Chapter 2: Background of the Companies under study, Literature review and Identification of Research Gap

2.1 Background of the Companies under study

Brief outlines regarding the selected public sector oil and gas companies in India have been shown below:

2.1.1 Oil and Natural Gas Corporation of India (ONGC)

More than half century survival in oil and gas industry is a record of work by Oil and Natural Gas Corporation Limited (ONGC). It was originated in the year of 1956 as a private sector company. Later, in the year 1993 the company was came to known as Public Sector Company. ONGC's habitual activities deals with exploration, development and production of Crude Oil, Natural Gas, LPG and some other value added petroleum products such as NGL, C2-C3, Aromatic Rich Naphtha and Kerosene. The company has been going along with two of its folds namely ONGC-Videsh Limited (OVL) and Mangalore Refinery & Petrochemicals Limited (MRPL) and ten of Joint Ventures/Associates. ONGC's Basins are totally seven in numbers, Western Offshore Basin (Mumbai & Baroda), KG Basin (Rajamundary), Cauvery Basin (Chennai), Assam & Assam-Arakan Basin (Jorhat), CBM-BPM Basin (Kolkata) and Forntier Basin (Dehradun) and ONGC has two plants situated in Uran and Hazira. The company covers five regions such as Mumbai, Baroda, Nazira, Chennai and Kolkata and also ONGC running eleven institutes for different specialization in different locations. During March 1999, ONGC, Indian Oil Corporation (IOC) and Gas Authority of India Limited (GAIL) both of three agreed to have cross holding in each other's stock to pave the way for Long-term strategic alliance amongst themselves for the domestic and overseas business opportunities in the energy value chain. The ONGIO International Pvt. Ltd was incorporated in the year 2001 as 50:50 joint venture projects with Indian Oil Corporation Ltd with aim of providing Training, Consultancy & Services in Hydrocarbon Sector and later company has decided to wind up ONGIO due to loss. During 2001-02 the augment recovery from onshore fields of 13 projects 2 were resourcefully commissioned. By the end of the same year 2001-02 the company's subsidiary unit ONGC-Videsh Ltd commenced its commercial production of gas. In the year of 2004 ONGC initiated Phase-I of a collaborative project on CBM in Jharia Field and successfully completed the same
in 2005. During 2004-05 the company discovered its third deep-water exploration campaign 'Sagar Samriddhi' in Krishna-Godavari (KG) Basin at the location Vashistha (VA-1A) in block KG-OS-DW-IV. In the western offshore a shallow-water oil and gas was recorded in D-33, about 60 Kilometers South-West of Mumbai High, Onshore, Oil and Gas was found in Tiphuk-1 in North Assam Shelf and Oil was struck at Wamaj in Cambay Basin. Offshore, four new Platforms (2 Well Platforms, 1 Process Platforms and 1 Clamp-on) were commissioned for enhancing production. New trunk pipelines are being laid sub-sea from Mumbai High Field to Urban Oil and Gas processing facility. In March 2005 ONGC launched its retail marketing business with commissioning of its first auto fuels outlet at Mangalore under the brand 'ONGC Values' and 'Shopp'njoy' for fuel and non-fuel business respectively. The company has also received approval/license from the Government for marketing of non-subsidized LPG cooking gas, Kerosene and Aviation refueling sales. Tripura Power Development Company Pvt. Ltd (TPDCL) was incorporated to set up a gas-based power-generating project in Tripura. TPDCL has been renamed as ONGC Tripura Power Company Pvt. Ltd after the domination. In the same year the company has entered into various alliances in form of execution of Memorandum of Understanding with Kakinada Seaport & IL&FS with 26% equity stake for development of Port based SEZ at Kakinada, Andhra Pradesh. During the year 2006 the company was awarded 60 out of 110 exploration blocks by the Government in the five NELP rounds. Out of these 60 NELP Blocks 35 are in the form of unincorporated joint ventures and remaining blocks are company's 100% participating interest. For the sake of its excellent concert, the company has received numerous awards every year. The highlights are NDTV Profit Business Leadership Award, Motilal Oswal CNBC TV18 Biggest Wealth Creator of India for the period of 2001-06, Golden Peacock Award 2006 for Corporate Governance in PSU category, is this award has been conferred to the company regularly. Dun & Bradstreet-American Express Corporate Awards 2006 in the oil and gas exploration sector and Greentech Gold Safety Award in petroleum sector apart from this, the company listed and ranked in Indian level also in global level by various evaluators. ONGC entering the alternative energy segment with a Rs 1,200 crore-plus investment to generate 200 mw of wind power for captive use and the country's largest field, is all set to produce an additional 20.7 million tonnes of oil and 3.32 billion cubic metre (bcm) of gas with an investment of about Rs 5,713 crore in Mumbai High, the project envisages drilling of 86 infill wells. Five new well head platforms and six clamp-on structures are also planned. A new process
platform bridge connected to the existing process complex ICP in Mumbai High South is proposed to handle the additional production. ONGC have future enhancement plans in all sectors under the company, in that the production plans covers to develop Deep/Ultra Deepwater field and flow assurance issues, extraction by Twister Technology to produce about 16 TPD of condensate is conceptualized. Further, from the condensate fractionation scheme, production of about 1077 TPA of LPG and 3516 TPA of Naphtha is planned at coast of Rs.30.21 crores. Under the Drilling, formulation of polyamines enhanced High Performance Water Based Mud (HPWBM) system and integrated cementing solutions for HPHT Oil and Gas Wells and some other plans in above said categories and also under in Technology. The company has been set up by Rajiv Gandhi Urja Bhawan in Delhi for holistic research in Alternate Energy Sources. As on may 2008, part of the strategic alliance initiative, the ONGC proposed assignment of participating interest to BG Exploration and Production India Limited (BGEPI), a 25 % participating interest in its Mahanadi basin deep water block, MN-DWN-2002/2.

2.1.2 Oil India Limited (OIL)

The story of Oil India Limited (OIL) traces and symbolizes the development and growth of the Indian petroleum industry. From the discovery of crude oil in the far east of India at Digboi, Assam in 1889 to its present status as a fully integrated upstream petroleum company, OIL has come far, crossing many milestones. On February 18, 1959, Oil India Private Limited was incorporated to expand and develop the newly discovered oil fields of Naharkatiya and Moran in the Indian North East. In 1961, it became a joint venture company between the Indian Government and Burmah Oil Company Limited, UK. In 1981, OIL became a wholly-owned Government of India enterprise. Today, OIL is a premier Indian National Oil Company engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG. OIL also provides various E&P related services and holds 26% equity in Numaligarh Refinery Limited. The Authorized share capital of the Company is Rs. 500 Crores. The Issued, Subscribed and Paid share capital of the company is Rs. 240.45 Crores. At present, The Government of India, the Promoter of the Company is holding 78.43% of the total Issued & Paid-up Capital of the Company. The balance 21.57% of the Equity capital is held by others. OIL has over 1 lakh sq km of PEL/ML areas for its
exploration and production activities, most of it in the Indian North East, which accounts for its entire crude oil production and majority of gas production. Rajasthan is the other producing area of OIL, contributing 10 per cent of its total gas production. Additionally, OIL’s exploration activities are spread over onshore areas of Ganga Valley and Mahanadi. OIL also has participating interest in NELP exploration blocks in Mahanadi Offshore, Mumbai Deepwater, Krishna Godavari Deepwater, etc. as well as various overseas projects in Libya, Gabon, Iran, Nigeria and Sudan. In a recent CRISIL-India Today survey, OIL was adjudged as one of the five best major PSUs and one of three best energy sector PSUs in the country.

