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A STUDY ON RISK ANALYSIS OF OIL DEPOT

(With reference to Hindustan Petroleum Oil Depot, New Delhi)

BY

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Further, I certify that the work is based on the investigation made, data collected and analyzed by him and it has not been submitted in any other university or institution for award of any degree. In my opinion it is fully adequate in scope and utility, as a dissertation towards partial fulfillment for award of degree of MBA.

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ABSTRACT

Hindustan Petroleum Corporation Limited (HPCL) intends to conduct Risk Analysis study for their proposed Bunkering Facility at oil depot to assess the risk associated with loss of containment of the products to be stored. This scope was awarded to engineering and accordingly risk analysis and quantitative risk assessment study has been carried out to provide a better understanding of the risk posed to the plant and surrounding population.

Risk is often defined as a function of the likelihood that a specified undesired event will occur, and the severity of the consequences of that event. Risk is derived from the product of likelihood and potential consequence. Risk in general is a measure of potential economic loss or human injury in terms of the probability of the loss or injury occurring and magnitude of the loss or injury if it occurs.

Petroleum is natural resource which is not in abundance form, but the demand for petroleum product is increasing day by day. The demand for oil has increased with a very fast pace in the last few years. The government is looking for profitability and rate of oil prices. In the present scenario the government enterprises are facing financial distress and the Government has intense desire for privatization of the PSUs. In the current scenario the analysis of financial performance has reached its zenith.

Therefore, with the help of the analysis of the financial performance, we can protect the organization from privatization, risk and uncertainties for the smooth functioning of the organization. The Hindustan Petroleum Corporation Limited is one of the leading corporations of the petroleum industry in the present time. It plays a significant role in the economic and social development of the country. The researcher would like to conduct a study on the financial aspects of petroleum industry with reference to Hindustan Petroleum Corporation Limited. The main area of concern for the researcher is to evaluate the functioning, practices and financial matters of the company in detail.

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CHAPTER 1

INTRODUCTION

1.1 PROBLEM STATEMENT

The oil depot in New Delhi is one of the oil depots of HPCL and serves today as a storage and distribution depot for petroleum products. The depot has been considered a threat to nearby population and surroundings for some years now, without those opposed providing any strong arguments against it in the form of risk analysis. Because of that it was considered of interest to estimate the scale of the threat and to get a better understanding of the risk. Risks in transportation of the fuel outside the operation area are also partially accounted for and would be discussed, since much fuel is transported to different locations. Fire and the resulting smoke are considered the largest threat for the operation in the depot. Leakages at the gasoline rack and overfilling of the trucks are far too common. The energy release can be enormous for some of the scenarios considered and in cases of fires in some of the storage tanks, extinguishing them will certainly be a challenge for Hindustan Petroleum Corporation and demands much manpower, equipment, good knowledge and well organized plans, water availability and foam.

1.2 NEED FOR THE STUDY

Risk and uncertainty analysis are one of major concern in decision-making process to select the 'good' management. This analysis is required to refine all benefit and potential downside of each scenario in petroleum industry as the decision maker consideration will rely on information from the analysis. Therefore, appropriate risk and uncertainty analysis is required to perform in order to have broad picture of the decision problem. Because of the short distance from residential homes the activity in HPCL oil deport in Delhi has been considered dangerous, but exactly how dangerous no one knows. Land for housing in near the oil depot considered a problem. It is of interest to calculate the scale of the threat in quantitative terms and help people understand if the depot is really causing any significant threat or not, and if it is – to which degree. This dissertation will review the current practice approach, identify the limitations, and proposed more appropriate approach of risk and uncertainty analysis in Oil depot.

