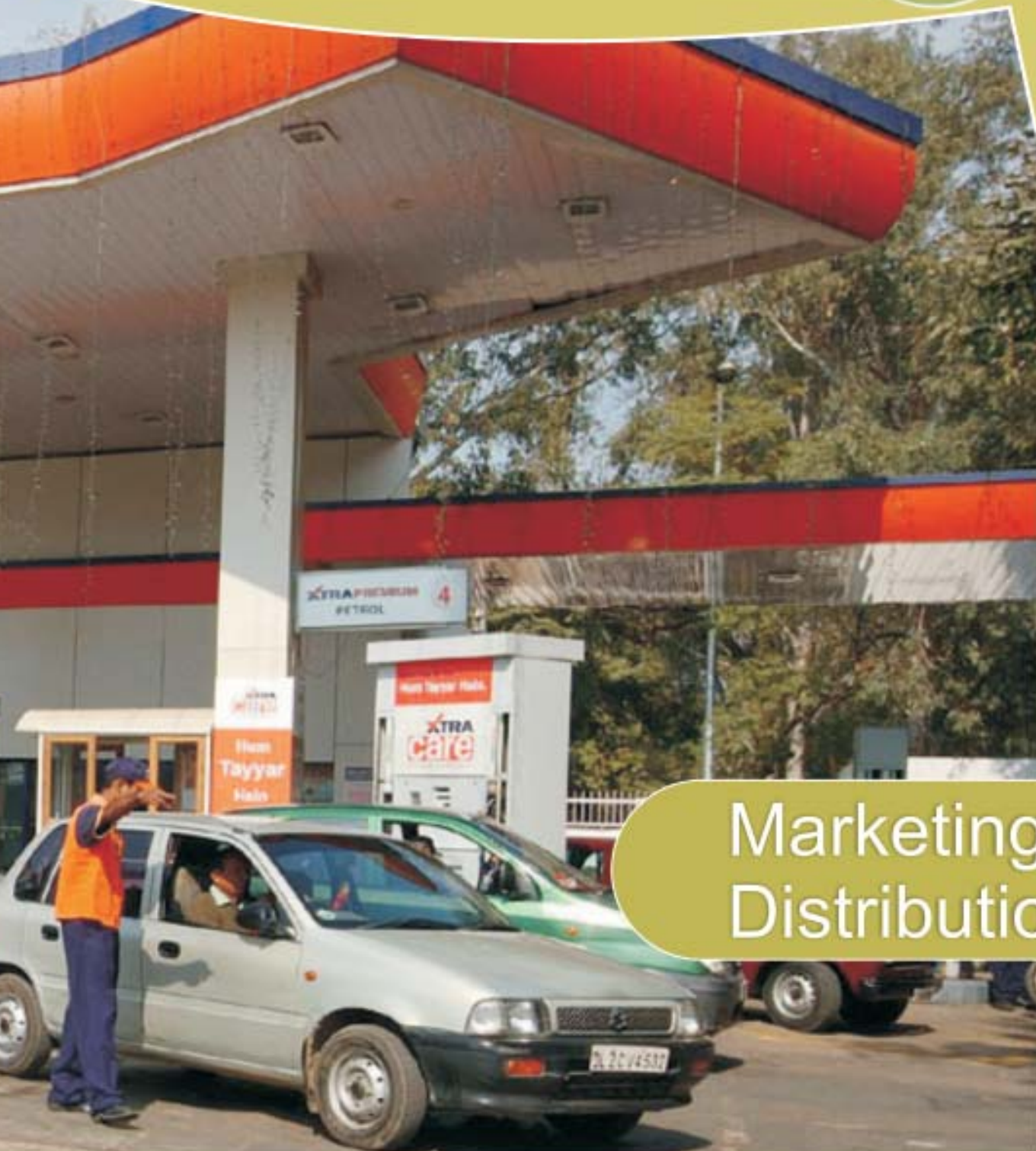
3.4.4 STRATEGIC INVESTMENT

ONGC Mangalore Petro Chemicals (OMPL) has been set up as a SPV jointly promoted by ONGC & MRPL with equity contribution of 46% & 3% respectively. The balance equity is going to be contributed by Strategic Investors/ Financial Institutions/ Banks/ IPO. The objective of this project is value addition to the surplus naphtha streams of MRPL by converting it into Paraxylene (PX) and Benzene. The estimated capacity is approximately 900 TMTA and 270 TMTA of Benzene. The project is being implemented at Mangalore SEZ at an estimated capital cost of Rs. 5750 crore.



CHAPTER

4



Marketing &
Distribution

Marketing & Distribution

4.1 INDIAN OIL CORPORATION LIMITED (IOCL)

50 GOLDEN YEARS OF
INDIANOIL IN THE
SERVICE OF THE NATION



Indian Oil Corporation Ltd. (IOC) was formed in 1964 with the merger of Indian Refineries Ltd. (Estd. 1958) and Indian Oil Company Ltd. (Estd. 1959). Over the decades, it has evolved and grown to be India's largest commercial enterprise. During 2008-09, IOC posted net profit of Rs.2,950 crore on an unprecedented turnover of Rs. 2,85,337 crore that too after holding the price line for the four major products – petrol, diesel, PDS kerosene and LPG for domestic use. IOC is also the first and the highest ranked Indian company in the *Fortune* 'Global 500', placed at 105th position by sales in 2009. The profit (after tax) for the year 2009-10 (upto December 2009) is Rs.4663.78 crore, whereas the turnover for the said period is Rs.208289.46 crore.

4.1.2 PHYSICAL ASSETS

Over the years, by bringing CPCL into its fold, by merging AOC, IBP and BRPL with it, IOC owns and operates 8 out of India's 20 refineries with a refining



An aviation refueller done up in fresh design and colours for IndianOil's Aviation Service

capacity of 49.7 Million Metric Tonnes Per Annum (MMTPA). IOC group, with 2 refineries of its subsidiary Chennai Petroleum Corporation Ltd. (10.5 MMTPA), has combined refining capacity of 60.2 MMTPA.

IOC's cross-country network of crude oil and product pipelines, spanning over 10,200 Km. with a total capacity of 74.4 MMTPA, which is also the largest network in the country, helps in meeting the vital energy needs of the consumers in an efficient, economical and environment-friendly manner.



The Paradip-Haldia crude oil pipeline of IndianOil

As the flagship national oil company in the downstream sector, IOC reaches its products to millions of people everyday through a countrywide network of over 35,000 touch points. IOC operates the largest and most extensive network of retail outlets, numbering more than 18,000. It reaches Indane cooking gas to the doorsteps of about 56 million households through about 5044 Indane distributors. These efforts are backed by supplies from 139 terminals & depots, 99 aviation fuel stations and 88 Indane bottling plants. About 7,495 bulk consumer pumps are also in operation for the convenience of large consumers, ensuring



product and inventory at their doorstep. The company is truly the leader in refining, marketing

and pipeline transportation in the country. It also has in its fold one of the best R&D Centres in Asia.

THE YEAR-WISE POSITION OF IOC'S MARKETING NETWORK IS INDICATED BELOW:

Description	As on 31.3.2008	As on 31.3.2009	As on 31.12.2009
Petrol/Diesel stations (Retail Outlets)	17642	18278	18445
Terminal & depots	166*	167*	139*
Aviation fuel stations	101	101	99
LPG bottling plants*	89	89	88
LPG bottling capacity ('000 TPA)	4165	4259	4225
LPG distributors	4996	4999	5044
Towns covered	2683	2693	2725
LPG customers (Million)	50.41	52.19	56.42

* Following merger of IBP with IOC, the terminals & depots of the two entities were rationalized to remove duplication and improve efficiencies.

include CPCL & OIL bottling plants

IOC has maintained its leadership position in promoting AUTO LPG business in a big way in the country. 31 Auto LPG Dispensing stations (ALDs) were set up during 2009-10 taking the total to 254 which are spread in 138 cities. IOC has continued with its thrust on rural format retail outlets, *Kisan Seva Kendras* (KSKs), widening its reach to rural India. 206 KSKs were commissioned during April- December '09, taking the total number to 2751. The KSKs represent a satisfying success story for IOC in its efforts for inclusive development in the rural hinterlands of India. The facilities at KSKs inter-alia include availability of seeds, pesticides, fertilizers, provisions, farm equipment, medicines, nutan stoves, banking help including rural ATMs, communication etc. under one roof.

4.1.3 POLICY INITIATIVES UNDERTAKEN

IOC has taken several policy initiatives to ensure its competitiveness and growth in the changing business environment. These inter-alia include the following.

- Creation of formal organizational structure to take embrace sustainability as integral part of

day-to-day business and to take forward the organization on the path of sustainable and inclusive growth.

- Continuous upgradation of refining facilities
- Exchange of product streams among group company refineries
- Reduction in input cost to refineries through increase in processing of heavy and high sulphur crude oils.



A view of IndianOil's Kisan Seva Kendra in rural areas

- Focus on meeting niche market requirements and to provide better value for customers through customized products and services.
- Improving delivery of customer offerings, both in quality and quantity, through enhanced automation and tracking systems.
- Diversifying into natural gas business, including city gas distribution.
- Enhancing the downstream value chain through petrochemicals.
- Integration into exploration and production (upstream)
- Extending operations overseas in downstream marketing, exploration & production etc.
- Participation in the entire supply chain of bio-diesel from R&D to large scale plantations.
- Undertaking training, consultancy, technical services and project management assignments in India and abroad
- To broaden the energy portfolio in a sustainable manner, venturing into alternative sources of energy
- Enterprise resources planning
- Corporate Social Responsibility, meeting both social and market requirements.

4.1.4 PERFORMANCE

The performance of India's flagship oil company IOC, in the financial year 2008-09, was spectacular with turnover, product sales and refinery & pipeline throughputs, all scaling new peaks. It persisted with its efforts during this year in the face of continued challenges.

4.1.5 FINANCIAL PERFORMANCE

During the year 2009-10 (as of December 2009), IOC achieved a gross turnover of Rs. 208289.46 crore and made a net profit of Rs.4664 crore.

It made a substantial contribution of Rs.19,115 crore to the Central Exchequer during April-Dec'09. An additional and equally impressive amount of Rs.21,388 crore was contributed to the State

Exchequers in the same period. Details of some of the major financial highlights are tabulated below.

(Rs. crore)

Parameter	2007-08	2008-09	2009-10 (upto Dec. 2009)
Gross Turnover	2,47,457	2,85,398	208289.46
Profit Before Tax	10,080	4,329	6260
Profit After Tax	6,963	2,950	4664
*Earnings Per Share	29.20	12.15	19.21
Dividend Declared	656	910	-

4.1.6 PHYSICAL PERFORMANCE (As of December 2009)

Refineries clocked the highest-ever throughput of 37.4 Million Metric Tonnes (MMT). Pipelines were equally impressive, transporting 47.5 MMT of crude oil and products. The product sales (including exports) during 2009-10 (upto December 2009) was 51.66 MMT. The details in respect of the performance in the past and the current year are tabulated below:

(MMT)

Sr. No.	Description	2007-08	2008-09	2009-10 (Upto Dec. 2009)
A)	Refining - throughput	47.4	51.4	37.4
B)	Pipelines - throughput			
i)	Crude	35.8	38.3	30.5
ii)	Product	21.3	21.6	17.0
	Total – B (i+ii)	57.1	59.9	47.5
C)	Marketing – Product Sales			
i)	Domestic			
	POL	57.55	60.89	47.05
	Gas	1.74	1.67	1.21
ii)	Exports	3.33	3.61	3.40
	Total – C (i+ii)	62.62	66.17	51.66

About 36.5 MMT crude oil & 2.5 MMT products were imported, and 2.5 MMT of products were exported (excluding sales to Nepal Oil Corporation) during the period April-Dec'09. The volume of crude oil imports in respect of IOC & its Group Companies during the year 2009-10 is estimated at about 48.1 MMT.

IOC has been proactive in diversifying sources of crude oil imports. During the year, seven crudes were accepted for



regular processing (Kikeh: Malaysia, Hungo, Palanca & Saxi: Angola, Yoho: Nigeria, Zafiro:Guinea and Mesla:Lybia). Four new crudes were evaluated and included for trial processing (Agbami, Okono & Okwari: Nigeria and Mubbaras Blend: Middle East).



IndianOil's Mathura and Haldia Refineries won the prestigious "Oil Industry Safety Awards" for their exemplary safety performance in 2008-09. The Awards were given away by Mr. Murlidhar Deora, Hon'ble Minister of Petroleum & Natural Gas and Mr. Jitin Prasada, Hon'ble Minister of State for Petroleum & Natural Gas. Former Chairman IndianOil, Mr. Sarthak Behuria accompanied by Director (Refineries), Mr. B N Bankapur, Executive Director (Mathura Refinery) Mr. J P Guharay and Mr. Hiralak Dutta, GM (T), Haldia Refinery received the awards from the Minister at a glittering function in front of an august audience at New Delhi

4.1.7 INITIATIVES ON ENERGY CONSERVATION

IOC is committed to conservation of energy and reduction of hydrocarbon loss at all its refineries through continuous in-house process monitoring and implementation of identified energy conservation projects in all refineries. As a result of sustained efforts towards energy conservation, the energy index in terms of MBTU/BBL/NRGF of IOC refineries could be brought down further to about 63 in April-Dec.'09 period of 2009-10 against 64 achieved in 2008-09. These initiatives also resulted in potential savings of about 63,000 SRFT in April-Dec.'09.

4.1.8 SAFETY, HEALTH AND ENVIRONMENT

Emphasis in IOC is on sustainable development and is committed to providing a safe work place and in the enrichment of quality of life of employees,

customers and the community. Comprehensive safety, health & environment management systems are in place under which the facilities are periodically reviewed and upgraded for better performance. Environment management systems of all refinery units and pipelines installations and major marketing installations are certified to ISO-14001 standards. All Refineries are accredited for Occupational Health and Safety Assessment Series (OHSAS-18001) & are also rated under International Safety Rating System (ISRS).

SAFETY & HEALTH

Some of the major efforts of IOC during the period 2009-10 (upto December 2009) in respect of safety are as under:

- Four safety video films on "Working at Height" Use of Respiratory Equipment", "Use and Maintenance of Fire Fighting Equipment & Appliances" and "Learning from Accidents" were developed in-house.
- Special self safety audit of 332 Marketing Installations, 66 pipeline installations, 8 refinery units & R&D Centre carried out during November & December 2009

ENVIRONMENT PROTECTION

IOC while achieving excellence in business activities is consciously committed to achieve environmentally sustainable growth and has continued with this endeavour. Some of the major efforts/achievements of IOC during the period in respect of environment protection are as under.

- Fresh water consumption in refinery units was reduced by 5% and reuse of treated effluent water increased by 8% as compared to previous year.
- Reverse Osmosis plant for tertiary treatment of effluent water was commissioned at Mathura Refinery.
- New effluent treatment plant of 600 M³ capacity was commissioned along with Hydrocracker Project at Haldia Refinery.
- CO₂ emissions estimation was carried out for Gujarat, Mathura & Haldia Refineries.
- Two Clean Development Mechanism (CDM) projects of refinery units were registered with UNFCCC. Four more CDM projects have been identified.

- Tier-I Oil Spill Response Facility has been provided at Vadinar to handle oil spill upto 100 MT.
- Rain water harvesting schemes have been implemented at 14 Pipelines Installations.
- MoU signed with Paradip Port Trust (PPT) under which PPT will provide Tier-I Oil Spill Response Facility for SPM at Paradip during tanker operation.
- Oil Spill Response mock drill carried out twice at Vadinar in April & December 2009.
- 31 Auto LPG Dispensing Stations commissioned during the period.
- Hydrogen CNG Dispensing Unit at Dwarka, New Delhi was inaugurated on 25th August 2009.
- IOC R&D organized a one day expert conclave in the form of a Workshop on 'Solar Energy - Trends & Technologies' in October 2009
- 10825 MT of oily sludge were treated for oil recovery in refinery units.

4.1.9 RESEARCH & DEVELOPMENT

IOC has the distinction of being the first oil company in the country to venture into research and development with the establishment of IOC's R&D Centre in the year 1972. Besides pioneering work in lubricant formulations, refinery processes, pipeline transportation and alternative fuels, the Centre is also the nodal agency for ushering the hydrogen fuel economy in the country. The R&D Centre has been providing technical service support



Former Secretary (P&NG) Shri R.S. Pandey along with other official of IndianOil at National Science Conference

to Corporation's business domain and in meeting the varied needs and aspirations of its valued customers.

The commercial test run of IOC's DHDS catalyst was successfully carried out in CPCL and is working satisfactorily since Jun'09. A novel metal inhibitor "IndVi" which was developed in the laboratory has since been scaled up and commercial production of 12 MT completed for trial run at Haldia Refinery. A novel low severity Steam Methane Reforming process for production of H-CNG mixture in a single step from NG has been developed. 14" Intelligent PIG developed in collaboration with BARC, Mumbai was field tested in Delhi- Panipat section.



Inauguration of ISFL-2010 by Shri S. Sundareshan, Secretary, Ministry of Petroleum & Natural Gas. Shri Anand Kumar, Director (R&D) and Shri B.M. Bansal, Chairman, IndianOil are also seen .



Bioremediation was extended to a bulk carrier “Black Rose” which sunk very near to the Paradip Port and started spilling oil.

A total of 186 product formulations were developed and 47 OEM, customer approvals and defence re-certifications were obtained. 9 patent applications have been filed, 14 patents were granted out of which 3 were in US, 5 in other countries and rest in India.

With assistance of NREL, US, full Life Cycle Analysis (LCA) has been completed for biodiesel produced from *Jatropha* for application in rail road sector. This is first study of its kind and revealed 12 % reduction in GHG by use of 20 % blended jatropha biodiesel in diesel.

The ambitious project on development of Delhi Driving Cycle or DDC, initiated at the behest of

Ministry of Environment and Forests to revise the existing more than fifteen years old Indian Driving Cycle, was completed.

MoUs have also been finalized with TERI, New Delhi and Central Pulp & Paper Research Institute, Saharanpur for characterization and upgradation of pyrolysis oil and black liquor. IOC has signed an MoU with M/s Petroalgae of Florida, US wherein R&D shall carryout the technical due-diligence.

The commercial H-CNG dispensing station set up at Dwarka, Delhi, has been used extensively to successfully complete the Ministry of New and Renewable Energy sponsored project on performance and emission studies on a fleet of vehicles comprising of 3 wheelers, passenger cars and LCVs using HCNG blends containing 10% to 25% of hydrogen.

4.1.10 PROJECT IMPLEMENTATION

Major projects costing Rs.100 crore and above completed during April-Dec.'09

Project	Approved Cost (Rs. crore)	Completion / Commissioning
MS Quality Upgradation at Panipat	1131	Isomerisation Unit in Dec'09 & FCC-GDS Unit in Jan'10
ToP at Bangrod	179	Nov'09
Augmentation of Mundra-Panipat Crude Pipeline	205	Jun'09

Major projects costing Rs. 100 crore and above approved during Apr-Dec'09

Project	Approved Cost (Rs. crore)	Month of Approval
Paradip- Sambalpur-Raipur-Ranchi Pipeline	1793	Aug'09
De-bottlenecking of SMPL System	1584	Dec'09
Styrene Butadiene Rubber at Panipat	890	Nov'09
3 rd SPM & 4 th Subsea Crude Oil Transfer Line at Paradip	831	Dec'09
Butadiene Extraction Unit at Panipat	341	Nov'09
Marketing Terminal at Eastern Sector Refinery (Paradip)	200	Jul'09
Chitoor Terminal on CBPL	180	Aug'09



Mr. B.M. Bansal, Chairman, IndianOil exchanging MoU 2010-11 documents with Shri S. Sundareshan, Secretary, MOP&NG. Also seen from L to R Shri Anand Kumar, Director (R&D), Shri B.N. Bankapur, Director (Refineries), Shri S.V. Narasimhan, Director (Finance) of IndianOil & Shri Sudhir Bhargava, Addl. Secretary, MOP&NG and Shri Apurva Chandra, Joint Secretary, (Marketing) MOP&NG

Major ongoing projects costing Rs. 100 crore and above

Projects valued at about Rs. 65,000 crore are under implementation. The details of major ongoing projects are tabulated below. In addition to the projects approved during the period, following projects are under implementation:

Project	Approved Cost (Rs. crore)	Completion/ Commissioning
15 MMTA Grassroots Refinery at Paradip, Orissa	29,777	Mar'12 to Nov'12
Naphtha Cracker, Panipat	14,439	Mar'10
Residue Upgradation and MS/HSD Quality Improvement at Gujarat Refinery	6,898	Quality Upgradation: Mar'10 & Balance by Jun'10
Improvement in Diesel Quality & Distillate Yield (Hydrocracker) at Haldia Refinery	2,869	Feb'10
Diesel Hydrotreatment (DHT) at Bongaigaon Refinery	1646	Jun'10
Paradip- Sambalpur-Raipur-Ranchi Pipeline	1793	
MS Quality Upgradation at Barauni	1492	Jun'10
Panipat Refinery expansion: from 12 to 15 MMTA	1008	Quality upgradation part completed –Nov'09 Expansion part by Aug'10
LPG Import Terminals at Ennor (JV with IPPL)	476	Jan.'11
MS Quality Upgradation at Guwahati	372	Jun'10
MS Quality Upgradation at Digboi	356	Jun'10
Dadri-Panipat R-LNG Line	350	Feb'10
Branch Pipeline from KSPL, Viramgam to Kandla	349	Dec'11
MS Quality Upgradation at Mathura	348	Feb'10
MS Quality Upgradation at Bongaigaon	293	Jun'10
Chennai-Bangalore Product Pipeline	273	Jun'10
Additional Tanks at Vadinar	267	Aug'12
LPG Import Terminals at Kochi	170	Sep'11

4.1.11 WIDENING HORIZONS

To be the globally admired “Energy of India”, IOC is spreading its wings, with a well laid-out plan, through vertical integration - upstream into exploration and production, and downstream into petrochemicals, and through diversification into natural gas, besides globalization of its downstream operations.

EXPORT OF SERVICES

SAP implementation/ IT consultancy project, taken up overseas in Sri Lanka for first time, has almost been completed (design & configuration completed) and roll out is expected from 1st April, 2010.

IOC has been maintaining a Technical Services Agreement (TSA) and Manpower Secondment Agreement (MSA) with Emirates National Oil Company (ENOC), Dubai since 1997 and 1998 respectively. During the year, under the MSA, IOC has provided consultancy services for carrying out the feasibility study for capacity augmentation of 2 Condensate Distillation Units of ENOC's Refinery in Dubai. Under the MSA, during



the year IOC has deputed 17 of its experts for providing commissioning / start up assistance to ENOC for their newly installed Naphtha Hydrotreater Unit & Continuous Catalytic Reformer Unit.

4.1.12 EXPLORATION & PRODUCTION (E&P)

IOC has progressively extended its footprint in various blocks spread across the country and in as many as six other countries in association with experienced domestic and foreign upstream companies. While gas discoveries have been made in 3 blocks, production is yet to start from any of these blocks.

Domestic

IOC presently has non-operating participating interest (PI) in six oil & gas exploration blocks awarded under various rounds of New Exploration Licensing Policy (NELP) and two Coal Bed Methane (CBM) exploration and exploitation blocks awarded under the first CBM round, in consortium with other Indian E&P companies. IOC has non-operating PI in an onshore exploration block in Assam – Arunachal Pradesh acquired through a farm-in. In 2008-09, IOC acquired two onshore Type-S oil & gas exploration blocks in Cambay Basin of Gujarat, with 100% participating interest (PI) and sole operatorship under the seventh round of NELP.

IOC's PI in the above 11 domestic blocks ranges from 15% to 100%. Exploration activities in all these blocks are under various phases. Hydrocarbon discoveries have been made in the NELP-II block MN-OSN-2000/2 and farm-in block AAP-ON-94/1. These discoveries are presently under appraisal.

During 2009-10 (upto December 2009), under the eighth round of NELP, IOC has been provisionally awarded two shallow water exploration blocks in Gujarat-Kutch Basin. Formal award is awaited.

Overseas

IOC has PI in 9 exploration blocks, three in Libya, two in Yemen and one each in Iran, Gabon, Nigeria



IndianOil (Mauritius) Limited's (IOML) Terminal at Port Louis, Mauritius

and Timor-Leste. IOC's participating interest in these blocks ranges from 12.5% to 50%. The blocks are in various stages of exploration.

Pursuant to the oil & gas discoveries made in the Farsi block in Iran earlier, commerciality of the gas discovery was accepted by the National Iranian Oil Company (NIOC) in 2009. Discussions / negotiations on a draft Master Development Plan and Development Service Contract are presently going on with NIOC.

4.1.13 PETROCHEMICALS

Entering into the Third Phase of IOC's petrochemical journey, work on biggest Petrochemical investment yet, the Rs. 14,439 crore (~US\$ 3.1 Billion), Naphtha Cracker and Downstream Polymer units project at Panipat is steadily progressing and is expected to be commissioned by March 2010. The Naphtha Cracker has a capacity of 850000 MTPA of Ethylene and 600000 MTPA of Propylene. Besides 325000 MTPA of MEG, the unit would also produce 650000 MTPA of Polyethylene and 600000 MTPA of Polypropylene.

The activities for setting up of necessary infrastructural facilities for polymer marketing viz. channel partners, IT enabled e-commerce portal, supply chain systems, etc. are in progress.

IOC has established itself in LAB business both in India and abroad as a major supplier to the detergent industry. LAB sales during Apr-Dec'09 of 89.11 TMT, including approximately 11 TMT of physical exports, have shown a growth of 1 % over last year. Maiden exports have been made to Yemen, Bangladesh and Korea taking the IOC-LAB presence to fifteen countries.

Similarly, IOC has fully established its PTA business and is catering to all major domestic customers spread in various parts of the country. PTA sales during Apr-Dec'09 of 404.72 TMT, have shown a growth of 55 % over last year.

The details of sales figures for LAB and PTA are tabulated below:

Product	Sales ('000 MT)			
	2006-07	2007-08	2008-09	2009-10 (upto Dec. 2009)
LAB	122	134	127	89
PTA	183*	375	408	405

* Unit commissioned in August 2006

4.1.14 GAS

GAS TIE-UP

IOC is one of the promoters of M/s Petronet LNG Limited (PLL) and markets 30% of R-LNG) imported by PLL, amounting to 1.5 Million Metric Tonnes Per Annum (MMTPA), from PLL's terminal at Dahej.

Further, PLL has tied up a term contract for 2 years with Ras Gas for 1.5 MMTPA of LNG of which 0.5 MMTPA is IOC's share. This quantity was supplied to Ratnagiri Gas and Power Project Ltd. (RGPP) till September 2009. IOC has signed another contract with PLL for supply of an additional 0.75 MMTPA of R-LNG. The supplies have commenced from January 2010.

To increase its market share in natural gas business, a Gas Sales Agreement (GSA) with NTPC Limited for their Kayamkulam Plant for a quantity of 0.43 MMTPA ex-Kochi terminal of PLL was signed. Further, a Gas Sales Agreement for sale of 0.3 MMTPA to M/s Pragati Power Corporation Limited for their Power Plant at Bawana, is also under finalisation.

IOC executed Master Regasification Agreement with PLL in December 2009 for importing LNG on spot basis by IOC at Dahej whenever opportunity arises.

CITY GAS DISTRIBUTOR (CGD) PROJECTS

Green Gas Ltd., a joint venture company of IOC and GAIL for city gas distribution in Agra and Lucknow, had commissioned one mother station each in Agra and Lucknow. Three daughter booster stations had been set up in Lucknow and two in Agra. The sales in Lucknow and Agra have reached 50000kg/day and 27000 kg/day respectively. GGL is commissioning 4 (Lucknow -3, Agra -1) additional CNG stations.

IOC participated in the second round of Bidding by PNGRB for development of CGD network as a Consortium partner with M/s Adani Energy Limited for Chandigarh, Ghaziabad, Allahabad and Rajamundhry. LOI from PNGRB is awaited as the matter is subjudice in Hon'ble High Court of Delhi.

LNG at Doorstep

IOC, having successfully implemented the innovative project "LNG at Doorstep" for distributing LNG through cryogenic tankers directly to the consumers, for industrial/captive power applications, has delivered more than 22,000 MT LNG till now to the customer's satisfaction. During April'09 to Dec'09, 5547 MT LNG has been delivered and around 1550 MT is expected to be delivered during Jan '10 to March '10.

IOC has signed a contract with PLL for expanding the LNG loading capacity at Dahej from the existing 15000 MT to



"LNG at the Doorstep" through cryogenic tankers for consumers located away from gas pipelines

20540 MT. Based on the additional capacity, new customers have been identified and LNG Sale Agreement is expected to be signed within this financial year.



4.1.15 INITIATIVES IN BIO-FUELS

As India's leading Oil Company, IOC has been playing a pioneering role in the development and commercialization of Bio-fuels. IOC has been at the forefront of technology development for production of bio-diesel from various edible and non-edible oils, its application in vehicles and energy crop plantation.

In MP, Jatropha Plantation on 241 Hectare of revenue waste land in Jhabua district has been completed during the year 2009-10. In Chhattisgarh, JV company IndianOil-CREDA Bio-fuels Ltd. completed Jatropha Plantation on 653 Hactare of revenue waste land during the year 2009-10.

4.1.16 ETHANOL-BLENDED PETROL (EBP)

5% EBP is made available in 15 states and 3 UTs. Pilot projects have been launched in two locations (Uttar Pradesh & Karnataka) for trial marketing of 10% EBP.

4.1.17 INITIATIVES IN RENEWABLE & ALTERNATIVE ENERGY

As an integrated energy company with a strong environment conscience and in view of the overdependence on imported crude, in line with the new vision of being Energy of India, a decision was taken to broaden the energy portfolio of the company



Diversification into wind power

to renewables and nuclear. The first Wind Farm of 21 MW in Gujarat is operating satisfactorily. Based on the experience gained process has been initiated to set up the next project.

After piloting of solar lanterns & charging stations at two Kisan Seva Kendras in UP, the solar lanterns initiative has been rolled out in Orissa, Karnataka and is being extended to other states.

During the year, MoU was signed with NPCIL for jointly exploring vista of nuclear power.

4.1.18 INNOVATION & TECHNICAL EXCELLENCE

Some of the major innovative schemes/systems implemented, leading to savings for the company



A night view of Indmax Unit, IndianOil's Guwahati Refinery

by cutting down capital and/or operating costs, and to system improvement, are described below.

- **New Strategies/ Initiatives in Paradip Refinery Project Implementation**

Contracting Strategies: viz Build-Own-Operate (BOO)/ Build-Own-Operate & Transfer (BOOT) contracts, cost plus convertible LSTK contract, LSTK and package contracts to reduce Capex as well as to optimise resources.

INDMAX Technology: Adoption, development and detailed engineering, etc. to ensure successful commercialization of indigenous technology at a world-class scale.

- **Step-less Control System for DHDT/ HDT MUG/CRU compressors at Mathura, Haldia, Guwahati and Barauni-** has resulting in a fuel savings of approx. 1000 MT/year in Mathura, 256 MT/year in Haldia, 515 MT/ year in Guwahati Refinery and 2900 MT/year in Barauni Refinery.
- **Clean Development Mechanism (CDM) Projects: Flare Gas Recovery System at Haldia, Barauni and Gujarat-** were commissioned in February, May and October 2009 respectively with Certified Emission Reduction (CER) of 17610, 8320 and 27834.
- **Data Reconciliation and Yield Accounting Package at Gujarat, Panipat, Guwahati, Barauni, Haldia Refineries-** for working out Daily Production Balance using real time process data.
- **New Process “SUPERSOUR” developed by PDEC** - for enhanced recovery of H₂S from conventional sour water strippers is under implementation at Gujarat Refinery as part of Residue Upgradation Project.
- **Processing of Heavy and Sour Crude Oils-** As a strategy to reduce the input costs. High volatility in costs of crude oil posed major challenges to the refining sector during the year. The overall optimization of crude mix on month to month basis is being done thro’ IP run to maximize corporate margin. During April-December 2009, 16.4 MMT HS crude was processed.
- **Information technology**
 - SAP Upgrade from SAP 4.6 to ECC 6.0
 - Portal for customers launched
 - Ambitious project CARE for Petrochemicals has been undertaken
 - e-Collections through server to server transfer commenced with SBI and more than 50% collections thru this mode
 - Implemented SAP in CPCL Manali and CBR
 - B-to-B started with BPC, for all 109 locations of BPC covered for SAP transaction of product exchange.

- B-to-B started with ONGC for two locations and also commenced with HPC.
- MPLS VPN data network rolled out at 535 locations of IOC
- Active Directory and Microsoft Exchange 2007 rolled out in Refineries, Pipelines and Assam Oil Division of IOC.
- In-house developed WEBDOC rolled out for all contractor operated locations of IOC

4.1.19 QUALITY ASSURANCE

With a view to improving the quality assurance to customers, various initiatives have been undertaken by IOC. Some of the important initiatives are as under:

Automation of Petrol/Diesel Stations (Retail Outlets)

IOC has embarked upon a plan of automating 2357 retail outlets. 1399 retail outlets have already been automated up to 31.12.2009.

Vehicle Tracking System (VTS)

In order to ensure that quality product reaches the customer at retail outlets, a Vehicle Tracking System is under implementation by IOC. As on 31.12.2009, 16,775 trucks have been covered out of a total number of around 20000 tank trucks.

Check & Fill Campaign

To reassure customers regarding quality and quantity of products at Retail Outlets, this special all India campaign was launched wherein customers are invited to check quality and quantity of the fuel at the Retail Outlet.

4.1.20 CORPORATE SOCIAL RESPONSIBILITY

Corporate Social Responsibility (CSR) has been the cornerstone of success right from inception of Indian Oil Corporation Limited. As a responsible Corporate Citizen, IOC has been making substantive contribution every year to national causes, social welfare and community development programme throughout the country. Management has revised the budget allocation from 0.75% of Net Profit of previous year to 2.00% of Retained Profit of previous year from the year 2009-10 towards Corporate



Social Responsibility activities, which are taken up in a planned manner, based on the local communities' requirements.

The IndianOil Foundation (IOF) is working to protect, preserve and promote the National Heritage, in collaboration with ASI and NCF of the Government of India.

Scholarships are awarded to 450 meritorious students belonging to families with less than rupees one lakh as the gross joint annual income of the family. 50% of the scholarships are earmarked for students belonging to SC/ST/OBC categories, 25% scholarships in each category/sub-category are earmarked for girl child and 10% for physically challenged.

The Sports Scholarship Scheme awards 55 scholarships for 7 games/sports (Cricket, Table Tennis, Badminton, Tennis, Chess, Hockey and Golf) to upcoming junior players in the age groups of 15 to 18 years and are paid scholarship of Rs.5000/- per month for 3 years in addition to kit items.