2.1.3 Indian Oil Corporation Limited (IOCL)

Indian Oil Corporation Ltd. (IOCL) India's largest commercial ISO-9002 certified enterprise and as a leading public sector enterprise of India, is the highest ranked Indian company in the prestigious Fortune 'Global 500' listing. IOCL is the 20th largest petroleum company in the world. Established in 1959 as Indian Oil Company Ltd., Indian Oil Corporation Ltd was formed in 1964 with the merger of Indian Refineries Ltd. (Estd. 1958). It was originally incorporated as IOCL in the year 1964. Indian Oil and its subsidiaries account for 47% petroleum products market share, 40.4% refining capacity and 67% downstream sector pipelines capacity in India. IOCL a traditional manufacturer of refined petroleum products, the new building blocks for global ambition of the corporation are the Petrochemicals, Natural Gas, Exploration & Production, Overseas Business, Consultancy, Biofuels and Hydrogen, etc., The Indian Oil Group of companies owns and operates 10 of India's 19 refineries with a combined refining capacity of 60.2 million metric tonnes per annum (MMTPA, i.e., 1.2 million barrels per day). These include two refineries of subsidiary Chennai Petroleum Corporation Ltd. (CPCL) and one of Bongaigaon Refinery and Petrochemicals Limited (BRPL). Indian Oil reaches precious petroleum products to millions of people every day through a countrywide network of about 32,500 sales points. They are backed for supplies by 170 bulk storage terminals and depots, 101 aviation fuel stations and 89 Indane LPG bottling plants. The 10 refineries are located at Guwahati, Barauni, Koyali, Haldia, Mathura, Digboi, Panipat, Chennai, Narimanam, and Bongaigaon. Indian Oil Blending Ltd a wholly owned subsidiary was merged with Indian Oil on May 2006. Indian Oil transferred its entire equity holding in Indian Strategic Petroleum Reserves Ltd (ISPRL) to the Oil Industry Development Board, a government body functioning under the Ministry of Petroleum & Natural
Gas. Consequently, ISPRL ceased to be a wholly owned subsidiary on May 2006. Formed another one subsidiary company viz., IOC Middle East FZE, in Jebel Ali Free Trade Zone Dubai, joined with the objective of marketing lubricants and other petroleum products in Middle East, Africa and CIS regions. A joint venture company Indo-Cat Pvt. Ltd was incorporated in June 2006. The company is a 50:50 venture between Indian Oil and Intercat. Inc of USA for manufacture and marketing of FCC catalysts and additives. In 2007, the corporation received plenty of awards, Oil Industry Safety Directorate Awards, 'Most Admired Retailer of the Year' award, `CIO 100 Award 2007', SAP ACE - Awards for Customer Excellence and the only petroleum company as `The Most Trusted Brand' in ET's Brand Equity's annual survey. The SERVO acquires prestigious MAN Global approvals, Indian Oil's R&D Centre gets special recognition for Bioremediation and also SERVO secures entry into NSF White Book - H1 Category during the period. As of November 2007, Indian Oil, India's leading Fortune Global 500 Company has taken a significant step in promoting Bio-Diesel as a green fuel by entering into a Memorandum of Understanding (MoU) with the Government of Chattisgarh. Indian Oil-R&D Centre Awarded the coveted WIPO GOLD MEDAL in 2008, Indian Oil wins Retailer of the Year - Rural Impact Award and Indian Oil's Xtra Power wins Loyalty Summit Award in the same year 2008. As on January 2008, Indian Oil and Hindustan Unilever Ltd. (HUL) signed an MoU here today for setting up Kwalitlity Walls Kiosks at select Indian Oil petrol stations across the country and also during the same month and year the corporation entered into a Memorandum of Understanding (MoU) with Transparency International India (TII) for implementing an Integrity Pact Programme focused on enhancing transparency in its business transactions, contracts and procurement processes. As of March 2008, a step towards ensuring the energy security and sustained economic growth of the nation, Indian Oil, in its growth-oriented Memorandum of Understanding (MoU) with the Government of India for the year 2008-09, has focused its efforts on ushering in cleaner and sustainable energy resources. Indian Oil's `LNG at Doorstep' facility launched in April 2008 at the Pen unit of H&R Johnson, the facility, first of its kind in the country, is primarily aimed at catering to the needs of Liquefied Natural Gas (LNG) customers who are not located on the main natural gas pipelines, the project covers Rs 29 crore. Indian Oil has ambitious investment plans of Rs. 43,250 crore in the next five years. Further new project of the corporation are as Panipat-Jalandhar LPG Pipeline cost of Rs.186.72 crore, which will be commissioning on August 2008, Project consists of laying a 10'
diameter 275 KM long LPG pipeline from Kohand (near Panipat refinery) in Haryana to Jalandhar via Nabha in Punjab. Another one new project namely Koyali -Ratlam Product Pipeline with cost of Rs. 322.92 crore expected to be commissioning on October 2008. The pipeline will facilitate effective evacuation of products from Koyali refinery and ensure cost-effective and reliable transportation of products to Central India and northwest UP and the project consists of laying 16-inch diameter 274 km long product pipeline from Koyali refinery to Ratlam, where a new terminal is to be constructed on re-sitement basis. The corporation plans to expand its Panipat Refinery from 12 Mmtpa To 15 Mmtpa costing Rs. 806 crore on December 2008 and also in the same period plans to augmentation of Mundra - Panipat Crude Oil Pipeline with project cost of Rs. 204.74 crore. Apart from the above said, some long term projects are awaiting to begin in future. All are under schemes for improvement and increased profitability through de bottlenecking / modifications / introduction of value added products are being taken up in addition to grassroots facilities. Project systems have been streamlined in line with ISO standards. IOCL, the flagship national oil company in the downstream sector is currently implementing a master plan envisaging by the year 2011-12 in petrochemicals, which covers Rs.30000 crore (US$ 6.8 billion) of investment. Through the world-scale Linear Alkyl Benzene (LAB) plant set up at its Gujarat Refinery, the corporation has already captured a significant market share in India besides exporting the product to Indonesia, Turkey, Thailand, Vietnam, Norway and Oman. Indian Oil is also committed to the Global Compact Programme of the United Nations and endeavors to abide by the 10 principles of the programme initiative under CSR (Corporate Social Responsibility).
2.1.4 Bharat Petroleum Corporation Limited (BPCL)