1.3 OBJECTIVE FOR THE STUDY

The objective of the thesis is to estimate the risk of the activity and the location of the Hindustan Petroleum Corporation's oil depot in New Delhi, to its nearby population. The thesis will consider possible risks from the oil depot itself, today, in relation to health and safety. Individual and societal risk will be shown for the people living near the depot and/or the people working there. One of the objectives is to suggest strategies to reduce the risks to as low as reasonably practical (ALARP), after they have been identified. If the depot is creating too much risk for the nearby population a comparison of moving the depot to another location situated further away from the city will be considered to see if those possible risks or consequences of them will decrease. Transportation of the fuel from the depot through the city will be discussed in an attempt to see if other depot locations or strategies can lessen the risk involved.

1.4 RISK ANALYSIS

Risk analysis is the process of identifying and analyzing potential issues that could negatively impact key business activities or critical projects so as to enable organizations to avoid or mitigate those risks.

Risk analysis is the process of evaluating the likelihood of an adverse occasion occurring inside the corporate, government, or environmental sector. Risk analysis is the study of the underlying vulnerability of a given game-plan and alludes to the vulnerability of forecasted income streams, difference of portfolio/stock returns, the likelihood of a project's success or failure, and possible future economic states. Risk examiners frequently work pair with forecasting professionals to limit future negative unanticipated effects.

Performing a risk analysis incorporates considering the likelihood of adverse events brought about by either natural processes, as serious storms, earthquakes or floods, or adverse events brought about by malicious or coincidental human activities; a vital piece of risk analysis is identifying the potential for harm from these events, just as the likelihood that they will occur.

Enterprises and different organizations use risk analysis to:

- anticipate and diminish the impact of harmful results from adverse events;
- evaluate whether the potential risks of a project are adjusted by its benefits to help in the decision process while assessing whether to push ahead with the project;
- plan reactions for innovation or gear failure or misfortune from adverse events, both natural and human-caused; and
- Identify the impact of and plan for changes in the undertaking condition, including the likelihood of new competitors entering the market or changes to government regulatory policy.

1.5 BENEFITS OF RISK ANALYSIS

Organizations must understand the risks associated with the utilization of their information systems to effectively and efficiently secure their information assets.

Risk analysis can enable an organization to improve its security in various ways. Contingent upon the type and degree of the risk analysis, organizations can utilize the results to help:

- identify, rate and contrast the general impact of risks with the organization, in terms of both financial and organizational impacts;
- identify gaps in security and decide the subsequent stages to dispose of the weaknesses and strengthen security;
- enhance communication and decision-making processes as they identify with information security;
- improve security policies and procedures and create financially savvy methods for implementing these information security policies and procedures;
- put security controls set up to mitigate the most important risks;
- increase employee awareness about security measures and risks by highlighting best works on amid the risk analysis process; and
- Understand the financial impacts of potential security risks.
- Done well, risk analysis is an important tool for overseeing costs associated with risks, just as for helping an organization's decision-making process.

1.6 STEPS IN RISK ANALYSIS PROCESS

The risk analysis process usually follows these basic steps:

Conduct a risk assessment survey: This first step, getting input from management and department heads, is critical to the risk assessment process. The risk assessment survey is an approach to start documenting explicit risks or dangers inside every department.

Identify the risks: The purpose behind performing risk assessment is to evaluate an IT framework or other part of the organization and afterward ask: What are the risks to the software, hardware, data and IT employees? What are the possible adverse events that could occur, for example, human error, fire, flooding or earthquakes? What is the potential that the trustworthiness of the framework will be undermined or that it won't be available?

Examine the risks: Once the risks are distinguished, the risk analysis process ought to decide the likelihood that each risk will occur, just as the outcomes connected to each risk and how they may influence the goals of a project.

Build up a risk management plan: Based on an analysis of which assets are important and which dangers will presumably influence those assets negatively, the risk analysis should create control recommendations that can be utilized to mitigate, exchange, acknowledge or avoid the risk.

Implement the risk management plan: a definitive objective of risk assessment is to implement measures to expel or lessen the risks. Beginning with the highest-need risk, resolve or if nothing else mitigate each risk so it's never again a danger.

Screen the risks: The progressing process of identifying, treating and overseeing risks ought to be an important piece of any risk analysis process.