4.1.21 SUBSIDIARIES

(a) Chennai Petroleum Corporation Limited (CPCL)

CPCL has two refineries, one at Manali (9.5MMTPA) and another at Cauvery Basin at Nagapattinam (1 MMTPA). The main products of the company are LPG, Motor Spirit, Superior Kerosene, Aviation Turbine Fuel, High Speed Diesel, Naphtha, Bitumen, Lube Base Stocks, Paraffin Wax, Fuel Oil, Hexane and Petrochemical feed stocks. During Apr-Dec'09, it processed 8.2 MMT of crude and clocked turnover of Rs. 22846 crore increased to Rs.36,490 crore from Rs.32,889 crore in the previous year.

Major ongoing projects include Fuel Quality Up-gradation and Capacity Expansion by 1 MMTPA.

(b) Lanka IOC Limited (LIOC)

LIOC has 151 petrol & diesel stations, 2 consumer pumps and 11 lube distributors in Sri Lanka along with storage terminal, laboratory and lube manufacturing set up. It has also established itself in bunkering business.

Sri Lanka's leading business magazine LMD has ranked Lanka IOC PLC as No.1 Company, in the list of Leading Listed Companies for the 2nd consecutive year, based on the performance for the financial year 2008-09. LIOC clocked sales of 463 TMT during the period Apr-Dec'09.

(c) IndianOil (Mauritius) Ltd. (IOML)

IOML, a wholly-owned subsidiary of IOC, holds around 24% of the market share in POL products in Mauritius. It has port terminal at Port Louis with storage capacity of 24000 MT, the first full-fledged petroleum products testing laboratory in Mauritius, network of 17 ROs and also has presence in aviation as well as bunkering business. IOML is adjudged at 16th position amongst 'Top 100 Companies' of Mauritius in the year 2008-09.

The company is maintaining its 'numero-uno' position in Aviation business and has held around 40% market share till Dec'09.

(d) IOC Middle East FZE, Dubai, U. A. E.

It is currently engaged in blending and marketing of *SERVO* lubricants and Base Oils. *SERVO* trademark registration formalities completed in Oman and UAE. *SERVO* Lubes were also officially launched in Qatar in Jan '10. So far marketing has been undertaken in Oman, UAE, Qatar, Bahrain and Yemen. During 2008-09, the company achieved turnover was Rs. 50 crore as against Rs. 41 crore in the previous year. Company declared dividend of 10% for the year 2008-09.

(e) **IndianOil CREDA Biofuels Limited**

It is a subsidiary of IOC set up with the objectives to carry out plantation/ cultivation, trading, import, export, sale, purchase of raw materials i.e. saplings or non-edible seeds, semi-finished products, energy crops and intermediaries, allied products, related agricultural equipment & machinery (including hiring of such machinery), sale or purchase or trading of by-products. IOC (74%) and CREDA (26%) are the promoters of this venture. As of now it has undertaken Jatropha Plantation on 653 Hactare of revenue waste land in Chhattisgarh.

4.1.22 MAJOR ACCOLADES

IOC, as a leading energy player, has been the recipient of numerous awards and accreditations for sustained deliverance of quality products, services and practices. Some of the major distinctions achieved by the company are listed below:

- IOC in top five in Business India's Super 100 ranking, ET 500 ranking
- IOC won **Reader's Digest Award for most trusted petrol station brand on 28th May'09**. It was adjudged the 'Most Trusted Brand' in the Petrol Station Category in India, in a survey by Reader's Digest in collaboration with the reputed research house, Nielsen Media Research.
- Superbrand status: *Indane* for first time and *SERVO* for the third time
- Most admired Retailer of the Year in the Rural Retail Category by India Retail Forum - 3rd time in a row
- *Business Today*-Indicus-PeopleStrong Survey of India's Best Employers, ranks IOC 3rd top company under the 'Core Sector' category
- IOC - the only PSU among India's 25 best employers in *Outlook Business-Hewitt Associates Study*
- PHBPL have been awarded prestigious Rajiv Gandhi National Quality Award – 2008 under the category 'Large Scale Service Sector – Others', instituted by BIS

- International Safety Award -2008 by British Safety Council (BSC), London for Mathura Refinery.
- Four IOCL refineries (Bongaigaon: Platinum, Gujarat & Mathura: Gold and Guwahati: Silver) won prestigious Greentech Environment Excellence Award 2009.
- Golden Peacock Award in Innovative Product Category for *SERVO* Ecofin J, an eco-friendly, non-toxic, poly aromatic hydrocarbon (PAH) free Jute Batching Oil.
- R&D Centre won Greentech Environment Excellence Award, 2009 for development of non-toxic, non-phyto-toxic bio-degradable Servo Agrospray Oil.
- Jawaharlal Nehru Centenary Award for 2008-09 (Instituted by MOPN&G): First prize for Panipat Refinery, Second prize for Mathura refinery and Third prize for Barauni Refinery in Group-1 (PSU Refineries).
- National Energy Conservation Award – 2009 (Instituted by Ministry of Power): First prize for Barauni refinery and Second prize for Digboi & Panipat refineries (joint winners).
- HBCPL, Haldia was given 1st Prize by OISD in cross-country pipelines for the year 2008-09.
- PHBPL have been awarded prestigious Rajiv Gandhi National Quality Award – 2008 under the category 'Large Scale Service Sector – Others', instituted by BIS.

4.2 HINDUSTAN PETROLEUM CORPORATION LIMITED (HPCL)



4.2.1.1

HPCL is a mega Public Sector Undertaking (PSU) integrated oil company in India, with Navratna status. It has two refineries producing a wide variety of petroleum products- fuels, lubricants and specialty products; one in Mumbai (West Coast) having a capacity of 6.5 MMTA and the other in Visakhapatnam (East Coast) with a capacity of 7.5 MMTA. The Corporation holds equity stake of 16.95% in Mangalore Refinery & Petrochemicals Limited, a state-of-the-art refinery at Mangalore with a capacity of 9.69 MMTA. HPCL is also progressing towards setting up of 9 MMTA capacity Green Field Refinery at Bathinda in the



Club HP Outlet

state of Punjab with joint collaboration with M/s Mittal Energy Investment Pte. Limited.

4.2.1.2 HPCL owns and operates the largest Lube Refinery in the country producing Lube Base Oils, having a capacity of 335,000 Metric Tonnes, Contributing over 40% of the country's total Lube Base Oil production. Besides, the Corporation owns six Lube Blending Plants (2 in Mumbai and 1 each at Budge Budge, Ramnagar, Chennai & Silvassa) and a Lube oil pipeline for evacuation of base oil from Mumbai Refinery. Presently, HPCL is producing over 300 grades of lubes, specialties and greases.

4.2.1.3 To succeed in the competitive environment, the Corporation has taken up initiatives such as Business Process Re-engineering exercise, creation of Strategic Business Units, ERP implementation, HR initiatives such as Organizational transformation, Balanced Score Card, Competency Mapping, bench-marking of refineries and terminals for product specifications / safety, ISO certification of refineries/ marketing / pipeline operations, branding of fuels, supply chain management for improving logistics, customer focussed approach, up-gradation and modernization of facilities.

4.2.2 MARKETING INITIATIVES UNDERTAKEN DURING 2009-10

(April – December 2009)

Retail :

- Roll out of Phase-II of “Sadaa Aap Ke Liye” was done in May 09. This is a joint training initiative launched in collaboration with HR-Marketing, aimed at imparting training to Retail Forecourt Salesmen.
- HPC has bagged the Reader's Digest “Trusted Brand Gold Award 2009” in the Petrol Station Category. This is the 4th year in succession that HPC has bagged the trusted brand award which recognizes our initiatives and innovations in delivering our Brand promise.
- An All-India Toll Free Number **155233** was launched by Hon'ble Minister of Petroleum & Natural Gas in Sept '09. Operation is similar to the existing HPCL Retail Toll Free Number **1800 2333 999**. On dialing this toll free number 155233, it will terminate at the nearest Industry Helpline centre (shared by IOC / HPC / BPC for both Retail & LPG SBUs) where the Customer Care Executive (CCE) will receive the complaint details and forward it to the respective oil company for its redressal. In case of HPCL Retail complaint, the CCE will enter the details into our Retail CMS as is being done presently.
- Retail SBU is running a Product Promotion Campaign, **HP Happy Wheels Offer**, for increasing the sales of normal petrol and branded petrol “poWer”. The Promotion Campaign was launched on Sept 16th in all the relevant markets in the country except Tamil Nadu. Retail SBU has also commissioned a **micro site**, <http://hphappywheels.com> for use by our customers during the campaign period.

- A television campaign was launched to communicate the differentiated services from our network of Club HP Stations and increase the foot-falls. The television commercial used in the campaign showcases the services being offered under the brand of Club HP.

LPG :

- Jamshedpur LPG Plant has successfully commissioned a 12 Head Electronic Carousel in May'09 with downstream equipment.
- 'World Environment Day' was celebrated on June 5th at all Regional Offices & Plants. Discussed & highlighted various issues e.g. global warming, industrial pollution, energy conservation, carbon footprints and the 3 vital 'R's - Reduce/Recycle/Reuse.
- Tied up with one of the RPG Group of Companies, M/s Raychem, for supply of domestic gas meters used in reticulated systems Pan India.
- Launch of **HP Anytime** in Delhi, a 24x7 IVR based Refill Booking System and Common Oil

Industry Toll Free Number **155233** for receiving complaints in the state of Delhi.

- '**HP Gas Pushpak**', a multi-utility vehicle was launched in Aug '09 by Lucknow LPG Region at the hands of Shri Jitin Prasada, Hon'ble Minister of State for Petroleum & Natural Gas. The vehicle symbolizes HPC's commitment towards creating safety awareness among HP gas customers.
- A training program named **Sakhsham** was commenced in Nov 09 for unviable SC/ST and newly commissioned LPG distributorships. This is a 15 days residential program and covers topics by internal and external faculty on dealership operations, behavioral part, finance issues, customer handling etc.

I&C :

- Direct Sales SBU has developed and released a **Product Digest** covering the description including specifications of Bunker Lubes as well as Fuels marketed by HPCL. The book would



HPCL's Mundra Delhi Pipeline (MDPL) was conferred with OISD 'Best Overall Safety Performance' Award. Seen in the picture are the Hon'ble Minister of P&NG, Shri Murli Deora and Hon'ble Minister of State for P&NG, Shri Jitin Prasada handing over the Award to C&MD – HPCL, Shri Arun Balakrishnan and Executive Director (Projects & Pipelines) – HPCL, Shri A. B. Thosar



add value by helping our business partners like shipping companies, bunker traders etc. to understand our marine products in a better manner.

- First International Fuel Bunker Supply executed on 14/09/09 by our Mumbai Direct Sales Regional Office. The Bunker supply of 1.2 TMT of FO 380 CST and 47 MT of MGO (HF HSD) was effected at Fujairah, UAE, to our LPG carrier Maharshi Bhardwaj which is on time charter with HPCL.
- Commissioned 4.2 km. Bitumen exclusive pipeline with an investment of Rs.15 crores by Visakh Refinery by first ever Bitumen (60-70) export of 4042 MT to M/s TIPCO, Thailand (sister concern of M.s Colas). The deal was also finalized with TIPCO to export 5 TMT of Bitumen.

Aviation:

- Gained an international contract of M/s China Eastern Airlines.
- Commissioned 9 ASFs, taking the total to 30 ASFs across the country as of Dec. 09.
- Aviation SBU commissioned, for the first time, the PLT operations of ATF thru the Multi-Product VVSPL from Visakh to Vijayawada and also commissioned the ATF storage and TT Loading Facilities at Vijayawada Terminal.

R&D / QC

- NABL Certification for Shakurbasti Laboratory has been approved by the NABL Board

Others

- Launched CREDA-HPCL Biofuel Ltd. (CHBL) Website by Director-Mktg. along with other board members of CHBL. The website will be continuously updated with the various activities and developments taking place in the company.

- MoU was signed between HPCL & Tamil Nadu Agricultural University, Coimbatore on Aug 20th, 2009 for jointly undertaking cane development activities in East & West Champaran districts of Bihar. HPCL plans to set up the first of its kind project which will convert sugarcane juice directly into Ethanol at the Sugar Mill in Sugauli & Lauriya.
- Commissioned Rain Water Harvesting System at Loni Terminal in Aug.'09.

4.2.3 REFINERIES HIGHLIGHTS/INITIATIVES 2009-10 (April – December 2009)

Mumbai Refinery

- Successfully commissioned GFEC Units. Commenced EURO-IV MS production and supplied to industry during 2009-10.
- Achieved reduction of specific energy consumption from 0.39 MBTU/BBL/NRGF to 0.38 MBTU/BBL/NRGF in CPP and consequently saved fuel is 250 SRFT.
- Mumbai Refinery was awarded 3rd prize in the first category (Refineries having steam consumption upto 0.5 MT/MT of crude) in RTM held at Mahabalipuram.
- Mumbai Refinery was awarded with internationally acclaimed “**OHSAS 18001:2007 Certificate**” in January 2010 for its Occupational Health and Safety Management Systems and World Class Occupational Health Care facilities.

Visakh Refinery

- Successfully commissioned CFP units. Commenced EURO-IV MS production and supplied to industry during 2009-10.
- Commissioned Bitumen Export facilities in HPCL and exported 4.1 TMT bitumen for the first time during September 2009.

- (iii) The Refinery bagged Jawaharlal Nehru Centenary Award for energy performance (second prize) declared by MOP&NG for the year 2007-08 in May 2009.

4.2.4 AWARDS/RECOGNITION:

HPCL has received following awards / recognitions during the year 2009-10 (as of December 2009) in different fields. Some of them are as under:

- HPCL has its ranking to 311th position during 2008-09 in the prestigious list of **Fortune** 'Global 500'.
- HPCL has been ranked 111th in the list of the "World's Most Reputable Companies" in 2009, according to Reputation Institute [RI].
- "Petrofed Project Management (Rs. 500 - Rs. 2000 crore) Company of the Year Award" for 2007-08 for completing Mundra-Delhi Pipeline Project in the Oil & Gas Value Chain in Indian Territory.
- Greentech Safety Silver Award to Salwas Depot.
- Greentech Silver Award to Raipur & Jatni LPG Plant.
- Greentech Safety Gold and Silver Award in Safety Management- 2009 to Hassan Terminal and Loni LPG Plant, Gaziabad respectively.
- Greentech Safety Gold Award in Safety Management to Mangalore LPG Import Facility.
- Greentech Safety Silver Award to Patna LPG Plant.
- Golden Peacock Environment Management Award 2009 to Mumbai Refinery, and Loni & Chakan LPG plants.



Hon'ble Minister of State for Petroleum & Natural Gas, Shri Jitin Prasada inaugurating the Oil Companies 'Check & Fill' Campaign at HP Auto Care Centre, New Delhi



- Special Commendation for Golden Peacock Environment Management Award to Salawas Depot.
- SAIL HR Excellence Award 2009- Large Scale Organisation to team HPCL-HR.
- HR Leader Award to HPCL Director-HR, Shri. V. Vizia Saradhi.
- Indira Super Achiever Award to HPCL Director-HR, Shri. V. Vizia Saradhi.
- Enterprise Connect Award 2009
- Indira Gandhi Rajbhasha Puraskar 2007-08.
- Uttam Suraksha Puraskar (2006-08) to Hassan Terminal & Mangalore LPG Import Facility.
- Reader's Digest -Trusted Brand Gold Award 2009 to Retail SBU.
- Pride of HR Profession Award to HPCL Director-HR, Shri. V. Vizia Saradhi.
- Organisation with innovative HR practices Award.
- Young HR Professional of the Year Award to entire HPCL Team.
- CIO 100 – Hall of Fame Award.
- ASTD Best Awards.
- Greentech Environment Excellence Gold Award 2009 to Mumbai Refinery.
- OISD Award-First Rank (2008-09) by MOP&NG for excellence in Safety at POL/ Terminals.
- NDTV Profit Business Leadership Award 2009.
- Marketing Professional of the Year Award to HPCL Director-Marketing, Shri S. Roychoudhury.
- Brand Leadership in Service Industry Award 2009 to Retail SBU.

- Corporate Governance CSR Award 2009.
- Corporate Governance National Quality Award 2009 for Safety.
- Employer Brand of the Year Award for employer branding.
- HR professional of the Year Award 2009 to HPCL Director-HR, Shri. V. Vizia Saradhi.
- Talent Management Award for Competency Mapping & Development Center Process.

4.2.5 PERFORMANCE

The performance for the year 2008-09 (full year) and 2009-10 (upto December 2009) are as follows:

4.2.5.1 PHYSICAL PERFORMANCE

REFINERIES

	Unit	2008-09 (Actual)	2009-10 (upto Dec. 2009) (Actual)
Mumbai Refinery			
Crude Throughput	TMT	6.652	5.122
Distillates	Wt. %	69.0	70.8
Fuel & Loss	Wt. %	6.64	7.76
Visakh Refinery			
Crude Throughput	TMT	9.155	6.703
Distillates	Wt. %	75.7	71.1
Fuel & Loss	Wt. %	5.69	6.59

MARKETING

	Unit	2008-09 (Actual)	April- December 09 (Actual)
Total Sales (w/o exports)	MMT	23.83	18.11
Commissioning :			
Retail Outlets	Nos.	250	254
SKO/LDO Dealerships	Nos.	0	0
LPG Distributorships	Nos.	18	73
New LPG Enrolment	Lac	12.83	17.70

4.2.5.2 FINANCIAL PERFORMANCE

(All figures in Rs. crore)

	2008-09 (Actual)	2009-10 (upto Dec. 2009) (Actual)
Sales Turnover (including other receipts)	1,32,708	82,801
Net Sales after Pool Account adjustments (including other receipts)	1,25,658	77,517
Increase/(Decrease) in Inventory	-1837	2138
Operating Expenses	1,20,045	77,225
Profit Before Depreciation, Interest & Tax (PBDIT)	3776	2431
Depreciation	981	847
Interest	2083	740
Profit Before Tax	712	844
Tax	137	300
Profit After Tax (PAT)	575	544
Dividend (incl. Tax on Dividend)	208	-
Retained Profit	367	544
Internal Resources Generated (Incl. Deferred Tax)	1383	1492
Value Added	8269	5526
Contribution to Exchequer	20990	14241

4.2.6 PROJECTS

MAJOR PROJECTS COMPLETED DURING 2009-10 (as of December 2009):

GFEC Project at MR / Clean Fuels Project at VR:

The objective of “Green Fuels and Emission Control Project (GFECP)” / “Clean Fuels at VR” is to upgrade the Motor Spirit quality and meet the future specifications of Euro-III for MS with a capability to make Euro-IV MS. Both the projects have been commissioned and EURO-IV MS production started.

LPG Bottling Plant at Irumpanam:

The project is setting up of 44 TMTPL LPG Bottling Plant at Irumpanam (Kochi) on the land available in

the POL terminal was approved in October 2006 with a cost of Rs. 37.50 crore. Plant has been commissioned on July 2009.

MAJOR PROJECT APPROVED DURING 2009-10 (as of December 2009):

● Diesel Hydrotreater Project at Mumbai Refinery (DHT-MR)

HPCL is setting up Diesel Hydrotreater facilities at Mumbai Refinery to meet Euro-IV specification for diesel. As per the latest Auto Fuels Policy, Euro-IV quality norms are to be met for MS and HSD to be supplied to Metro cities from April 2010. The project cost is Rs. 3284 crore with a completion schedule of Sept. 2011.

● Diesel Hydrotreater Project at Visakh Refinery (DHT-VR)

HPCL is setting up Diesel Hydrotreater facilities at Visakh Refinery to meet Euro-IV specification for diesel. As per latest Auto Fuels Policy, Euro-IV quality norms are to be met for MS and HSD to be supplied to Metro cities from April 2010. The total project cost is Rs. 3597 crore with completion schedule of Sept. 2011.

● Single Point Mooring Project (SPM) at Visakhapatnam

Objective of the project is to upgrade the present arrangement that is to receive and handle marine tankers of higher capacity i.e. Very Large Crude Carriers (VLCCs) upto 300000 DWT in order to minimize the transportation cost and improve the economics as well as cater to the future expansions. The Total cost of the project is Rs. 643.46 crore and it is expected to be completed by May 2010.

● Resitment of Marketing Installation at Visakh

Objective of the project is to modernize facilities like White Oil, Black Oil & LPG terminal and close existing facilities to hand over approximately 65 acres of plot to HPCL Visakh Refinery for setting up new Diesel Hydro Treater unit for Euro-IV Diesel production and bottoms upgradation facilities. The



total cost of the project is Rs. 756 crore Completion schedule of the project is as below:

Black Oil Terminal	:	March 2011
LPG Terminal	:	June 2011
White Oil Terminal	:	September 2011

● Construction of New Terminal at Ennore, Chennai

Objective of the project is to facilitate modernization of operations through automation, enhanced product tankages and also bring in greater flexibility in logistics for receipt and dispatch of various petroleum products through Road/Rail/Port. The Terminal will be a southern Hub, enabling us to meet the requirements, of various locations under SZ. Also the existing Terminal at Thondiarpet is congested and unable to meet the safety norms and hence Resitement to Ennore will greatly improve the safety aspects of operations. The total project cost is Rs. 224 crore and it is expected to be completed by February 2011.

● Guru Gobind Singh Refinery Products Evacuation Project

The objective of the project is to evacuate POL products (MS, HSD, SKO & ATF) produced by GGS Refinery. Total cost of the project is Rs. 605.40 crore and the project is expected to be completed by December 2010.

MAJOR ON-GOING PROJECTS:

● Lube Oil Base Stock (LOBS) Up-gradation Project at Mumbai Refinery:

At present, Mumbai Refinery produces various grades of LOBS with sulphur above 300 ppm and saturates below 90%, which fall under API Gr-I category. Customer requirement & market demand is for LOBS quality with sulphur below 300 ppm and saturates above 90%, which falls under API Gr-II category. Hence, to retain/increase market share of LOBS, under this project it is intended to improve LOBS specifications to API Gr-II category with a capability to produce API Gr-III.

The approved cost of the project is Rs. 1030 crore. Anticipated completion schedule of the project is May 2010. Achieved physical progress of 90.47% against target of 97.94 % as of December 2009.

● New FCCU Project at Mumbai Refinery:

It is planned to increase its crude processing capacity of Mumbai Refinery from its existing capacity of 6.5 MMTPA to an overall capacity of 7.9 MMTPA by de-bottlenecking the existing units. At this enhanced crude processing capacity, the existing secondary processing units viz. Lube Processing unit of capacity 335 TMTPA and the existing Fluidized Catalytic Cracking Unit (FCCU) of capacity 1.0 MMTPA will not be able to utilize the full output from Vacuum Distillation Units (VDU). Accordingly, it was envisaged to revamp the existing FCCU under GFEC Project to make full use of the feed generated and to maximize profitability of operation. Later, due to the difficulties in execution of FCCU revamp, it was decided to set up a new grass root FCCU with a capacity of 1.456 MMTPA at a new location using the already ordered equipment of the FCCU revamp.

The approved project cost is Rs.900.47 crore and scheduled completion by May 2010. Achieved physical progress of 81.3 % against target of 97.9% as of December 2009.

● LPG Plants:

■ Bangalore

New LPG Bottling Plant at **Bangalore** is being set up at a cost of Rs. 45.00 crore with a capacity of 88 TMTPA. HPCL has requested Karnataka Govt. to allocate the suitable land for setting-up the said LPG Bottling Plant and Land is being identified. Anticipated completion of the project is 18 months from land take over.

■ Anantpur

New LPG Bottling Plant at **Anantpur** is being set up at a cost of Rs. 43.45 crore with a capacity of

44 TMTA. The Land acquisition through APIICL is in progress. Anticipated completion of the project is 18 months from land take over.

■ **Bulk Storage Capacity Augmentation at Ajmer:**

Bulk storage capacity augmentation at **Ajmer** is setting up of 2100 MT additional Bulk LPG storage at Ajmer LPG TOP & Bottling Plant was approved by the Executive Council (M) at total cost of Rs. 21.27 crore. The scope of project includes putting up 3x700 MT Mounded storage facilities, asphalted road around mound, associated fire fighting and gas monitoring system at existing spare land and hooking up the same to existing storage of similar capacity. Anticipated completion of the project is March 2010.

4.2.7 POLICY INITIATIVES UNDERTAKEN

HPCL has undertaken a path of high growth in keeping with the national priorities. The ambitious plans include furthering the synergies and participating in the oil industry's growth by vertically integrating in the upstream and downstream sectors. The policy initiatives undertaken also include growth and diversification ventures in the following sectors:

4.2.8 JOINT VENTURES / SUBSIDIARIES

(a) South Asia LPG Co. Pvt. Ltd. (SALPG)

HPCL in collaboration with TOTAL SA of France has set up a Cavern at Visakhapatnam for storage of 60,000 MT LPG. The project was commissioned in December 2007. During first full year of operation in 2008-09, volume of 578,853 MT of LPG was discharged into the Cavern. SALPG achieved throughput of 4,44,418 MT with 7% growth for received quantity and 4,55,444 MT for pumped out quantity with 13% growth during April to December, 2009 as compared to corresponding period of previous year. Turnover of the company was higher by 13% at Rs.77 crore and net profit was higher at Rs. 31 crore with growth of 55% during this period, as compared to previous year.

(b) Hindustan Colas Ltd. (HINCOL)

HINCOLAS, a joint venture company jointly promoted with M/s COLAS SA, France for manufacturing bitumen emulsions. HINCOL

currently operates seven manufacturing plants across India, manufacturing international quality value -added bituminous products such as bitumen emulsions & cutbacks and modified bitumen. HINCOL achieved a volume growth of 17% and profitability growth of 43% during 2008-09. The turnover of the company crossed Rs. 350 crore for the year 2008-09. The products of HINCOL are widely used by agencies associated with road construction. HINCOL has successfully implemented SAP for its entire operations. Volume of 1,27,471 MT was achieved during April to December, 2009 corresponding to 1,24,065 MT during previous year. Further, company achieved turnover of Rs. 243 crore during this period corresponding to Rs. 240 crore during previous year. Profits after tax during this period was Rs. 26 crore as compared to Rs.12 crore during previous year.

(c) HPCL-Mittal Energy Ltd. (HMEL)

HMEL a joint venture company promoted by HPCL and Mittal Energy Investments Pte Ltd is setting up a 9 MMTPA capacity Refinery at Bathinda in Punjab. The Refinery has state-of-the-art environment and safety features with world class technology. Refinery is designed with high complexity factor and flexibility to process heavy, high sulphur and other opportunity crude. This project is progressing as scheduled and more than 60% physical progress has been achieved. It is expected to be completed by first quarter of 2011.

(d) Mangalore Refinery and Petrochemicals Ltd. (MRPL)

MRPL with a capacity of 3 MMTPA was commissioned in March 1996. The capacity of the Refinery was enhanced to 9 MMTPA during 1999-2000. ONGC acquired the entire equity stake of IRIL in MRPL on 03.03.2003 and also infused Rs. 600 crore into MRPL as additional equity on 30.03.2003. The FIs/Lenders of MRPL converted Rs. 365 crore of debt into equity and Rs. 160 crore debt into Zero Coupon Bonds. Consequent to financial restructuring, HPCL's equity stands at 16.95% for which a fresh Shareholder Agreement dated March 3, 2003 has been signed by HPCL with ONGC to take care of the interest of HPCL.



MRPL achieved turnover of Rs. 23,424 crore during the period April to December, 2009 and higher Profits after Tax of Rs. 859.30 crore corresponding to Rs. 584.92 crore during previous year.

(e) Prize Petroleum Company Ltd. (PPCL)

HPCL, in partnership with ICICI and HDFC, had formed this joint venture E&P Company for participating in exploration and production of hydrocarbons. PPCL has signed a Service Contract with ONGC Ltd for development of marginal fields in Cambay Basin (Hirapur, Khambel and West Bechraji field) with 50% holding in the consortium. During the period, April to December 2009, Hirapur field produced 27,503 barrels of oil. Cumulatively, PPCL has produced 1,91,082 barrels of oil from Hirapur field. PPCL has also entered into a Production Sharing Contract (PSC) with 50% stake in an onland marginal field at Sangapur. During the period April to December 2009, there was a production of 766 barrels of oil from this field. Cumulatively, PPCL has produced 98,693 barrels of oil from Sangapur field.

(f) Petronet India Ltd. (PIL)

Petronet India Ltd. (PIL) was incorporated on May 26, 1997 as a joint venture company with 50% equity by oil PSUs and balance 50% taken by private companies/financial institutions. Special Purpose Vehicles (SPVs) were floated by PIL with oil companies for implementing individual pipeline projects, viz, Petronet MHB, Petronet CCK and Petronet VK which are operating companies. Since oil companies are now having pipelines independently, PIL has initiated action to disinvest its equity holding in all the individual JVs.

(g) Petronet MHB Ltd. (PMHBL)

HPCL, along with Petronet India Limited (PIL) promoted Petronet MHB Limited (PMHBL) for construction of Mangalore-Hassan-Bangalore Pipeline at a cost of Rs. 667 Crores with debt equity ratio of 3:1. The joint venture company was incorporated on July 31, 1998. Initially PIL& HPCL

each contributed 26% towards equity. ONGC joined as a strategic partner in the company by taking 23% equity in April, 2003. The pipeline is meeting the transportation needs between Mangalore-Hassan-Bangalore. PMHBL achieved throughput of 1.87 MMT during April to December, 2009 and Net Profit during the same period was Rs. 5.29 crore.

(h) Bhagyanagar Gas Ltd. (BGL)

Bhagyanagar Gas Ltd. (BGL) is a joint venture company by GAIL and HPCL for distribution and marketing of environmental friendly fuels (green fuels) viz., CNG and Auto LPG for use in the transportation, domestic, commercial and industrial sectors, in the State of Andhra Pradesh. BGL is operating 6 CNG dispensing stations in Vijayawada, 3 CNG dispensing stations in Hyderabad and 1 CNG dispensing station in Rajahmundry. During the year, BGL participated in the bidding process for Kakinada CGD project and was successful in obtaining Authorisation from Petroleum & Natural Gas Regulatory Board (PNGRB). Further, MOP&NG has also confirmed that BGL is the authorized agency to carry on the CGD business in the cities of Hyderabad and Vijayawada. BGL is also operating 4 Auto LPG Outlets – 3 in Hyderabad and 1 in Tirupati. BGL achieved total sales volume of 8,566 MT during April to December, 2009 corresponding to 7,697 MT during same period of previous year. Further, company achieved turnover of Rs. 27 crore and net profit of Rs. 1.98 crore during this period.

(i) Aavantika Gas Ltd. (AGL)

Aavantika Gas Limited (AGL) is a joint venture company by GAIL and HPCL for distribution and marketing of environmental-friendly fuels (green fuels) viz., CNG and Auto LPG for use in the transportation, domestic, commercial and industrial sectors, in the State of Madhya Pradesh. During the year 2008-09, AGL commenced commercial operations from its Mother station (at Indore) and 5 Daughter stations (4 in Indore and 1 in Ujjain). AGL has initiated action for laying 40 km. long Steel

Pipeline grid and for commencing 10 CNG stations in Indore. AGL has also taken steps to establish Mother Station at Gwalior and Ujjain. AGL achieved sales volume of 11,88,952 Kgs. with turnover of Rs. 3.54 crore during April to December, 2009.

(j) CREDA-HPCL Biofuel Ltd. (CHBL)

In pursuit of promoting alternate fuels, CREDA-HPCL Biofuel Ltd (CHBL) was incorporated on October 14, 2008 as a subsidiary company with equity shareholding of 74% by HPCL and 26% by Chhattisgarh State Renewable Energy Development Agency (CREDA). CHBL would undertake cultivation of jatropha plants on land leased by the Government of Chhattisgarh.

Company has acquired 100 hectares of land on lease from Government of Chhattisgarh (through CREDA) for cultivation of jatropha plants.

HPCL will have exclusive rights on the entire produce of jatropha seeds and for producing and marketing bio-diesel and bi-products from the produce.

(k) HPCL Bio-fuels Ltd.

HPCL Biofuels Ltd (HBL) was incorporated on October 16, 2009 as a wholly-owned subsidiary company in the State of Bihar.

HBL is in the process of setting up ethanol plants for blending into petroleum fuels, through installation of integrated sugar plant (3500 TPCD capacity), ethanol plant (60 KLPD capacity) & co-gen power plant (20 MW capacity), one each at Sugauli in East Champaran District and Lauriya in West Champaran District of the State of Bihar. The plants are expected to be commissioned during the crushing season starting Nov 2010.

4.2.9 CSR ACTIVITIES

As a socially responsible citizen, HPCL every year undertakes various long-term and short-term measures for the marginalized section of the society under the heading of Special Component Plan (SCP) and Corporate Social Responsibility(CSR), the former being a part of government plan and the later as a company initiative. The Company has been spending an increasing percentage of its

annual profits on the social sector every year and also monitoring implementation of distinct schemes like AIDS prevention, vocational training for unemployed youth, education of rural children, computer training, health care facilities etc. The Corporation has initiated various CSR projects keeping in view the above stated objectives. Some of the CSR activities undertaken during the year 2009-10 (as of December 2009) is as under:

(a) Swablamban:

Training in various trades like plumbing, welding, fabrication, electrical installation etc. for 1800 unemployed youths including school dropouts at various locations like Hyderabad, Chandigarh, Vishakhapatnam, Bihar (100 youths) and other locations.

(b) Unnati:

Computer training for 4000 students from urban, semi-urban and rural schools in and around various installations of HPCL in the States of Maharashtra, Andhra Pradesh, Uttar Pradesh and Rajasthan.

(c) Nanhi Kali :

Sponsorship of girl child in the area of education, cleanliness, health, hygiene of 3000 girls/Nanhi Kalis from various Govt. Schools. Renewal of 1900 Nanhi Kali's from Dists. Mehboobnagar & Paderu Region in Andhra Pradesh. Additional 1700 Nanhi Kali's from Sheopur, M.P. & Mehboobnagar.

(d) Muskan :

To transform the lives of 200 street children by providing shelter at Tuglakabad and Jahangipuri from Delhi state. Children are provided basic needs like food, clothes, shelter, health care, education, vocational training etc.

(e) Navjyot :

Project for 3100 slum children from Bawana Resettlement Colony to provide health care facilities, referral services through regular health check-up camps and also rehabilitation for slum families which includes family planning programme.

(f) Suraksha :

Prevention of HIV/AIDS among long distance truckers through "Suraksha Khushi Clinic" i.e. setting



up clinics to provide diagnosis and treatment along with accessibility of condoms, at outlets.