Bharat Petroleum Corporation Ltd is India's 2nd largest oil company in terms of market share and it has been a front-runner in the alternate fuels segment. It came to existence in the business from the year 1976 by the reason of merger plays in Refinery and Marketing Companies of Burmah Shell Oil Storage & Distribution Company. BPCL focused in the production of petroleum and petroleum products (Byproducts). The Strategic Business Units (SBUs) of the company are classified into refineries, retail, industrial & commercial, lubricants, LPG and aviation Sectors. During the year 2001-02 Gas Turbine and Heat Recovery Steam Generator project was commissioned at a cost of Rs.1750 million. Refinery Modernization Project is being implemented at a cost of Rs.18,310 million. This project besides improve distillate yield and energy efficiency of the company. BPCL have Allied Retail Business (ARB) also apart from the regular business. making it not only the largest non-fuel revenue generator in the oil industry, but also amongst the leading retail networks in the country, offering a basket of services ranging from C-stores, Quick Service Restaurants to financial and travel related services. The total of 8 numbers of In & Out convenience stores made up the 'millionaire club' by clocking average sales of Rs.1 million per month. Automatic Teller Machines (ATMs) continued by the company to be a focus area in the ARB initiative under the alliance management strategy. The 222 ATMs in the network are the result of alliances with 22 banks. Given the rapid growth of the travel industry in the country and especially personal travel, BPCL launched 'In & Out e-Traveler', a one-stop facility for all travel and hospitality needs in during year of 2006-07. The In & Out traveler is an e-ticketing / e-booking facility for rail, air and bus tickets and hotel accommodation, brought through a web of alliances with best in breed travel service providers. BPCL has always pioneered the cause of high performance motor sporting activity through the flagship brand of premium petrol, Speed. For the year 2006-07 the company spends Rs 75.05 million. Locations across the country BPCL received numerous awards in the areas of Health, Safety and Environment. BPCL was awarded the Trusted Brand in the Gas Station category as per the market survey conducted by Readers Digest. BPCL was also conferred the Award for Best Branded Automotive Fuel for the brand Speed, by Frost & Sullivan. BPCL was adjudged as the 'Most Trusted Oil Company' by TNS Global. The survey was carried out by TNS Automotive. The company won the 'Customer Responsiveness Award' in the Public Sector Units category. The survey for this 'Avaya Global Connect' award was carried out by A.C. Nielsen ORG-
MARG. The Kochi Refinery alone received 4 awards and BPCL walked away with three prestigious awards for communication, instituted by the Association of Business Communicators of India. The Corporate website won the most coveted Gold Award. In addition, BPCL also won the Silver and Bronze awards for the B.P. Journal and the Company's Annual Report respectively. As on January 2008 State-run oil companies, Bharat Petroleum Corporation (BPCL) and Hindustan Petroleum Corporation (HPCL), are planning to jointly set up a desalination plant (sewage treatment plant) in Mumbai to meet the requirement of raw water at their refineries with cost of Rs 300 crore. During March 2008 BPCL and GAIL have signed a MoU cost of Rs 400 crores for float a joint venture as God's Own Gas Company (Go Gas) for marketing compressed natural gas (CNG) and piped gas in Kerala and Karnataka. As on April 2008, the company would invest Rs 266 crore to buy a third of a Joint Venture to produce Biodiesel, it will partner Mumbai based firm Shapoorji Pallonji and Southern India based Nandan Biomatrix to extract boidesel from Jatropha and karanji plantations in UP. Future plans of the company are Intensifying and enlargement of activities in the area of Refinery processes and residue up gradation, Development of catalyst/additive for refining processes, Development of new process technologies using additive approach for improving product quality, Enlargement of crude basket and identification of opportunity crudes and crude blends, Value added Products/Solvents from the refinery streams, Bio-technological processes, Coal to Residue Technologies, Alternate Fuels, Passenger Car Engine Oil for major OEM, Fully Synthetic Gear Oil (75W-90), Customer specific Metal Working Fluid, High Performance Grease and Defense specific grade lube oil. All the above will be done with the new framed capital expenditure.
2.1.5 Hindustan Petroleum Corporation Limited (HPCL)

A corporation, relating with the business of oil refining and marketing is known as Hindustan Petroleum Corporation Limited (HPCL) from the year 1974. Before it was called as Standard Vacuum Refining Company, then it was ESSO India, When ESSO and Lube India was nationalized, the company was renamed to HPCL. A Fortune 500 company is one of the major integrated refining and marketing oil company in India. It is a mega Public Sector Undertaking (PSU) with Navratna status. The corporation accounts 10.3% of the nation's refining capacity with two coastal refineries in West and East costs. The West Coast at Mumbai having a capacity of 5.5 MMTPA and the other East Coast in Vishakapatnam with a capacity of 7.5 MMTPA. HPCL also owns and operates the country's largest Lube Refinery, producing Lube Base Oils (LOB) of international standards with a capacity of 335,000 Metric Tons. This refinery accounts for over 40% of the country's total Lube Base Oil production. Add to this, HPCL have a joint venture refinery at Mangalore, two cross country pipelines and an extensive network of terminals, depots, bottling plants and aviation servicing facilities. The Caltex undertaking was nationalized in the year 1976, which were subsequently merged with the company in the year 1978. In the following year, the undertakings of Kosan Gas Company, the concessionaires of HPCL in the domestic LPG market, was merged with the company. The 'Guru Gobind Singh Refineries' was incorporated on December 2000 as a wholly owned subsidiary of the company. The company has completed the Rs.378 crore pipeline projects from Vijayawada to Secunderabad, which was commissioned on March 2002. The new LPG Bottling plant at a capacity 44 TMTPA was set up in Kota. The company has implemented 15 company tank trucks in the year 2004. During the year 2004-2005 the company has completed its construction of a new grassroot depot at Aonla, Bareilly and Uttar Pradesh with total cost of Rs.10.25 crores. The company has also completed its construction of another new grassroot depot at Ramagundam, Andhra Pradesh at a total cost of Rs.11.47 crores. The depot has 7974 KL tankage for MS, HSD and SKO together with product receipt through railway tank wagons from Vijayawada terminal. Further the company has commissioned a total of 13100 KL additional tankage at various locations during the year. The company has branded its retail outlets under the name 'CLUB HP' and also launched 'Turbojet' branded diesel and the 'Power' branded petrol in India. During the year 2005-2006, the company's Mumbai Refinery has undertaken mega project at an approved cost of Rs.1850 crores to meet the MS/HSD of EURO-III grade in Metro/Mega cities and Bharat
stage-II grade in the rest of the country and the Visakh Refinery has undertaken Clean Fuel Project at an approved cost of Rs.2147.8 crores to meet the MS/HSD of Euro-III grade in Metro-Mega cities and Bharat-II grade in the rest of the country. The company commissioned 647 Retail Outlets during the year 2005-06. HPCL received Golden Peacock Award for Excellence in Corporate Governance for the year 2003, 2006 and also 2007. The company has been awarded Forecourt Retailer of the year 2007 Award for the second consecutive year from 2006. CIO 100 award has been instituted in India since 2006. HPCL was the recipient of this award in the inaugural year too. `CIO 100 Award 2007' was conferred on HPCL for 'Project Parivartan' and 'ENCOn Award 2007' through Visakh Refinery, bagged the coveted First Prize for Energy Conservation in Petroleum Refining Sector for the year 2007 given by Bureau of Energy efficiency, Ministry of Power, Govt. of India. HPCL's Palam Aviation Service Facility (ASF) has been awarded the `Environment Excellence Award' by Greentech Foundation. The company has been awarded Reader's Digest 'Trusted Brand Gold Award' for the year 2007 in recognition of Club HP Brand. The Trusted Brand Survey conducted by M/s AC Nielsen in seven Asian markets including India. The corporation is setting up New Fluidized Catalytic Cracking Unit (FCCU) at Mumbai Refinery. The scope of Project includes installation of new FCCU of 1.456 MMTPA with Gas concentration unit (GCU) and Flue Gas Desulphurization (FGD -158 TPM) Units of matching capacity and its cost of Rs.900 crores. The high demand of company's LOBS leads to upgrade LOBS quality to produce 200TMT per annum of Group II LOBS and 130 TMT per annum Group I LOBS with a capability to produce API Gr III also. The corporation is installing DHT (capacity 2.2 MMTPA) along with associated facilities at Mumbai & Visakh Refinery to meet the Euro IV specification for Diesel as per guidelines of GOI. EIL has been engaged for configuration study. The estimated Project cost of Rs.1600 crores each for Mumbai Refinery and Visakh Refinery. HPCL is putting up new Integrated Effluent Treatment Plant (300m3/hr capacity) at its Mumbai Refinery. M/s. EIL is engaged for EPCM services of the project. LSTK Order placement is in progress, for execution of the works with cost of Rs.138 crores. As on January 2008 HPCL Visakh Refinery was on completing 50 marvelous performance years. Visakh Refinery has been the first refinery on the east coast set up as Caltex Oil Refining India Ltd. (CORIL) in the city of destiny, Visakhapatnam. The company's commercial start-up of a large scale Liquefied Petroleum Gas (LPG) Import and Underground Cavern Storage Terminal was effected in locations of Visakhapatnam, Andhra Pradesh and in the
same month of during the year the corporation inaugurated the LPG Cavern Storage of South Asia LPG Company Private Limited which is a Joint Venture of the Oil majors HPCL and Total, France. HPCL’s POL Terminal at Bahadurgarh which is the culminating location for newly laid Mundra-Delhi Pipeline, was inaugurated on April 2008.