The focal point of the analysis, just as the arrangement of the results, will differ contingent upon the type of risk analysis being done.

Qualitative versus quantitative risk analysis

The two fundamental ways to deal with risk analysis are qualitative and quantitative. Qualitative risk analysis normally implies evaluating the likelihood that a risk will occur dependent on subjective characteristics and the impact it could have on an organization utilizing predefined positioning scales. The impact of risks is frequently categorized into

three levels: low, medium or high. The probability that a risk will occur can likewise be expressed a similar way or categorized as the likelihood it will occur, running from 0% to 100%.

1.7 UNDERSTANDING RISK ANALYSIS

A risk analyst begins by identifying what could turn out badly. The negative events that could occur are then weighed against a probability metric to measure the likelihood of the occasion occurring. At last, risk analysis endeavors to estimate the degree of the impact that will be made whether the occasion occurs.

Quantitative Risk Analysis

Risk analysis can be quantitative or qualitative. Under quantitative risk analysis, a risk model is assembled utilizing simulation or deterministic statistics to appoint numerical values to risk. Inputs which are for the most part presumptions and random variables are bolstered into a risk model. For some random scope of input, the model generates a scope of yield or result. The model is investigated utilizing charts, scenario analysis, as well as sensitivity analysis by risk managers to settle on decisions to mitigate and manage the risks.

A Monte Carlo simulation can be utilized to create a scope of possible outcomes of a decision made or action taken. The simulation is a quantitative technique that calculates results for the random input variables over and over, utilizing a different arrangement of input values each time. The subsequent result from each input is recorded, and the last consequence of the model is a probability distribution of every possible result. The outcomes can be abridged on a distribution diagram demonstrating a few measures of focal propensity, for example, the mean and middle, and evaluating inconstancy of the data through standard deviation and variance.

The outcomes can likewise be evaluated utilizing risk management tools, for example, scenario analysis and sensitivity tables. A scenario analysis demonstrates the best, middle, and worst result of any occasion. Isolating the different outcomes from best to worst gives a sensible spread of knowledge for a risk supervisor. For example, an American Company that works on a global scale should need to know how its primary concern would charge if the exchange rate of select countries strengthens. A sensitivity table shows how outcomes shift when at least one random variables or suspicions are changed. A portfolio supervisor may utilize a sensitivity table to survey how changes to the different values of every security in a

portfolio will impact the variance of the portfolio. Different types of risk management tools incorporate decision trees and earn back the original investment analysis.

Qualitative Risk Analysis

Qualitative risk analysis is an explanatory technique that does not identify and evaluate risks with numerical and quantitative appraisals. Qualitative analysis includes a written meaning of the vulnerabilities, an evaluation of the degree of impact if the risk results, and countermeasure designs on account of a negative occasion occurring. Examples of qualitative risk tools incorporate SWOT Analysis, Cause and Effect diagrams, Decision Matrix, Game Theory, and so forth. A firm that needs to measure the impact of a security breach on its servers may utilize a qualitative risk technique to help set it up for any lost income that may occur from a data breach.

While most investors are worried about downside risk, mathematically, risk is the variance both to the downside and the upside.

Practically a wide range of extensive businesses require a base kind of risk analysis. For example, commercial banks need to appropriately support foreign exchange introduction of overseas advances while substantial department stores must factor in the likelihood of decreased incomes because of a global recession. Know that risk analysis enables professionals to identify and mitigate risks, however not avoid them completely.

Example of Risk Analysis: Value at Risk (VaR)

Value at risk (VaR) is a measurement that measures and evaluates the dimension of financial risk inside a firm, portfolio, or position over a particular time frame. This metric is most generally utilized by investment and commercial banks to decide the degree and occurrence ratio of potential losses in their institutional portfolios. Risk managers use VaR to measure and control the dimension of risk introduction. One can apply VaR calculations to explicit positions or entire portfolios or to measure firm-wide risk presentation.