VIII) **POLLUTION CONTROL AND OTHER ENVIRONMENTAL INITIATIVES TAKEN BY HPCL**

Brief Summary:

HPCL is committed to environment protection and constantly endeavour to ensure that its increasing scale of operations does not lead to environment degradation. In line with the "Environment Policy" adopted by it, HPCL is committed to conduct all its operations in such a manner as to be compatible with the Environment.

A separate department exists in both of our Refineries at Mumbai and Visakh to monitor and control pollution and effluent levels. Both the refineries have been meeting the statutory regulations and standards set by State Pollution Control Board and Ministry of Environment & Forests, Govt. of India.

- Effluent Treatment Plants are set up at both the Refineries. To replace the existing ETP-I & ETP-II at Mumbai Refinery with new Integrated ETP by adopting Cyclic Activated Sludge treatment followed by Membrane Bio-Reactor & Reverse Osmosis, has been undertaken and the project is under commissioning which is capable of meeting the revised MINAS. At Visakh Refinery ETP-I and ETP-II are augmented with additional surge capacity. This will help in reducing Sulphide level of effluent besides eliminating chemical sludge generation. To further enhance the Effluent Treatment Plants efficiency, some of the following initiatives have been undertaken:
- Oil Ingress study recommendations are under implementation and are in the final stage of implementation to take care of sudden shocks of oil encountered by Effluent Treatment Plants. A study has also been undertaken and

completed to address the shock loads of sulphides to ETPs'.

- Bio-reactor efficacy study recommendations conducted by NEERI, Nagpur are being implemented to increase its efficiency.
- Volatile Organic Compounds study for the entire refinery has been completed to address the revised environmental norms. Leak Detection & Repair Programme has been put in place to quantify the VOC emissions and take preventive measures.
- Groundwater monitoring has been undertaken as a part of monitoring strategy inside the refinery premises.
- Drastic reduction in SO₂ emissions have been achieved in both Refineries inspite of significant increase in crude throughput. SO₂ emissions have reduced from 60 TPD in 1984 to less than 25 TPD now, inspite of capacity increase from 4.5 to 13 MMTPA and addition of various secondary processing facilities.
- Liquid fuel firing has been replaced with the natural gas firing at our Mumbai Refinery which has again resulted in significant SO₂ emission reduction. These significant reductions have been achieved essentially by firing low sulphur fuels in the furnaces, putting up Sulphur Recovery Units and installing gas desulphurization facilities.
- HPCL was one of the first to adopt Eco-friendly technologies such as changeover from Phenol to NMP solvent in three solvent extraction units and changeover from Oleum to NMP in the Hexane Treating Plant. These initiatives have been widely appreciated and have won for HPCL some national and international awards/citations.
- Continuous Ambient Air Monitoring Stations and on-line stack monitoring stations have been installed at refineries which help in

monitoring gaseous emissions at source. Ambient Air Monitoring Station's (AAMS) has been upgraded to measure Respirable Suspended Particle Matter (less than 10 micron particulate size).

- HPCL has been the first to implement & commission its green fuels project in its refineries for debottlenecking and process up-gradation and to produce Euro-IV diesel and petrol, to be in line with the national fuel policy to implement Euro-III and Euro-IV norms for fuel quality. As part of Green Fuels & Emission Control Project, Flue Gas Desulphurization Unit (Wet Gas Scrubber) is being put up in FCCU Unit for reducing the SO₂ emission and particulate matter.

Environmental Initiatives at Mumbai Refinery:

1) Hazardous Waste Management

- Mumbai Refinery adopted 'Mechanical Oil Recovery Technology' for treatment of crude oil tank bottom sludge. Refinery has completed the treatment of the entire accumulated sludge (approx. 40,000 m³) and recovered 28,000 m³ of potential oil from the sludge.
- Mumbai Refinery has undertaken Bio-remediation of the left over low oily sludge (<10% oil content) after the recovery of potential oil from the crude tank bottom sludge as per the grant of authorization of Maharashtra Pollution Control Board with the assistance of TERI, New Delhi.
- In order to comply with the "Hazardous Wastes Management & Handling Rules, spent catalysts/ old chemicals/ discarded chemicals are being disposed to the registered "Common Hazardous Waste Treatment Storage Disposal Facility" (CHWTSDF), operated by Mumbai Waste Management Limited (MWML) for Landfill /incineration at a cost. Mumbai Refinery has disposed approx. 550 Tonnes of Spent Catalysts, resins & alumina balls through a sale deed to a MPCB/CPCB approved Recyclers.

2) Air Emission Control & Monitoring

- Captive Power Plant analyzer stack station software has been upgraded from present PLC based to PC based inline with other stack stations to improve

the performance. CPP data can be viewed on central PC.

- "Electronic Display Board" has been commissioned at Mumbai Refinery main gate displaying on line ambient air quality and treated effluent data as a part of public awareness.
- As a part of fugitive emission reduction program, HPCL MR has implanted leak detection action taken report.

3) Effluent Water Treatment & Control

- Rotary Drum Skimmers (RDS) have been installed & commissioned upstream of Old & New API separators for better recovery of free oil and reduce load on API separators and to meet the environmental norms.
- In-line with the adoption of clean technologies, environmental performance improvements have been achieved through up-gradation of existing Effluent Treatment Plants operating at Refinery. These effluent treatment plants ensure that all the water effluent generated during various process operations in the Refinery are treated as per the set standards prescribed by State Pollution Control Boards.
- An Environmental Management System audit at regular intervals is carried out enabling environmental compliance.
- To achieve further reduction in pollutant levels beyond MINAS, HPCL-Mumbai Refinery has recently undertaken commissioning of an Integrated Effluent Treatment Plant (ETP) project by replacing the existing Effluent Treatment Plants with the latest state-of-the- art technology. This state of the art Effluent Treatment Plant once fully operational will meet the latest revised Environmental effluent Norms. (MOE&F notification dated 18 March, 2008).

Environmental Initiatives at Visakh Refinery:

i) Air Emission Management

- a. Creating awareness through various literary programs and saplings distribution done on the occasion of World Environment Day.
- b. Leak detection action taken report program started in-line with CPCB directives last year is in practice.
- c. Accumulated stock of Sulphur was completely sold out.



- d. Online Ambient air quality is being monitored on continuous basis.
- e. Online monitoring of pollutants from all the stacks is being carried out.

ii) Hazardous Waste Management

- a. "Permanent Disposal Committee" made in place to expedite the disposal of hazardous wastes in the Refinery.
- b. HPCL has entered into agreement with MSTC in August 2008 as its selling agents for disposal of scrap and rejected / condemned/ obsolete secondary arising wastes.
- c. Disposal of ZnO, Coke, Chlorine guard catalysts & disposal of about 6000 empty chemical drums to the registered parties is in progress.
- d. Total of 44600 m³ of sludge was processed as a part of sludge management programme at Visakh Refinery.

iii) Liquid Effluent Management:

- a. Detailed ground water monitoring is being carried out at 27 bore holes within the Refinery premises.
- b. Magnetic flow meters were installed on sour water and OWS streams to ETP-II for improved measurement of influent flow rate.
- c. API separators commissioned in ETP-1 to improve TSS and O&G.
- d. Under the Excess Oil Ingress project, API separators also commissioned for Sour Water in ETP-II.

Miscellaneous Measures undertaken for Pollution Control

- Special burners required for routing CDU-I and CDU-II Hot Well Off Gas to Atmospheric Furnace was installed and commissioned.
- Online chemical cleaning of Atmospheric & Vacuum Furnaces were carried out by GTC, Korea using liquid spray effectively.

- Periodic steam leak surveys were carried out by M/s Forbes Marshall. About 1.2 T/Hr reduction in steam leak was achieved by arresting the leaks.
- Compressed air leak surveys carried out and regular leak repairs are being done.

IX) CONSERVATION OF PETROLEUM PRODUCTS

HPCL accords highest priority to energy conservation and it has undertaken several Encon measures by implementing operational improvements & Encon projects. Most of the refinery processes are energy intensive & themselves use part of the finished products produced in the refinery to derive their energy requirements. Thus any reduction in consumption of energy directly results in higher availability of finished products.

Initiatives for Energy Conservation:

1. Mumbai Refinery signed the Gas Transmission Agreement (GTA) with GAIL to use the gas network. Gas terminal jobs by M/s GAIL inside Refinery premises are completed. RLN Gas supply started to MR during May'2009. Gas supply to all GTG's at Mumbai Refinery has also been started from GAIL for the power generation.
2. "Online Chemical Cleaning" of crude unit furnaces initiated at Visakh Refinery is being continued periodically for increasing heater efficiencies. The equivalent SRFT saving during the year (Apr-Dec.09) is estimated at 971 SRFT. Arresting steam leaks, repair / replacement of malfunctioning traps has resulted in an estimated saving of 528 SRFT during Apr-Dec'09. Thus, total estimated savings through various energy conservation methods has been 2820 SRFT for Apr-Dec' 09 (which is equivalent to 2930 MT of fuel).
3. Initiated Air to fuel ratio controllers in Visakh Refinery furnaces (11F1, 12F1, 42F1), supplementary firing in HRSGs, automatic control system to minimize LPG vaporization, etc. for energy conservation.
4. Visakh Refinery was awarded Jawarharlal Nehru Centenary Award on energy conservation (2nd prize) for

the year 2007-08 by Ministry of Petroleum and Natural Gas on 5th November, 2009 at Mahabalipuram, Chennai.

4.3 BHARAT PETROLEUM CORPORATION LIMITED (BPCL)



4.3.1 Introduction

4.3.1.1 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 production and marketing of petrochemical feedstock. BPCL's Refineries at Mumbai and Kochi have one of the most flexible configurations in the country that enable it to select the crude judiciously on economics considerations providing a competitive edge in the liberalized scenario.

4.3.1.2 The Corporation has an all-India presence through its extensive marketing network. The Corporation's employees presently number 13974.

4.3.1.3 The Authorized Share Capital and Paid-up Capital of the Company as on 31.13.2009 was Rs.450 crore and 361.54 crore respectively. The shares of BPCL are listed on the Bombay Stock Exchange and National Stock Exchange of India Ltd.

4.3.1.4 During 2009-10, (April- Dec'09) the two refineries at Mumbai and Kochi achieved a combined throughput of 19.941 MMT and are estimated to achieved a combined throughput of 20.231 MMT.

4.3.1.5 During April- December'09, 105 new ROs have been commissioned and 50 more are expected to be commissioned during the period January- March 2009 and total number of retail outlets as on 31.3.2010 is estimated at 8552.

4.3.1.6 During April- December' 09, 61 LPG distributorships have been commissioned. In addition, 19 more LPG Distributorships are expected to be commissioned during the balance period of the year 2009-10. the total number of distributorships as on 31-3-2010 is estimated at 2230.

4.3.2 FINANCIAL PERFORMANCE

The financial performance of the Corporation during the years 2008-09 and 2009-10 (Estimated) is as follows:

Figures in Rs. crore

Description	Unit	2008-09 Actuals	2009-10		
			April-Dec,09 (Actual)	Jan-Mar, 10 (Anticipated)	Estimated 2009-10
Profit / (Loss) Before Tax	Rs. crore	1004.11	1157.72	(916.72)	241.00
Profit / (Loss) After Tax	Rs. crore	735.90	834.44	(666.44)	168.00

4.3.3 PROJECT IMPLEMENTATION ONGOING PROJECTS

Fuel Quality upgrade at Mumbai Refinery

The Project envisages revamping of the existing Diesel/ Naphtha Hydro-desulphurisation and reformer Units to produce Euro-IV grades of MS and HSD by April, 2010, in line with the Auto Fuel Policy announced by Government of India. The approved cost of the project is Rs. 390 crore. The overall physical progress is 94.01% and is targeted for completion by January 2010.

Hydro Cracker Revamp and setting up new CCR at Mumbai Refinery:

The objective of this project is revamping Hydrocracker Unit to increase capacity from 1.75 to 2 MMTPA with capability to upgrade High Sulphur Diesel components to EURO-III / EURO-IV HSD and setting up 0.9 MMTPA capacity Continuous Catalytic Regenerator Reformer (CCR) facilities with 30% design margin to upgrade part Naphtha to EURO- III / EURO-IV MS to meet Auto Fuel Policy requirement.



The approved cost of the project is Rs.825 crore. The overall physical progress is 10.85% and is targeted for completion by December 2011.

Capacity Expansion-cum-Modernisation Project at Kochi Refinery:

The project envisages facilities for production of auto fuels conforming to Euro-III norms, refinery capacity expansion by 2.00 MMTPA, from 7.5 to 9.5 MMTPA and refinery modernization to reduce the operating cost. The revised approved cost of the project is Rs.3941.41 crore.

The capacity expansion from 7.5 MMTPA to 9.5 MMTPA has been completed in July 2009. The overall physical progress is 88% and is targeted for completion in April 2010.

Bina Despatch Terminal:

BPCL will be undertaking the marketing of refined petroleum products from the new Refinery being set up at Bina its JV Company Bharat Oman Refineries Ltd. (BORL). BPCL has entered into the product purchase agreement with BORL for marketing of products from the refinery. The Projects envisages the setting up of dispatch terminal with appropriate storage, distribution and other infrastructural facilities, adjacent to the refinery complex at Bina. The approved cost of the project is Rs. 639.11 crore.

Overall physical progress of 95.6% has been achieved as on December 2009. Most of the facilities inside the terminal are mechanically complete. Railway siding works are in progress. The project is anticipated to be mechanically completed by March 2010.

Bina Kota Pipeline

The project envisages the laying of an 18" dia, 257 Km. long cross-country product pipeline from Bina to Kota, to facilitate the economic evacuation of MS, HSD, SKO and ATF from the new refinery at Bina. The pipeline will be connected to the existing multi-product pipeline Mumbai-Manmad-Manglia-Piyala Bijwasan at Kota, in order to facilitate distribution of Bina Refinery products to Northern Region markets. The pipeline is designed for an initial throughput of 2.8 MMTPA and the approved cost of the project is Rs. 405.82 crore.

Pipeline laying work has been completed in the entire route and the last section is under hydro-hosting. Civil works are nearing completion at all Pumping/ IP and SV stations. Equipment erection/ mechanical works and electrical works are in progress. 92.3% physical progress has been achieved in the project as on December 2009. The facilities are anticipated to be mechanically complete by end of March 2010.



BPCL's Highway Retail Outlet – delight for truckers and travellers

LPG Import facilities at Uran

BPCL will be setting up an LPG import facilities at Uran (near Mumbai). The liquid cargo jetty at Jawaharlal Nehru Port Trust (JNPT) shall be utilized for handling imported LPG for unloading from ships and transferred through pipeline of 12" dia/12.5 km. length, in cryogenic condition from JNPT to BPCL Uran LPG Plant for storage a 2x8000 MT double integrity cup in cone full containment type tanks refrigerated tanks. The approved cost of the project is Rs. 304.40 crore.

The project has achieved an overall progress of 36.3% and is scheduled for completion December 2010.

4.3.4 JOINT VENTURE PROJECTS

Bharat Oman Refineries Ltd.

Bharat Oman Refineries Ltd. (BORL), promoted by Bharat Petroleum Corporation Ltd. (BPCL) an authorized capital of Rs. 4500 crore and paid-up capital of Rs. 151 crore. BPCL total equity contribution is 75.5 crore and has also contributed Rs. 1300 crore as share application money.

The project envisages setting up of a 6 MMTPA grassroots refinery block at Bina, Madhya Pradesh, and crude oil import / supply system consisting of a Single Point Mooring System (SPM), Crude Oil Terminal (COT) at Vadinar, Gujarat and 935 kms. long cross-country crude oil pipeline from Vadinar to Bina (VBPL).

The built capital cost is estimated to be Rs. 11397 crore, and in being financed through a debt/equity mix of 1:6:1. A consortium of 19 banks has sanctioned a total of Rs. 6090 crore that completes the debt closure and the balance equity will be arranged as and when required in future.

An agreement was signed between BPCL, OOC & BORL on 15th November 2009 for further investment by OOC in BORL pursuant to which OOC will invest Rs. 1220 crore in BORL. As per agreement, OOC and BPCL shall hold 26% and 49% respectively of the fully diluted equity of BORL.

The balance equity shall be offered to third parties/ public at appropriate time.

As on 31.12.2009, the overall physical progress of the project stands at 97.7%. The cumulative expenditure as of Dec. 2009 is Rs. 9041 crore with a cumulative commitment of Rs. 10619 crore. The project is scheduled for commissioning progressively from June 2010 onwards.

Central U.P. Gas Ltd. (CUGL)

Central U.P. Gas Ltd. (CUGL) a joint venture company with authorized capital of Rs. 60 crore was set up in March 2005,

with GAIL India Ltd as the other partner. CUGL is implementing the project for supply of CNG to household, industry and automobile sectors in Kanpur. BPCL's investment in this project is Rs. 13.5 crore, being 22.5% share of the equity capital.

The project envisages setting up of 16 CNG mother stations and City Gas Distribution Network in Kanpur at a total project cost of Rs.324.6 crore. As on 31.12.2009, CUGL has commissioned 7 CNG stations in Kanpur and one in Bareilly. CUGL is now spreading to Rai Bareilly and have carried out Techno-Commercial and market feasibility studies.

Maharashtra Natural Gas Ltd. (MNGL)

Maharashtra Natural Gas Ltd. (MNGL) was set up in January 2006 as a Joint Venture Company (JVC) with GAIL India Ltd. as the other partner for setting up facilities for distribution of CNG to the household and automobile sector in the city of Pune and adjacent areas in Maharashtra except Mumbai, New Mumbai and Thane. The authorized capital of MNGL is Rs. 100 crore. BPCL's investment in this project is expected to be Rs. 22.5 crore, being 22.5% share of the equity participation in the project cost of Rs. 343.2 crore. Govt. of Maharashtra will be having a share of 5% and rest 50% share will be offered to Financial Institutions. The project will be implemented in Phases. As on 31.12.2009, eight CNG stations have been setup.

Sabarmati Gas Ltd.

Sabarmati Gas Limited (SGL) a joint venture company (JVC) promoted by BPCL and Gujarat State Petroleum Corporation Ltd. (GSPCL) with an authorized capital of Rs. 100 crore, for implementing the City Gas Distribution Project for supply of CNG to the household and automobile sector in the city of Gandhinagar, Mehsana & Sabarkantha Districts.

BPCL and GSPCL will each subscribe to 25% of the equity capital of the JVC the balance will be offered to Financial Institutions. As on 31.12.2009, BPCL has contributed Rs. 19.96 crore towards equity. SGL has set up five CNG stations to meet the CNG requirement of vehicles.

4.3.5 POLICY INITIATIVE UNDERTAKEN

4.3.5.1 STRATEGIC INITIATIVES

Strategic Initiatives identified are:

- (a) Customer focused approach.
- (b) Build on product sourcing capabilities.



- (c) Brand building.
- (d) Strengthening Retail Network-security and development.
- (e) Building international trading skills.
- (f) Investments in R&D and technology.
- (g) Adopt an integrated on-line ERP solution.
- (h) Focused initiatives in LNG, Power, Petrochemicals and E&P.
- (i) Development of clean and renewable energy e.g. Wind Power, Solar Power and Bio-diesel.

4.3.5.2 RENEWABLE ENERGY

BPCL has taken steps to develop non conventional/ renewable resources of energy and has undertaken various initiatives in tapping non-conventional energy sources like bio-diesel, wind energy, solar energy and fuel cells in order to develop such alternate sources of energy.

BPCL have started adopting new technologies and has taken initiative in the following areas:

Bio-diesel:

BPCL has been exploring the possibility of promoting green fuel, with a view to protect the environment by reducing pollution and dependence on imported fuels. Towards this end, huge tracks of unproductive, barren and non-cultivable land are proposed to be used for the growth of Jatropha and Karanj Plants. The plantations would be a contribution towards environment protection, prevention of soil erosion and a feedstock for manufacturing bio-diesel while promoting sustainable development.

In Uttar Pradesh, BPCL has launched "Project Triple One"-the Bio-diesel value chain which envisages cultivating 1 million acres of wasteland, creating 1 million jobs and producing 1 MMT of Bio-diesel from plantation to replace by the year 2015. To enter the bio-diesel value chain a joint venture company, M/s Bharat Renewable Energy Ltd. has been incorporated and progress is underway in this regard.

NON-CONVENTIONAL ENERGY INITIATIVES:

● **Windmills**

BPCL has been one of the first oil companies to successfully utilize non-conventional energy sources by generating 5 MW power through windmills (four of 1.25 MW each) in the hilly range of Kappatguda in Karnataka. Work on the project, was completed in July 2007 and the windmills are currently in operation and power produced is sold to the Karnataka State Electricity Grid. This project has been identified to avail of carbon emission credits under Kyoto Protocol and was approved by United Nations Framework Convention on Climate Change (UNFCCC) during February 2009. BPCL has accrued the Verified Emission Reductions (VERs) since February 2009.

In addition Kochi refinery's shore tank farm located in the coastal area of the Puthuvypeen Special Economics Zone has been identified to harness wind energy potential. BPCL has approached the Centre for Wind Energy, Chennai to carry out a feasibility study. Clearance has been obtained from the naval and local authorities for setting up windmills in the shore tank farm.

● **Solar Farm**

A 1 MW capacity grid connected solar farm is proposed to be set up at one of BPCL's LPG bottling plant in Lalru in Panja. Power Purchase Agreement has been signed with Punjab State Electricity Board. The Project too has been identified to avail of carbon emission credits under Kyoto Protocol.

● **Solar-cum-Wind Power**

BPCL's COCO Retail Outlet at Uluberia (near Kolkata).and Bengaluru have a 5 KVA solar cum wind power generator and a 5 KVA solar power generator respectively.

● **Poly Electrolyte Membrane Fuel Cell Generator**

A 3 KVA Poly Electrolyte Membrane Fuel Cell (PEMFC) Generator which operates on hydrogen energy has been provided at our COCO Retail Outlet near Hyderabad to take lighting load. This is a pilot project undertaken for the first time in the country along with BHEL and its performance is being monitored.

4.3.5.3 BUSINESS INITIATIVES

(a) Retail Initiatives

BPCL has pioneered in the customer loyalty programme in the Oil Industry and has embarked upon various marketing initiatives. These initiatives are receiving good response from the customers and have created a brand differentiation for BPCL in the minds of consumers. Some of them are Petrocard, Smart Fleet Card, In and Out Stores, Pure for Sure Programme, Branded Fuels, Retail Automation etc.

(b) Industrial & Commercial

The fully secured B2B portal e-biz.bpc.co.in caters to large no. of register industrial customers. Besides it also enable easy and convenient way of making payment through e-banking initiative.

(c) LPG

Bharat Metal Cutting Gas (BMCG) has been another successful innovation from BPCL and has growing in popularity given its performance efficiency and low-cost visa-vis acetylene.

Rural Marketing of LPG- Rural marketing is a priority area and towards this, BPCL has positioned 22 Rural Marketing Vehicles (RMVs) that move from village to village and fill LPG cylinders in the presence of the customers. Large no. of connections have been made available to the far-flung village RMV catering to rural areas.

4.3.6 EXPLORATION AND PRODUCTION

Bharat Petro Resources Ltd. (BPRL) was incorporated in October 2006 as a wholly-owned subsidiary of BPCL to focus on exploration and production activities. The company has an authorized capital of Rs. 1000 crore. The subscribed share capital of BPRL as on 31.12.2009 is Rs. 502.55 crore. In India, BPRL has participating interest in 9 exploration blocks which were accrued in the NELP-IV, NELP-VII rounds of bidding in consortium with various partners. BPRL has participating interest in 5 blocks in the United Kingdom, Australia and Oman.

BPRL through its wholly-owned subsidiary company, Bharat Petro Resources JPDA Limited (BPRL-JPDA

Ltd) has a participating interest of 25% in Block JPDA 06-103 East Timor in the Joint Petroleum Development Area between East Timor and Australia.

BPRL has further incorporated a wholly-owned subsidiary company, BPRL International BV with an investment of Rs. 341.64 crore, which in turn, has incorporated other subsidiary companies viz. BPRL Ventures BV and BPRL Ventures Mozambique BV for undertaking exploration activities. BPRL Ventures BV has participating interest in 10 blocks in Brazil. Similarly, BPRL Ventures Mozambique BV has participating interest a block in Mozambique.

4.3.7 RESEARCH & DEVELOPMENT

BPCL is continuously strengthening the infrastructure and manpower resources for at its Corporate R&D Centre, R&D Centre, Sewree, Mumbai, and R&D Centre at Kochi Refinery. BPCL's R&D Centres enabled the Corporation, to achieve a higher growth and better profitability through development of several new products/ processes/ formulations for refineries and other business units.

During the year, Corporate R&D Centre made significant contributions in value addition at the refineries through development and commercialization of in-house catalysts like CO combustion promoter catalyst for fluid catalytic cracker units, LPG sweetening catalyst, process optimization studies leading to selection of optimum catalysts & additives like GSR additive, detailed crude evaluations, crude preheat train fouling studies and selections of suitable chemicals. R&D also made major contributions to improve the profitability of business units through development and commercialization of value added products such as Bharat Metal Cutting Gas (BMCG) and process schemes for reducing logistic costs. The Centre has also developed a cost effective process during the year for conversion of non-edible oils with high free fatty acid content to bio-fuels and the process is being scaled-up for setting up pilot plant for process demonstration. Major research projects have been initiated in the emerging areas like coal to clean



liquid fuels, bio- fuels and gas storage. As part of new initiatives, BPCL entered into collaborations with leading research organization as listed below:

- a) Indian Institute of Science, Bangalore and Central Salt and Marine Research Institute for the development of nano materials for on board storage of natural gas and hydrogen for transport applications.
- b) Indian Institute of Science, Bangalore for the development of 3rd generation CIGS thin film solar voltaic cells' for harnessing solar energy.

- c) Tamilnadu Agricultural University for the development of technology for bio-diesel production from Micro algae.

4.3.8 INTERNATIONAL CO-OPERATION

(a) Crude imports

BPCL has always been taking initiative in increasing the supply source for crude oil. For ensuring uninterrupted crude oil supply, the supply base (number of countries) has increased from seven in 2002-03 to fourteen countries in 2009-10 as given below:

Figures in TMT

Country	2002-03	2006-07	2007-08	2008-09	2009-10 (Estimate)
Abu Dhabi	1689	1408	2205	1899	1710
Algeria	-	-	-	263	1713
Angola	-	-	125	-	265
Azerbaijan	-	426	865	897	903
Brunei	-	469	267	394	347
Dubai	-	271	207	-	139
Egypt	169	-	-	-	-
Iraq	-	-	-	278	265
Iran	-	72	721	403	-
Kuwait	2024	2520	1985	1965	1923
Libya	-	-	677	538	687
Malaysia	529	1029	1125	591	266
Nigeria	353	466	530	650	1777
Qatar	-	490	877	770	511
Russia	-	218	225	-	-
Kazakhstan	-	-	133	-	-
Saudi Arabia	1881	3393	3729	4053	3668
Yemen	1066	2516	829	-	226
Total	7711	13278	14500	120702	14400
No. of countries	7	12	15	12	14

b) Imports / Exports of Petroleum Products

The details of exports of petroleum products by BPCL during the Year 2009-10:

(Figs in TMT)

	Apr-Dec'09 (Actual)	Jan-Mar'10 (Estimate)	Total (Estimate)
Product Imports			
LPG	140	93	233
HSD	1314	160	1474
SKO	33		33
MS	154	25	179
Reformate	19	50	69
Sub-Total	1660	328	1988
Product Exports			
Naphtha	799	429	1228
Fuel Oil	441	260	701
Gasoil (1%)	210	70	280
Sub-Total	1450	759	2209

4.3.9 EFFORTS TOWARDS DIVERSIFICATION OF CRUDE OIL SOURCING:

Crude Oil: In order to increase crude oil security and to expand the supply base, BPCL increased the number of Term Contract Suppliers from four in 2002-03 to nine in 2009-10.

Country	2002-03	2007-08	2009-10
Saudi Arabia	2.00	3.75	4.00
Kuwait (KPC)	2.00	2.00	2.00
Abu Dhabi (ADNOC)	0.60	1.50	2.00
Malaysia (PETRONAS)	0.25	0.50	0.25
Iraq	-	-	0.25
Iran	-	0.25	-
Qatar	-	0.40	0.50
Brunei	-	0.25	0.25
Libya	-	-	0.50
TOTAL	4.85	8.65	9.75

The following are the efforts towards expanding crude oil sources:

- (i) During 2009-10, we have procured the following new crude oils for processing our refineries and widened our crude oil basket.

Crude Oil	Country
Agbami	Nigeria

4.3.10 MAJOR ACCOLADES / AWARDS

PetroFed Oil & Gas Marketing Company of the Year Award

BPCL won the 'PetoFed Oil & Gas Marketing Company of the Year Award for the year 2007-08, Petroleum Federation of India (PetroFed) is an organization which promotes the interest of the Petroleum Industry and works for the Global competitiveness of the Oil Industry, ensuring compliance of 'Good Business Practices'.

The Award was presented in recognition of BPCL's excellent performance in increasing volumes of products marketed and enhancing the customer base, while adhering to the stringent norms of health, safety and environment protection.

Ramkrishna Bajaj National Quality Special Award 2008.

BPCL Mumbai Refinery won the prestigious 'Ramkrishna Bajaj National Quality Performance Excellence Award 2008 (RBNQA) under the Manufacturing category winning it a second time in a row. RBNQA is one of the most important Quality and Business Excellence Awards in India, modeled on the world famous Malcolm Baldrige National Quality Award (USA).

BPCL Wins Asian CSR Award 2008

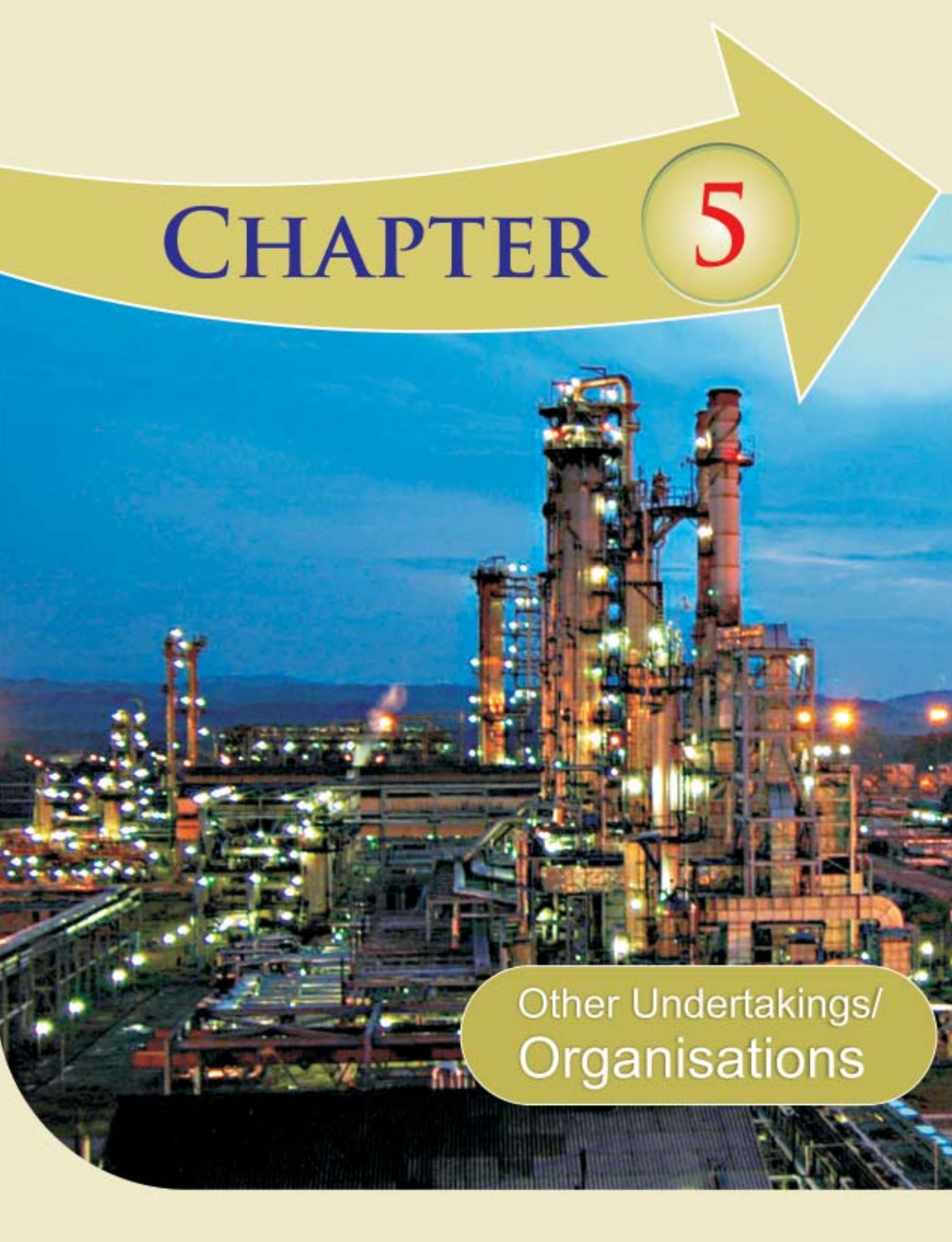
Bharat Petroleum has won the prestigious 'Asian CSR Award 2008' for Project 'Bood-III' in the Environmental Excellence Category.



Bharat Petroleum's Refinery at Mumbai

CHAPTER

5



Other Undertakings/
Organisations

Other Undertakings/ Organisation

5.1 DIRECTORATE GENERAL OF HYDROCARBONS (DGH)

DGH

5.1.1 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 the oil and natural gas resources having a balanced regard for environment, technological and economic aspects of the petroleum activity. 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 including review of reservoir performance of major fields. In addition, DGH is also engaged in opening up of new / unexplored areas for future exploration and development of non-conventional hydrocarbon energy sources. Details of the main activities undertaken by DGH in 2009-10 upto December 2009 are as under:

5.1.2 Opening up of new areas for Future Exploration

With a view to open up new areas for exploration, DGH has carried out reconnoiter surveys in poorly

explored/unexplored basins with the aim to upgrade geological information of the areas and carve-out new blocks for offer under future rounds of New Exploration Licensing Policy (NELP). Following activities were conducted by DGH:

(i) Speculative 2D Seismic Survey

- Speculative 2D Seismic Survey in East and West Coast of India by M/s GX Technology under IndiaSpan-II: acquired 3688.6 kilometre of 2D seismic data in East Coast of India. Processing and interpretation is in progress.
- Speculative 2D Seismic Survey in Andaman Offshore by M/s PGS: re-processing of 7240.725 kilometre acquired 2D seismic data commenced.
- Speculative 2D Onland Seismic Survey in Kutch Basin by M/s NGRI: acquired 97.45 kilometre of 2D seismic data thereby making cumulative coverage of 696.35 kilometre.
- Speculative 2D Seismic Survey in West Coast of India by M/s Fugro Data Services: acquired 1498.35 kilometre of 2D seismic on West Coast of India under India Deep Focus Programme. Processing and interpretation is in progress.