2.1.6 Gas Authority of India Limited (GAIL)

GAIL (India) Limited, is India's leading Public Sector Natural Gas company, integrating all aspects of the Natural Gas value chain and beyond including Exploration, Production, Transmission, Marketing, Extraction, Processing, Distribution, Utilization including Petrochemicals and Power and Natural Gas related infrastructure, products and services. The company was committed to operational excellence in the year 1984. GAIL has 6,700 km of Natural Gas high-pressure trunk pipeline with a capacity to carry 148 MMSCMD of natural gas across the country. 7 LPG Gas Processing Units to produce 1.2 MMTPA of LPG and other liquid hydrocarbons. 1,922 km of LPG Transmission pipeline network with a capacity to transport 3.8 MMTPA of LPG, 27 oil and gas Exploration blocks and 3 Coal Bed Methane Blocks and also North India's only gas based integrated Petrochemical complex at Pata with a capacity of producing 4,10,000 TPA of Polymers. The company's relationship with Joint venture companies emerged in Delhi, Mumbai, Hyderabad, Kanpur, Agra, Lucknow, Bhopal, Agartala and Pune, for supplying Piped Natural Gas (PNG) to households and commercial users, and Compressed Natural Gas (CNG) to the transport sector. Create and strengthen significant global presence to pursue strategic, attractive opportunities, the company has a wholly owned subsidiary company as GAIL Global (Singapore) Pte Ltd in Singapore. Established presence in the CNG and City Gas sectors in Egypt through equity participation in three Egyptian companies: Fayum Gas Company SAE, Shell CNG SAE and National Gas Company SAE and has stake in China Gas Holding to explore opportunities in the CNG sector in mainland China also. GAIL began its city gas distribution in Delhi in 1997 by setting up nine CNG stations, catering to the city's vast public transport fleet. LPG Plants at Usar and Lakwa was made to order with the design capacity of 1.39 lacs TPA and 0.85 lacs TPA respectively for the duration of 1998-99 and in the same period the Uttar Pradesh Petrochemical Complex (UPPC) at Pata was commissioned with a design capacity of 3 lacs TPA of Ethylene to produce 2. 60 lacs TPA of HDPE & LLDPE and
also the Indraprastha Gas Limited (IGL) were incorporated for supply of gas to household sector, transport sector & commercial consumers in Delhi. The commercial production was started in LPG plant at Pata with a designed capacity of 2.58 lacs TPA of LPG in March 2000. GAIL conceptualizes a National Gas Grid to connect the supply and demand centres in the country with high-pressure cross-country pipelines networks. In the year 2001 the Gas Processing Complex, Gandhar begins its production with the process capacity of 5 MMSCMD of gas and production capacity 2.02 lacs TPA of LPG, 0.43 Lacs MT of Pentane and SBP Solvent. The Jamnagar-Loni LPG Pipeline Project, the world’s longest and India's first Cross-Country LPG 1269 km long pipeline, which passes through Gujarat, Rajasthan, Haryana, and Delhi, were completed during the period of 2001. The capacity of the pipeline in its 1st Phase was 1.7 million TPA, upgraded to 2.5 million TPA in the 2nd Phase. GAILTEL Phase-I was commissioned in 2001-02, creating an OFC based DWDM network connecting Delhi-Mumbai, Delhi-Jaipur, Delhi-Ahmedabad, Delhi-Vijaipur, and Meerut-Agra. Throughout the year 2003-04 GAIL has an initial success in the form of significant gas find in the block A-1 in Myanmar and discovery of Oil and Gas in the Cambay Block, successfully secures participation in 2 retail gas companies in Egypt, Fayum Gas Company and Shell CNG. The pipeline between Vizag and Secunderabad LPG was completed in June 2003, the 580 km pipeline with a maximum throughput of 1.16 MMPTPA. Bhagyanagar Gas Limited, a joint venture of GAIL and HPCL, incorporated in month of August in the same year, in the field of distribution and marketing of auto LPG, CNG for vehicles and retailing of natural gas in cities of Andhra Pradesh. Gail (India) Limited plans would invest Rs 3,413 crore for expansion in Pipeline, Petrochemical and other business development on May 2008. The company wishes to move upstream to secure gas supplies for the core transmission business. Additionally, investments in petrochemicals and city gas distribution are being planned to enhance margins and increase sources of revenue. Further, the company is exploring and investing in international opportunities with a strategic rationale of gaining international presence.
2.2 Literature Review

There are so many studies have been conducted throughout the globe regarding the analysis of financial performance of Public Sector Enterprises (PSEs) in India and especially the Public Sector Oil and Gas Companies in India, some of the well-reputed and valuable research studies are shown in the following paragraphs:

Chakraborty (2006) made a comparative study on the financial performance of selected public sector petroleum companies in India during the post liberalization period. For this purpose, he had chosen four companies out of thirteen public sector petroleum companies in India considering the nature of operation and capital structure of the selected companies. The selected four companies were Bharat Petroleum Corporation Ltd. (BPCL), Hindustan Petroleum Corporation Ltd. (HPCL), Indian Oil Corporation Ltd. (IOCL) and Oil India Ltd. (OIL). For making a comparative study of financial performances of four selected companies, he had mainly used the technique of ratio analysis, which is regarded as the time tested method of appraising the financial performance of corporate enterprises. The study has been able to bring out some valuable findings which can go a long way in improving the performance of public sector companies in general and petroleum companies in particular.