The verifiable technique for ascertaining VaR essentially re-arranges and analyzes real authentic returns, placing them all together from worst to best. It at that point assumes that history will rehash itself, from a risk viewpoint. As a verifiable example, how about we take a gander at the Nasdaq 100 ETF, which exchanges under the image QQQ (sometimes called the "3D squares"), and which began exchanging March of 1999. In the event that we

calculate every day by day return, we produce a rich data set of in excess of 1,400 points. We should place them in a histogram that looks at the frequency of return "buckets." For example, at the highest point of the histogram (the highest bar), there were over 250 days when the everyday return was somewhere in the range of 0% and 1%. At the extreme right, you can scarcely observe a small bar at 13%; it speaks to the one single day (in Jan 2000) inside a time of five or more years when the day by day return for the QQQ was a staggering 12.4%.

Notice the red bars that create the "left tail" of the histogram. These are the most minimal 5% of day by day returns (since the returns are requested from left to right, the worst are always the "left tail"). The red bars keep running from day by day losses of 4% to 8%. Since these are the worst 5% of every single day by day return, we can say with 95% confidence that the worst day by day loss won't surpass 4%. Put another way, we expect with 95% confidence that our increase will surpass - 4%. That is VAR in a nutshell. Allows re-express the measurement into both rate and dollar terms:

- With 95% confidence, we expect that our worst every day loss won't surpass 4%.
- On the off chance that we invest $100, we are 95% sure that our worst day by day loss won't surpass $4 ($100 x - 4%).

You can see that VAR in reality takes into account a result that is more awful than an arrival of - 4%. It doesn't express outright sureness yet rather makes a probabilistic estimate. On the off chance that we need to build our confidence, we need just to "move to one side" on a similar histogram, to where the first two red bars, at - 8% and - 7% speak to the worst 1% of day by day returns:

- With 99% confidence, we expect that the worst day by day loss won't surpass 7%.
- Or on the other hand, in the event that we invest $100, we are 99% sure that our worst day by day loss won't surpass $7.

Limitations of Risk Analysis

Risk is a probabilistic measure thus can never let you know without a doubt what your exact risk introduction is at a given time, just what the distribution of possible losses are probably going to be if and when they occur. There are likewise no standard methods for ascertaining and analyzing risk, and even VaR can have a few different ways of approaching the task.

Risk is regularly expected to occur utilizing normal distribution probabilities, which in actuality once in a while occur and can't represent extraordinary or 'black swan' events.

The financial crisis of 2008 that uncovered these problems as moderately considerate VaR calculations downplayed the potential occurrence of risk events presented by portfolios of subprime mortgages. Risk size was likewise underestimated, which brought about extraordinary influence ratios inside subprime portfolios. Accordingly, the underestimations of occurrence and risk size left foundations unfit to cover billions of dollars in losses as subprime mortgage values collapsed.

1.8 OIL DEPOT

An oil depot (sometimes called a tank farm, tankfarm, establishment or oil terminal) is a mechanical facility for the storage of oil and additionally petrochemical products and from which these products are typically transported to end clients or further storage facilities. An oil depot regularly has tankage, either over the ground or subterranean, and gantries (framework) for the discharge of products into street tankers or different vehicles, (for example, barges) or pipelines.

Oil depots are generally arranged near oil refineries or in areas where marine tankers containing products can discharge their payload. A few depots are joined to pipelines from

which they draw their provisions and depots can likewise be nourished by rail, by canal boat and by street tanker (sometimes known as "spanning").

Most oil depots have street tankers working from their grounds and these vehicles transport products to oil stations or different clients.

An oil depot is a nearly unsophisticated facility in that (as a rule) there is no processing or other transformation on location. The products which achieve the depot (from a refinery) are in their last structure suitable for conveyance to customers. Now and again added substances might be infused into products in tanks; however there is typically no manufacturing plant nearby. Present day depots include similar types of tankage, pipelines and gantries as those in the past and despite the fact that there is a more prominent degree of automation on location, there have been not many critical changes in depot operational activities after some time.