Dignitaries on dais during Road Show for 8th Bid Round Under New Exploration Licensing Policy Conference



- Speculative 2D Seismic Survey in West Coast of India by M/s Fugro Multi Client Services: acquired 2109.113 LKM on West Coast of India under India Deep Focus-II Programme. Processing and interpretation is in progress.
- Speculative Reprocessing of 2D Seismic Data of Andaman Islands by M/s Spectrum Geo Ltd: re-processing is in progress.
- Speculative Airborne Surveys in Block 1 (U.P, Bihar, and Jharkhand & W.B), Block 2 (Nagaland, Manipur), Block 3 (Kutch), Block 4 (Cuddapah) by M/s McPhar: acquired 13994.64 LKM of Airborne Gravity Magnetic (AGM) data over Block 3 (Kutch).

(ii) **Surface Geochemical Survey**

Surface Geochemical Surveys were continued from previous years. The sampling was carried out in Vindhayan Basin and Ganga Valley. A total of above 1750 samples were collected, analyzed for light hydrocarbon gas and interpreted. During 2009-10, the geochemical survey was carried out in Rajasthan and Bengal Basins.

5.1.3 Implementation of NELP

The development of E&P sector has been significantly boosted through NELP Policy of Government of India, which brought major liberalization in the sector and opened it up to for private and foreign investments, where 100% Foreign Direct Investment (FDI) is allowed. NELP provides a level playing field to the private operators either Indian or Foreign, by giving them the same fiscal and contract terms as applicable to NOCs for the offered acreages.

India has an estimated sedimentary area of 3.14 million square kilometre, comprising 26 sedimentary basins, out of which, 1.35 million square kilometre area is in deepwater. National Oil Companies viz. Oil & Natural Gas Corporation Limited (ONGC),

Oil India Limited (OIL) and Private/Joint Venture Companies are actively engaged in exploration and production. Before implementing the New Exploration Licensing Policy (NELP) in 1999, 11% of Indian sedimentary basinal area was under exploration. Upto NELP-VII, 46% of Indian sedimentary area was awarded to NOCs, foreign and private companies.

Till date, seven rounds of NELP have been concluded and 203 Production Sharing Contracts (PSCs) for onland, shallow water and deepwater blocks have been signed. As on 1st April 2009, investment commitment under NELP is about US\$ 10.03 billion on exploration. The actual investment made by E&P companies under NELP has been of the order of US\$ 12.48 billion including US\$ 6.95 billion on development of oil and gas discoveries. Under NELP, 77 oil and gas discoveries have been made in 23 blocks. Presently oil and natural gas production is being made from 3 NELP blocks. First deepwater oil and gas fields have been developed and put on production in the country in East Coast in the deepwater block KG-DWN-98/3, operated by RIL-NIKO Consortium.

In the eighth round of NELP (NELP-VIII), 70 exploration blocks were offered comprising of 24 deepwater blocks, 28 shallow water blocks and 18 onland blocks. 76 bids were received for 36 exploration blocks against the offer of 70 blocks. 45 companies have participated in NELP-VIII including 7 foreign companies. In NELP-VIII, expected investment commitment on exploration is about US\$ 1.3 billion.

5.1.4 Monitoring of Production Sharing Contracts

Government of India has signed contracts for 28 discovered fields, 26 CBM blocks, 28 exploration blocks under pre-NELP regime and 203 blocks under NELP regime. DGH monitors the execution of management of these Production Sharing Contracts



on behalf of GOI through Management Committees set-up for each block / field. This involves in depth review of annual work programme, project monitoring, calculation of reserves and production profile, making simulation model of the field, review and approval of development plan, budget and safety management system.

An investment of about US\$ 20,291 million (Rs.98,411 crore) investment has already been made by companies on Exploration & Production till September'2009. During 2008-09, Private/JV sector produced 4.67 MMT of oil & gas, 8.09 BCM of natural gas. During 2009-10 (Apr'09-Dec'09), Pvt/ JV sector produced 3.83 MMT of oil & gas, 14.56 BCM of natural gas.

5.1.5 Monitoring of the Petroleum Exploration Licenses held by National Oil Companies (NOCs) – on nomination basis

DGH reviews the progress of exploration activities in respect of Petroleum Exploration Licenses held by NOCs (ONGC and OIL) on nomination basis on a half-yearly basis vis-à-vis minimum committed work programme.

5.1.6 Field Development, Reservoir and Production Monitoring

DGH is monitoring the development activities of various fields under the Production Sharing Contracts such as Panna-Mukta, Ravva, Tapti, Laksmi, Gauri, Kharsang, PY-3, etc. Major activities carried out during this period pertaining to private sector fields are summarized below:

- Development/infill drilling plans for various fields/blocks
- Field Development Plan for Deen Dayal West, EEU-1, Kameshwari (West), Ambe, Hazira, were reviewed and the simulation report of Panna, PY-3, Tarapur-G and Kharsang fields were analyzed.
- 4 nos. of Declaration of Commerciality (DoC) proposals for EEU-1 (Block CB-ON/3, Kameshwari West (Block RJ-ON-90/1), Sanand East-1 (Block CB-ONN-2000/1) and 9 Satellite fields (Block KG-DWN98/3) were reviewed for approval. Total 3 nos. of DoC

proposals were under study namely Miroli (Block CB-ONN-2002/3), Tarapur-G (Block CB-ON/2) and UD-1 (Block KG-DWN-98/2).

- Proposals of Workover jobs for various fields/ blocks were examined.
- Well-wise pressure production, injection data for various fields/ blocks were monitored.
- Review of hydrocarbon resources and reserves of all the medium & small sized fields.

5.1.7 Redevelopment Plans of Mumbai High North, South, Neelam and Heera Fields

DGH is continuously monitoring the field performance based on redevelopment plans, progress of IOR, G&G and other studies on regular basis. As on date, two EOR pilots (namely high pressure air injection & SWAG), which were identified in Mumbai High Field, have not been implemented. Well-wise/ field-wise monthly data from Heera and Neelam assets of ONGC is being regularly updated for the performance monitoring of the fields. To analyze the field performance voluminous data of more than 700 wells of Mumbai High field is being updated on a regular basis in DGH.

DGH is continuously interacting with different Assets of ONGC on the performance of 15 major IOR/EOR projects. Based on the review data provided by the assets/ONGC and mutual discussions, recommendations, notes are submitted for field implementation and improvement in recovery.

5.1.8 Monitoring the performance of major oil fields of Oil India Limited

DGH monitors the performance of major oil fields of Oil India Limited. The reservoir data, reports and discussions were analyzed and reviewed by DGH.

5.1.9 Safety & Environment

Oil Industry Safety Directorate (OISD) carried out Health, Safety and Environment audit/inspections (HSE) of 10 onshore fields operated by Pvt/JVs during 2009-10. These fields were Cambay, Bhandut, Sabarmati, Allora, Dholasan, Kanawara, North Kathana, Dholka, Wavel and Sangapur Fields in onshore.



5.1.10 Computer System for E&P Activities

Important technical studies, such as, reservoir simulation, log interpretation and loading of seismic and other related technical data and seismic interpretation are being carried out on workstations in a networked environment based on client server architecture. For NELP-VIII, blocks were carved out and data packages prepared after analysis of seismic and other geo-scientific data. Proposals on development and appraisal locations were reviewed and the commercial viability of the discoveries assessed.

5.1.11 Coal Bed Methane (CBM)

For exploration and production of CBM in the country, Government has so far awarded 26 CBM blocks in different coalfields of India under three rounds of CBM held so far. These blocks are located in the States of West Bengal (4), Jharkhand (6), Chattisgarh (3), Madhya Pradesh (5), Andhra Pradesh (2), Rajasthan (4), Gujarat (1) and Maharashtra (1). The CBM resources in the awarded blocks are estimate about 1374 BCM, with production potential of around 38 MMSCMD during peak production period. The total established reserves in 5 CBM blocks as approved by DGH are about 8.39 TCF.

Commercial production of CBM in India is no longer a myth but a reality. The commercial production of CBM in the country has already commenced w.e.f. 14.07.2007. Current CBM gas production is 0.11 MMSCMD from the Raniganj South Block of GEECL. Further, Sohagpur (East & West) CBM blocks of RIL are under Development.

Government had offered 10 blocks under CBM-IV covering an areas of about 5,000 sq. km. spread over seven States namely, Assam, Jharkhand, Orissa, Madhya Pradesh, Chhattisgarh, Maharashtra and Tamil Nadu. Government has received 27 bids for 8 CBM blocks from 19 companies including 3 foreign companies.

5.1.12 Gas Hydrates

Gas Hydrate is at R&D stage world-over. India, U.S.A & Japan are one of the pioneers in the field of Gas Hydrates. In accordance with the roadmap for National Gas Hydrate Programme (NGHP), India has already acquired core samples with the help of the drill ship "JOIDES Resolution", USA. In August 2009, an MoU was signed between the Directorate General of Hydrocarbons (DGH) and MMS, USA for cooperation on exchange of scientific knowledge and technical personnel in the field of Gas Hydrate and Research with the view to exploit the potential of the Gas Hydrate as an alternate source of energy.

5.1.13 Oil Shale

Resource assessment of oil shale deposits in Assam and Arunachal Pradesh is in progress with the expertise of an international reputed company. Activities pertaining to shallow corehole drilling, geological mapping, sampling and analysis were carried out. The process is likely to be completed by 2010.

5.1.14 Status of International & National Cooperation

Cooperation with following Institutes and Regulators in various fields are ongoing. Some of the highlights are as under:

- **United State Geological Survey, USA:** Gas Hydrate related research programme and cooperation.
- **United State Department of Energy, USA:** Gas Hydrate related programme.
- **NPD, Norway:** Management of Hydrocarbon resources.
- **MMS, USA:** Gas Hydrate related research programme and cooperation.

5.1.15 National Data Repository (NDR)

- Government has initiated the process of establishing National Data Repository (NDR).

A Global Tender has been floated on 13.11.09 to build, populate and operate a NDR in India. The bid closing date was 2nd March 2010.

- NDR is meant for storing and maintaining hydrocarbon exploration and production data in a safe and reusable manner, in perpetuity and make them available for all the stakeholders. Ninth International Conference on National Data Repository was held on 1st September-3rd September, 2009 in Vigyan Bhawan, New Delhi organized by DGH. This conference was held first time in Asia-Pacific Region attended by 98 delegates from 23 countries. As many as 49 papers were presented in the conference.

5.1.16 Work by Advisory Council

The Advisory Council of DGH advises on the technical matters/scientific projects to be implemented by DGH. Council also examines major technical studies and progress of work carried out by DGH.

5.2 ENGINEERS INDIA LIMITED (EIL)



5.2.1 Introduction

Engineers India Limited (EIL) was established in 1965 to provide engineering and related technical services for petroleum refineries and other industrial projects. Over the year, it has diversified and excelled in various fields and emerged as Asia's Leading Design, Engineering and Turnkey (LSTK) contracting company in the following fields:

- Petroleum Refining
- Petrochemicals, Chemicals & Fertilizers
- Pipelines
- Offshore Oil & Gas
- Onshore Oil & Gas
- Terminals & Storages
- Mining & Metallurgy
- Infrastructure

EIL provides a wide range of technologies for oil & gas processing industry besides a comprehensive range of project related technology and engineering services spanning from project conceptualisation to

commissioning. EIL also undertakes projects on LSTK basis. EIL's Quality Management System conforms to ISO quality standards (version ISO-9001:2008). The services offered include the following:

Pre-Project Services:

- Feasibility Environment Impact Assessment
- Technology & Process Licensor Selection
- Cost Estimation

Project Implementation Services:

- Project Management
- Process Design
- Detailed Engineering
- Procurement
- Construction Management
- Commissioning and Plant start-up Assistance

Specialist Services:

- Heat and Mass Transfer Equipment Design
- Environment Engineering
- Information Technology
- Specialist Materials and Maintenance
- Plant Operations & Safety including HAZOPS & Risk Analysis
- Refinery Optimization Studies
- Yield & Energy Optimization Studies



Exchange of MoU Document between Shri S. Sundareshan, Secretary, Ministry of Petroleum & Natural Gas and Shri A.K. Purwaha, C&MD, EIL



Turnkey Contracts:

- Engineering
- Procurement
- Construction & Commissioning
- Contracts on Open Book Estimate (OBE basis) convertible to LSTK.

EIL has one of the largest multi-disciplinary engineering work forces with around 4.5 million engineering manhours in its design offices along with 8000 manmonths of construction management services. The employee strength of the Company as on 31.12.2009 was 2532 at headquarters and 776 in field offices including those in foreign offices.

To enhance reach and client proximity, EIL has a network of regional offices in Chennai, Vadodara and Kolkata; branch office in Mumbai and overseas engineering/marketing office in Abu Dhabi which is the hub for its activities in the Middle East. Besides, EIL has inspection/procurement offices at various locations all over India and also in London and Milan and construction offices at different project sites in India and abroad. To strengthen its domestic and overseas LSTK business, EIL has formed two joint ventures— M/s “TEIL Projects Ltd.” with M/s Tata Projects Ltd. and M/s “Tecnimont EIL Emirates” with M/s Tecnimont Spa. Italy. EIL also has a wholly-owned subsidiary in Malaysia (EIL Asia Pacific Sdn Bhd) for executing projects and one subsidiary in India (Certification Engineers International Ltd.) for providing certification and inspection services.

The Right to Information Act 2005 has been implemented in the company with a Public Information Officer and an Appellate Authority nominated to address issues under the Act. Information as per provisions of the Act is posted on the company's website www.engineersindia.com. EIL also has two Grievance Redressal Committees—one for vendors/suppliers/contractors and the other for employee related issues. For dealing with

complaints relating to sexual harassment, EIL has a designated committee in the Women's Cell.

5.2.2 Performance

(a) Physical performance – important assignments secured during 2009-10

During the current financial year (upto December, 2009), EIL secured new business worth Rs.1191 crore comprising consultancy business of Rs.385 crore and LSTK business of Rs.806 crore. Details of major jobs secured are given below:

Consultancy Business

- Configuration Standby and PMC Services for Captive Power Plant of Paradip Refinery Project, IOC.
- PMC service for Dabhol-Bangalore Pipeline Project, GAIL (India).
- EPCM services for CDU/ VDU-II Revamp Project of CPCL, Chennai.
- Pre-project services, EPCM and FEED+PMC service for Expansion and Refinery Up-gradation Project of MRPL (additional value).
- PMC services for Redevelopment of Connaught Place, NDMC, New Delhi (additional value).
- PMC services for providing GAIL's connectivity to NDPL, IOCL Panipat, CGS Meerut and Sonipat & Capacity Augmentation of Agra-Ferozabad Pipeline Section, GAIL (India).
- Pre-feasibility Study for Phase-II of Strategic Storage of Imported Crude Oil for OIDB, New Delhi.
- Preparation of BEDP & Technical Bid Package and Technical Assistance upto award of job to LSTK Bidder for Additional Process Units (additional value), ONGC, Uran.

LSTK Business

- Engineering, Procurement, Construction of Propylene Project- LSTK on OBE Basis for MRPL, Bangalore.

(b) Financial Performance

The details of the financial performance of the company for 2009-2010 (upto December, 2009) and 2008-2009 are as under:

(Rs. in crore)

Description	2008-09	2009-10 (upto Dec., 2009)
TURNOVER	1532.46	1353.46
OTHER INCOME	221.52	146.38
PROFIT BEFORE TAX	520.47	462.42
PROFIT AFTER TAX	344.53	310.85

5.2.3 Projects

As a design engineering consultancy organization executing projects on behalf of clients in the hydrocarbon sector and process industry, EIL does not have projects of its own.

5.2.4 Policy Initiatives Undertaken

Salient policy initiatives taken during 2009-10 (upto December, 2009) include the following:

- MoU signed with M/s. Worley Parsons International for sulphur recovery and gas processing technologies.
- MoU signed with TEMA Resources for thermal design of high pressure Heat Exchangers.
- MoU signed with M/s BPCL, Kochi for licensing technology developed for Desulphurisation of Low Pressure Vacuum Unit Hot Well Off Gases.
- MOU signed with Centre for High Technology for carrying out a research project on coal/coke gasification & gas clean up in association with BPCL's R&D.
- To augment the corporate footprint in the energy sector, actions initiated for diversification into nuclear power, gas-based power generation & fertilizer production, deep

water offshore oil/ gas production and city gas distribution.

- An enterprise-wide e-Documents Management System was rolled out to enable on-line business processes, systematic storage and retrieval of information/ data and expedite project implementation.
- Enhanced focus on training on development of leadership pipeline through specially designed programme 'Aarohan' for increasing leadership capability and competencies of the employees.
- MoU on corporate performance for 2009-10 sign with MoP&NG with challenging targets of turnover, margin (with impact of pay revision) and new business secured of Rs. 1850 crore, Rs. 615 crore and Rs.1820 crore respectively.

5.2.5 Overseas Activities

With a vision to strengthen EIL's presence in Overseas Markets, EIL made substantial efforts to strengthen its existing client base as well as to explore new territories. The following have been major activities in this regard:

- Actively participated in international conferences including the Indo-Saudi Joint Commission and the India Africa Hydrocarbon Conference.
- Identified Qatar, Oman, Saudi Arabia, and Brazil as target business areas.
- A number of opportunities were identified in Oman which are being pursued at various levels. Recently a Value Maximisation Study was carried out for Sohar Refinery in Oman and the findings of the study were presented to a Ministerial-Level Committee of the Government of Oman.
- The office In Abu Dhabi is being conceptualised as a hub for EIL's Middle East Operations and EIL is targeting small to medium size consultancy assignment as well as PMC Contracts from ADNOC Group of Companies. EIL is presently registered with all the major companies in Abu Dhabi.



- Two visits to Brazil were made for assessing the market potential for EIL's services. Based on the same, Country profile reports have been prepared and the entry strategy is being worked out to commence operations in the country.
- A MoU was signed with M/s Worley Parsons International for sulphur recovery and gas processing technologies.

5.3 BIECCO LAWRIE LIMITED



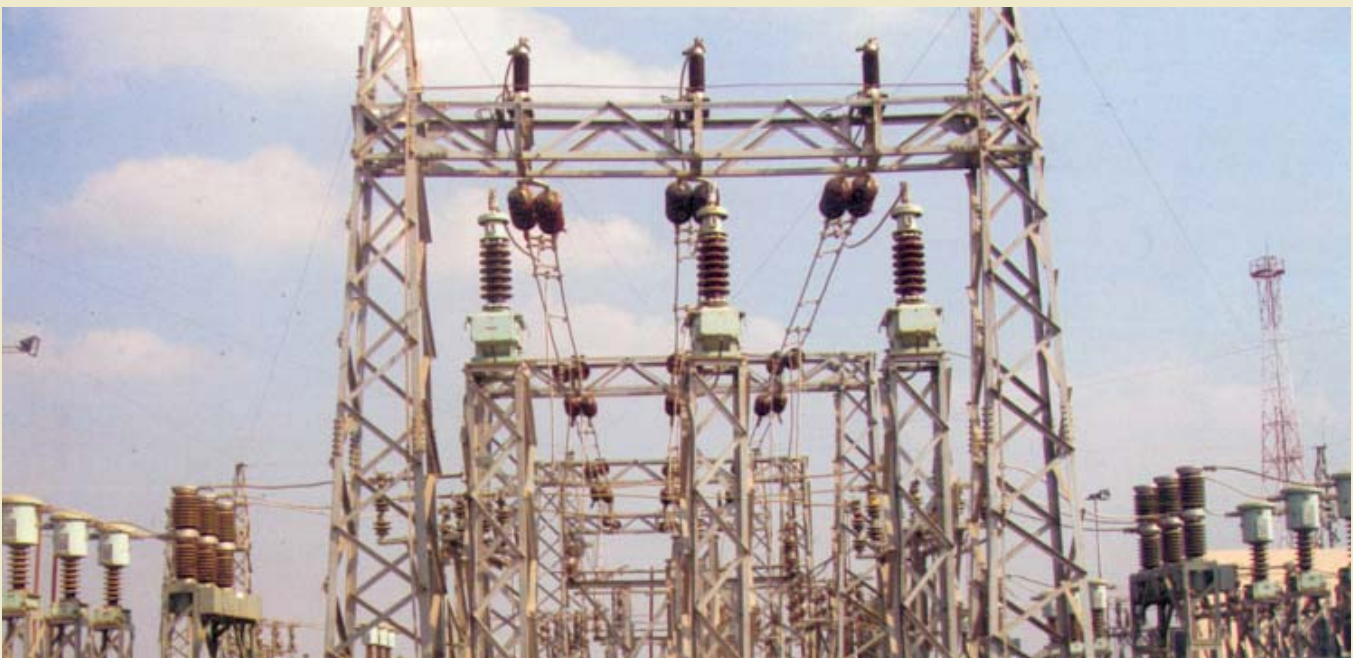
Biecco Lawrie Limited (BLL), a Government of India Enterprise, under the administrative control of the Ministry of Petroleum & Natural Gas (MOP&NG), was established in 1919 and became a Government Company in 1972. This is a medium sized Engineering Unit with diversified activities having two factories located at Kolkata. As on 31.03.2010, the Company is expected to continue with the same Authorized Capital of Rs. 50 crore, while the issued, subscribed and paid-up capital is Rs. 42 crore. The President of India

and the Oil Industry Development Board (OIDB) hold 57.37% and 41.85%, respectively of the Equity Share Capital.

During 2009-10, it has been estimated that the turnover of the Company will be Rs. 85.15 crore, as against the Turnover of 2008-09 being Rs.58.25 crore. The estimated net profit (after tax) for 2009-10 will be Rs. 1.41 crore, which registers a decline from the figure of Rs. 2.23 crore attained during 2008-09. BLL had a past history of incurring loss. The trend was arrested in financial year 2003-04 and effective 2004-05, it has started registering profit.

The estimated physical performance of BLL for 2009-10 with regard to turnover of electrical operations inclusive of switchgears, electrical repair jobs and electrical projects is Rs. 54.05 crore as against Rs. 57.50 crore achieved in 2008-09.

The company has also ventured into business of Wired/Wireless Video Surveillance Systems. Significant orders are expected to come in the days



33/11 KV Substation at JSEB Ranchi Construction Done by BIECCO LAWRIE LTD.

ahead. The company is currently executing the order worth Rs. 40 crore received from West Bengal State Electricity Distribution Company Limited for supply, erection and commissioning of Electrical Sub-stations. The company's foray into this renewable energy business has yielded encouraging initial results. It has obtained order for 10 turbines of various capacities ranging from 30 KW to 250 KW. More orders for higher capacities are in the pipeline. Company has taken up the Corporate Social Responsibility and has drawn out a detailed programme in this respect such as sponsoring medical treatment, deep tubewell, etc.

BLL had drawn up its Restructuring Plan to ensure sustainable-performance and growth of the Company. The same is under active consideration of the Government.

5.4 **BALMER LAWRIE & COMPANY LIMITED**



Balmer Lawrie & Co. Ltd. (BL) was established in 1867 as a Partnership Firm and was incorporated as Private Limited Company in 1924. It was subsequently converted into a Public Limited Company in the year 1936 with its Registered Office at Kolkata. The authorised capital, paid-up capital and reserves & surplus of the Company as on 31.12.2009 was Rs. 30 crore, 16.29 crore and 3.72 crore respectively.

BL is a multi-technology, multi-locational Company with operations spread throughout India and Overseas. The Company's business interest span both manufacturing and services. The main activities of the Company are classified into a number of Strategic Business Units (SBU) viz., Manufacturing Related (Industrial Packaging, Greases & Lubes, Performance Chemicals and Tea), Service Related (Logistics Infrastructure, Travel & Tours and Logistics Services) and Research & Development Related (Technology & Product Development, Applications Research Laboratory and Product Development Centre). The Company manufactured around 29.99 lakh barrels/drums, 32000 MT of greases & lubricants and 4137 of leather chemicals during the period from April to December 2009.

The company achieved a turnover of Rs.1288.10 crore during 2009-10 (upto December 2009). The profit after tax of Company during the said period was Rs.81.93 crore.

The company has spent an amount of Rs.40.65 lakhs under Tribal Sub Plan (TSP), Special Component Plan (SCP) and Gender Budgeting during the period from April to December 2009.

5.5 **BALMER LAWRIE INVESTMENTS LIMITED (BLIL)**



Government of India, in view of its planned deregulation of oil and globalisation of the economy, decided to disinvest 33.58% of its total equity holding of 59.58% in IBP Company Limited (IBP) to a strategic partner with management control. Consequently, the shareholding of IBP, in its erstwhile subsidiary Balmer Lawrie & Company Limited (BL), was demerged in favour of Balmer Lawrie Investments Limited (BLIL), which was incorporated on 20th September 2001 under the Companies Act, 1956. The President of India holds 59.67% of its total paid-up equity capital. BLIL is under the administrative control of Ministry of Petroleum & Natural Gas having its Registered office at Kolkata.

BLIL is a non-banking financial Company as defined under section 45-I(f) of the Reserve Bank of India Act, 1934. BLIL does not carry on any business except to hold 1,00,64,700 equity shares of Rs. 10/- each of BL. The present strength of the Board is three and all are non-executive Government nominees. BLIL does not have any employees except the Company Secretary who is deputed from BL. The Equity shares of BLIL are under compulsory demat mode and are listed in two Indian Stock Exchanges viz., Kolkata & Mumbai. The Authorised share capital of BLIL is Rs. 25 crore. The Issued and Subscribed Capital of the Company is 22.19 crore. The total turnover of the Company during 2009-10 (upto December 2009) was Rs.2012.94 lakh (unaudited). The profit after tax of Company during the said period was Rs.2085.45 lakh (unaudited).



5.6 OIL INDUSTRY DEVELOPMENT BOARD (OIDB)



5.6.1 Objectives of the Oil Industry Development Board (OIDB)

The Oil Industry (Development) Act, 1974 was enacted for the development of oil industry following successive and steep increase in the international prices of crude oil and petroleum products since early 1973, when the need of progressive self-reliance in petroleum and petroleum based industrial raw materials assumed greater importance.

5.6.2 Functions of the Board

The Oil Industry Development Board was established on 13th January, 1975 under the Oil Industry (Development) Act, 1974 to provide financial assistance for development of Oil Industry. Its organizational 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.

5.6.3 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 money, as the Central Government think fit, are made available to the OIDB after appropriation by the Parliament. The current rate of cess on crude oil produced in the country is Rs.2500/- per tonne (w.e.f. 1st March, 2006) excepting on blocks in joint

ventures under New Exploration Licensing Policy (NELP). Since inception and up to 31st December 2009, the Central Government has collected more than Rs. 86596 crore (approx.) as cess. Out of this, OIDB has received an amount of Rs.902 crore (approx.).

This amount of cess so received by OIDB i.e. Rs.902 crore together with internal receipts generated as interest income on loans given to various oil sector companies and short-term investment of surplus funds has contributed to Oil Industry (Development) Fund to accumulate to Rs.9495 crore (approx.) as on 31st December, 2009.

5.6.4 Assistance to Oil Industry

The Oil Industry Development Board 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 the development of Oil Industry. The Board renders financial assistance by way of payment of loans for projects, disbursements of grants for Research and Development programmes and funding expenditure of Scientific Advisory Committees, Study Groups, Task Forces etc. The OID Board determines the terms and conditions including interest rates for project loan from time to time subject to periodical review at least every three months depending on the interest rates prevailing in the market. According to the formulation as recommended by the Standing Committee and approved by the OID Board, the month-end interest rates for Government Securities having different residual maturities as latest available in RBI's monthly bulletin are the benchmark rates for computing interest rates on OIDB loans for different tenures on monthly basis. 50% of corresponding month end margins of 'AAA' rated Bond on Govt. Securities available in page INCORP are then added to the benchmark rate for arriving at the interest rate. On the basis of the above formulation, OIDB term loans carry the following

interest rates for the month from April 2009 to December 2009 :

Interest rates charged on OI DB loans

(Financial Year 2009-10, upto December 2009)

(%) Per annum

Month	Period of Loan			
	1 Year	3 Years	5 Years	10 Years
April 2009	6.52	7.01	7.38	7.36
May 2009	6.25	6.82	7.10	7.93
June 2009	6.32	7.02	7.52	8.01
July 2009	4.94	6.19	6.74	7.22
August 2009	5.20	6.65	7.15	7.68
September 2009	5.30	6.36	7.12	7.71
October 2009	4.87	6.83	7.36	7.74
November 2009	5.55	6.93	7.78	8.09
December 2009	5.16	7.10	7.60	7.95

As per the recommendations of the Committee, further discounts on interest rates on OI DB loans are given to following projects:

- Projects of Strategic National Importance that have a direct bearing on the energy security of the country are eligible for a discount of 100 basis points on the effective interest rates.
- Environmental Improvement projects and projects for special areas, such as North-East region, J&K state etc. are eligible for a discount of 50 basis points on the effective interest rates.

5.6.5 Deployment of Funds

The OI DB has accorded highest priority to the programs connected with exploration, production, refining, marketing, research and development etc. and the activities related to the energy security of India. So far, OI DB has upto 31st December 2009 extended following financial assistance to the Oil Industry:

Financial assistance since 1975

(Rupees in crore approx.)

	Cumulative upto December 2009
Loans	27586
Grants	1381
Total	28967

In addition, till 31.12.2009 the Board has invested its funds in the equity share of M/s Biecco Lawrie Ltd. (BLL) Rs.17.58 crore and M/s Indian Strategic Petroleum Reserves Limited (ISPRL) to the extent of Rs.479 crore (approx.) respectively. A major portion of loan has been given to oil companies for meeting capital outlay of plan projects. As per the directives of Government, an amount of Rs.98 crore has also been paid towards Royalty to the State Governments and other operators till December 2009 to meet the commitment on fiscal conditions in Production Sharing Contracts(PSCs) relating to discovered fields in first & second rounds of NELP.

Details of financial assistance given during last five years

(Rs. in crore)

Year	Loan	Grants	Total
2005-06	760.00	89.51	849.51
2006-07	1827.90	211.45	2039.35
2007-08	1982.10	105.80	2087.90
2008-09	3043.00	135.94	3178.94
2009-10 (Upto 31.12.2009)	1579.00	83.91	1662.91

Disbursement of Loan during the year 2009-10 (Upto 31.12.2009)

(Rs. in crore)

S. No.	Name of the organization (Plan Project Loans)	Funds disbursed (2009-10)
(i)	Indian Oil Corporation Ltd.	845.00
(ii)	Hindustan Petroleum Corporation Ltd.	25.00
(iii)	Bharat Petroleum Corporation Ltd.	443.00
(iv)	GAIL (India) Ltd.	266.00
	Total	1579.00

5.6.6 Details of the projects funded by OI DB during 2009-10 (upto December 2009)

5.6.6.1 Indian Oil Corporation Limited

M/s IOCL has availed a loan assistance of Rs. 845 crore from OI DB during the year 2009-10 (upto 31.12.2009) to part finance of its following projects:

a) Naptha Cracker and Polymer Complex at Panipat:



This project envisages creation of a petrochemical hub, which will engineer significant industrial activity in the coming years. A Naptha Cracker Complex based on captive utilization of Naptha from Panipat, Mathura and Koyali refineries of IndianOil will be established at Panipat. With a capacity of 800000 MT/year of ethylene production, the Cracker Complex will have associated units viz. hydrogenation, butadiene extraction, benzene extraction etc. besides downstream polymer units like swing unit, a dedicated HDPE unit and MEG unit. The approved loan of Rs.552 crore for the year 2009-10 has been released by OI DB.

b) Diesel Quality & Distillates Yield Improvement Project (Hydrocracker) at Haldia Refinery (OHCU) (environment related project)-

The objective of the project is to improve Diesel quality to meet Euro-III/Euro-IV equivalent quality requirements with effect from 1st April, 2010. In addition to the improvement in the diesel quality, commissioning of the project facilities will result in improvement of distillates yield of the refinery. OI DB has released approved loan of Rs.280 crore to IOCL during the year.

(c) Diesel Hydro-Treatment Project (DHDT) at Bongaigaon Refinery:

In pursuance of the decision to meet Euro-III/IV quality specifications of Diesel to be applicable from 01.04.2010, IOC is implementing the Diesel Hydro-Treatment Project (DHDT) at its Bongaigaon Refinery for a capacity of 1.20 MMTPA. The project was scheduled to be commissioned by December, 2009. This is an environment-friendly scheme and a mandatory one as far as diesel specification is concerned.

EIL has since submitted the Detailed Feasibility Report (DFR) with the project cost estimates of Rs.1646 crore, inclusive of a foreign exchange component of Rs.273.60 crore. Out of sanctioned loan of Rs.53.60 crore, OI DB has released Rs.13 crore for the project during the year 2009-10.

5.6.6.2 Hindustan Petroleum Corporation Limited

M/s Hindustan Petroleum Corporation Limited (HPCL) is a downstream company engaged in refining and marketing of petroleum products. A loan assistance of Rs.25 crore was made available by OI DB to M/s HPCL for Fluid Catalytic Cracking Unit at Mumbai Refinery. HPCL is planning to increase crude processing capacity of its Mumbai Refinery from existing capacity of 6.5 MMTPA to an overall capacity of 7.9 MMTPA by de-bottlenecking the existing units. At this enhanced crude processing capacity, the existing secondary processing units viz. Lube Processing Unit of capacity 330 TPA and the Fluid Catalytic Cracking Unit (FCCU) of capacity 1.0 MMTPA will not be able to utilize the full output from Vacuum Distillation Units(VDU). In order to make full use of the feed generated and to maximize the profitability of operation, it has been decided by the company to increase the existing FCCU capacity of Mumbai Refinery by setting up new grass root FCCU with a capacity of 1.456 MMTPA at a new location within the existing refinery area and operate both FCCU at total capacity of 2.456 MMTPA. The estimated cost of the project is Rs.900 crore. The OI DB has released approved loan of Rs. 25 crore during 2009-10.

5.6.6.3 Bharat Petroleum Corporation Limited

M/s BPCL has availed a loan assistance of Rs. 443 crore from OI DB during the year 2009-10 (upto 31.12.2009) to part finance its following projects:

(a) Bina-Kota Pipeline Project :

Bharat Oman Refineries (BORL) a joint venture company between Bharat Petroleum Corporation Limited and Oman Oil Company Ltd (OOCL) is implementing a project for setting up a 6 MMTPA grassroot refinery at Bina, in Madhya Pradesh along with associated facilities.

As per the joint venture agreement, the marketing of refined petroleum projects from the Bina Refinery would be carried out by BPCL, who are setting up

the Bina Dispatch Terminal (BDT) with appropriate storage, distribution and other infrastructure facilities, adjacent to the refinery complex.