ICRA Rating Feature (2006) made an attempt to measure the trends of performances of oil & gas sector in India. At the time of measuring the trends of performances of domestic oil & gas companies it was found that increase in global crude oil prices and nationalization of the producer price of natural gas in 2005-06 have had a favorable impact on the cash generation of both ONGC and OIL in 2005-06. However the extent of upside was significantly curtailed by their need to share the under-recoveries of downstream OMCs. It was also found that ONGC’s crude oil sales quantity declined by around 7% during 2005-06 over 2004-05 because of lower output from Mumbai High following fire at its offshore platform and disruption in production. The company, however, was able to offset the production loss by higher sales realization, which enabled its revenues from crude oil to increase by around 2% during the period stated. As for OIL, its average realization on crude oil sales was higher than that of ONGC as the latter had to absorb a disproportionate share of the overall upstream assistance in 2005-06. Sharing of under-recoveries in 2003-04 was done among ONGC & GAIL based on their share of net profit achieved in 2002-03. In 2004-05, OIL was also brought into the subsidy sharing net profit in
Government has proposed that subsidy sharing in the current fiscal would be done on the basis of share of net profit achieved by them in 2005-06. ONGC’s subsidy burden should increase by around 75% to Rs 209 billion in 2006-07 over 2005-06. OIL’s burden should more than double to Rs 24 billion and GAIL’s should increase by 28% to Rs 12 billion. The actual subsidy burden for these upstream companies would be lower in 2006-07 than the figures mentioned if the prices of India’s basket of crude oil have remained in the US $ 50-$ 60/bbl range in H2, 2006-07. The deregulation of gas prices carried out in 2005-06 has benefited the upstream companies. Gas prices have been revised further in the current fiscal, with prices for the reregulated segments having been raised by 23% with effect from April 1, 2006 and by 20% for CNG and small customers with effect from June 5, 2006. These would also add to the realizations of the upstream companies. Further they are likely to be beneficiaries of any revision in producer prices, once the tariff commission completes its study of producer price. The commission has recommended upward revision in the producer price of gas for APM gas by 8% for ONGC and 32% for Oil, from the current levels, in its interim report. Apart from the rise in crude oil and natural gas prices, ONGC’s profitability in 2005-06 also benefited from the increase in its realizations from value-added products such as LPG, naphtha, SKO, ethane-propen and LSHS. In the case of OIL profitability growth arose primarily from increase in oil and gas prices as revenues from other sources are limited for the company. Improved profitability and cash generation have enabled these upstream companies to report further strengthening of their debt protection matrices. These companies also have sizable liquid investments which add to their financial flexibility. Despite the recent slide in oil prices the credit profiles of the OMCs over the medium term, would be sensitive to the subsidy sharing mechanism that Government would approve as under-recoveries are still significant on the LPG, SKO and HSD. Moreover, the current Subsidy sharing mechanism is ad hoc in nature and does not address the under-recoveries beyond 2006-07. Overall, the demand for petroleum products declined by around 1% in 2005-06 over 2004-05.
Anirvinna and Ravi (2011) tried to analyze the marketing and consumption trends in Indian Oil industry. Marketing strategies such as product differentiation and marketing skills were some of the factors that help various public sector oil companies and big private sector player to sustain their market share in the cut-throat competition. Logistics or back-end support in terms of product movement, pipeline infrastructure, tanks, depots and retain pump network was the single biggest factor to differentiate the competing players. Another thing was that government support that was enjoyed by the public sector companies has a big advantage of a tremendous back-end infrastructure. With very little to differentiate the product of one refiner from another branded petrol and various value added services were being promoted by the oil companies. Another factor for success depends on having oil equity i.e., to be an independent oil and gas exploration and production company. The era of easy oil finds was over so the Indian companies have to train their sights on new oil discoveries in areas of challenging locations like deep waters, frontier basins that have not caught the fancy of the global oil companies yet. Other than new oil discoveries by marketing companies they were on forefront of acquiring equity oil and gas assets overseas.

The Indian Oil and Gas competitive Intelligence Report (2010) highlights that it is an essential resource for manufacturers, investors and suppliers analyzing and comparing the strategies adopted by major players as they seek to exploit opportunities and mitigate risks in a rapidly changing environment. Key features of the reports are competitive landscape analysis, company profile, and market attractiveness for investors and India business development directory. Company competitive analysis examined sales, market shares and main product areas and facilitated the identification of successful investment strategies and themes. Company comparisons are made within the framework of our industry growth forecasts and our broad macroeconomic growth forecasts. Company strategies are also examined in relation to key operational, macroeconomic and political risks. Profiled companies are namely BPCL, Crain India Ltd, Essar Oil, GAIL (India), GSPC, HPCL, IOCL, ONGC, OIL, Petronet, Reliance Industries. Market attractiveness investors include analysis of sector maturity, industry expenditure, foreign investment, GDP contribution, key industry players, regulatory environment, imports and exports, etc. In this study, SWOT analysis has been done. It includes detailing the strengths, weaknesses, opportunities and threats across government policy and foreign investment environment, local standards, growth and demand trends, demographics and
...macroeconomic trends and the competitive landscape. Providing direct access to top industry
decision makers and purchasers, the directory represents a powerful tool to source new clients,
partners and suppliers and benchmark competitions.