1.9 HEALTH, SAFETY AND ENVIRONMENT

One of the key objectives is Health, Safety and Environment (HSE) and the operators of a depot must guarantee that products are securely stored and handled. There must be no leakages (and so on.) which could damage the soil or the water table. Fire protection is an essential consideration, particularly for the more flammable products, for example, oil (gas) and Aviation Fuel.

Ownership

The ownership of oil depots falls into three principle classifications:

- Single oil company ownership. When one company claims and works a depot all alone benefit.
- Joint or consortium ownership, where at least two organizations claim a depot together and share its working expenses.
- Independent ownership, where a depot is possessed not by an oil company but rather by a different business which charges oil organizations (and others) an expense to store and handle products. The Royal Vopak from the Netherlands is the biggest autonomous terminal administrator with 80 terminals in 30 countries.

In all cases the proprietors may likewise give "cordiality" or "get rights" at the facility to different organizations

Airports

Most airports additionally have their own committed oil depots (as a rule called "fuel farms") where aviation fuel (Jet an or 100LL) is stored proceeding being discharged into aircraft fuel tanks. Fuel is transported from the depot to the aircraft either by street tanker or by means of a hydrant framework. The world's third biggest oil customer had national reserves of 113 days of oil request under the government's storage and 85 days held by the private sector toward the finish of December 2010. In this regard, the all out oil stored in Japan in December remained at 587.4 million barrels. Japan requires the private sector to hold 70 days as oil reserves, yet is making the period shorter by three days to 67 days. Accordingly it will permit oil organizations to discharge 8.9 million barrels of unrefined petroleum from mandatory stockpiles.

1.10 STRATEGIC PETROLEUM RESERVE (INDIA)

Indian Strategic Petroleum Reserves Limited (ISPRL) is an Indian company in charge of maintaining the nation's strategic oil reserves. ISPRL is an entirely claimed backup of the Oil Industry Development Board (OIDB), which works under the administrative control of the Ministry of Petroleum and Natural Gas.

ISPRL keeps up a crisis fuel store of absolute 5.33 MMT (million metric tons) or 36.92 MMbbl of strategic unrefined petroleum enough to give 10 days of utilization Strategic raw petroleum storages are at three underground areas in Mangalore, Visakhapatnam and Padur (Udupi, Karnataka). All these are situated on the east and west shorelines of India which are promptly open to the refineries. These strategic storages are notwithstanding the current storages of raw petroleum and oil based goods with the oil organizations and serve in light of outside supply interruptions.

Expansion

In the 2017-18 budget speech by the Indian fund serve Arun Jaitley, it was declared that two all the more such natural hollows will be set up Chandikhole in Jajpur locale of Odisha and Bikaner in Rajasthan as a component of the second phase. This will take the strategic reserve ability to 15.33 million tons. Aside from this, India is planning to extend increasingly strategic unrefined petroleum facilities in second phase at Rajkot in Gujarat and Padur in Udupi locale of Karnataka.

CHAPTER 2

LITERATURE REVIEW

2.1 OIL INDUSTRY IN INDIA

After the Indian Independence, the Oil Industry in India was a little one in size and Oil was delivered fundamentally from Assam and the aggregate sum of Oil production was not in excess of 25,000 tons for each year. This little measure of production made the oil specialists from different countries anticipate the future of the oil industry as a dull one and furthermore questioned India's capacity to look for new oil reserves. Be that as it may, the Government of India announced the Oil industry in India as the center sector industry under the Industrial Policy Resolution bill in the year 1954, which helped the Oil Industry in India incomprehensibly.

Oil exploration and production in India is finished by companies like NOC or National Oil Corporation, ONGC or Oil and Natural Gas Corporation and Oil who are really the oil companies in India that are possessed by the government under the Industrial Policy Rule. The National Oil Corporation amid the 1970s used to deliver and supply more than 70 percent of the household requirement for the oil however before the finish of this sum dropped to close around 35 percent. This was on the grounds that the interest from one viewpoint was expanding at a decent rate and the production was declining at a consistent rate. Oil industry in India amid the year 2004-2005 satisfied the greater part of interest through bringing in oil from various oil delivering countries.