The project envisages laying a 18" diameter, 265 Km. long cross-country pipeline from Bina to Kota for economic evacuation of MS, SKO, HSD and ATF from Bina Refinery. The pipeline will originate from the Bina Dispatch Terminal and terminate at Kota. The pipeline will be connected to the existing multi-product pipeline Mumbai-Manmad-Manglya-Piyala/Bijwasan at Kota to facilitate distribution of Bina Refinery Products to the northern region markets.

DFR for the project was approved by BPCL Board on 27.07.07 at a total project cost of Rs.405.82 crore. OIDB has released the approved loan of Rs.30 crore for the project during 2009-10.

(b) Bina Despatch Terminal project :

As covered in Bina-Kota Pipeline project, BPCL shall be storing and marketing the refined petroleum projects from the Bina Refinery. Bina Despatch Terminal (BDT) with appropriate storage, distribution and other infrastructure facilities shall be set up at Bina, adjacent to the refinery. BDT will have product storage tanks, dispatch facilities for rail/road and pipeline transportation and all other infrastructure/support facilities for distribution of products to the demand centres. DFR for the project was approved by BPCL Board on 07.05.2007 at a total project cost of Rs.490.71 crore. OIDB has released the approved loan of Rs.36 crore during 2009-10.

(c) Facilities to produce Euro-IV Auto Fuels from Mumbai Refinery:

The project envisages setting up facilities for :

- HSD quality upgradation through DHDS unit revamp to meet Mumbai Metro demand for Euro-IV HSD from April, 2010.
- MS quality up-gradation by installation of FCC Gasoline treating facilities and sourcing 200 TMTA reformat from Kochi Refinery to meet Mumbai Metro demand of Euro-IV MS from April, 2010.

Proposed modifications are essential for production of Euro-IV and Euro-III Auto fuels in-line with Auto Fuels policy. DFR for the project was approved by BPCL Board on 18.12.2006 at a total project cost of

Rs.390 crore. OIDB has released the approved loan of Rs.72 crore during 2009-10.

(d) Capacity Expansion-cum-Modernisation Project of Kochi Refinery :

The project envisages Motor-Spirit (MS)/High Speed Diesel (HSD) quality up-gradation to Euro-II equivalent norms and expansion of existing refining capacity by 2.0 MMTA (from 7.5 MMTA to 9.5 MMTA) as well as modernization jobs to reduce the operating cost of the Refinery. The project will install facilities such as Vacuum Gas Oil (VGO) Hydro Desulphurization Unit(HDS) and Naphtha Splitter Unit (NSU)/CCN Splitter/Naphtha Hydrotreater (NHT)/CCR which are essentially required for meeting the environmental norms for MS and HSD. The project was scheduled for commissioning in September,2009. DFR for the project was approved by BPCL Board on 05.04.2006 at a total cost of Rs.2591.80 crore. OIDB has released the approved loan of Rs.305 crore during 2009-10.

5.6.6.4 GAIL (India) Ltd.

The project envisages augmentation of the DVPL-GREP Pipeline System in a phased manner and to be utilized for transporting RLNG/gas up to Chainsa and Dadri for onward sale and distribution to consumers, enroute Chainsa-Jhajjar-Hissar Pipeline and Dadri-Bawana-Nangal Pipeline respectively. This would primarily cater to the mid-term and the long-term demands for gas in the Power, Fertilizer, Industrial, Automobile, Commercial, Engineering, City Gas Projects, and Domestic Sectors of the States of Rajasthan, Haryana and Punjab. Out of sanctioned loan of Rs.700 crore, OIDB has released an amount of Rs.266 crore upto December 2009 for this project.

5.6.7 Grants-in-aid for R&D activities

Section 6 of Oil Industry (Development) Act, 1974, inter-alia, provides that the Board may render assistance for scientific, technological, economic research that could be directly or indirectly useful to oil industry. Hydrocarbon Vision 2025 also envisages that sufficient resources may be made available for appraising the unexplored/partly explored acreages through Oil Industry Development Board.

The OIDB has been providing grant to five organizations namely Directorate General of



Hydrocarbons (DGH), Petroleum Conservation Research Association (PCRA), Centre for High Technology (CHT), Oil Industry Safety Directorate (OISD) and Petroleum Planning and Analysis Cell (PPAC) as per the resolutions/directions of the Central Government for carrying out their activities.

5.6.8 Grants for R&D activities

Upstream Sector

In respect of OIDB grant related to upstream sector, a Peer Group comprising Joint Secretary (Exploration), Ministry of Petroleum & Natural Gas, Secretary, OIDB and representatives from DGH, ONGC, and OIL has been constituted by OID Board to examine these proposals in the first instance and give its recommendations. The recommendations of the Group are submitted before the OID Board for decision. The projects that are approved by OID Board with an outlay of more than Rs.25 lakh are sent to Central Government for conveying its approval before release of grant in terms of Rule 24 of OID Rules. Since 1998, the OID Board/Central Government has approved more than 50 projects at an estimated cost of about Rs.143 crore. Most of these projects have been completed. A number of projects has yielded considerable benefits to oil industry in terms of oil production, up-gradation of technology and identifying new areas for exploration etc. The total grants released by OIDB for the upstream sector projects since 1998 amounted to Rs.88.28 crore approximately.

Review Committees

The above Peer Group also reviews the progress of the OIDB funded projects in the upstream sector. The recommendations of the Peer Group are presented before OID Board for consideration and appropriate directions.

Downstream Sector

The projects related to downstream sector are considered and recommended by Scientific Advisory Committee (SAC) on Hydrocarbons set up by the Ministry. These projects are primarily funded through CHT. The members representing SAC are

eminent persons in various fields of Oil Industry. The tenure of this Committee is two years after which Ministry of Petroleum & Natural Gas reconstitutes it. Scientific Advisory Committee on Hydrocarbons also reviews progress of R&D projects in the downstream sector.

5.6.9 National Gas Hydrate Programmes (NGHP)

National Gas Hydrate Programme is for mapping gas hydrates for utilization as future alternate energy resource by abstracting methane from solids below the sea-beds in deep oceans and the permafrost regions of the world. The programme was initiated in 1997 with a Steering Committee and a Technical Committee of NGHP. Based on the review of seismic data by the Technical Committee, two areas in Indian waters, one along East Coast and other on West Coast have been identified as "Model Laboratory Areas" for further R&D work. DGH is the coordinator of the programme. Review of various projects under this programme is done by a Steering Committee set up by the Ministry of Petroleum & Natural Gas. An amount of Rs.200 crore approximately has been given for various activities under NGHP that included Rs. 54 crore contributed by Oil PSUs upto December, 2009.

5.6.10 Hydrogen Corpus Fund

The Ministry of Petroleum & Natural Gas has set up a Hydrogen Corpus Fund on the use of hydrogen as an auto fuel. The Indian Oil Industry has to work synergistically and in close coordination with reputed technological institutions to make headway in this frontier area. With this object in mind, the Ministry has set up a Hydrogen Corpus Fund of Rs.100 crore with contribution from Oil PSUs/OIDB as follows:

- | | | |
|----|-----------------|-------------------|
| 1. | OIDB | Rs. 40 crore |
| 2. | ONGC, IOC, GAIL | Rs. 16 crore each |
| 3. | HPCL, BPCL | Rs. 6 crore each. |

OIDB is to maintain the Account of the fund. OIDB has so far contributed an amount of Rs.10 crore to the corpus. M/s IOCL, ONGC & BPCL have already taken up R&D activities for usage of Hydrogen as a source of energy.



5.6.11 Assistance to Technical Institutes/CSIR Laboratories/other Govt. sponsored projects

The OIDB incurred the following expenditure on grants/schemes sponsored by Govt. of India/OIDB during the year 2009-10 (upto 31.12.2009):

S. No.	Name of the Institutes	Amount in crore
A. Regular Grantee Institutes		
1	Directorate General of Hydrocarbons	36.37
2.	Petroleum Conservation Research Association	24.20
3.	Centre for High Technology	4.00
4.	Oil Industry Safety Directorate	4.40
5.	Petroleum Planning & Analysis Cell	6.30
	Total (A)	75.27
B. R &D Grants		
6.	Oil & Natural Gas Corporation Limited	1.44
7.	Indian Institute of Petroleum (IIP), Dehradun	0.10
8.	Indian Oil Corporation Ltd. (R&D), Centre	1.00
9.	Bharathidasan University	0.50
10.	North East Institute of Science & Technology (NEIST) (Formerly Regional Research Laboratory)	0.05
	Total (B)	3.09
C. Schemes/Projects sponsored by Govt. of India/OIDB		
11.	Jan Kerosene Pariyojana	0.68
12.	Rajiv Gandhi Institute of Petroleum Technology (RGIPT), Rai Bareilly	3.45
13.	Rajiv Gandhi Institute of Petroleum Technology (RGIPT), Assam Centre	1.00
14.	DFR/PFR for Strategic storage of Natural Gas	0.42
	Total (C)	5.55
	Grand Total (A+B+C)	83.91

OIDB has been providing assistance to educational institutes such as IIT Delhi, CIPET, Chennai, North East Institute of Science & Technology (NEIST) (Formerly Regional Research Laboratory), NGRI, Hyderabad, IIP, Dehradun etc. for various R&D projects undertaken by them.

5.6.12 Major Activities

5.6.12.1 Construction of Strategic Storage for Crude Oil through Indian Strategic Petroleum Reserves Limited (ISPRL)

Government of India decided to build a Strategic Crude Oil Reserve of 5 MMT through a Special Purpose Vehicle (SPV). The SPV named Indian Strategic Petroleum Reserves Limited (ISPRL), was initially a subsidiary of Indian Oil Corporation Limited (IOCL). It has now become a wholly-owned subsidiary of Oil Industry Development Board (OIDB) w.e.f. 09.05.2006.

Three locations were selected for creating the strategic reserves, viz. Visakhapatnam (1.00 MMT), Mangalore (1.5 MMT) and Padur (2.5 MMT). The capital cost for constructing the strategic storage facilities is estimated to be Rs.2397 crore and the operation and maintenance cost is expected to be Rs.90 crore per annum at September 2005 prices. The cost excludes the price of crude oil which shall be procured at the prevailing market rates after the respective caverns are ready to be filled. As on 31.12.2009, the authorized and paid-up capital of the company were Rs. 1000 crores, and Rs.293.42 crore (including 19.34 crore pending allotment) respectively. As of 31st Dec.,2009, a total amount of Rs.478.94 crore (Approx.) has been released by OIDB to ISPRL. Project-wise status is as under:

(a) Visakhapatnam (Storage Capacity : 1.33 MMT)

Engineers India Limited (EIL) has been appointed as Project Management Consultant (PMC). Land has been taken on lease from Visakhapatnam Port Trust/ Eastern Naval Command. Requisite Environmental clearance from Ministry of Environment & Forests and Consent for Establishment from Andhra Pradesh Pollution Control Board have been obtained. After supplementary site investigations, to avail the benefits of lower marginal costs for additional



capacity, the cavern capacity has been increased to 1.33 MMT.

The underground civil works have been awarded to M/s. Hindustan Construction Company Limited (HCC) Limited in January 2008 through a Reverse Auction Process. The completion period is 36 months. Over 6 Km. of tunneling work involving excavation of 7.9 lakh Cu.M. was completed on 31.12.09. National Insurance Company Limited has been awarded the Contractors' All Risk Insurance cover of the underground civil works.

The above ground works have also been awarded through global NIT to M/s IOT Infrastructure & Energy Services Limited on 30.11.2009 with a completion period of 23 months. The mechanical completion likely to be achieved by November, 2011.

(b) Mangalore (Storage Capacity : 1.5 MMT)

EIL has been appointed as the Project Management Consultant. The land identified for Mangalore Cavern falls in the Mangalore Special Economic Zone (MSEZ) area and MSEZ Limited has allotted 100 acres of land. In-principle approval for Establishment of Strategic Storage under SEZ Rules 2006 has been received. Environmental clearance has been received from MOE&F. Consent for Establishment has also been obtained from the State Pollution Control Board. Application has been filed with the Board of Approvals, Ministry of Commerce for becoming a co-developer of a proposed Free Trade Warehousing Zone (FTWZ).

The underground civil works have been awarded to M/s SKEC-KCT JV on 16.04.2009 with completion period of 36 months. Excavation of portal area has commenced. National Insurance Company has been awarded the Contractors' All Risk Insurance Cover of the underground civil works.

NIT for pre-qualification of bidders for aboveground works have been published and eight bidders have submitted their bids. EIL have recommended pre-qualification of 6 bidders.

The target date for mechanical completion is November, 2012.

(c) Padur (Storage Capacity : 2.5 MMT)

EIL has been appointed as the Project Management Consultant. Land for the project is being acquired through Karnataka Industrial Area Development Board (KIADB). Preliminary notification for acquisition of 170 acres of land has been issued by KIADB and final notification is being issued shortly for acquisition of 140.65 acres of land. Cadastral Survey for Plot and Central Line Survey for pipeline route has been completed. Supplementary investigations and Cadastral Survey for pipeline route has been completed.

The target date for Mechanical completion is December 2012.

OIDB has released funds to the tune of Rs. 478.94 crore (approx.) till 31st December, 2009 for all the 3 projects at Visakhapatnam, Mangalore & Padur and for pre-project activities including secretariat expenditure.

5.6.12.2 Setting up of Rajiv Gandhi Institute of Petroleum Technology (RGIPT)

The Government of India felt the need to establish a single training and educational institution that can render expert Technical and Management Training to the existing petroleum industry and which can provide world-class multi-disciplinary techno-management, academic programmes in the petroleum fields for creating Human Resource of the future on a global basis to meet the emerging demand scenario in India and abroad. The establishment of RGIPT is a step in the above direction. The Institute will be of international repute.

The Institute is being set up at Jias, Rai Bareilly at an estimated cost of Rs. 685 crore including the cost of land. Out of this, an amount of Rs.150 crore comprising cost of land (Rs.45 crore) and capital expenditure (Rs.105 crore) will be borne by



OIDB. Constituent Oil PSUs viz. ONGC, OIL, GAIL, IOCL, BPCL and HPCL would contribute to endowment fund of Rs.250 crore in the ratio of their profit after tax during the financial year 2005-06. Remaining Rs.285 crore would be met from budgetary support from Government of India through MOP&NG.

RGIPT has procured and acquired 47.50 acre of land at Jias by entering into an agreement with Indian Oil Tanking Limited, a Joint Venture of IOCL. OIDB released an amount of Rs. 4.25 crore during the year 2007-08. Further, an amount of Rs. 2.97 crore and Rs.3.42 crore have also been released to RGIPT for procurement of capital items during 2008-09 & 2009-10.

5.6.12.3 Strategic Underground Storage for Natural Gas

OID Board in its 66th meeting held on 15th December, 2005 had approved preparation of Pre Feasibility Report by EIL for Strategic Storage of Natural Gas along with approach plan in the Indian context at a cost not exceeding Rs.2.85 crore. EIL appointed M/s PB Energy Storage Services, Houston, Texas as Consultant for preparation of the report. For the purpose, two Committees were also formed by the Ministry/OID Board for (i) providing details on depleted fields/likely to be depleted fields and (ii) Committee for overseeing the preparation of the report.

5.6.12.4 OIDB Office building at Noida to house its office and its regular grantee institutions

The OIDB is constructing its own office building at Sector-73, NOIDA on a plot measuring 16000 sq. mts. to house its office and the offices of Indian Strategic Petroleum Reserves Limited (ISPRL), Directorate General of Hydrocarbons (DGH), Petroleum Planning & Analysis Cell (PPAC), Centre for High Technology (CHT) and Oil Industry Safety Directorate (OISD). M/s Engineers India Limited (EIL) is the Project Management Consultant (PMC) & M/s Rajinder Kumar Associates is the Architect for the project. A Sub-Committee constituted by OID Board comprising Secretary OIDB, Nominee of AS&FA, MOP&NG and Chairman, EIL and FA&CAO, OIDB has been supervising the matter

relating to selection of contractors and for monitoring the construction activities. The estimated cost of the construction of the OIDB Bhawan is Rs.140 crore approximately. OIDB has incurred Rs.91.38 crore on the project upto December, 2009.

5.7 OIL INDUSTRY SAFETY DIRECTORATE (OISD)

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

5.7.1 Standardization

OISD develops safety standards for hydrocarbon industry to keep the industry abreast of the latest design and operating practices in the areas of safety and fire fighting in the developed countries. OISD standards are reviewed periodically to incorporate the latest technological developments, and experience gained in their implementation so as to update them in-line with the current practices. One new Standard, complete review of 7 existing standards, amendments in two standards were carried out by OISD. These standards have been referred to Chairmen's Committee formed by MOP&NG for review and vetting. As on date, OISD has issued 111 Safety Standards for the oil industry.

5.7.2 External Safety Audits (ESA)

External Safety Audits (ESAs) are carried out periodically to check compliance w.r.t. to implementation of safety standards. ESA of 2 Refineries and 2 Gas Processing & Petrochemical Plant have been carried out. ESA of another 2 refineries will be carried out within March, 2010. ESA of 4 marketing locations i.e. POL Terminal/ Depot, LPG Plants, have been carried out and another 16 installations will be audited within March, 2010. ESA of 56 on land E&P installations and 8 offshore E&P installations have been carried out. ESA of 238 km. of cross-country pipelines have been carried out till date and another 1300 km. of pipelines will be



carried out within March, 2010. additionally, Pre-commissioning Safety Audit of 7 new projects in Refineries and 224 km. of cross country pipeline have been carried out in-line with approved methodology till date. In addition, Surprise Safety Audit of 6 Refineries and 2 Gas Processing Plants have been planned to be completed in the period whereas surprise safety checks of 5 on-land E&P installations have been carried out till date.

5.7.3 Safety Performance Evaluation

Safety performance evaluation is done by specially developed system based on total loss concept. From the year 2008-09, the number of safety awards have been increased from nine (9) to nineteen (19) to include offshore safety in production platforms and drilling rigs in addition to increase the number of awards in refinery, GPP and pipeline categories. In order to sensitize and motivate individual employee towards the importance of safety, it was also decided to give away cash awards to five individual employees / contract workers who have made significant contributions to prevent accidents at work places. 'Oil Industry Safety Awards' were given by the Hon'ble Minister of Petroleum & Natural Gas and the Hon'ble Minister of State for Petroleum & Natural Gas in October, 2009 at New Delhi.

5.7.4 Safety in Offshore Operations

Petroleum & Natural Gas (Safety in Offshore Operations) Rules, 2008 were promulgated and OISD was notified as Competent Authority to administer this rules in June, 2008. An MoU has been signed with Mineral Management Service (MMS), USA, Federal Agency that manages US's natural gas, oil and other mineral resources on the outer continental shelf.

5.7.5 Training Program / Workshops

Technical Conference/Workshops covering entire oil industry are organized to discuss latest developments, sharing of experiences etc. A national seminar on "Sustainability through

Environment Management' was held in October, 2009 in association with Petrotech.

5.7.6 Incident Investigations & Analysis

OISD also participates in investigation of major incidents depending upon the severity / damage to analyse the cause etc. A data bank of incidents is maintained and analysis reflecting statistical trends, areas of concern, major recommendations etc. is disseminated to industry through advisory notes, workshops, training program, etc. Three investigations were carried out by OISD during the year. OISD also published a book on 'Analysis of Major Incidents in Oil & Gas Industry 2004-2009', which was released in the 27th Safety Council Meeting held in September, 2009.

5.7.7 Dissemination of Safety Information

OISD publishes a quarterly technical Journal - "Petrosafe" and Newsletter "OISD Newsletter" to disseminate information on various safety related activities. OISD at its website <www.oisd.gov.in> provides the latest list of Standards, "Petrosafe", "OISD Newsletter", upcoming events, etc.

5.8 CENTRE FOR HIGH TECHNOLOGY (CHT)



Centre for High Technology (CHT) was established by Ministry of Petroleum & Natural Gas (MoP&NG) in 1987 as a specialized agency of the oil industry to assess futuristic technology requirements for acquisition, development and adoption in the field of refinery processes, petroleum products, additives, storage and handling of crude oil, products and gas.

CHT acts as the Technical Wing of MOP&NG for implementing the scientific and technological programmes of Govt. of India. Its major functions of CHT include assessment of technology requirement as also operational performance of the refineries. CET acts as focal point of oil industry for coordinating and funding of research work in refining and



marketing areas, exchange of information & experience, co-ordinate and pursue the programmes of “Scientific Advisory Committee on Hydrocarbons” of MoP&NG.

5.8.1 Major activities undertaken during 2008-09 and April-December 2009 are as under:

5.8.1.1 “Integrated Refinery Business improvement Programme” by M/s Shell Global Solutions International (Shell GSI)

Integrated Refinery Business Improvement Programme (IRBIP) under Phase-I is being implemented at 4 refineries i.e. BPCL Kochi, IOC Mathura, CPCL-Manali and HPCL-Visakh with a target to complete the activity by mid 2010 except for operation & Asset Management (OAM) related to activities that require refinery shutdown, which would go up-to end 2010. Revised total net benefit of approved PFIs for all 4 refineries amount to 80.5 MM US\$/ Year (34.3 Cent/bb).

5.8.1.2 “International Conference-Refinery Technology Meet (RTM):

Centre for High Technology organized 15th Refinery Technology meet (RTM) during 5-7th November 2009 at Radisson Resort Temple Bay, Mahabalipuram. The theme of the meet was “Harvesting Excellence through Knowledge Partnership Challenges of the Hydrocarbon Sector” The conference was inaugurated by Shri P.K. Sinha, IAS, Additional Secretary & Financial Advisor (AS&FA), Ministry of Petroleum & Natural Gas. The Meet was attended by about 400 delegates including dignitaries, Senior Executives from Hydrocarbon Sector, delegates, invitees, technology suppliers/ licensors and guest from India and abroad.

During the 3 days, 45 oral paper including 18 paper from foreign licensors/ catalyst manufacturers / ten Technical Sessions were presented. Besides this, this 55 poster paper were also displayed during the course of the meet.

5.8.1.3 Industry Workshop on “Pipeline Operations and Quality Management”

CHT organized a two-day industry Workshop on “Pipeline Operations and Quality Management” on 20-21st June, 2008 at the Leela Kempinski, Kovalam,

Trivandrum through M/s Shell Global solutions International.

About 100 delegates participated in the workshop. The workshop was conducted through plenary session and three parallel syndicate meetings covering ‘Quality Management’, ‘Refining’ and ‘Pipeline Operations’. Working group consisting of senior executives from Refineries, Marketing, Pipelines, QC and Panel members from the three syndicates discussed the issues and identified major areas, which need immediate attention to address quality give away.

5.8.1.4 Roadmap to reduce Pipelines Quality Giveaway

The oil companies, CHT and MoP&NG four working groups to chart roadmap for reducing the quality giveaway in pipelines. These were “Restructuring the Quality System”, “Value of Quality Giveaway”, “Infrastructure Improvement” and “Pipeline Interface Management”.

A consolidated report of the four working groups with roadmap has submitted to MOP&NG in March 2009.

Based on the recommendations of the working groups, six forces constituted by MOP&NG for time bound implementation of roadmap & recommendations is working on it.

5.8.1.5 Dissemination of knowledge and information:

CHT held ten activity committee meetings on different process areas viz. Hydro-processing & hydro-cracking, pipeline (2 nos.), fuel & loss, catalytic reformer, fluidised catalytic cracking (2 nos.), delayed coker, P&U and distillation were held for sharing of best operational practices and improvements.

With a view to keep abreast with the latest developments/ trends that are taking place worldwide in the field of Petroleum Refining. CHT organises seminars and workshops, publishes technical journals viz. “Technology Scan” and CHT Bulletin on various process areas.

5.8.1.6 Review of Auto Fuel Policy of Government:

MOP&NG constituted there members Committee comprising Shri M.B. Lal, Chairman, Scientific Advisory Committee as the chairman and Dr. K.S. Balaraman, Executive Director, IOC-R&D as



members for reviewing the Auto Fuel Policy, submitted the interim report to MOP&NG in October 2008.

Subsequently, MOP&NG vide letter No.R-29011/17/2009-OR. I dated 6th May 2009 expanded the mandate of the Committee on review of Auto Fuel Policy to include LPG/ CNG/ H2-CNG as an auto fuel in its Auto in its final report.

The committee met several times and interacted with all the stake holders from industry, Government agencies and industry associations. The draft report along with recommendations is being reviewed before submission of the same to MOP&NG.

5.8.1.7 Jawaharlal Nehru Centenary Awards for Energy Performance of Refineries for 2008-09

CHT has evaluated the energy performance of refineries for 2008-09 for distribution 'Jawaharlal Nehru Centenary' Awards instituted by MOP&NG for 'Minimum Specific Consumption'. These awards were given in two categories (i) PSU and (ii) Private Refineries].

These Awards were also presented by Shri P.K. Sinha, IAS, AS&FA, MOP&NG to the Refineries on 5th November, 2009 during the 15th Refineries Technology Meet at Mahabalipuram.

5.8.1.8 Oil & Gas Conservation Fortnight (OGCF) Awards for 2009

CHT had organized Oil & Gas Conservation Surveys in the refineries during January 19-23, 2009 to select awardees on the basis of their performance in the area of steam leak.

Based on the evaluation of the surveys data, the Awards were presented Shri P.K. Sinha, IAS, AS&FA, MOP&NG to the refineries on 5th November, 2009 during the 15th Refineries Technology Meet at Mahabalipuram.

5.8.1.9 Support to MOP&NG:

- CHT reviewed and examined applications for Foreign Technology Collaboration, comments prepared and submit to MOP&NG.

- Received and examined applications for issuance of Essentially Certificates for various refining project.
- CHT compiled and analysed physical performance of refineries for QPR meetings at MOP&NG.
- CHT coordinated the activities of Scientific Advisory Committee (SAC) in identify and funding of R&D project.
- CHT was associated in reviewing the checklist prepared by Oil Industry Safety Directorate (OISD) for internal safety audit of cross-country pipelines.
- CHT was member of the OISD team for External Safety Audit of GAIL (India) Ltd. Natural gas pipeline network in Maharashtra region in January, 2009.
- CHT as member of the Steering Committee of OISD on safety, reviewed the standards in its 46th Meeting in May 2009 at Kochi.

5.8.2 R&D Projects Completed:

1. Development of Process for Oxidative Desulphurisation of Diesel of IIP.
2. Development of Process for Modified Bituminous Binder of IIP, CRRI and CPCL
3. Development of Process for Isomerisation of 37+ Hydrocarbons in Industrial Feedstock of IIP.
4. TERI Project on "Infrastructure Facility for Pilot Scale Bio-Reactor of 1000 litre working volume" for Zapper, Oilivorous-S and Oilivour A production.

5.8.3 R&D projects recommended by the Scientific Advisory Committee:

1. Hydrogen Generation by Thermo Chemical Process of ONGC for funding from Hydrogen Corpus Fund (HCF)
2. Setting up of Hydrogen Dispensing Station and demonstration of Hydrogen vehicles during

Commonwealth Games of IOC-R&D for funding from HCF.

3. HPCL-IIT Delhi's project proposal on "Hydrogen Production for Natural Gas (Methane) by Catalytic Decomposition" for funding from HCF.
4. Coal to Liquid (CTL) Technology of EIL and BPCL R&D for funding by CHT / OI DB.

5.9 PETROLEUM INDIA INTERNATIONAL (PII)



5.9.1 Petroleum India International (PII) is a consortium of Public Sector Companies in the petroleum, petrochemicals and engineering sector. The member companies include Indian Oil Corporation Ltd., Bharat Petroleum Corporation Ltd., Bongaigaon Refinery & Petrochemicals Ltd., Chennai Petroleum Corporation Ltd., Engineers India Ltd., Hindustan Petroleum Corporation Ltd, Oil India Ltd. and Indian Petrochemicals Corporation Ltd. PII was established in 1986 with the common objectives of mobilizing the individual capabilities of its member companies into a joint endeavour for providing technical managerial and other human resources on a global basis.

5.9.2. PII is a unique organization, mandated to offer the collective joint expertise of its members to client organisation globally, in all areas of the petroleum & petrochemical sectors. It offers its services in all areas of the Oil & Gas Sector covering – Technical Backup Services, Technical Consultancy Services, Management Consultancy Services, Turnaround Maintenance Service, Information Technology Services, PMC services, HRD & Training Services besides engaging in export of commodities used in the Oil Industry. As a result of its successful proven experience, PII is eminently positioned to undertake assignments globally by offering cost-effective & value-added solutions to its clients based across Middle East (Kuwait, Bahrain and Oman) and African (Kenya, Ghana, Nigeria and Ethiopia).

5.9.3 PII is one of the approved accredited centres of IWCF (International Well Control Forum, UK) in India (other being ONGC, IDT, Dehradun) authorize to conduct 'Rotary Drilling Well Control Training Programme' for drilling rigs personnel. The program

is treated as mandatory by most of the drilling companies across the world for personal working in Oil Rigs. This is a certificate programme conducted strictly as per laid down guidelines of IWCF Secretariat, UK. There are overall 196 accredited locations of IWCF world-wise. Out of 13964 candidates certified during the year 2008, about 600 candidates were certified by PII, constituting about 4.3% of market share, indicating an excellent reputation enjoyed by PII among the drilling companies in India and abroad.

5.9.4 The turnover of the company during 2008-09 was Rs.3175 lakh with a net profit of Rs.542 lakh.

5.10 PETROLEUM PLANNING & ANALYSIS CELL (PPAC)



The Petroleum Planning & Analysis Cell (PPAC) was created w.e.f. 1st April 2002 after dismantling of the Administered Pricing Mechanism (APM) in the petroleum sector and abolition of the erstwhile Oil Coordination Committee (OCC). The Governing Body, under the Chairmanship of Secretary (P&NG) and comprising senior officials of MOP&NG and Chief Executives of major oil and gas PSUs as members, provides supervision and guidance in the functioning of PPAC. PPAC assists Ministry of Petroleum & Natural Gas (MOP&NG) inter-alia, in the discharge of following functions:

1. Administration of subsidy on PDS Kerosene and Domestic LPG and Freight subsidy for far-flung areas.
2. Maintenance of information/data bank and communication system to deal with emergencies and unforeseen situations.
3. Analyzing the trends in the international oil market and domestic prices.
4. Forecasting and evaluation of crude oil/ petroleum products import and export trends.

During the year, the following important activities and initiatives were taken by PPAC:

- (i) Subsidy claims of the Public Sector Oil Marketing Companies (OMCs) under the Government schemes on Domestic LPG and PDS Kerosene and Freight Subsidy for far-



flung areas were processed by PPAC. An amount of Rs.2189.08 crore have been disbursed (till 18.02.2010) under the said schemes to the OMCs during the financial year 2009-10.

- (ii) In view of the growing importance of natural gas sector in the energy economy of the country as well as abroad, the data on natural gas is also collected, compiled and hosted at PPAC's website (www.ppac.org.in)
- (iii) **Oil and Gas Data Management System in PPAC:** In order to improve data quality and forecasting methodology, and in a first ever attempt to evaluate the current data system on the basis of the international guidelines and benchmarks, PPAC signed an MoU with Indian Statistical Institute, Kolkata on 22.09.2009 as a Consultant for formulation of data quality guidelines and manuals for PPAC. The inception report has been submitted by the ISI and all efforts are being made by PPAC and ISI for timely completion of the exercise.
- (iv) The Ministry of Petroleum and Natural Gas, Government of India, entered into an Arrangement/MoU with the Department of Energy, Government of U.S.A. on 9th February, 2006 for cooperation in the exchange of information relating to the hydrocarbon sector. PPAC, as the designated agency of the Ministry of Petroleum & Natural Gas, and the Energy Information Administration (EIA) of the United States Department of Energy, are tasked with developing cooperative activities under the arrangement.
- (v) **Studies on Asian Oil Markets:** PPAC of Ministry of Petroleum & Natural Gas and Institute of Energy Economics, Japan (IEEJ) have entered into an MoU in 2006 to undertake joint studies on various aspects of

the Asian Oil Market. During the last year, with the approval of respective Governments, PPAC and IEEJ completed a study on "Promoting Alternative Motor Fuels as Countermeasures for Energy Security and Climate Change: Study of Policies of Asian Countries" in May, 2009.

This year, PPAC and the Institute of Energy Economics, Japan (IEEJ) have agreed to undertake a new study during October, 2009-March, 2010 entitled "Recent Volatility in Oil Prices and its impact on the Asian Economy: Present Strategies and Future Challenges". IEEJ has been awarded the work by METI, Government of Japan for completion by March, 2010.

- (vi) **Implementation of National Gas Grid Study:** Under the Agreement signed between PPAC, acting through the Government of India and United States Trade and Development Agency of USA, (USTDA) acting through the Government of USA, USTDA has been providing financial and technical assistance to PPAC to implement the study project on National Gas Grid. M/s ICF International was selected for Implementation of National Gas Grid Study. The project was launched on 18.8.2009. PPAC arranged meetings of ICF team with Ministries of P&NG, Fertilizers, Power, Environment & Forests (E&F), Companies and agencies. Inception Report (the first stage of work) was submitted on 1.10.2009. Project is likely to be completed within next 8 months.
- (vii) **MOU with International Energy agency (IEA), OECD, Paris:** PPAC and IEA, Paris have signed an MoU on 23rd October, 2009 on cooperation in the oil and gas sector. The MoU provides a co-operative framework between PPAC and IEA for regular exchange of oil and gas data and statistics of technical expertise and experience relating to electronic

data gathering and analysis, and for conduct of joint studies in oil and gas and training. A two day seminar, "India-IEA Seminar on Global Oil Market Outlook & Stability" was organized under the aegis of MoP&NG on 30-31 October'09 in which experts from both sides deliberated on the subject.

- (viii) Ministry of Petroleum and Natural Gas had constituted an Expert Group on "A Viable and Sustainable System of Pricing of Petroleum Products" under the Chairmanship of Dr. Kirit Parikh, Former Member, Planning Commission. PPAC worked as the Expert Group's Secretariat. The Expert Group submitted the Report to the Ministry on 03.02.2010.

5.11 RAJIV GANDHI INSTITUTE OF PETROLEUM & TECHNOLOGY, RAE BARELI

Rajiv Gandhi Institute of Petroleum Technology established under the Act of the Parliament from September with the launching of the following programs:

- (a) B.Tech in Petroleum Reservoir Engineering
- (b) B.Tech in Petroleum Refining Engineering
- (c) MBA in Petroleum and Energy Management

In addition to the above, RGIPT has also started M.Tech in Petroleum Engineering from January' 2009.

Pending the construction of the institute's campus at Jais in district Rae Bareli, the academic activities of RGIPT are currently being carried out from hired campus.