Rai (2010) made an attempt to assess the performance and strategy of ONGC in India.
The state owned company Oil and Natural Gas Corporation Ltd. (ONGC) is India’s largest
company devoted to exploration and production (E& P). Founded in 1956, ONGC has seen a
remarkable growth in the last five decades. In 2007-08, ONGC group’s total production of Oil
and Oil equivalent gas (o & oeg) was about 60 million metric tons per annum or 1.2 million
barrels per day, thus accounting for nearly 80% of India’s Oil and Gas (O & G) production. In
2007 energy intelligence top 100 ranked ONGC at 31 among global oil and gas companies.
ONGC’s evolution is a remarkable story of how state-owned firms respond and adopt to shift in
owners (government) priorities which in turn are strongly influenced by macroeconomic and
political condition. Historically ONGC has been the government of India’s (GOI’s) trusted
custodian of India’s oil and gas reserves. As such ONGC enjoyed a near monopoly in this sector
for nearly four decades (1955-1995), during which good luck and easy oil elevated ONGC to
stardom. This paper attempted to unpack the dynamic of the government–ONGC relationship.
Focusing specifically on how government ownership and control has influenced ONGC’s
performance and strategy. This paper made four arguments. First, ONGC exist just as with
NOC’s in many other countries, because of a legacy of suspicion about outsiders. It performed
well when it was tasked with things that were not that difficult and when it had helped for the
more difficult ventures, such as frontier E and P and development. Second, ONGC has run into
trouble as it matured and the roots of its troubles are mainly in its interactions with the GOI and
secondarily in its management. Third, a slew of reforms instituted since the mid 1990’s have
fundamentally changed the landscape of the E and P sector in India the dynamic of government-
ONGC relationship. Targeted an improving corporate governance, enhancing competition in E
and P and eliminating price controls, those reforms have had a mixed impact on ONGC’s
performance and strategy. Lastly, given the deep interconnects of the oil and gas sector
essentially entails fixing the larger political economy within which the sector is embedded.
**International Energy Agency (2010)** studies a holistic examination of pricing and investment dynamics in India’s downstream petroleum sector. It began with an analysis of current petroleum product pricing practices in India, which involve price controls on India’s four most consumed products—petrol, diesel, LPG, and kerosene. It highlighted the tremendous fiscal cost of current pricing arrangements. However, the examination of petroleum pricing also provided the analytical framework by which sectoral dynamics of investment and growth are considered and understood throughout the study. A comprehensive consideration of sectoral investment dynamics is undertaken an examination of (a) the ability of key downstream companies to meet rapidly growing Indian product demand and most importantly (b) the respective emergence of India as major global refined product exporter, an outcome with considerable potential implications for the evolution of global and regional product markets. Refinery investment, of course, is key in both these instances. The study ended with an examination of product market pricing policy, as will be argued, petroleum pricing policy is entirely unsustainable in its current form. More significantly from a global perspective, the nature of downstream investment in India over time will determine the success of the GOI’s ambitious policy to establish a world-competitive refined product export industry in India, based on the Singaporean model—a process started in earnest already by RIL world-leading refinery expansions in Gujarat state. This study has argued that refinery investment in India should be increasing sought from the private sector in the long-term. However, with increases in crude benchmark prices very likely in 2010 as global economic activity recovers, the consequence of maintaining the current system of unofficial petroleum product subsidies will again be rapidly mounting under-recoveries and a re-emergence of fiscal imbalance in India as the GOI is forced into debt insurance to support OMC’s.

**Lal (2005)** undertook a study on merger and acquisition in oil sector—MRPL experience. It may be noted that out of 9 Navaratna companies, 5 Navaratna companies belong to oil sector namely IOCL, HPCL, BPCL, ONGC and GAIL. It is also noteworthy that two 500 fortune companies belong to oil sector i.e., IOCL and BPCL. However, the need was felt from time to time to restructure & consolidate the public sector oil companies. After acquiring the management control of MRPL on 30th March 2003, ONGC has taken various initiatives, which has improved the operating and financial performance of MRPL. MRPL refinery is now operating at around 120% of the capacity. The study concluded that MRPL which was just on the
verge of becoming a sick unit has been converted into a healthy unit with the strong backing of ONGC and it is expected to wipe out the entire accumulated losses of Rs. 1185 crores by the end of 2004-05.

DashGupta (2005) studied to analyze the role which has been allotted it by the government. Territorially, OIL has already diversified and found itself in a position to undertake further new area exploration ventures. OIL has some resources of high aromatic low wax crude which could well merit some separate and specialized refining treatment but this would presumably come into the domain of IOC. OIL could possibly think of entering the consultancy and the services area in a big way. However, unless the professionals employed in these activities can be paid at near international rates the client /may try to win them off into their own payrolls rather than pay consultancy/ services fees to OIL.

Nandi (2010) made an attempt to analyze the performance of public sector enterprises for the study period from 1999-2000 to 2007-08 through different performance measurement parameters like profitability, contribution to central exchequer, internal resource generation, value addition, employment generation, etc. The analytical study of the performance of CPSEs in India exhibits continuous increasing trends in profitability, internal resource generation, contribution to central exchequer, value addition, and foreign exchange earnings while an overall decreasing trend was found in the generation of employment.

Pirog (2005) interested to analyze the recent performance of oil industry. High prices of crude oil in 2004 and into 2005 have reduced consumers’ purchasing power and raised costs for businesses while providing billions of dollars to the oil industry and oil exporting countries. The industry increased revenues have led to record profit levels. As the 109th congress engages in oversight of recent broad energy legislation which aims to increase the domestic supply of crude oil to mitigate oil price increases in the longer term another key factor in determining increased supply is how oil companies decide to allocate their profits between shareholders’ return and investment in oil production. In response to the increased price of crude oil since the fall of 2004, profits of virtually all firms in all segments of the oil industry have increased. However, the greatest increases have in the downstream, or refining and marketing segments of the industry. The relatively high profit levels earned in refining and marketing suggest that conditions in the petroleum products markets, including the gasoline, diesel and jet fuel segments, contributed to
earn profits above and the effect of higher crude oil prices. Key factors in these markets included tight refining capacity and low inventory levels. Mergers, acquisitions and asset sales may also have changed the relative profit positions of many firms in the industry. All these factors have been influenced by investment decisions in the oil industry. Firms in the oil industry are likely to use their recently earned profits in a variety of ways. They are holding record cash balances, buying back their shares and increasing dividends. Merger and acquisition activity in the industry again appears to be on the rise. In addition, the major oil companies are investigating in a variety of energy related products, although not necessarily oil including liquefied natural gas and gas to liquid technologies.

Wolf and Pollitt (2008) used to study the impact on firm’s performance for privatizing national oil companies. This study empirically investigates the impact of privatization on firm’s performance in the global oil and gas industry, where questions of resource control have regained widespread attention. Using a dataset of 60 public share offerings by 28 National Oil Companies it is shown that privatization is associated with comprehensive and sustained improvements in performance and efficiency. Over the seven-year period around the initial privatization offering, return on sales increases by 3.6 percentage points, total output by 40%, capital expenditure by 47%, and employment intensity drops by 35%. Many of our observed performance improvements are already realized in anticipation of the initial privatization date, accrue over time, and level off after the initial ownership change rather than accelerate. Details of residual government ownership, control transfer, and size and timing of follow-on offerings provide limited incremental explanatory power for firm performance, except for employment intensity. Based on these results partial privatization in the oil sector might be seen to capture a significant part of the performance improvement associated with private capital markets without the selling government having to cede majority control.