The Oil Industry in India produces almost 35 million metric huge amounts of Oil from the year 2001-2005. The Import that is finished by the Oil Industry in India comes generally from the Middle East Asia. The Oil that is created by the Oil Industry in India gives more than 35 percent of the vitality that is primarily devoured by the general population of India. This sum is relied upon to become further with both economic and generally speaking development in terms of production just as rate. The interest for oil is anticipated to run higher and higher as time passes and is relied upon to achieve a measure of about 250 million metric ton constantly 2024.

2.2 PETROLEUM AND ITS PRODUCTS

At the point when first acquired starting from the earliest stage, refining in at any rate, oil (shake oil) it's designated "Unrefined petroleum". It once in a while shows up at the 50 surface of the earth through leakage; it as a rule occurs at moderate profundities; and at times it must be short by drill gaps over a mile down. At the point when such a drill entire achieves an oil bowl, the oil is habitually constrained out under huge weights; gas, salty water, and sand more often than not accompany the oil. After a period which fluctuates extensively, the flow ends up calmer; after certain months it doesn't spout at all and the oil must be siphoned out; at last, no oil is acquired even by siphoning the well is dry. New wells are in this manner continually being looked for.

The oil miner picks land having and subsoil which has attributes demonstrating petroliferous strata; these trademark shift in different fields, and for no situation is it certain that a drill opening will each oil. The scan for oil is enhanced by incidental revelations, over the span of penetrating for water, for example, where natural gas occurs it is sensible to prospect for oil; it is in no way, shape or form sure that oil will be found, however since oil comprise of a blend of hydro-carbons, the lighter once, for example, methane, CH4, and methane, C2H6, may have gotten away, to some degree, living the primary group of liquids and solids not extremely far away. The heaviest hydro-carbons, starting, for example, with eiscosane, C2OH42, which, liquefies at blood temperature, are strong; the middle of the road once are liquid.

2.3 REVIEW OF 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, at that point 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 coordinated refining and marketing oil company in India. It is an uber Public Sector Undertaking (PSU) with Navratna status. The corporation accounts 10.3% of the countries' refining limit with two beach front refineries in West and East expenses. The West coast at Mumbai having a limit of 5.5 MMTPA and the other East Coast in Vishakhapatnam with a limit of 7.5 MMTPA. HPCL additionally possesses and works the nation's biggest Lube Refinery, delivering Lube Base Oils (LOB) of international standards. With a limit of 335,000 Metric Tons.

This refinery represents over 40% of the nation's absolute Lube Base Oil production. Add to this, HPCL have a joint endeavor refinery at Mangalore, two cross-country pipelines and a broad system of terminals, depots, packaging plants and aviation overhauling facilities. The Caltex undertaking was nationalized in the year 1976, which were hence converged with the company in the year 1978. In the next year, the endeavors of Kosan Gas Company, the concessionaires of HPCL in the household LPG market, was converged with the company. The 'Master Gobind Singh Refineries' was incorporated on December 2000 as a completely claimed backup of the company. The company has finished the Rs.378 crore pipeline projects from Vijayawada to Secunderabad, which was appointed on March 2002. The new LPG Bottling plant at a limit 44 TMTPA was set up in Kota. The company has implemented 15 company tank trucks in the year 2004.

Amid the year 2004-2005 the company has finished its development of another grassroots depot at Aonla, Bareilly and Uttar Pradesh with all out expense of Rs.10.25 crores. The company has likewise finished its development of another new grassroots depot at Ramagundam, Andhra Pradesh at all out expense of Rs.11.47 crores. The depot has 7974 KL tankage for MS, HSD and SKO together with item receipt through railroad tank wagons from Vijayawada terminal. Further the company has charged an aggregate of 13100 KL extra tankage at different locations amid the year.