During the year 2009-10, RGIPT has accomplished the following major activities:

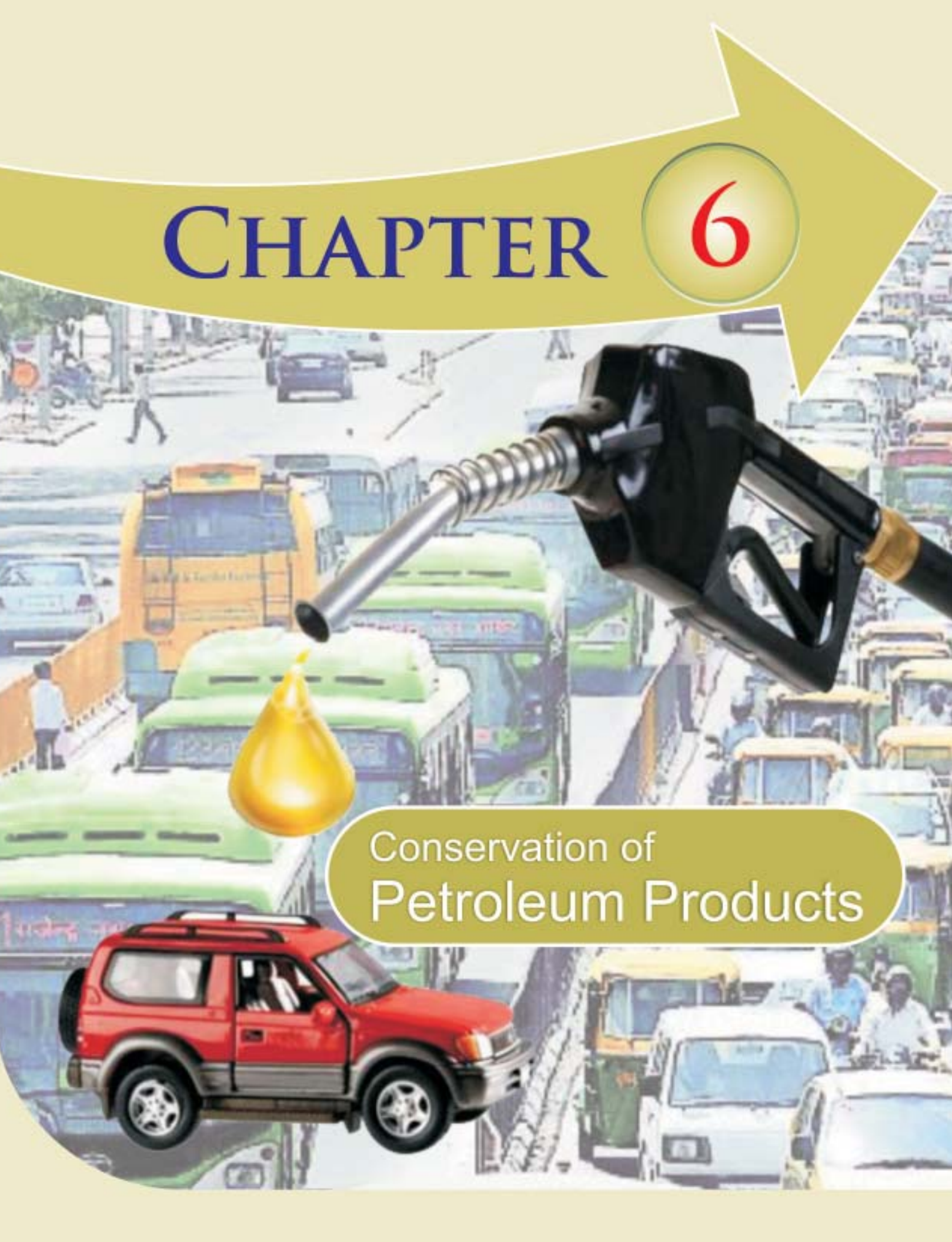
- (a) Successfully completed first academic year and the second batches of B.Tech and MBA admitted during the year.
- (b) Student number of RGIPT in the above programmes has grown to 218.
- (c) Faculty recruitment continued at Rae Bareli and three are total 17 faculty members including 10 permanent roll.
- (d) 7 Non-Academic Staff including two Assistance Register have been appointed on regular roll. Additionally, adequate number of other staff have been recruited.
- (e) The first batch of MBA will be completing the programme in May 2010 and for them the campus placement process organized in January 2010.
- (f) Second General Council Meeting under the Chairmanship of Secretary (Petroleum) was held at Rae Bareli in July 2009.

For the campus project at Jais, RGIPT has acquired 47 acres of land and UPSIDC has been approached for acquisition of contiguous land of about 95 acres. Project Management Consultant and Architect have been appointed to finalise the construction plan. In View of the delay in acquisition of the additional land by UPSIDC, the construction activities in the 47 acres of land acquired by RGIPT has been planned as phase-1 activity. Plot plan and drawings for the Main Campus at Jais completed and tender formalities of the construction work initiated.

RGIPT has also initiated setting up of Assam Centre as its constituent unit for expending academic activities in the upstream area of petroleum sector. The primary objective of Assam Centre of RGIPT is to educate and train skilled technicians at the certificate and diploma level as per the requirement of Oil & Gas Industry. Govt. of Assam has allotted 100 acres of land at Sivasagar for the Assam Centre of the RGIPT. Based on the feasibility report, the financing plan for the project has been approved.

CHAPTER

6



Conservation of
Petroleum Products

Conservation of Petroleum Products

6.1 The oil crisis of 1970s brought into sharp focus the need for conservation of petroleum products due to the enormous hike in country's import bill. The Government of India, in response to the oil crisis, set up the Petroleum Conservation Research Association (PCRA) in 1978. PCRA is a registered society under the aegis of Ministry of Petroleum & Natural Gas, Government of India.

As a non-profit organization, PCRA is a national government agency engaged in promoting energy efficiency in various sectors of economy. It helps the government in proposing policies and strategies for petroleum conservation, aimed at reducing excessive dependence of the country on oil requirement. Over the years, PCRA has enlarged its role in improving productivity in use of various sources of energy, for the purpose of achieving environment protection and sustainable development.

The National Mission for Enhanced Energy Efficiency, which is one of the eight national missions approved in 2009 under the National Action Plan on Climate Change being Steered by Prime Minister's Council on Climate Change, has called for more energy audits, R&D efforts in energy efficiency and enhanced awareness of energy-efficient of energy options. PCRA is expected to play a key role in this as a nodal agency of Govt. of India.

PCRA is committed towards the fifth fuel i.e. **“energy efficiency”**, to augment the four conventional sources of energy viz. coal, petroleum, nuclear and renewable. To achieve this, PCRA is relentlessly pursuing Demand Side Management as a cost effective alternative compared to augmenting supplies. In order to accelerate and broad base the on-going energy conservation activities in the country, PCRA is also placing greater thrust in developing synergies with other national organizations in energy in management field.



Flagging off the Publicity Van by Shri Murli Deora, Hon'ble Minister for Petroleum & Natural Gas during Inaugural Function of OGCF'10



6.2 PCRA'S ACTIVITIES – AN OVERVIEW

6.2.1 Oil and Gas Conservation Fortnight 2010

Oil and Gas Conservation Fortnight (OGCF) is a significant Annual Event of the Ministry of Petroleum and Natural Gas, which is organized from 15th January to 31st January every year, jointly by PCRA and Public Sector Oil & Gas Companies.

Started, as Oil Conservation Week (OCW) in 1991, this nation-wide campaign eventually became very effective tool in creating and spreading mass awareness about the importance of energy conservation in the country. Encouraged by the tremendous success of campaign, the duration of OCW was extended to a fortnight from 1997, making it Oil Conservation Fortnight (OCF). With increasing use of cleaner and eco-friendly gaseous fuels in the country, the conservation of these fuels has also become equally important. Therefore, w.e.f. 2004 the event is being observed as “Oil and Gas Conservation Fortnight (OGCF)” in-line with the decision taken in the 63rd Executive Committee Meeting of PCRA.

OGCF 2010 took off with impressive Inaugural Functions at the National Capital and all the State Capitals on 15th January, 2010. The theme for this year was **“SAVE FUEL YAANI SAVE MONEY”**

The event at Delhi was inaugurated by Shri Murli Deora, Hon'ble Minister for Petroleum & Natural Gas on 19th January, 2010 at Vigyan Bhawan. The function was also graced by Shri Jitin Prasada, Hon'ble Minister of State for P&NG, Secretary MOP&NG and Special Secretary MOP&NG. They addressed a large gathering of dignitaries from the Government, Senior Executives from Oil & Gas Industries, School children and other present on the occasion. The Oil & Gas Conservation Pledge was administered by the then Secretary (P&NG) Shri R.S. Pandey. During the Inaugural Function, the “Best Performance Awards” were distributed to

State Level Coordinators (SLCs), Regional Level Coordinator (RLC), State Government, Upstream Sector for their best performance during last OGCF 2009 by Hon'ble Minister of Petroleum & Natural Gas. The awards were also distributed to the winner of National Level Essay Competition organized for students of class X and up to Post Graduate in Hindi and English and All India Level Painting Competition.

In addition to the National Level Essay Competition in Hindi and English, PCRA also organized the Essay Competition in Seven Regional Language of Tamil, Kannada, Telugu, Malayalam, Marathi, Gujarati and Bangla and the awards were distributed to the winners during the Valedictory Function of respective States by SLC. Impressive Inaugural function were also organized at the State Capital, which were graced by dignitaries like Governors, Chief Ministers, Ministers and other eminent persons.

During the OGCF'10, large number of activities like mass rallies, cycle rallies, marathons, human chain, technical seminars, symposiums, essay, quiz and painting competitions and LPG clinics etc. were arranged for the propagation of oil and gas conservation messages amongst the major consuming sectors namely, Transport, Industrial, Agricultural, Household and Commercial all over the country by PCRA and Public Sector Oil & Gas Companies.

6.3 FIELD ACTIVITIES

Field Activities are one of the core areas of PCRA operations. Through sectoral field activities, PCRA engineers and its external experts are to reach the target groups with innovative energy conservation programmes. These activities are designed to cover a large spectrum of socio-economic profile of our country in different sectors viz; Industrial, Transport, Domestic, Agriculture & Commercial.

During 2009-10, a renewed vigour was infused into the strong cadre of PCRA Officers and Activists

towards achieving newer heights in the national movement for petroleum and energy during conservation. This was reflected in the total activities carried out by PCRA. There were more than 50% increase in the number of activities. As against 2366 field activities during 2008-09 (up to December'08), a total of 3572 field activities were carried out during 2009-10 (up to December' 09)

6.3.1 Chartered Activities

Field Activity performance in Transport, Industrial, Agricultural and Domestic sectors during 2009-10 (up to December' 09) is given below:

S. No.	Activity	2008-09	2009-10 (upto Dec. 2009)
1.	Energy Audit	93	264
2.	Fuel Oil Diagnostic Study	93	129
3.	Service to Small Scale Industry	69	124
4.	Follow-up	158	230
5.	Institute Training Programme	264	257
6.	Seminar/ Technical Meet/ Consumer Meet	46	66
7.	Modal Depot Project	70	55
8.	Driver Training Programme	418	374
9.	Kisan Mela	6	28
10.	Youth Programme	370	814
11.	Exhibition	31	63
12.	Workshop-Industrial	128	192
13.	Workshop-Transport	237	276
14.	Workshop-Domestic	161	396
15.	Workshop-Agriculture	222	304
		2366	3572
		51% Increase	

6.3.2 Energy Audits:

During 2009-10, PCRA has conducted 517 efficiency studies in the Industrial sector, which include Energy Audits (264), Fuel Oil Diagnostic Studies (129) and Walk Through Audits (124) in Small-Scale Industries. During the year, PCRA has

undertaken Municipal Urban Demand Side Management Project for the Urban Local Bodies of Vishakhapatnam in Andhra Pradesh, Mahestala in West Bengal and Guwahati, Tinsukia, Jorhat, Rangia, Tezpur, Dhekiajuli and Rangapara in Assam. In the SME sector, PCRA has undertaken projects for the Pali Textile Cluster, Gujarat Dairy Cluster, Bangalore Machine Tool Cluster and Jorhat Tea cluster.

Seminars:

Technical seminars are an effective tool for the dissemination of recent advances in technologies and also for improvement in operational practices for improving energy efficiency. In this direction during 2009-10, PCRA has organized 66 Seminars/ Technical Meets in different parts of the country for the benefits of specific industrial sectors. During these seminar, PCRA's experience of conducting energy efficiency studies in the sector are shared through case study presentations where in details of investment required and the benefits accrued case study presentations where in details of investment required and the benefits accrued through implementation of the energy conservation measures are shared.

Exhibitions:

Through participation in National and International Exhibitions, PCRA exhibits its in-house capabilities and expertise through display of information on successful case studies about its services provided to various sectors. PCRA participate in/ organized 63 exhibitions in 2009-10.

- PCRA had put up a stall on the theme of 'Energy Conservation' during the 29th India International Trade Fair at New Delhi from 14th -27th Nov'09. Shri Arun Kumar. Secretary, OIIB and Executive Director, PCRA inaugurated the stall. The stall drew huge crowds, both children and adults.

Institutional Training Programmes:

PCRA's Institutional Training Program (ITP) is an activity primarily meant to share the experience



gained by PCRA during industry audits. These training programmes are targeted at raising the awareness level of the members of industry about the conservation opportunities that can be realized through the energy audit of their plant. In 2009-10, PCRA conducted 257 Industrial Training Programs in various industries.

Empanelment of Energy Auditors:

Over the years, PCRA has been playing an important role of developing quality energy auditors whose services become available to industries and commercial establishments in the country. Its empanelment committee comprises members from BEE, NPC, TERI and PCRA. Today, a strong force of 96 PCRA empanelled energy auditors is providing service to the Indian industry.

6.4 NETWORKING WITH OTHER AGENCIES:

Energy Conservation Center Japan (ECCJ):

As part of Government of India's initiative for cooperation with Japan in the field of oil & gas, PCRA executed an MoU with "The Energy Conservation Center Japan (ECCJ)" on 28th June 2006 in New Delhi.

- Training on Energy Conservation Technologies was provided to 20 Indian delegates in Japan from 6th to 18th September, 2009. The delegates comprised members from PCRA, Oil sector, Iron & Steel Industry and Pulp and Paper Industry.
- Two technical expert from ECCJ presented the Japanese approach to the energy efficiency in



Lighting of Lamp by Shri Murli Deora, Hon'ble Minister for Petroleum & Natural Gas during inaugural function of OGCF'10 in New Delhi. Also seen Shri Jitin Prasada, Hon'ble Minister of State for Petroleum & Natural Gas, Shri R.S. Pandey, Former Secretary, Petroleum & Natural Gas and Shri S. Sundareshan, Secretary, Petroleum & Natural Gas



Iron & Steel Sector at the International seminar organized by PCRA in Kolkata on 1st and 2nd May, 2009. A joint visit was also made by the PCRA and the Japanese team to industries located in and around Kolkata from 3rd to 5th May, 2009.

- A two-week long interactive workshop audit involving members from Japanese Textile Industry and Indian counterparts led by a PCRA team, to develop Energy Audit Manual was organized in Delhi including visit to industries located at Kosi and Ghaziabad from 17th to 27th November, 2009.

6.5 PCRA'S DRIVER TRAINING PROGRAMMES (DTPS)

Transport sector that accounts for around 50% of the country's consumption of petroleum products remained another major area of focus for PCRA during the year 2009-10. PCRA conducted 374 DTPs training to 5610 drivers, resulting in improvement of average fuel consumption. Since 1985-86, a total of 1,47,088 drivers has been trained. 55 Integrated Model Depot Project studies and 276 Transport Workshops were also conducted in 2009-10.

6.6 SPECIAL EFFORTS MADE TOWARDS CONSERVATION LAUNCHED BY PCRA DURING 2009-10

All India Painting Competition organized in association with National Council of Science Museums: PCRA in association with the National Council of Science Museums organized Painting competitions at all the 25 Science Centres spread across the nation for students from class 6 to class 9 with an estimated participation of 3800 students. Three prizes were given to the winners at each Science Centre. The award-winning paintings from each Centre were evaluated and the All India Prize to the three best entries were given during Oil and Gas Conservation Fortnight 2010.

6.7 CONSERVATION TECHNOLOGY CENTRE

Conservation Technology Centre (CTC) was inaugurated in February 2008 at Petroleum

Conservation Research Association, Sanrakshan Bhawan, New Delhi. The Conservation Technology Centre is a state-of-the-art permanent display centre for energy efficiency products and technologies. The Conservation Technology Centre has been set up to fill up the gap of effective information dissemination on energy efficient products and technologies for general public. Apart from products, the Conservation Technology Centre is also intended to be a nodal point for exposition of energy efficient technologies, both in nascent and in different stages of development. Conservation Technology Centre has been attracting large number of visitors. Some of the important National/ International visitors are Chinese delegation led by Director, Southwest China Investment Promotion Agency (SCIPA) along with Federation of Indian Chambers of Commerce and Industry (FICCI) and UNIDO Centre for South-South Industrial Cooperation (UCSSIC), Senior IAS officers from Central/State Government Ministries, Director General, Bureau of Energy Efficiency, Johnson Controls, Hong Kong, The Energy Conservation Centre, Japan, Director General, International Bureau, Japan, Japan Bank for International Cooperation, Japan, Eclipse (Suzhou) China, Senior Officials from IIP, Dehradun, ARAI Pune, BIS, IOC, BPC, HPC, CSIR Labs, LERC Bangalore, Professors & Students from IITs & Regional Engineering Colleges, large numbers of individuals from Private, Defence & Government Sectors. Wide publicity has also been given to Conservation Technology Centre through press and media.

6.8 RESEARCH & DEVELOPMENT

During the period April' 09-Jan'10 Research & Development activities provided strong support to PCRA's energy conservation efforts by developing and commercializing energy efficient products, processes and technologies for energy saving and environment protection.

6.9 LIST OF PROJECT SPONSORED IN THE YEAR APRIL'09-JAN' 10

During the period April' 09 to Jan.'10, PCRA sponsored following 8 R&D projects, with a contribution of Rs.121.32 lakh:

1. Evolving Schemes of Waste Heat Recovery-cum-Fume Control & Improve Safety System



for Secondary Steel Melting Induction Furnace to Achieve Resource Conservation and Improve Work Environment by Federation of Indian Chambers of Commerce & Industry, New Delhi.

2. Accelerating Replications of Energy Efficient and Environment-Friendly Technology (Biomass Gasifier) for Thermal Application in Guar-Gum Units at Jodhpur by The Energy and Resources Institute, New Delhi.
3. Development of Concentrator Prototype for Industrial Application by Maharana Pratap University of Agriculture and Technology, Udaipur.
4. Installation of Energy Efficient Improved Biomass Cook Stoves by Maharana Pratap University of Agriculture and Technology, Udaipur.
5. Popularizing SVO Technology among the Farmers, Entrepreneurs and other users for Vegetable Oil and Bio-diesel as Fuel Extender in Diesel Engines by Maharana Pratap University of Agriculture and Technology, Udaipur.
6. Identification of High Oil Yielding Jatropha Plants and in vitro Scaling-up of selected Lines for Increased Bio-Diesel Production by Dayalbagh Educational Institute, Agra.
7. Development of a Solar Powered Vehicle by Netaji Subhash Institute of Technology, New Delhi.
8. Enhanced Nutrient Removal under Shock Loads through Integrated Upflow Anaerobic Sludge Blanket (UASB) and Sequencing Batch Reactor (SBR) System for Sewage Treatment & Reuse by Indian Institute of Technology, Roorkee.

6.10 NATIONWIDE MASS AWARENESS CAMPAIGN “SAVE FUEL YAANI SAVE MONEY”

Reducing energy intensity of our country is on top priority today in order to ensure better energy

security for the country. Hence, it is essential that our country becomes most fuel-efficient and checks its wasteful utilization in all petroleum fuel-intensive sector of the Indian economy. With the above backdrop, PCRA launched a nationwide mass awareness campaign in 2009, in the august presence of Hon'ble Union Minister of Petroleum & Natural Gas, Shri Murli Deora. The campaign was focused on the theme of “**SAVE FUEL YAANI SAVE MONEY**” and the mascot “**YAANI**” was designed to represent a piggy bank that depicts the scope of savings of money as a results of savings of fuel. The campaign was simultaneously launched on Television, Print and Radio throughout the nation and was run for 8 weeks to create a strong impact on the consumers. Even if country targets at saving 2% of its petroleum products, our country can save whopping Rs. 8,000 crore per year from its oil exchequer.

Three ad films were produced for television, the strongest media of communication and a total of 14, 591 advertisements were telecast in 8 weeks on various news, entertainments, films, infotainments and regional channels throughout the country including Doordarshan and DD News. The ad-film ‘Traffic Light’ was rated as the most successful and of PCRA during the campaign that succeeded in touching the emotional chord of viewers. The film was built around a strong storyline of a father and a son duo waiting at a traffic red signal with the car engine on when the son exclaims, “I’ll open a cycle repair shop since there won’t be any petrol left for future generation if everyone wastes petrol like this at red signals by keeping engines running.” The film ends with a mass appeal of switching off engine at red light to “**SAVE FUEL YAANI SAVE MONEY**”.

On print media, a total of 6 advertisements were produced for the campaign and a total of 854 advertisements were published in national and regional newspapers throughout the country in

13 languages, viz. Assamese, Bengali, English, Gujarati, Hindi, kannada, Malayalam, Marathi, Oriya, Punjabi, Tamil, Telugu and Urdu. On radio, total number of advertisements was 5 and a total of 28, 982 advertisements were broadcast on various All India Radio (AIR) and Private on Private FM Channels throughout the country.

PCRA campaign won many accolades. TV ad 'Traffic Light' won the "Viewers' Choice Award" in the prestigious CMS (Centre for Media Studies) Vatavaran Film Festival in Oct' 09. Economic Times, in its edition of 21.12.09, ranked PCRA radio advertisement in the 'Second Place' amongst top 5 brands across the nation during the period January-Sept'09. PRSI (Public Relation Society of India) awarded PCRA campaign as the 'Best Media Awareness Campaign' throughout India in 2009. TV ad 'Traffic Light' was rated 'Number One' amongst all television advertisements on Indian TV during the month of March' 09 in an independent media survey out by an independent survey agency 'Synnovate' for Hindustan Times Group. In the same survey, another TV ad of PCRA 'Pump' was ranked 4th. Deccan Chronicle, a leading daily of Southern India adjudged the TV and 'Traffic Light' as 'The Ad of the Week'.

After the successful completion of the campaign, and impact assessment survey was carried out by a third party and the result has been extremely promising all across the country and in all sectors. The finding of the survey revealed that the campaign created an awareness of 74%, believability of 89% and usefulness of 91%. The survey showed that consumers stated following fuel-saving tips suggested by PCRA—72% each in transport and domestic sector, 63% in agriculture and 61% in industrial sector. 84% of respondents desire to continue to see similar campaign since behavioural changes takes a long time to become a habit.

Bringing in behavioural changes in not a one-time exercise and it takes a long time to become a habit. Therefore in order to inculcate the habit of "Fuel-Saving" and to maintain a continuous communication to reinforce the learning, PCRA launched its second phase of campaign on 19th January, 2010 on the day of inauguration of Oil & Gas Conservation Fortnight 2010 by the Hon'ble Minister of Petroleum & Natural Gas, Shri Murlidhara Deora in the august presence of Minister of State for Petroleum & Natural Gas, Shri Jitin Prasada.

6.11 OUTDOOR PUBLICITY, EXHIBITION AND GROUND ACTIVITY

Outdoor media provide an effective medium of communication for disseminating public awareness. PCRA used this media effectively during 2009-10 through various modes, viz. Hoarding, Bus Queue Shelter, Train Coach Panel, Metro Panel, Bus Panel, Auto back Panel Unipole, Display Board, LED Display Board, Pole Kiosk, Utility etc. These advertisements were covered in 200 cities/ towns of India.

PCRA participated in India International Trade Fair 2009 held at Pragati Maidan during Nov' 09 to spread the awareness on petroleum conservation amongst general masses. PCRA's presence motivated the public at large to use some useful tips which will help in saving their energy bills in day-to-day life. PCRA, during 2009-10, undertook an interaction activity with IEEE (Institute of Electronic & Engineers) at Madhuban Chowk, Delhi in September 2009 to educate masses about the potential of saving petroleum fuel at traffic red signal by switching off engine and by following other simple tips like driving at 45-50 km/hrs. PCRA officials along with volunteers of IEEE took part in the event to motivate masses to fuel-efficient measures through placards, banners and car hanging. The event was a major success.

CHAPTER

7



International
Co-operation

International Co-operation



- 7.1** To address issues of country's energy security, Ministry is committed to strengthening further of bilateral co-operation with countries abroad. The Ministry has vigorously pursued overseas opportunities through Indian Oil & Gas PSUs with a view to enhance the energy security of India not only in the area of E&P but also to undertake commercial operations, with an objective to turn Indian Oil & Gas PSUs into global players. In order to give special attention to these matters, International Co-operation (IC) Division has been functioning in the Ministry since April 2005.
- 7.2** The principal role of the IC Division is to promote long-term engagement of Indian companies in the hydrocarbon sector abroad. The specific areas to be pursued abroad are:
- (i) Equity participation in developed oil and gas fields;
 - (ii) Exploration and production contracts in new fields, both oil and natural gas;
 - (iii) Participation in mid-stream and down-stream projects in the oil and gas sector;
 - (iv) Promotion of Indian participation in transnational oil and gas pipeline projects;
 - (v) Participation in bilateral bodies such as Joint Commissions and Joint Working Groups on Hydrocarbon Co-operation to ensure that India's interests in specific countries are effectively projected and pursued;
 - (vi) Participation at regional and global multilateral fora to pursue issues of interest to India such as organization and functioning of oil markets, investments and joint ventures in the Hydrocarbon sector and co-operation between academic and research institutions to promote R&D, transfer of technology, training, dissemination of data on hydrocarbon, etc.
- 7.3** In order to explore new avenues and also to augment the on-going efforts, the Minister of Petroleum and Natural Gas has undertaken a number of visits abroad during the year 2009-2010. The overseas visits undertaken at Ministerial level along with objectives achieved are as under:

OVERSEAS VISITS BY MINISTER (P&NG)

S. No.	Country visited	Objectives of the visit
1.	Moscow, Russia (2.9.2009 to 6.9.2009)	Member of Official Delegation of Hon'ble President of India visit to Russia
2.	Tomsk, Russia (6.9.2009 to 7.9.2009)	Official visit
3.	London, U.K. (7.9.2009 to 10.9.2009)	NELP-VIII Road Show
4.	Beijing, China (14.10.2009)	SCO Summit
5.	Doha, Qatar (16.12.2009)	Additional supply of LNG
6.	Sudan, Nigeria, Angola and Uganda (25-28 Jan., 2010)	Bilateral meetings.

OVERSEAS VISITS BY MINISTER OF STATE (P&NG)

S. No.	Country visited	Objectives of the visit
1.	Brussels (17.6.2009 to 19.6.2009)	To attend ASEM Conference on Energy Security
2.	Houston (USA) (21.8.2009 to 22.8.2009)	Road Shows for NELP-VIII and CBM-IV
3.	Calgary (Canada) (23.8.2009 to 25.8.2009)	Road Shows for NELP-VIII and CBM-IV
4.	Singapore (27.9.2009 to 29.9.2009)	Road Show & Investors Meet for NELP-VIII and CBM-IV



7.4 A high-level delegation led by Minister (P&NG) visited the four African countries, viz., Sudan, Nigeria, Angola and Uganda from 24-28 January 2010 for creating a mutually beneficial investment climate for the oil and gas companies of India and the African countries and to pursue vital interests of the hydrocarbon sector of the country. The letters from Hon'ble Prime Minister of India to Hon'ble Presidents of Sudan, Nigeria, Angola and Uganda were handed over during the visit, reiterating India's commitment to expending co-operation with the African nations.

7.5 2ND INDIA-AFRICA HYDROCARBONS CONFERENCE, NEW DELHI, DECEMBER 2009

7.5.1 This conference was organized by Ministry of Petroleum and Natural Gas, in collaboration with the Federation of Indian Chambers of Commerce and Industry, to bring India and the countries of Africa closer in hydrocarbons sector. 15 African countries participated, namely, Algeria, Angola,

Benin, Chad, Egypt, Gabon, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Sudan, Tanzania, Uganda and Republic of Congo.

7.5.2 During the conference, an MoU was signed between India and Sudan by Hon'ble Minister of State for Petroleum and Natural Gas Shri Jitin Prasada and the Hon'ble Minister of State for Energy and Mining of Sudan, Ms. Angelina Jany Teny. The MoU will help to promote bilateral co-operation in manpower development, well stimulation services, reservoir management and enhancement of oil recovery.

7.6 JOINT WORKING GROUP MEETINGS

Joint Working Group (JWG) meetings for co-operation in the hydrocarbon sector with Russia and Kuwait were held during this period.

7.7 High-level delegations participated in following conferences/seminars/ round tables

- (a) International Conference, Ashgabat, Kazakhstan (23-24 April 2009)
- (b) OPEC Seminar, Vienna, Austria (March 18-19, 2009)
- (c) ASEM Ministerial Conference on Energy Security, Brussels (June 17-18, 2009)
- (d) 3rd Asian Ministerial Energy Round Table, Tokyo, Japan (25-27 April, 2009)
- (e) Head of Government Council Meeting of The SCO, Beijing, China (14th October, 2009)
- (f) G-8 Energy Ministers' Meeting, Rome, Italy (24-25 May, 2009)



India - Africa, 2nd Hydrocarbons Conference at FICCI, New Delhi

7.8 The International Co-operation Division has provided support to many initiatives of oil and gas PSUs to pursue overseas opportunities to enhance energy security of the country. A list of such on-going projects is are under:

LIST OF IMPORTANT OVERSEAS PROJECTS

Country	Name of the Block	Participating Interest with details of other partners
Vietnam	Block 06.1	OVL-45% BP-35% PV-20% (Operator - British Petroleum (BP))
	Block 127	OVL- 100%
	Block 128	OVL- 100%
Russia	Sakhalin-1	OVL - 20% Exxon-30% Sodeco - 30% SMNG - 11.5% RN Astra - 8.5% (Operator - Exxon Mobil)
	Imperial Energy	OVL-100%
Sudan	GNOP Block 1, 2 & 4	OVL - 25% CNPC - 40% Petronas - 30% Sudapet - 5% (Joint Operatorship)
	Block 5A	OVL- 24.125% Petronas-67.875% Sudapet - 8% (Operator - Petronas and Sudapet Joint Operator)
	Khartoum-Port	OVL-90%
	Sudan Pipeline Project Sudan	OIL-10%
Myanmar	Block A-1	OVL - 20% Daewoo-60% KOGAS - 10% GAIL - 10% (Operator - Daewoo)
	Block A-3	OVL - 20% Daewoo-60% KOGAS - 10% GAIL - 10% (Operator - Daewoo)
	Block AD-2	OVL- 100%
	Block AD-3	OVL- 100%
	Block AD-9	OVL- 100%
Iraq	Block 8	OVL- 100%
Iran	Farsi Offshore Block	OVL - 40% IOC - 40% OIL - 20% (Operator - OVL)



LIST OF IMPORTANT OVERSEAS PROJECTS (CONTD...)

Country	Name of the Block	Participating Interest with details of other partners
Libya	Block NC-189	OVL - 49% TPOC - 51% (Operator - TPOC)
	Block 81-1	OVL- 100%
	Block 43	OVL- 100%
Egypt	Block 6	OVL- 70% IPR -30% (Operator -IPR)
	Block NEMED in Offshore	OVL - 33% Shell - 51% with Operatorship Petronas - 16%
Egypt	Exploration Blocks South Qusei & South Senai	GSPC - 50% OIL - 25% HPCL 25%
Syria	Block 24	OVL - 60% IPR International - 40% (Operator - IPR International)
	Al Furat (4 PSA)	Himalaya Energy (Syria) B.V. - 33.33% to 37.5% Shell - 66.67% to 62.5%
Cuba	Block N-25, 26, 27, 28, 29 & N-36	OVL - 30% Repsol YPF-40% Stat Oil -30% (Operator - Repsol YPF)
	Block N-34 & N-35	OVL- 100%
Brazil	Block BC-10	OVL- 15% Shell - 50% Petrobras - 35% (Operator - Shell)
	Block ES-42	OVL- 100%
Brazil	Block S-73	OVL- 100%
	Block BM-SEAL-4	OVL-25% Petrobras -75% (Operator - Petrobras)
	Block BM-BAR-1	OVL-25% Petrobras -50% Devon-25% (Operator - Petrobras)
	Block BM-5-17	OVL 25%
	Block BM-ES-25	BPRL -20%
	Block KG-DWN -98/2	15%
	Block MN-DWN-98/3	40%
	Block CY-DWN-2001/1	25%

LIST OF IMPORTANT OVERSEAS PROJECTS (CONTD...)