Madan (2007) made an attempt to study India’s ONGC: balancing different roles and different goals. Starting out life as a small directorate in the government of India’s Ministry of Natural Resources and Scientific Research in 1955, the Oil and Natural Gas Corporation (ONGC) Ltd. had the highest net worth and second highest market capitalization of all corporations in India by 2007. ONGC, the country’s largest Oil and Gas Company, ranked 20th in plats annual survey of global energy companies and 239th on Forbes Global 2000 list. It accounted for a little more than three quarters of Indian crude oil production and more than two-
thirds of its natural gas production. Though traditionally its core focus has been in the upstream sector, over the past few years ONGC has moved toward becoming an integrated company foraying into refining and dabbing in retailing as well. At first glance, a company that is the largest producer of oil and gas in a country that has about 0.5 percent of the world’s proven reserves might seem unremarkable. But its size and strategy abroad have made ONGC an object of global attention. Having provided a brief overview of the company’s size and performance and its importance to India and thus the international energy market, this paper looked back at the creation and evolution of ONGC. This paper considers the present status of ONGC, the impact of government ownership on the company and its strategy for the future.

**Gupta (2005)** studied to analyze the financial performance by using traditional measures like cost, revenue, profit and ROI being financial and tangible in nature and non-financial measures of Castrol India Ltd. The case provided exhaustive information about one of the dominant players of the lubricant industry in India. From the control angle, the case sensitizes us to understand what performance measurement is, what are the different bases of performance evaluation, why traditional measures of performance lost ground in modern times and how in a globally competitive environment balanced scorecard system helped in better managing a business enterprise because whatever gets measured gets done in an organization. This also added a dimension of the impact of control system on the culture of an organization. With the change in the dynamics of value diverges of modern knowledge-driven economy, the role of soft and non-financial measures of performance has significantly increased.

**Singh and Arvind (2005)** analyze the Indian lube industry in the five forces frameworks namely degree of rivalry, threat of entry, threat of substitutes, buyer power and supplier power in India. He has taken sales volume, material costs, etc. of different companies in Indian lube industry viz. BPCL, HPCL, Castrol, Gulf Oil, IBP, IOCL, Tide water oil etc. for the period of 4 years from 2001 to 2004 to assess the financial performance at different angles. The results shown that the performance of working capital management of CIL has improved substantially during the study period. The days operating cycle and days working capital have reduced from 139 to 89 days and from 33 to 24 days respectively. The average inventory holding period has come down from 59 to 37 days. The supply chain management initiatives at CIL appear to have paid rich dividends. Due to increase focused on efficient cost and supply chain management of
CIL has created substantial shareholders’ value during the study period. It has maintained its personnel costs slightly below 5% of sales during the period but the effective tax rates have increased from 18% to 33.5% during this period. Thus the operating margins have come down from 12% to 8% but the asset turnover ratio has improved from 2.9 to 4.9 during this period. The economic value added as a percentage of capital employed has improved from 11% to 29%. CIL has increased dividends per share from Rs 3.69 in 2001 to Rs 8.25 in 2002 and the same has been maintained in 2003 and 2004. It has good quality of earnings as its cash flow per share has exceeded its earnings per share. CIL has been able to sustain its competitive advantage by developing products that have differentiated offer, attributes the return of CIL to growth path and receiving up to new heights of performance and the innovative and winning team spirit of team Castrol.

Mehta and Gera (2005) studied to decide on strategic direction for long-term sustainable and profitable growth, cohere the Castrol and BP brands value creation process especially within the diesel engine oil (DEO) segment, achieve top line growth while maintaining profitability and identify the relevant performance indicators to enable strategy implementation. CIL has achieving volumes and market share growth while shareholder value created was decreasing due to commoditization, rising operating costs, and lack of innovation. The company cannot have a predominantly value-based strategy and needed to identify and exploit its strength in product innovation and distribution to identify multiple riches for its premium brand Castrol.

Tsoutsoura (2004) studies the relationship between corporate social responsibility and financial performance by using extensive data over a period of 5 years i.e., from 1996 to 2000. For this purpose he used financial data on returns on assets (ROA), returns on equity (ROE), returns on sales (ROS) and cross sectional time series regression analysis for 422 companies for the given study period to measure the relationship between corporate social responsibility and financial performance. The Study attempted to address the question whether corporate social performance is linked to financial performance. He tested the sign of the relationship between corporate social responsibility and financial performance and in most of the situations the sign was positive, that means there was a positive relationship between these two.
Dhanalakshmi Bank Ltd. (2010) studied to examine the financial performance of the crude oil and natural gas sector (only upstream companies) in India with special reference to the company ONGC- the largest oil exploration company in India. The major cost components of this industry include royalty and cess paid by companies to the government. While rising prices have argued well for the explores, the subsidy burden borne by public sector companies, including ONGC and Oil India, dent the profitability of the industry. On account of lower margins and high subsidy burden, the financial performance of oil refineries and marketers had been poor. The petroleum oil and products industry (upstream and downstream) accounted for a large chunk of the revenues of corporate India. Lower prices of petroleum products including regulated ones like petrol and diesel as well as non-regulated ones pulled down overall sales by 4.4 % in the financial year 2010. Also 2009-10 was a slow year for overall demand, with demands for petro-products picking up pace from the December 2009 quarter. Crude oil prices recorded a year over year rise from the December 2009 quarters onwards, resulting in a 3.1 % fall in raw materials costs. The industry registered an 8.1% growth in employee cost. A fall in interest charges and other expenses, together with lower raw materials expenses, enabled it to record a 29.1% rise in net profit.

Narang, Sen and Srivastava (1999) study the issues in the deregulation of the oil and gas sector in India. The petroleum industry in India had been closely regulated; the GOI (Government of India) had subjected each link in the chain- E and P (exploration and production), refining, marketing and distribution- to controls and checks. The oil crisis of the 1970s was major drives in promoting governments all over the world to intervene in the oil sector. The intervention was especially pronounced in oil promoting countries such as India. Under APM (administered pricing mechanism), all entities were assured a minimum return on their investments. While the ONGC (Oil and Natural Gas Corporation Ltd.) and OIL (Oil India Ltd) were allowed a return of 15% on employed capital, the downstream companies get 12% (post tax) on their net worth. The rationale for and the nature of the reforms introduced in the upstream and downstream petroleum sector and the natural gas sector were in the areas of exploration and production, refining and marketing, licensing of refinery capacity, sourcing of crude imports, sourcing of products, strategic petroleum reserves, refinery production pattern and ex-refinery pricing, inland movement of products, marketing setup, safety concerns, structure of the regulatory authority, common versus contact carriage, authorization of natural gas
transportation and distribution, unbundling of trading and transmission, cross ownership, fixing of transportation and distribution charges, regulation of liquefied natural gas sector, open access, pricing and allocation of natural gas, regulation of distribution networks.

Sarkar (2011) made an attempt to analyze the impact of liquidity management on profitability of ONGC Ltd. during the study period from 2004-05 to 2009-10. The general perception is that top professional management is to design a policy so that risk can be minimized and profitability can be maximized to strike a balance between risk and profitability. The article concluded that out of eight ratios relating to working capital management selected during the study period, three ratios namely CATAR, CASR and ITR registered positive associations with the selected profitability ratio viz. ROCE and the remaining ratios like CR, QR, WCTR, DTR and CTR witnessed negative associations with the ROCE. Again, CR and ITR both have significant contributions towards the overall profitability of the company during the study period. The study of working capital leverage (WCL) of the company registered fluctuating trends during the study period. The values of WCL all throughout the study period are always less than unity (i.e. less than one). Hence, it may be opined that the increase in the profitability of the company is less than the proportion of decrease in working capital throughout the entire study period.