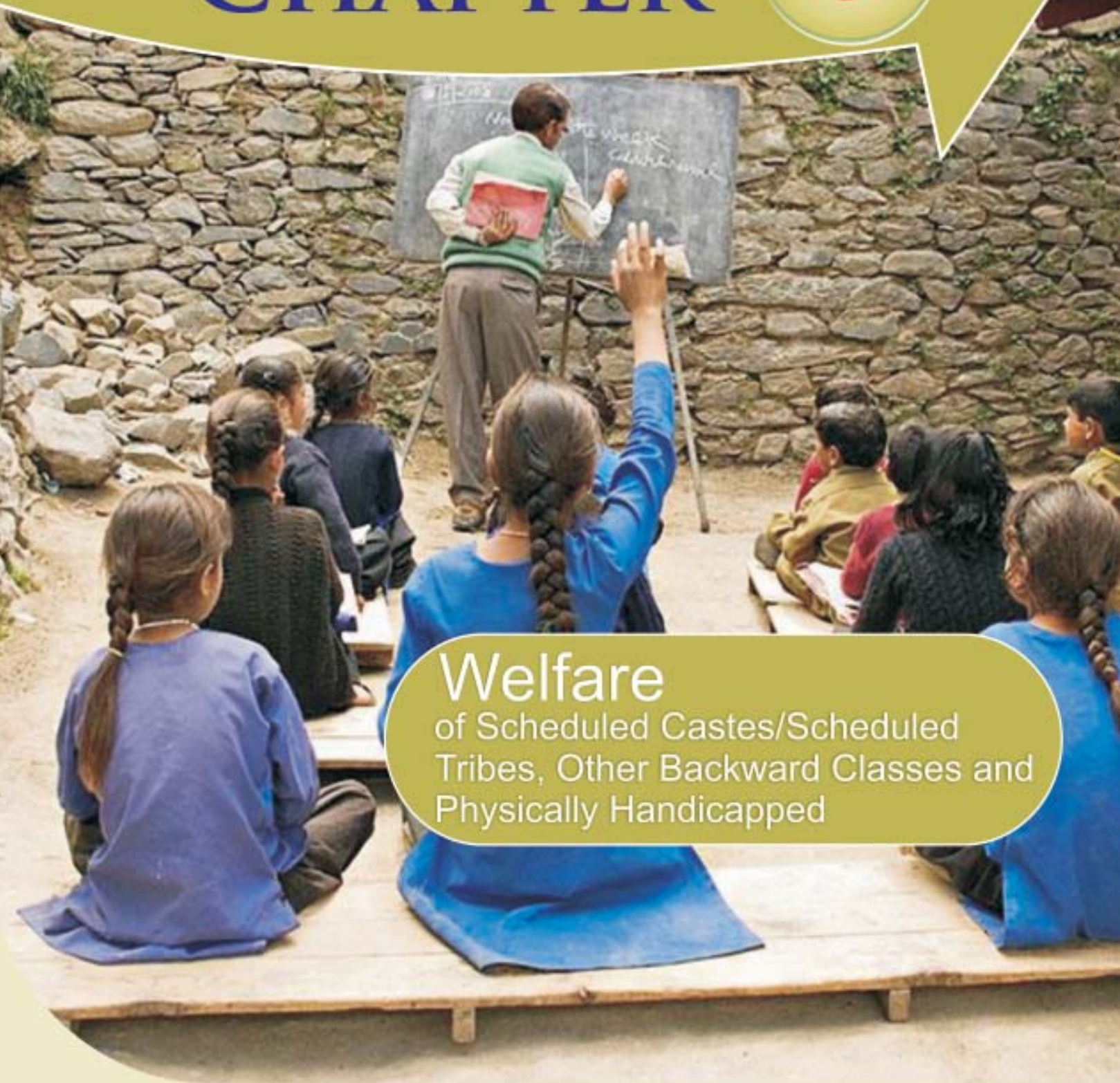
Country	Name of the Block	Participating Interest with details of other partners
Colombia	Mansarover Energy	OVL - 50%,
	Colombia Limited (MECL)	Sinopec-50% (Joint Operatorship)
	Block RC-8	OVL - 40% Ecopetrol - 40% Petrobras - 20% (Operator - OVL)
	Block RC-9	OVL - 50% Ecopetrol - 50% (Operator - Ecopetrol)
	Block RC-10	OVL - 50% Ecopetrol - 50% (Operator - OVL)
	Block CPO-5	OVL -100%
	Block SSJN -7	OVL-50% Pacific Stratus Energy Colombia (Operator)- 50%
Nigeria Sao Tome Principe	Block-2, JDZ	OVL 13.5%, M/s Sinopec 28.67% / Addax Petroleum 14.33% / ERHC Energy Inc. Consortium 22% PI, Equator Exploration Ltd. 9% PI, A & Hatman 2.5% PI, Foby Engineering 5% PI and Momo Deepwater JDZ 5% PI.
Nigeria	OPL 279	OMEL -45.5% EMO - 40% Total-14.5% (Operatorship -OMEL)
	OPL 285	OMEL -64.33% EMO - 10% Total-25.67% (Operatorship -OMEL)
Venezuela	San Cristobal Project	OVL-40% CVP-60% (Operated Jointly)
Oman	Block 56	Oilex- 25% GAIL - 25% Videocon - 25% HPCL-12.5 % BPCL -12.5%
Australia	Block WA-388-P	Oilex -14% GSPC-14% Videocon -14% HPCL - 14% BPCL -145 Sansol - 30%

CHAPTER

8

Welfare

of Scheduled Castes/Scheduled Tribes, Other Backward Classes and Physically Handicapped



Welfare

of Scheduled Castes/Scheduled Tribes, Other Backward Classes and Physically Handicapped

8.1 The guidelines in respect of the Reservation for the 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, the Ministry of Social Justice and Empowerment and Ministry of Tribal Affairs are being implemented in the Ministry of Petroleum & Natural Gas and the Public Sector Undertakings under its administrative control. The SCT Cell of this Ministry monitors the implementation of reservation policies in PSUs as well as in the Ministry. The PSUs have also constituted Implementation Cells under the supervision of their Liaison Officers to safeguard the interests of SCs/ STs, OBCs and People with the Disability (PWD) employees and to redress their grievances. The Liaison Officers of the PSUs are responsible for ensuring implementation of the Presidential Directives as well as the various orders of the Government. Remedial action on the grievances of the SCs/STs, OBCs and PWD employees of PSUs received through members of Parliament, National Commission for SCs and STs, National Commission

for Scheduled Area and Scheduled Tribe are taken, wherever necessary.

The status of appointment of SCs/STs/OBCs/PWD persons is monitored by the Ministry through Half Yearly report furnished by PSUs separately. As per instructions from Department of Public Enterprises, all the PSUs have been requested to launch Special Recruitment Drive to fill up back-log vacancies arisen till 1.11.2009 reserved for SC, ST and PWD.

In pursuance of the observations of Parliamentary Committee on the Welfare of SCs/STs/PWD persons and the Presidential Directives on Reservations for SCs/STs in service a team lead by the Liaison Officer of this Ministry inspects the Reservation Roaster maintained by the Units of PSUs, annually. In **2009, the team has inspected rosters of 34 out of 48 units of PSUs where Rosters are maintained.**

8.2 SPECIAL COMPONENT PLAN FOR SC/ST/ PH FOR 2008-09

Under this plan, most of the PSUs of this Ministry are undertaking the following developmental



Former Secretary – P&NG, Shri R. S. Pandey inaugurating HPCL's Rasoi Ghar (Community Kitchen) at Bettiah, Bihar



activities for the welfare of SC/ST population during 2009-10:

- Scholarship/Financial Assistance for purchase of books/ uniforms etc. to SC/ST students in neighbouring schools
- Every year Rs. 2.00 crore has been allocated to various works centers of ONGC and SCP/ STP towards welfare at upliftment of SC/ST communities
- Education for primary level schools, hiring of teacher, provision of Uniform, note books, stationary etc. to school going children
- During the financial year 2009-10, the PSUs of this Ministry have made provision in the plan

outlet for award of scholarship to SC/ST students

- A special drive relating to SC/ST/OBC/PH welfare activities is being launched during the period 2009-10 i.e. recruitment, minimizing the shortfall etc.
- Most of the PSUs of this Ministry are implementing the provisions under Disability Act, 1995 in respect to identification of course, implementing various provision of 3% reservation of course in Orthopedically Handicapped (OH), Visually Handicapped (VH) and Hearing Handicapped (HH) categories.

8.3 BACKLOG OF SC/ ST/ OBC/ PH IN OIL COMPANIES UNDER THE ADMINISTRATIVE CONTROL OF THE MINISTRY AS ON 31.12.2009.

DIRECT RECRUITMENT

PSU	Number of Backlog Reserved Vacancies remaining (Direct Requirement)							
	Group-A		Group-B		Group-C		Group-D	
	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH
BALMER LAWRIE	Nil	4/0	Nil	Nil	9/7	Nil	35/25	18/0
OIL	Nil	2/0	Nil	Nil	Nil	0/10	4/15	0/28
EIL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
BPCL	0/5	42/0	0/1	289/0	0/10	197/0	0/10	352/0
NRL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
IOC	0/49	119/4	Nil	Nil	Nil	0/25	Nil	8/3
GAIL	Nil	Nil	10/0	Nil	1/0	19/0	15/0	23/0
HPCL	29/37	55/3	Nil	Nil	Nil	0/13	0/1	5/5
ONGC	Nil	0/8	Nil	Nil	Nil	0/4	Nil	0/1
CPCL	Nil	0/1	1/3	0/4	Nil	0/7	Nil	Nil
BIECCO LAWRIE LTD.	0/1	5/0	0/1	3/1	6/1	0/1	0/8	8/4
MRPL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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PETROLEUM CONSERVATION RESEARCH ASSOCIATION,
Ministry of Petroleum & Natural Gas, Govt. of India

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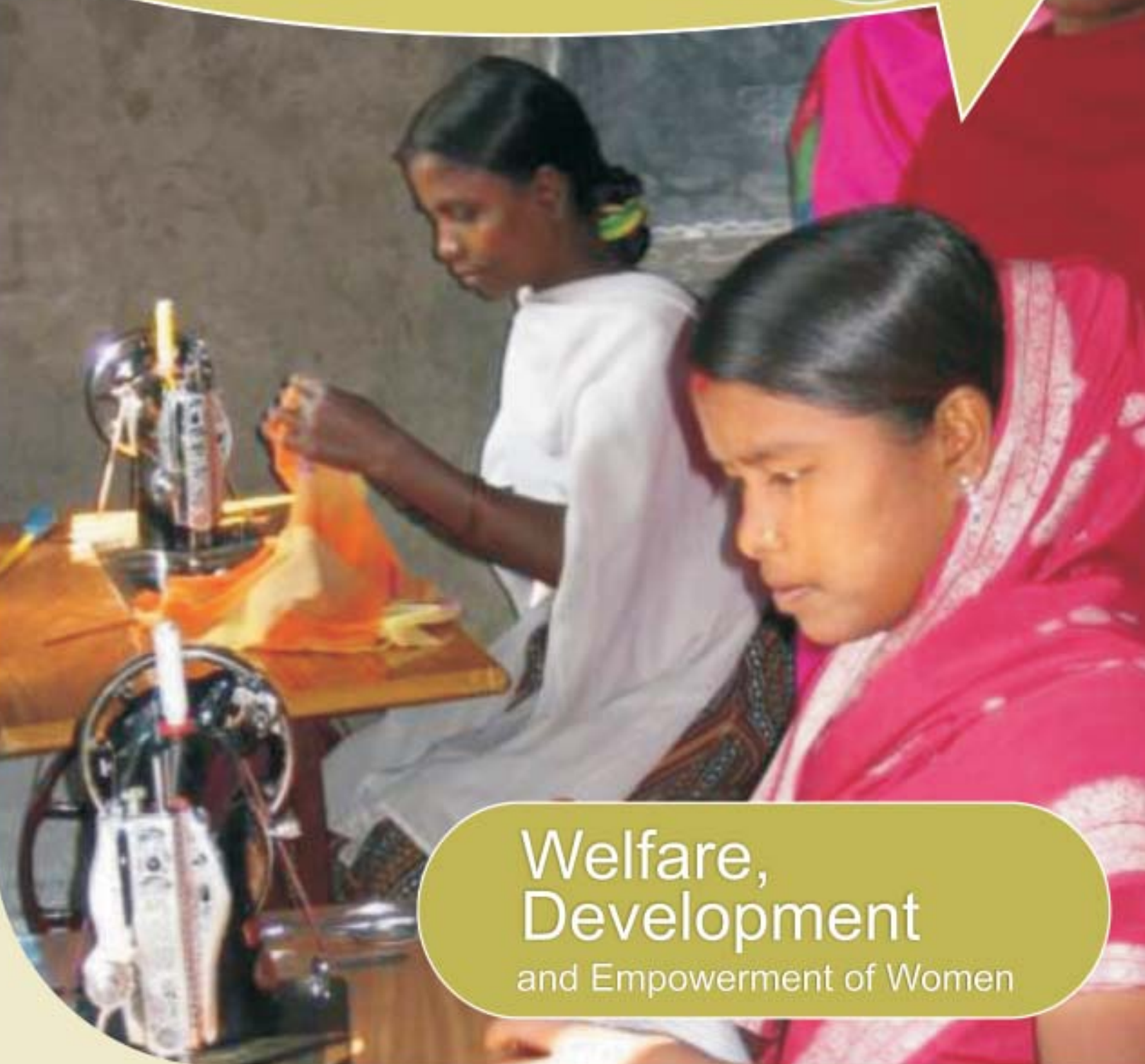
Magazine Name :

Month of publication :

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CHAPTER

9



Welfare,
Development
and Empowerment of Women

Welfare, Development and Empowerment of Women

9.1 The Ministry of Petroleum & Natural Gas and Public Sector Undertakings/Organizations under its administrative control have been taking full initiatives towards welfare and development as also to empower the women employees. With a view to deal with gender sensitization and to promote the cause of women empowerment, special programmes are organized focusing on their professional development and welfare activities. These include external and in-house training, programmes on women health, sponsoring them to attend the National Meet of the Forum of Women in Public Sector, etc.

9.2 Women Forum have been formed in the PSUs to look after the interest of the women employees. List of Do's and Don'ts prepared by the National Commission for Women has been circulated for attention of all employees. Committees have been set up to attend to redressal of complaints on 'sexual harassment at workplace.'

9.3 The number of women employees vis-à-vis total number of employees as on 31.12.2009 in the oil PSUs is tabulated as below:

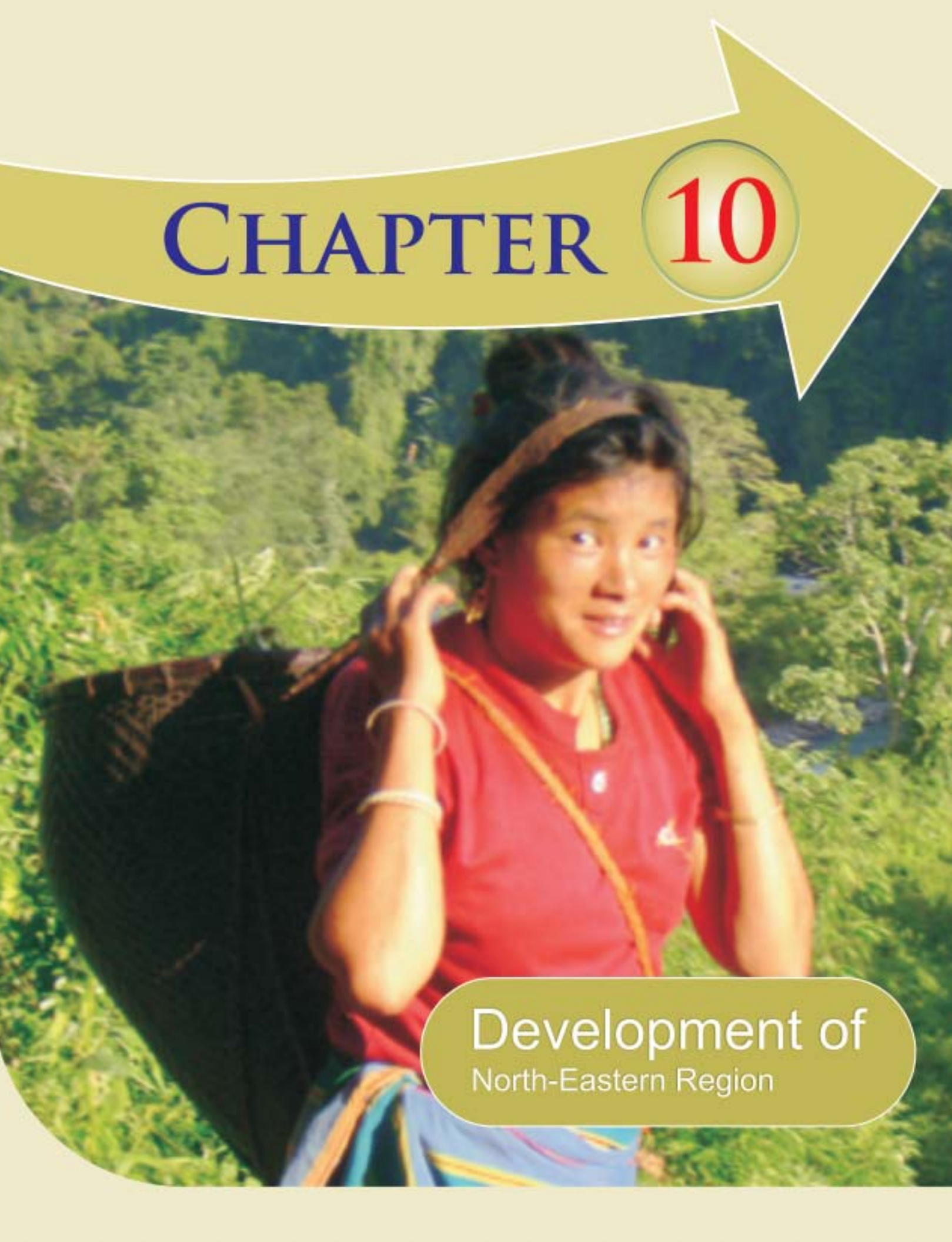
Sl. No.	Name of PSU	Total No. of Employees	Total No. of Women Employees
1.	ONGC	32699	1974
2.	IOCL	34494	2643
3.	HPCL	11277	802
4.	BPCL	13974	1192
5.	GAIL	3700	196
6.	EIL	3028	332
7.	OIL	8374	325
8.	CPCL	780	49
9..	NRL	777	36
10.	MRPL	1255	57
11.	BIECCO LAWRIE	406	5
12.	BALMER LAWRIE	1428	88
13.	ONGC (V)	200	8



Uniforms & Computers donated to the weaker section of the society by HPCL at Lucknow

CHAPTER

10

A photograph of a woman with dark hair tied back, wearing a red shirt and a headband. She is carrying a large, dark, woven basket on her back and is looking towards the camera with a slight smile. She is standing in a lush green field with trees in the background. The image is part of a chapter cover.

Development of
North-Eastern Region

Development

of North-Eastern Region

10.1.1 ONGC

ONGC has been actively pursuing the exploration activities in the North-Eastern Sector viz Assam, Tripura, Nagaland, etc. ONGC has been keeping the Outlay for E&P activities in the North-East at about 10% of its total annual outlay. ONGC has taken several steps as part of its Socio-Economic Development Programme (SEDP), henceforth called the Corporate Citizen Policy (CPP). The endeavour is to upgrade/evaluate the overall industrial and socio- economic level of the area.

10.1.2 ONGC support for restoration of Ahom Kings' monuments in Assam

A Memorandum of Cooperation (MoC) was signed between National Cultural Fund (NCF) - a trust under Ministry of Culture, Government of India and ONGC to take up various projects for conservation and restoration of art, culture and heritage. Under this MoC, the first project proposed to be taken up is conservation, renovation and restoration of the monuments of Ahom Kings in and around the operational areas of ONGC in Sibsagar, Assam. The

other identified sites are Ranghar Ruins, Karenghar, Garhgaon and group of maidams at Charaideo in Sibsagar, Assam.

10.1.3 ONGCpura Project

ONGC has taken up steps to provide Urban Amenities in Rural Areas (PURA), a vision of His Excellency, the former President of India Dr. A.P.J. Abdul Kalam. PURA envisages bridging the rural-urban gap and achieving a balance of socio-economic development. ONGC has set up the ONGCpura Trust with a seed capital of rupees ten crore. Since its launch in the year 2005, under ONGCpura activities, an NGO has been asked to undertake self employment generation activities in Tripura.

ONGC has decided to restructure and enhance the scope of PURA trust and strengthen the PURA activities by roll out in some other States.

10.1.4 Computer Centre at Nazira, Assam

ONGC has decided to open Computer Centre at Nazira, Assam in collaboration with Bhartiya Vidya





Bhavan for providing free computer education to students from disadvantaged sections of the society.

The expenditure made under CSR in North-East by ONGC is as under:

(Rs. in lakh)

	2005-06	2006-07	2007-08	2008-09	2009-10*
Assam	88.30	99.88	103.59	1548	1054
Tripura	65.51	60.60	65.99	741	737

* provisional upto Dec. 2009

10.2 OIL INDIA LIMITED

OIL has accorded top priority towards the all-round development of the people residing in and around the Company's area of operation. With the understanding that there is a need to strike a balance between the overall objectives of achieving corporate excellence vis-à-vis the corporate responsibility towards the community. It is this twin

objective of business and social commitment that has prompted OIL to embark upon massive programmes of educational, health and infrastructural development endeavours; an attempt to invest technology with a human face.

10.2.1 Various on-going CSR initiatives

Social Survey: OIL conducted a social survey through Dibrugarh University in the year 1983 (in its operational areas in the North-East) to evolve a CSR Strategy. Based on the recommendation of the survey, the Company introduced a scheme entitled 'Social Welfare Programme (SWP)' in 1984 and later on another scheme called 'Areas Development Scheme (ADS)' in 1996. The SWP policy places OIL's commitment of protecting the environment, upliftment of education, health and socio-economic development a topmost priority. All-round development of education, rural infrastructure, primary health care, environment protection,



promotion of sports/sportsperson (especially rural sports), assistance to youth and women organizations in carrying out community development activities are some of the key areas covered under SWP.

Area Development Scheme (ADS) was introduced in 1996 with the objective of supporting the various socio-cultural activities in the operational areas. The Scheme covers the construction of roads, setting up of educational institutions and primary health centres in the North-East Region and other operational areas of the company. Based on the recommendations of the Social Survey, OIL has till date constructed over 100 bridges/1400 Kms. of roads (PWD/Village Roads) and provided financial assistance to most of the educational institutions in and around OIL's operational areas in Assam.

Health: OIL's Mobile Dispensary Services:

The mobile hospital services of OIL have always been one of the most significant community welfare projects of the Company. Today, the team of doctors and paramedical staff of OIL hospital cater to the basic medical needs of the villages in and around OIL's operational areas.

In the recently carried out social audit of OIL's community welfare initiatives, the Company's Mobile Hospital Services were ranked very highly by all the respondents. Based on this feedback, the Company decided to increase the number of visit as well as extend the services to new areas. From the earlier 16 – 20 visits per month, now the mobile services make 40-50 visits per month. The Company has signed a MoU with St Luke's Hospital, which will extend the services to villages in Tinsukia District while the Company's own team would cater to villages in Dibrugarh District.

Education:

OIL has been providing financial assistance to all-round development of education from primary to higher education. As on date, the Company has provided financial assistance towards construction of school building, libraries, auditoriums, teachers' common room etc. in over 350 institutions in the Company operational areas in Upper Assam. The Company also provided Merit Scholarships to students who excel in their 10th and 12th Board exams from schools in and around OIL's operational areas in Upper Assam. In its commitment to the all-round



Mobile Dispensary



development of higher education, OIL has sponsored two prestigious Chairs (KD Malaviya Chair in Geosciences at Dibrugarh University & Sankardeva Chair in Literature at Guwahati University). Recently, the Company has extended a one time financial assistance of Rs 3.68 crore to Business and Centre of Management Studies, Dibrugarh University and Rs. 1.5 crore to Assam Engineering College, Guwahati.

General Nursing Midwifery (GNM) Training in OIL Hospital, Duliajan:

The nursing school in OIL hospital Duliajan conducts 3 years General Nursing Midwifery (GNM) training course which is recognized by the Directorate of Medical Education, Government of Assam. The annual intake is 20 (twenty) candidates, out of which two vacancy each is reserved for SC and ST and four for OBC candidates. Stipend is paid to the

students in addition to limited hostel accommodation, uniform and protective clothing.

Financial Assistance to Socio- Cultural/Sports/ Youth Organizations/ Mahila Samities:

The Company has supported the youth and women organizations in a big way. The support is mainly in terms of financial assistance towards enabling the different organizations in carrying out their developmental activities.

OIL places a heavy accent on sports. Besides sponsoring national ranking tournaments every year, the Company recruits promising young players and gives them every opportunity to advance their sports careers. OIL has taken up schemes of holding exhaustive football camps with trained coaches to provide professional training in the rural areas of Upper Assam. OIL is also promoting rural sports by developing several village playgrounds and organizing different games in the oilfield areas.



15th PSPB Inter Unit Kabaddi Tournament, hosted by HPCL at Mumbai

10.2.2 Initiatives for Socio-Economic Development

Project Rupantar- The New CSR Initiative:

In order to address the problem of growing un-employment and poverty, OIL has undertaken a long-term project named Rupantar (transformation) of investing in projects, which can help the unemployed youths to find alternate source of employment. Oil India Limited signed a MoU with the State Institute of Rural Development (SIRD), Assam at the Company's field headquarters in Duliajan on 8th September, 2003. The guiding provisions of the MoU are a long term vision to generate sustainable self employment avenues for the educated unemployed youths in and around the Company's operational areas in Upper Assam. The project aims to create self employment avenues and promote entrepreneurship in the region and generate sustainable sources of livelihood. In order to help the large number of unemployed youth and strengthen the rural economy, the focus is on development of agro-based industries, diversification in handloom products with special focus on Eri and muga (World Famous Golden Silk

of Assam) poultry farming, pig breeding, duck rearing, fishery, sericulture, organic farming etc. Till date, over 2000 SHGs have already been formed and a large number of these SHGs have received loans from banks.

The agro-based industries are not only helping in ensuring the economic independence of the people residing in and around OIL's operational areas but at the same time result in wealth creation and self-employment to a large section of the people of Upper Assam. Oil India christened this new project as "Rupantar" (an Assamese word meaning Transformation) – which is providing the rural poor and the unemployed an opportunity to become self-employed.

10.2.3 Oil India Rural Development Society (OIRDS)

Agriculture Development Programme:

OIL INDIA RURAL DEVELOPMENT SOCIETY (OIRDS) under the aegis of OIL adopts villages under registered Pathar Parichalona Samity (PPS), provides assistance and technical guidance to farmers in nearby villages of OIL's operational areas





for agricultural development. Extensive in-field training on modern methods of cultivation both in Kharif & Rabi, farming equipment, high-yielding seeds, organic fertilizers etc. are introduced and distributed to farmers of the region. Introduced in the year 1991, till date, 31 villages have been adopted under this scheme.

Handicraft Training & Production Centre (HTPC):

Established in 1984, OIL's Handicraft Training and Production Centre, located at Duliajan imparts training to women on Handicraft, Weaving, Embroidery and Tailoring on monthly stipendiary for a 9 months period.

Till date, over 600 women have been trained, most of whom have set-up their own small production units.

10.2.4 Project ASWAN

OIL is replacing the telecommunication system of 1157 Km. crude oil trunk pipeline which supplies

crude oil to the four refineries in India's north-eastern region with Optical Fibre Cable (OFC). The additional capacity (bandwidth) that will be available in the OFC System, would act as an infrastructure provider for value-added services in telecommunication business. OIL has committed to provide the spare bandwidth to Government of Assam's ASWAN (Assam State Wide Area Network) project which aims to connect all the district headquarters of the State.

10.2.5 Expenditure of CSR Activity in North-East

Expenditure incurred by Oil India Limited on social welfare activities is as under:

(Rs. in lakh)

	2005-06	2006-07	2007-08	2008-09	2009-10
Assam	842.79	1,122.56	1,516.81	1,908.54	1656.26 (up to 31 st Dec)
Arunachal Pradesh	24.90	73.14	125.90	27.7	57.00 (up to 31 st Dec)



CHAPTER

11



General

General

11.1 PROGRESSIVE USE OF HINDI

11.1.1 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.

11.1.2 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 types 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:

- (a) All communications to State Government & Union Territory Administration 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.
- (b) Replies to all incoming communication written in Hindi.
- (c) Reply to application, appeal or representation written or signed by an employee in Hindi.

11.1.3 The Ministry has prepared a time-bound programme to impart in-services training to all its employees who do not possess working knowledge of Hindi. Under this programme, 3 employees were nominated for Prabodh class under Hindi Teaching Scheme during 2009-10. 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 2 LDCs were nominated for training. 2 LDCs nominated for Hindi typing training in 2008-09, successfully completed their training.

11.1.4 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.

11.1.5 The 'Hindi Fortnight' was celebrated in the Ministry during 14-28 September, 2009 and a number of competitions viz., Ullekhniya Karya, Hindi essay writing competition, Hindi noting/drafting competition etc. were organized. 34 participants were given cash prizes and certificates.

11.1.6 On the occasion of Hindi Divas/Week/Fortnight/Month, the message from Hon'ble Minister of P&NG and Hon'ble Cabinet Secretary was circulated among all the officers of the Ministry and all the PSUs.

11.1.7 One Hindi Workshop was organised during the year in which 14 Dealing Assistants participated. These workshops enabled them to increase their work in Hindi by 12%.

11.1.8 The Parliamentary Committee on Official Language Committee inspected the Ministry and 15 offices of PSUs under the administrative control of the Ministry scattered throughout the country. 11 PSU offices were entrusted 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.

11.1.9 All computers were provided with Hindi software during the year.

11.1.10 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.



11.1.11 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 Ministry.

11.1.12 So far, 351 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 Purpose 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.

11.1.13 The Annual Programme for the financial year 2009-10 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.

11.1.14 Books, magazine 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.

11.1.15 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. 15 offices in Region "A", "B" and "C" have been inspected in 2009-10.

11.2 PUBLIC GRIEVANCE CELL (PG CELL)

In accordance with the guidelines of the Cabinet Secretariat, Government of India, the Public Grievance Cell has been functioning in the Ministry of Petroleum & Natural Gas. This Cell has been attending to the Grievances of members of the public against the Public Sector Oil Companies and other

departments under the administrative control of this Ministry. All possible efforts are being taken to ensure the regular monitoring of the public grievances received through Department of Public Grievances, Department of Administrative Reforms and Public Grievances and other Departments of the Government as well as the members of the public. A systematic mechanism has been evolved so as to ensure speedy and expeditious redressal of the public grievances. This Public Grievance Cell is functioning under the charge of Director of Public Grievances, Ministry of Petroleum & Natural Gas. In addition, a new online system called "Centralized Public Grievance Redress and Monitoring System" (CPGRAMS) has been introduced in the month of June, 2008. With the aid of this online system, public grievances from the public and others are received speedily and is convenient for the common man.

During the year 2009-10 (upto December 2009), the Public Grievance Cell of this Ministry received a total of 765 grievances (excluding online references received from CPGRAMS) and the pendency of the grievances was 116. During the year 2009-10, 649 grievances have been redressed. As regards the online references received through Centralized Public Grievance Redress And Monitoring System (CPGRAMS), it is stated that a total of 1560 grievance references received and the pendency of the grievances was 224 and the references disposed were 1336.

11.3 INFORMATION FACILITATION COUNTER

The Information Facilitation Counter of the Ministry of Petroleum & Natural Gas was set up on 30th June, 1997. Its main responsibilities are to ensure transparency in the working of this Ministry and providing relevant information on all aspects of Oil Industry to the members of public. The Citizens' Charter of this Ministry is the guiding force which aims at educating the common man about the consumers' entitlements 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 the supply of Basic Petroleum Statistics to the provision of information on various locations in the country rostered under various Marketing Plans for Retail Outlets, LPG Distributorships and Kerosene Agencies. Dealer Selection Guidelines (both in Hindi and English) are provided to the members of the Public to enlighten them about the eligibility criteria.

During the year 2009-10, about 2645 members of the public have benefited from the Information Facilitation Counter.

11.4 e-GOVERNANCE INITIATIVES

The terms **governance** and **good governance** are increasingly being used in development literature. Governance describes the process of decision-making and the process by which decisions are implemented (or not implemented). Good governance accomplishes this in a manner essentially free of abuse and corruption, and with due regard for the rule of law. These days with ICT initiatives, the concept of good governance has assumed a whole new dimension.

Taking advantage of the latest ICT enabled tools, Ministry of Petroleum & Natural Gas with the support of National Informatics Centre (NIC) has taken sincere initiatives towards adoption of best practices and integrated delivery of useful information.

- A high speed Local Area Network (LAN) with around 130 nodes with OFC backbone supported by L2 & L3 manageable switches is operational in the Ministry. The LAN along with internet facility has also been extended to officials of E&S division situated in Paryavaran Bhawan. Cyber security measures have been implemented for the existing LAN.
- Website (<http://petroleum.nic.in>) of the Ministry is operational and time to time updated with new contents provided by the concerned divisions of the Ministry. This website provides latest organizational changes, new policies, annual reports, Minister's speeches, upcoming events, monthly statistics and links to other oil sector related websites.

- An **IntraNet Portal** "IntraPetro" with the primary goal for timely circulation of notifications, office orders, circulars, announcements and online availability of various IT enabled integrated services. This portal works as a gateway for many useful applications like Notice Board, Pay-slip, Income Tax Calculation Sheet, Complaint Monitoring. Various online enterable, downloadable and printable forms pertaining to various divisions of the Ministry are being provided through this Portal.
- A web-based MIS Application "**Overseas Projects Information System (OPIS)**" is operational to facilitate the higher official of the Ministry and PSUs in monitoring physical and financial progress of the project taken up by Oil Sector PSUs.
- e-Governance applications like "**Telephone Bills Payment & Monitoring System**", "**O&M Pendency Monitoring System**", "**File/Receipt Movement & Tracking System (OPA)**", "**Composite Payroll System (CompDDO)**", "**Personnel Information System**", "**Notice/Bulletin Board Services**", "**RTI Request & Appeal Management Information System**" are functional in the Ministry to facilitate various sections of the Ministry.

11.5 OUTSTANDING AUDIT OBJECTIONS

Audit had shown a total number of 48 Inspection Reports/Paras as outstanding against this Ministry as on 30.09.2009. Attempts have been made to settle the outstanding audit observations expeditiously.

11.6 C & AG'S REPORT

A summary of important Audit observations made available by the office of C&AG for the year 2009-10 are at Appendix VIII.

11.7 RECENT CHANGES IN PRICING AND TAXATION OF PETROLEUM PRODUCTS

International prices of crude oil and petroleum products have remained highly volatile in the recent past. The average price of Indian Basket of crude oil for 2008-09 was \$83.57/bbl. The Indian Basket of crude oil which was at \$40.61/bbl in December 2008 increased by about 70% to \$69.12/bbl in



June 2009. In view of the increase in crude prices, Government was constrained to increase the price of Petrol by Rs.4/litre and Diesel by Rs.2/litre, with effect from 02.07.2009. The average price of Indian Basket of crude oil for 2009-10 is \$68.61 per barrel (upto 8th February, 2010).

The trend in the international prices of Indian Basket of crude oil and sensitive petroleum products since March 2002 is depicted below:

Trends in International Oil Prices & Domestic Prices

Period	Crude Oil (Indian Basket)	Petrol	Diesel (0.50% Sulphur)	Kerosene	LPG
	(\$/bbl.)	(\$/bbl.)	(\$/bbl.)	(\$/bbl.)	(\$/MT)
Mar-02	23.31	26.43	23.27	23.65	194.00
2002-03	26.65	30.04	28.86	29.24	279.67
2003-04	27.97	35.01	30.39	31.11	277.02
2004-05	39.21	48.97	46.91	49.51	368.57
2005-06	55.72	64.51	64.70	69.43	481.04
2006-07	62.46	72.62	74.12	77.03	499.67
2007-08	79.25	90.76	92.91	94.33	683.49
2008-09	83.57	89.42	101.75	104.37	688.00
2009-10 (upto 8 th February, 2010)	68.61	74.52	73.14	73.96	559.60

Notes: The composition of Indian Basket of Crude Oil represents average of Oman & Dubai for sour grades and Brent (Dated) for sweet grade in the ratio of 63.5 : 36.5 for 2009-10, 62.3:37.7 for 2008-09, 61.4 and 38.6 for 2007-08, 59.8:40.2 for the year 2006-07, 58:42 for the year 2005-06 and 57:43 for the prior period.

- Price of kerosene is for Arab Gulf Market
- LPG Price is Saudi Aramco CP based on 60:40 butane / propane ratio
- Price of Petrol is 92 RON unleaded for Singapore market.
- Price of Diesel is for 0.5% sulphur for Arab Gulf Market

11.7.1. UNDER RECOVERIES OF PSU OIL MARKETING COMPANIES

India imports over 80% of crude oil processed by the domestic refineries. With the cost of crude oil constituting a substantial part of cost of the final petroleum products, international oil prices have a decisive role in domestic pricing. However in India, the final energy consumers have not borne the brunt

of rising crude oil prices mainly because of the cushioning effect of Government Policies.

The Public Sector Oil Marketing Companies (OMCs) viz. IOCL, BPCL and HPCL pay Trade Parity price to refineries when they buy products like Petrol and Diesel and Import Parity price to refineries for PDS Kerosene and Domestic LPG. Accordingly, they are to get retail prices based on this cost. However,

actual retail prices of these products are controlled by the Government. The difference between the required prices based on Trade Parity / Import Parity and actual selling price realized (excluding taxes, Dealer commission) represents the under-recoveries of OMCs.

As passing on the entire impact of the steep increase in the international crude oil prices to the consumers would have resulted in sharp increase in the domestic prices to unaffordable levels, pushed inflation to higher levels and affected the growth momentum of the country, the Government took certain measures in favour of the vulnerable sections of society by ensuring that the predominant part of the burden was shared by the Government through issuance of Oil Bonds, by the upstream oil companies offering discounts on crude oil sold to the OMCs and by OMCs themselves absorbing a part of the under-recoveries. As a result, the consumers' interests were protected by minimal increase in the prices of these products.

The OMCs have incurred under-recoveries owing to non-revision of selling prices of the sensitive petroleum products namely Petrol, Diesel, PDS Kerosene and Domestic LPG in line with the prevailing international oil prices. During the first nine months of the financial year 2009-10, the OMCs have incurred under-recoveries of Rs. 29,353 crore. The under-recoveries on Petrol and Diesel for the period April-December 2009, amounting to Rs.8,364 crore, have been absorbed by the public sector upstream oil companies. The Government has conveyed approval of Budgetary support of Rs.12,000 crore towards the share of the Government in the under-recoveries for the year 2009-10.

These under-recoveries adversely impacted the financial health of the OMCs. The financial constraints faced by the OMCs on account of price restraints imposed by the Government in public interest needs to be addressed effectively.



IndianOil's Lab plant at Gujarat Refinery - Enhancing the core competencies that make growth possible



11.7.2. REDUCTION/ CHANGES IN CENTRAL TAXES

LPG as “Declared Goods”

LPG (Domestic) became “Declared Goods” under CST Act with the maximum Sales Tax/VAT rate of 4%, effective 19.4.06. This capped the rate of Sales Tax levied by States to 4% across all States/Union Territories.

The Government has taken a number of measures to rationalize taxes and duties to keep the consumer prices of the sensitive petroleum products within reasonable limits. The details of rationalization in

duties on sensitive petroleum products during the recent past are given below:

Changes in customs duty rates with effect from 1st April, 2002

(Percentage)

Product	1/4/2002	19/8/2004	1/3/2005	14/06/2006	05/06/2008
Crude	10	10	5	5	Nil
Motor Spirit	20	15	10	7.50	2.50
Diesel	20	15	10	7.50	2.50
Kerosene (PDS)	10	5	Nil	Nil	Nil
LPG	10	5	Nil	Nil	Nil

Changes in Excise Duty Rates with effect from 1st April, 2002

Product	AS ON 1/4/02	AS ON 4/6/02	AS ON 1/3/03	AS ON 16/6/04	AS ON 19/08/04	AS ON 1/3/05	AS ON 1/3/06	AS ON 1/3/07	AS ON 1/3/08	AS ON 5/6/08
Crude (cess) (Rupees/MT)	1800	1800	1800	1800	1800	1800	2500	2500	2500	2500
Petrol- Advalorem Specific (Rs./Ltr. at Delhi)	32.00% Rs. 7/ Ltr 10.53	30.00% Rs. 7/ Ltr 10.82	30.00% Rs. 7.50/ Ltr 11.81	26.00% Rs. 7.50/ Ltr 11.97	23.00% Rs. 7.50/ Ltr 11.90	8.00% Rs. 13/Ltr 14.59	8.00% Rs. 13/Ltr 14.59	6.00% Rs. 13/Ltr 14.66	NIL Rs. 14.35/Ltr 14.78	NIL Rs. 13.35/Ltr 13.75
HSD- Advalorem Specific (Rs./Ltr. at Delhi)	16.00% Re 1/Ltr 2.85	14.00% Re 1/Ltr 2.80	14.00% Rs 1.50/Ltr 3.59	11.00% Rs 1.50/Ltr 3.32	8.00% Rs 1.50/Ltr 3.01	8.00% Rs 3.25/Ltr 4.80	8.00% Rs 3.25/Ltr 4.80	8.00% Rs 3.25/Ltr 4.69	NIL Rs 4.60/Ltr 4.74	NIL Rs 3.60/Ltr 3.71
Kerosene(PDS)	16.00%	16.00%	16.00%	16.00%	12.00%	NIL	NIL	NIL	NIL	NIL
LPG (Dom.)	16.00%	16.00%	16.00%	8.00%	8.00%	NIL	NIL	NIL	NIL	NIL

Note:

- With effect from 1/3/2003, NCCD at the rate of Rs. 50/per MT imposed on crude oil.
- With effect from 09.07.04 - An additional levy of Education Cess @ 2% has been imposed. Revised to 3 % effective 01/03/2007.



APPENDICES



Picture courtesy Shri Palashranjan Bhaumick, Business India

Appendix-I

WORK ALLOCATED TO MINISTRY OF PETROLEUM AND NATURAL GAS

- 1 Exploration for, and exploitation of petroleum resources, including Natural Gas and Coal Bed Methane.
- 2 Production, supply, distribution, marketing and pricing of petroleum, including Natural Gas, Coal Bed Methane and 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 organizations 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 as 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 & Minerals 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.
18. Administration of Balmer Lawrie Investments Limited and Balmer Lawrie and Company Limited.
19. Petroleum & Natural Gas Regulatory Board Act, 2006.

Appendix-II

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

I. Oil Companies in which Government of India has a shareholding (31.12.2009)

1. Oil & Natural Gas Corporation Limited	74.14%
2. Indian Oil Corporation Limited	78.92%
3. Hindustan Petroleum Corporation Limited	51.11%
4. Bharat Petroleum Corporation Limited	54.93%
5. GAIL (India) Limited	57.34%
6. Engineers India Limited	90.40%
7. Oil India Limited	78.40%
8. Biecco Lawrie & Co. Ltd.	57.37%

II. Subsidiaries and Other Companies.

1. ONGC Videsh Limited	- wholly-owned by ONGC
2. Mangalore Refinery & Petrochemicals Limited	- subsidiary of ONGC
3. Bongaigaon Refinery & Petrochemicals Limited	- subsidiary of IOC
4. Chennai Petroleum Corporation Limited	- subsidiary of IOC
5. Numaligarh Refineries Limited	- subsidiary of BPCL
6. Certification Engineers International Limited	- wholly-owned by EIL
7. EIL Asia Pacific Sdn BHD	- wholly-owned by EIL
8. GAIL Gas Limited	- wholly-owned by GAIL

III. Other Organisations

1. Oil Industry Development Board
2. Petroleum Conservation Research Association
3. Oil Industry Safety Directorate
4. Centre for High Technology
5. Petroleum India International
6. Directorate General of Hydrocarbons
7. Rajiv Gandhi Institute of Petroleum & Technology



Appendix-III

PRODUCTION OF CRUDE OIL AND NATURAL GAS

ITEM	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10* (April-Dec.)
1	2	3	4	5	6	7	8
1. CRUDE OIL PRODUCTION++ ('000' Tonnes)							
(a) Onshore:							
Gujarat	6131	6187	6251	6213	6177	5946	4478
Assam	4592	4703	4475	4400	4357	4674	3565
Arunachal Pradesh	77	83	103	108	102	102	97
Tamil Nadu	375	391	385	353	298	265	184
Rajasthan	-	-	-	-	-	-	227
Andhra Pradesh@	281	226	216	252	279	289	229
Total (a)	11456	11590	11430	11326	11213	11276	8780
of which							
OIL	3002	3196	3234	3107	3100	3468	2679
ONGC	8380	8320	8095	8058	7921	7565	5658
JVC/Private	74	74	101	161	192	243	443
(b) Offshore:							
ONGC	17677	18165	16309	17993	18020	17801	12979
JVC/Private	4240	4226	4451	4669	4885	4431	3393
Total (b)	21917	22391	20760	22662	22905	22232	16372
Grand Total (a+b)	33373	33981	32190	33988	34118	33508	25152
2. NATURAL GAS PRODUCTION (Million Cubic Metres)							
(a) Onshore:							
Gujarat	3517	3710	3831	3294	2931	2605	1876
Assam	2204	2249	2408	2526	2598	2573	2047
Arunachal Pradesh	44	40	48	35	30	30	29
Tripura	508	497	480	520	534	553	422
West Bengal (CBM) \$	-	-	-	-	15	20	30
Tamil Nadu	605	678	906	1130	1169	1242	899
Andhra Pradesh	1927	1707	1663	1525	1567	1524	1126
Rajasthan	168	213	242	242	255	216	173
Total (a)	8973	9094	9578	9272	9099	8763	6602
of which							
OIL	1887	2010	2270	2265	2340	2268	1831
ONGC	5779	5658	5751	5876	5877	5753	4269
JVC/Private	1307	1426	1557	1131	882	742	502
(b) Offshore:							
ONGC (Mumbai High)	17805	17313	16823	16567	16457	16734	13182
JVC/Private	5184	5356	5801	5908	6861	7348	14062
Total (b)	22989	22669	22624	22475	23318	24082	27244
Grand Total (a+b)	31962	31763	32202	31747	32417	32845	33846

* : Provisional

@ : Includes Andhra Pradesh Offshore

Source: ONGC, OIL and DGH

++ : Includes condensates

\$: Coal Bed Methane production

Appendix-IV

REFINERY CRUDE THROUGHPUT

('000' tonne)

Refinery / Location	Refinery Crude Throughput						
	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10* (April-Dec.)
1	2	3	4	5	6	7	8
(a) PUBLIC SECTOR	89495	93107	96946	108172	112541	112223	83656
IOC, Guwahati, Assam	891	1002	864	839	920	1076	787
IOC, Barauni, Bihar	4304	5082	5553	5469	5634	5940	4511
IOC, Koyali, Gujarat	12758	11698	11543	12953	13714	13852	9827
IOC, Haldia, West Bengal	4518	5418	5502	5836	5715	6042	4303
IOC, Mathura, Uttar Pradesh	8248	6387	7938	8883	8033	8601	5798
IOC, Digboi, Assam	602	651	615	586	564	623	429
IOC, Panipat, Haryana	6338	6390	6507	9435	12821	13070	10104
IOC, Bongaigaon, Assam@	2126	2311	2356	2067	2020	2163	1653
Total IOC	39785	38939	40878	46068	49421	51367	37412
BPCL, Mumbai, Maharashtra	8757	9138	10298	12030	12746	12262	9209
BPCL, Kochi, Kerala	7854	7924	6939	7742	8134	7739	5440
Total BPCL	16611	17062	17237	19772	20880	20001	14649
HPCL, Mumbai, Maharashtra	6108	6118	6249	7419	7409	6652	5122
HPCL, Visakh, Andhra Pradesh	7591	8121	7980	9377	9409	9155	6702
Total HPCL	13699	14239	14229	16796	16818	15807	11824
CPCL, Manali, Tamil Nadu	6387	8181	9680	9784	9802	9718	7835
CPCL, Narimanam, Tamil Nadu	653	742	682	618	464	418	382
Total CPCL	7040	8923	10362	10402	10266	10136	8217
NRL, Numaligarh, Assam	2200	2042	2133	2504	2568	2251	2063
MRPL, Mangalore, Karnataka	10069	11809	12014	12536	12525	12577	9448
ONGC, Tatipaka, Andhra Pradesh	91	93	93	94	63	84	43
(b) PRIVATE SECTOR	32345	34309	33163	38379	43562	48549	35596
RPL, Jamnagar, Gujarat	32345	34309	33163	36616	36931	35636	25696
ESSAR Oil Ltd. Vadinar				1763	6631	12913	9900
Total (a+b)	121840	127416	130109	146551	156103	160772	119252

* : Provisional

Note :

- 1) CPCL is subsidiary of IOC
- 2) KRL, Kochi has been merged with BPCL
- 3) NRL is subsidiary of BPCL
- 4) MRPL is subsidiary of ONGC
- 5) @BRPL has been merged with IOC w.e.f. 25.3.2009



Appendix-V

PRODUCTION OF PETROLEUM PRODUCTS

('000' tonne)

PRODUCTS	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10* (April-Dec.)
1	2	3	4	5	6	7	8
(a) From Crude Oil							
1. Light Distillates	31971	32865	32427	38104	40111	40222	29909
of which							
LPG	5348	5570	5525	6315	6732	6996	4911
Mogas	10999	11057	10502	12539	14167	16020	11789
Naphtha	11317	14100	14509	16660	16440	14826	11045
Others ^{LD}	4307	2138	1891	2590	2772	2380	2164
2. Middle Distillates	60018	62509	64432	71225	76649	80309	59221
of which							
Kerosene	10187	9298	9078	8491	7794	8223	6338
ATF/RTF/Jet A-1	4289	5201	6196	7805	9107	8071	6093
HSD	43316	45903	47572	53465	58361	62889	45661
LDO	1659	1546	923	803	671	606	373
Others ^{MD}	567	561	663	661	716	520	756
3. Heavy Ends	21474	23205	22891	25931	28170	29985	22206
of which							
Furnace Oil	8737	10560	10320	12325	12638	14749	11113
LSHS/HHS/RFO	4635	4410	3985	3372	3166	2935	2010
Lube Oils	666	646	677	825	881	874	703
Bitumen	3397	3349	3576	3891	4507	4713	3430
Petroleum Coke	2743	3162	3182	3779	4129	4241	2965
Paraffin Wax	53	64	63	63	64	69	46
Other Waxes	0	4	3	5	7	5	2
Others ^{HE}	1243	1010	1085	1671	2778	2399	1937
Total (1+2+3)	113463	118579	119750	135260	144930	150516	111336
(b) From Natural Gas							
LPG	2320	2240	2185	2093	2060	2162	1671

* : Provisional

LD : Includes Propylene, C-3, Propane, Hexane, Special Boiling Point Spirit, Benzene, Toluene, Petroleum Hydro Carbon Solvent, Natural Heptane, Methyl Tertiary Butyl Ether, Poly Isobutene, Poly Butadine Feed Stock and Methyl Ethyl Keetone Feed Stock

MD : Includes Mineral Turpentine Oil, JP-5, Linear Alkyl Benzene Feed Stock, Aromex, Jute Batching Oil, Solvent 1425, Low Sulphur Heavy Fuel HSD, Desulphurisation Hydrocracker Bottom and Special Kerosene

HE : Includes Carbon Black Feed Stock, Sulphur, Solar Oil, Light Aluminium Rolling Oil and Extracts

Appendix-VI

PRODUCT-WISE CONSUMPTION OF PETROLEUM PRODUCTS

('000' tonne)

PRODUCTS		2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10* (Apr.09 - Dec.09)
1	Light Distillates	34335	35204	33662	37076	38556	39878	na
	of which							
	LPG	9305	10245	10456	10849	12165	12344	9576
	Motor Spirit	7897	8251	8647	9285	10332	11258	9548
	Naphtha+NGL	11868	13993	12194	13886	13294	13911	7964
	Others	5265	2715	2365	3055	2766	2365	#
2	Middle Distillates	52023	53906	54423	57595	62823	66378	na
	of which							
	SKO	10230	9395	9541	9505	9365	9303	7002
	ATF	2484	2811	3296	3983	4543	4423	3430
	HSDO	37074	39651	40191	42896	47669	51710	41774
	LDO	1619	1476	883	720	667	552	357
	Others	616	573	512	491	579	390	#
3	Heavy Ends	21393	22524	25129	26078	27567	27343	na
	of which							
	Furnace Oil	8312	9136	8921	9257	9469	9419	9045
	LSHS	4633	4404	3907	3361	3248	3169	\$
	Lubes/Greases	1427	1347	2081	1900	2290	2000	1771
	Bitumen	3373	3337	3508	3833	4506	4747	3440
	Petroleum Coke	2877	3129	4928	5441	5950	6166	4856
	Paraffin Wax	41	60	268	303	241	203	na
	Other Waxes	20	20	105	64	65	65	na
	Others	710	1090	1411	1919	1799	1574	3975
TOTAL		107751	111634	113213	120749	128946	133599	102738
Refinery Boiler Fuel		8240	8537	9141	10920	11751	11912	8600
Grand Total		115991	120171	122354	131669	140697	145511	111338

* : Provisional

Note : 2000-01 onwards consumption data includes pvt. sales & pvt. imports also

: included in others under sub-head Heavy Ends

\$: included in Furnance Oil

na : not available

Source : Petroleum Planning & Analysis Cell



Appendix-VII

IMPORTS / EXPORTS OF CRUDE OIL, LNG AND PETROLEUM PRODUCTS

(Qty : '000' tonne, Value : Rs. crore)

ITEM	2003-04		2004-05		2005-06	
	Qty.	Value	Qty.	Value	Qty.	Value
1	4	5	6	7	8	9
GROSS IMPORTS						
A. Crude Oil	90434	83528	95861	117003	99409	171702
B. LNG	-	-	2500	1696	5060	3366
C. Petroleum Products						
I. Light Distillates	4529	6034	5391	9973	6181	14855
1. LPG	1708	2558	2334	4413	2883	7042
2. MS	-	-	233	501	486	1286
3. Naphtha	2371	2884	2214	4029	2331	5400
4. Propane	450	592	610	1030	481	1127
II. Middle Distillates	906	1015	1027	2047	1846	4532
1. ATF	2	9	3	14	2	12
2. SKO	804	890	210	429	1044	2617
3. HSD	100	116	814	1604	800	1903
III. Heavy Ends	2566	2674	2410	2868	5413	8585
1. FO / LSHS	953	810	741	692	1434	2099
2. Lubes / Others ^{HEI}	1613	1864	1669	2176	3979	6486
Total (C)	8001	9723	8828	14888	13440	27972
Grand Total(A+B+C)	98435	93251	107189	133587	117909	203040
EXPORTS						
Petroleum Products						
I. Light Distillates	5448	7100	6288	11512	7769	17384
1. LPG	-	-	145	306	53	164
2. MS	2979	4021	2897	5625	2417	5843
3. Naphtha	2176	2653	2926	5030	5066	10787
4. TAME	83	117	0	0	0	0
5. Reformate/Benzene/Hexane	210	309	320	551	233	590
II. Middle Distillates	7841	8713	9973	16690	11453	26102
1. SKO	-	-	207	460	121	371
2. HSD/LDO	6181	6763	7286	11782	8504	18654
3. ATF	1660	1950	2480	4448	2828	7077
III. Heavy Ends	1331	968	1950	1726	4239	6488
1. FO/LSHS	1310	928	1792	1517	1815	2268
2. VGO/Lubes	17	36	102	137	993	1577
3. Coke/Bitumen/CBFS/ White Oil/Paraffin	4	4	56	72	339	302
4. Others ^{HEE}	-	-	-	-	1092	2341
Total	14620	16781	18211	29928	23461	49974
NET IMPORTS						
A. Crude Oil	90434	83528	95861	117003	99409	171702
B. LNG	-	-	2500	1696	5060	3366
C. Pol.Products	-6619	-7058	-9383	-15040	-10021	-22002
Grand Total	83815	76470	88978	103659	94448	153066

Appendix-VII (Contd...)

IMPORTS / EXPORTS OF CRUDE OIL, LNG AND PETROLEUM PRODUCTS

(Qty : '000' tonne, Value : Rs.crore)

ITEM	2006-07		2007-08		2008-09		2009-10 (Apr.-Dec.)*	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1	10	11	12	13	14	15	16	17
GROSS IMPORTS								
A. Crude Oil	111502	219029	121672	272699	132775	348288	109317	248226
B. LNG	6810	5650	8320	7197	8060	9548	6910	8222
C. Petroleum Products								
I. Light Distillates	8005	21369	9485	29221	8001	27617	3862	10964
1. LPG	2278	5766	2832	8700	2360	7916	1807	5138
2. MS	421	1326	328	1137	397	1530	254	784
3. Naphtha	5306	14277	5983	18470	5023	17410	1515	4314
4. Propane	0	0	342	914	221	761	286	728
II. Middle Distillates	2392	6938	5443	17556	4215	16318	2485	6394
1. ATF	2	17	3	20	4	34	2	17
2. SKO	1423	4250	2489	8324	1423	6480	708	2037
3. HSD	967	2671	2951	9212	2788	9804	1775	4340
III. Heavy Ends	7263	12853	7533	14223	8111	20334	4287	10055
1. FO / LSHS	2983	5174	1187	2211	1637	3465	760	1606
2. Lubes / Others ^{HEI}	4280	7679	6346	12012	6474	16869	3527	8449
Total (C)	17660	41160	22461	61000	20327	64269	10634	27413
Grand Total (A+B+C)	135972	265839	152453	340896	161162	422105	126861	283861
EXPORTS								
Petroleum Products								
I. Light Distillates	12344	32581	13937	42220	13141	43094	10019	29080
1. LPG	112	342	99	401	109	455	74	260
2. MS	3615	10191	4258	13614	5427	17767	4408	13230
3. Naphtha	8411	21431	9297	27365	7601	24854	5537	15590
4. TAME	0	0	0	0	0	0	0	0
5. Reformate/Benzene/Hexane	206	617	283	841	4	18	0	0
II. Middle Distillates	15171	39993	18931	54919	18469	63428	13244	35423
1. SKO	150	541	137	492	77	362	24	76
2. HSD/LDO	11369	29198	14308	40871	14691	49568	10281	27005
3. ATF	3652	10254	4486	13556	3701	13498	2939	8342
III. Heavy Ends	6109	8520	7911	13650	6962	14564	5315	10290
1. FO/LSHS	3759	4988	4718	6811	6118	12132	3890	7190
2. VGO/Lubes	859	1826	1498	3236	219	829	74	203
3. Coke/Bitumen/CBFS/White Oil/Paraffin	66	77	409	614	177	391	184	347
4. Others ^{HEE}	1425	1629	1286	2989	448	1212	1167	2550
Total	33624	81094	40779	110789	38572	121086	28578	74793
NET IMPORTS								
A. Crude Oil	111502	219029	121672	272699	132775	348288	109317	248226
B. LNG	6810	5650	8320	7197	8060	9548	6910	8222
C. Pol.Products	-15964	-39934	-18318	-49789	-18246	-56817	-17944	-47380
Grand Total	102348	184745	111674	230107	122589	301019	98283	209068

* : Provisional

TAME : Tertiary Amyl Methyl Ether

HEI : Includes Coke, Bitumen, Lube Oil Base Stock, Low Sulphur Waxy Residue, Carbon Black Feed Stock, Rubber Processing Oil, Waxes and Petroleum Jelly

HEE : Includes Benzene, Hexane, Aromex, Mixed Xylene & others (DGCI&S)

Source : Petroleum Planning & Analysis Cell, New Delhi

\$: Estimated



Appendix-VIII

AUDIT REPORT NO. CA 23 OF 2009-10 (COMPLIANCE AUDIT)

BIECCO LAWRIE LIMITED

The Company as well as computerization without formulating an IT policy. User requirements as well as logical access controls were not defined or documented. The input controls and validation checks were also weak resulting in the existence of duplicate and unorganized data in the system. The deficiencies in system design like non-integration of different modules with finance modules and non-enforcement of data integrity resulted in manual intervention at each stage which rendered the system vulnerable to the risk of incorrect generation of data. In view of such deficiencies the Company could not achieve the complete benefit of computerization.

CHENNAI PETROLEUM CORPORATION LIMITED

Chennai Petroleum Corporation Limited (CPRL) introduced VAX (Virtual Address Extension) system in the early 1990s using independent programmes developed in-house. To integrate these systems using Enterprises Resource Planning (ERP), the RAMOC e-Application system was selected on the advice of CMC Limited and implemented during June 2002.

IT Audit of RAMCO e-Application system revealed control weaknesses such as users IDs were not linked with employee ID and employee-wise entry details (IN entries) did not match with exit details (OUT entries) which defeated the primary objective of access control. Non-integration of the RAMCO e-Application system among various units resulted in manual intervention and led to risk of data entry errors. No provision to cancel the indent against the short closed purchase order was inbuilt in the system and the corresponding indents were manually closed as also non-provision of maintaining history of changes in the system resulted in lack of audit trails. The company could not utilize the system effectively for optimal inventory utilization and management.

GAIL (INDIA) LIMITED

GAIL (India) Ltd. switched over to SAP ERP system in August 2005. Audit reviewed the Financial Accounting module and

e-Security issues for the period from August 2005 to September 2008. Review revealed that lacking input controls, validation checks and supervisory controls resulted in unreliable database. Inadequate customization of system led to incomplete or incorrect data. Non-rationalized user roles authorizations to critical combination and sensitive transactions posed the risk of misuse and manipulation. Thus, the Company could not reap full benefits from system.

INDIAN OIL CORPORATION LIMITED

Audit reviewed the implementation and customization of Management Module of Indian Oil Corporation Limited. The review revealed deficiencies in input controls and validation checks which ran the risk of unreliable data entering the system. Some features of the system were not adequately customized.

OIL AND NATURAL GAS CORPORATION LIMITED

Human Resource Module of the SAP system of Oil and Natural Gas Corporation Limited was not customized for manpower planning activities, determination of staffing needs, selection of personnel for various postings based on pre-defined criteria. Lack of input controls in the system also resulted in feeding of erroneous and incomplete data affecting integrity of data maintained leading to continued dependency on manual controls.

AUDIT REPORT NO. CA 24 OF 2009-10 (COMPLIANCE AUDIT)

BONGAIGAON REFINERY & PETROCHEMICALS LIMITED

The company absorbed a contribution loss of Rs. 29.68 crore due to its imprudent decision to revive the Polyester Staple Fiber Plant despite being fully aware of its economic unviability.

Para 11.1.1

INDIAN OIL CORPORATION LIMITED

Decision of the country to give retrospective effect to the Performance Linked Incentive Scheme resulted in avoidable expenditure of Rs.182.53 crore.

Para 11.2.1

Failure to include the education cess in the refinery transfer price of motor spirit and high speed diesel by the Company resulted in under-recovery of subsidy of Rs.13.27crore.

Para 11.2.2

Non-Synchronization of the additional facilities created under an agreement with the expansion of the Panipat Refinery for which they were required in avoidable expenditure of Rs.11.28 crore.

Para 11.2.3

OIL AND NATURAL GAS CORPORATION LIMITED

ONGC incurred an extra expenditure of Rs.193.97crore by ignoring the current crude oil price for evaluation of an offer that led to rejection of the offer and consequent rendering.

Para 11.3.1

Delay in implementing the directive of its Executive Purchase Committee for procuring high flash high speed diesel as inter-state sale from Mangalore to save on local taxes resulted in extra expenditure of Rs. 63.90 crore.

Para 11.3.2

Non-available of concessional rate of customs duty under EPCG scheme resulted in an avoidable expenditure of Rs.13.61crore.

Para 11.3.3

Non-obtaining of 'No Objection Certificate' by ONGC for utilising additional land belonging to the State Government and consequent delay in obtaining occupancy certificate from Mumbai Metropolitan regional development delay in obtaining occupancy certificate from care towards property tax to the municipal authority.

Para 11.3.4

Due to improper assessment and hiring of vessels with Anchor Handling and Towing System for towing operations and deploying them on non-towing operations, the Company incurred an avoidable expenditure of Rs. 4.61 crore.

Para 11.3.5

Six central public sector undertaking paid lump sum compensation aggregating Rs. 45.09 crore as incentive/stagnation relief to their employee who were stagnating in their pay scales despite their getting maximum number of stagnation increments admissible.

Para 11.4.1

AUDIT REPORT NO. PA 27 OF 2009-10 (PERFORMANCE AUDIT)

CHENNAI PETROLEUM CORPORATION LIMITED

Chennai Petroleum Corporation Limited (Company) commissioned a 0.5 Million Metric Tonne Per Annum (MMTPA Refinery at Cauvery Basin (near Nagapattinam) in November 1993 at a total cost of Rs. 196 crore for processing low Sulphur crude produced by Oil and Natural Gas Corporation Limited from the Cauvery Basin (onshore). The company expanded (September 2002) the capacity of the Cauvery Basin Refinery (CBR) to 1.00 MMTPA of a cost of Rs.243.31 crore and commissioned (March 2003) a Jetty at a cost of Rs. 91.58 crore. The expansion of CBR was not commensurate with the projected deficit of products in the market zone served by CBR. There was delay in award of work relating to construction of jetty resulting in additional expenditure of Rs. 6.75 crore on transport of 475462 MT of crude from Chennai. The under-utilization of capacity resulted in excess consumption of steam and power to the extent of Rs. 4.05 crore and over absorption of fixed overheads by Rs. 16.59 crore. Further, transportation of crude in smaller parcels than the projected size of 15000 MT resulted in additional shipments leading to extra expenditure towards transportation cost by Rs. 5.46 crore during the period 2003-04 to 2007-08. The company incurred a loss of Rs. 172.23 crore during 2004-05 and 2005-06 on sale of Intermediate Residual Crude Oil (RCO) as Low Sulphur Heavy Stock due to absence of secondary process unit. The Company could have generated additional revenue of Rs. 38.63 crore during 2005-06 and 2005-06 had the intermediate RCO been processed in secondary process unit of the Company's Refinery at Chennai.

INDIAN OIL CORPORATION LIMITED

Indian Oil Corporation Limited (Company) is India's largest public sector oil marketing company and had a market share of 49 per cent of the Liquefied Petroleum Gas (LPG) market during 2007-08. The performance audit of the LPG operations of the Company disclosed that the Company was mixing butane and propane to form LPG in different proportions other than the one considered for subsidy claims resulting in loss of Rs. 40.97 crore during five years ended March 2008. Actual operating cost in more than 50 percent bottling plants was less than the cost ceiling fixed under the subsidy scheme which indicated a need to revise the cost ceiling under the subsidy scheme based on the standard and normative



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conditions. The company not only had excess deployment of manpower vis-s-vis benchmarks but was only paying overtime entailing financial bearing in terms of higher operating cost of the bottling plants. Despite adoption of Industry Logistics Plan (ILP) system of distribution of the LPG to meet the market demand, the Company failed to use the suggested ILP linkages, leading to frequent deviation/ manual interventions that remained unevaluated through ILP. Due to wide gap between the price of subsidized LPG and commercial LPG and effective system to curb diversion of domestic LPG for commercial usage was required. The Company failed to exercise effective control in the absence of adequate customer master database integrated with other OMLs which led to approach in following the marketing discipline guidelines for penalizing dealerships which led to increasing indiscipline in the distribution channel. Similarly, the cases of tampering of tare weight of cylinders were not dealt with as per the guidelines.

OIL AND NATURAL GAS CORPORATION LIMITED

- Exploration of hydrocarbon reserves in the blocks by the Government of India (Nomination blocks) and Directorate General of Hydrocarbons (New Exploration Licensing Policy- NELP blocks) and development of proved reserves for production, is the main activity of the Oil and Natural Gas Corporation Limited (Company). To carry out exploration activities, the Company acquires, process and interprets the seismic data, releases and drills exploratory locations to establish hydrocarbon for future exploration.
- The Company acquired 67 nomination blocks and 23 NELP blocks. In addition, the company was a consortium partner in eight NELP blocks.
- The Company had not completed the committed work programme in 15 nomination blocks. The Company also could not establish prospectivity of the area in two basins, after incurring an expenditure of Rs. 404.89 crore. The

Company has also not completed the minimum work programme in seven NELP blocks. Resulting in payment of penalty of Rs. 1.68 crore.

- The Company had not fixed standard/ norms for total field days in a field season, normal non-production days towards camp establishment and winging up, experimental/ topographical survey days and productivity of geophysical parties, resulting in wide variance in different basin. Similarly, the Company has also not fixed norms for production testing in terms of number of days to be spent per object of testing.
- The Company had delayed to finalization of shot hole drilling contracts which resulted in under achievement of data acquisition targets by 207 Ground Line Kilometer and 49-.29 Square Kilometer (SKM), besides idling of the geophysical parties for 463 days with nugatory expenditure of Rs. 1.85 crore.
- The Company did not ensure availability of ready drill sites, further drilling programme, equipment and spare parts, etc. before deployment of drilling rigs resulting in idling of rigs for 1566 days, incurring an expenditure of Rs. 40.83 crore.
- The western onshore of Oil and Natural Gas Corporation Limited (Company) consists of three Assets at Anklishwar, Ahmdabad and Mehana which are responsible for production of oil and gas from the explored and development reservoirs. The main production and surface facilities for production of crude oil and gas included Group Gathering Station (GGS), Gas Compression Plant (GCP), Effluent Treatment Plant (ETP), Central Tank Farm (CTF), Desalter Plant, etc. The

performance of these facilities was assessed in audit with particular reference to planning and implementation of projects pertaining to these facilities also adherence to stipulations of health, safety and environment.

- Through 47 out of 120 facilities in the three Assets were more than 25 years old, the Company did not have a standard policy for replacement of critical equipment for the surface facilities.
- There were delays in construction of GGSs at locations as a result of which produce of the wells in absence of there being a nearby GGS continued hired road tankers, exposing the Company to the vulnerabilities associated with road movement including safety and environmental risks and malpractices.
- Accumulation of oily sludge at 51 installations at Ahmedabad and Mehsana Assets in violation of the stipulations of Gujarat Pollution Control Board. Frequent cases of leakages in pipeline were noticed which also had adverse implication on the environment. Mehsana Assets had not taken effective steps for arresting emission of hydrogen sulphide gas into the environment.
- During the period 2007-08, all the three Assets did not achieve the norms of transit loss of one percent in transportation and handling of crude oil resulting in a loss of Rs.73.38 crore. Stipulation of statutory bodies such as Directorate General of Mines Safety were not attended by the Company. Despite being in operation for over 30 years, an updated surface plan indicating pipelines and other infrastructure was not existence in the three Assets.



Launch of BS-IV Fuels in Delhi



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