Mandal and Hossain (2010) assess the impact of working capital management on liquidity, profitability and risk of BPCL during the study period from 1999-2000 to 2008-09. The study also highlighted attention on the conceptual side of working capital and made an endeavour to observe and test the profitability and liquidity position of the company during the study period. The paper also examines the correlation between liquidity and profitability as well as between profit and risk. Multiple regression model was used to establish the linear relationship between liquidity and profitability. The study was based on secondary data collected from published annual reports of BPCL over the period under consideration. Some managerial and statistical tools viz. correlation, ratio analysis, multiple regression, etc. and statistical tests viz. t-test and F-test, etc. have been used to test the significance of the results of the empirical study. The study established that there was a significant relationship between liquidity and profitability of the company during the given study period. From the study it was also observed that the relationship between risk and profitability was not statistically significant. So far, from
the analysis it may be concluded that the management of working capital is highly useful to ensure better productive capacity, sound liquidity and good profitability of an enterprize particularly the PSEs in India.

**Shah and Bhaskar (2010)** highlight the employee-related best practices of BPCL. BPCL has many firsts to its credit and has own many accolades for its employee welfare-related initiatives. By undertaking the analysis (based on the needs, constrains, alterables and strengths and areas of improvements) greater visibility of the employee-related issues of the organization can be highlighted for appropriate organization-wide and industry specific interventions. This case gave us a brief insight into the diverse initiatives undertaken by a PSE like BPCL towards employee welfare management. If each of the PSEs put in their best towards ensuring the welfare of their employees, control or attrition and competition with private players in man-power related issues would not be a complex task.

**Sarkar and Nandi (2010)** tried to evaluate and critically explain the corporate social performance of the selected four core public sectors namely steel, power, coal & lignite and petroleum sectors in India. The social activities of the public sectors have been categorized under different groups like internal resource generation, contribution to central exchequer, value additions, foreign exchange earnings, employment generation, etc., with the help of relevant data for the study period from 1999-2000 to 2007-08. The empirical study showed that out of the four selected sectors under study, the petroleum sector has performed the best in terms of the average amount as well as percentage of total of internal resource generated, contribution to central exchequer, amount of value additions, and the amount of foreign exchange earnings, whereas the coal and lignite sector occupied the best position in terms of generation of employment. The overall performance (based on all the selected social activities under study) of the four selected public sectors as compared to CPSEs as a whole in India is quite encouraging during the study period.

**Goswami and Sarkar (2011)** made an attempt to throw some light on the business risk, financial risk, financial break-even point and total risk of SAIL by means of computing the degrees of associations between the leverage ratios and ROE for the study period from 2000-01 to 2009-10. The study concludes that the company has higher operating risk as compared to financial risk throughout the entire study period.
Sarkar (2012) studies the impact of total cost management on financial performance of selected public sector oil and gas companies in India during the study period from 2000-01 to 2009-10. For analysis and interpretation of data, he has used rank correlation analysis between CATA and return on capital employed (ROCE) and correlation analysis between the ratios of selected elements of cost to total cost and ROCE during the selected study period. The study of rank correlation analysis establishes that there is a high degree of positive association between CATA and ROCE for ONGC during the selected study period. Out of the six selected companies, liquidity management of ONGC has a significant influence on its overall profitability, but liquidity management of other studying companies have no significant contributions towards their overall profitability during the period under study. The study of impact of TCM on financial performance showed both positive and negative associations with the profitability ratio. Out of the six selected companies, SACTC of OIL has significant contribution towards its overall financial performance both at 1% and 5% significance levels and SACTC of BPCL has significant contribution towards its overall financial performance at 5% level of significance during the given study period.

Sarkar (2013) made an attempt to measure and comparative analysis of DOL, DFL, Financial Break-Even Point and DTL of the selected two public sector oil and gas companies in India viz. ONGC and IOCL during the study period from 1999-2000 to 2008-09. The study revealed that the company IOCL has the higher values of DOL, DFL, Financial Break-even Point and DTL as compared to those of ONGC for the given study period. The study suggests that ONGC may use more amount of external capital in its capital structure in future after incorporating other factors of setting the optimal capital structure of a firm to sustain and grow in the present competitive and changing environment.

Sarkar and Sarkar (2013) examine the impact of working capital management on corporate performance of selected public sector oil and gas companies in India during the study period of 10 years (i.e., from 2000-01 to 2009-10). It also made an endeavour to measure the degrees of associations between the measure of profitability i.e., ROCE and the selected ratios relating to working capital management of the selected companies during the given study period. A comparative analysis had been done to adjudge the better performing company and to identify the causes of better performance. An attempt had also been undertaken for measuring
the sensitivity of return on capital employed of changes in the level of working capital. The study concludes that the associations between ROE and PI, UI and EI have registered both positive and negative relationships, but these associations are not statistically significant both at 5% and 1% levels of significance with 8 d.f. during the given study period.

**Sarkar and Sarkar (2013)** analyze the capital structure, leverage and financing decision of selected public sector oil and gas companies in India during the study period from 2000-01 to 2009-10. An endeavour has been made to throw some light on the business risk, financial risk, total risk and financial break-even point by means of assessing the degrees of associations between DOL, DFL and DTL and ROE of the selected companies under study during the study period. The study highlights that IOCL, BPCL and HPCL have higher the DOL and DFL during the entire study period. The study suggests that OIL and ONGC may employ additional amount of external capital in their capital structure in future as a result the earnings after tax can be enriched as the rewards to the external fund providers are tax deductible expenditure.
2.3 **Identification of Research Gap:**

After a careful and thorough review of literature the following research gaps have been identified:

1. Computation and analysis can be done on the capital structure and leverage ratios viz. DOL, DFL, financial BEP and DTL of public sector oil and gas companies in India. Suggestions can be forwarded regarding the proportion of external capital to total capital in the capital structure of the selected public sector oil and gas companies in India. Long-term solvency position can be judged and ranks can be assigned by considering long-term solvency indicating parameters of the public sector oil and gas companies in India.

2. Measurement and comparative analysis of liquidity positions can be undertaken for the public sector oil and gas companies in India.

3. Contribution to the Government Exchequer, internal resource generation, value addition, etc. by the public sector oil and gas companies in India can be computed and analyzed. Ranks to the public sector oil and gas companies in India can be assigned on the basis of the performance of some value added ratios.

4. Identification can be done regarding the factors that account for the high/low profitability of the public sector oil and gas companies in India and analysis of their impact on the overall financial performance can be done according to the requirement of the study.

5. Efficiency of asset management of the public sector oil and gas companies in India can be judged through introducing some asset management indicators.

6. Impact of total cost management on financial performance of the public sector oil and gas companies in India can be adjudged.
7. Comparative analysis can be done regarding the overall financial performance of the public sector oil and gas companies in India.

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