The company has marked its retail outlets under the name 'CLUB HP' and furthermore launched 'Turbojet' marked diesel and the 'Power' marked petroleum in India. Amid the year 2005-2006, the company's Mumbai Refinery has attempted uber project at an endorsed expense of Rs.1850 crores to meet the MS/HSD of EURO-II grade in Metro/Mega urban communities and Bharat organize II grade in the remainder of the nation and the Visaki Refinery has embraced Clean Fuel Project at an affirmed expense of Rs.2147.8 crores to meet in the MS/HSD of Euro - III evaluation in Metro-Mega urban communities and Bharat-III evaluation in the remainder of the nation.

The company authorized 647 Retail Outlets amid the year 2005-06. HPCL got Golden Peacock Award for Excellence in Corporate Governance for the year 2003, 2006 and furthermore 2007. The company has been granted Forecourt Retailer of the year 2007 Award for the second back to back year from 2006. CIO 100 honor has been organized in India since 2006. HPCL was the beneficiary of this honor in the debut year as well. 'CIO 100 Award 2007' was presented on HPCL for 'Project Parivarthan' and 'ENCON Award 2007' through

Visakh Refinery, stowed the desired First Prize for Energy Conservation in Petroleum Refining Sector for the year 2007 given by Bureau of Energy proficiency, Ministry of Power, Govt. of India.

Pany (1991) has tried to identify factors which impact corporate economic execution. Important modern attributes which have been utilized by mechanical organization specialists as the determinants of financial execution are concentration, market share, industry development, innovative work use, notice power, and size of firms in the industry. These attributes may enable firms to be in a superior position to implement their procedures successfully and benefit. Therefore, firms may ponder better execution record of ideal modern qualities.

Jagan Mohan Rao (1993) in 'Financial examination of Indian Automotive Tire Industry' contemplated the financial evaluation of Indian car tire industry. The study was planned to test into the financial condition-financial quality and shortcoming of the Indian tire industry. To this end an unassuming endeavor has been made to measure and evaluate the financial execution through between company and between sectorial analysis over a given timeframe (1981-1988). The primary discoveries are that fixed assets use in a significant number of the tire endeavors was not as profitable not surprisingly and stock was overseen genuinely well. The tire industry's general benefit execution was exposed to irregularity and incapable.

Kallu Rao (1993) has influenced a study to bury company financial analysis of tea industry-review and prospect. An endeavor has been made in this study to examine the important variables of tea industry and projected future patterns in regards to deals and benefit for the following multiyear time spans, so as to help the policy producers to take proper decisions. Different financial ratios have been calculated for analyzing the financial health of the industry. The gauge of offers and benefits of tea manufacturing companies demonstrates that the Indian tea industry has brilliant prospects. The ongoing changes in the Indian economic policies will support up the foreign exchange profit, which will profit those companies, which are trading to hard cash zones.

Vijayakumar and Venkatachalam (1995) in 'Working Capital and Profitability - An Empirical Analysis' concentrated the impact of working capital on productivity in sugar industry of Tamil Nadu by choosing an example of 13 companies; 6 companies in co-employable sector and 7 companies in private sector over the period 1982-83 to 1991-92. They connected basic relationship and various relapse analysis on working capital and gainfulness rations. They

closed through connection and relapse analysis that liquid ratio, stock turnover ratio, receivables turnover ratio and money turnover ratio had impacted the benefit of sugar industry in Tamil Nadu.

Pai, Vadivel and Kamal (1995) contemplated the differentiated companies and financial execution: A study. An exertion was made to study the connection between differentiated firms and their financial execution. Seven extensive firms having different products-both related and something else in their portfolio and working in various enterprises were examined. A lot of exhibition measures/rations and utilized to decide the dimension of financial execution. The results uncover that the enhanced firms contemplated have been healthy financial execution. Nonetheless, variety in execution starting with one firm then onto the next has been watched and factually settled.

Vijayakumar (1996) in 'Assessment of Corporate Liquidity – a segregate analysis approach' has uncovered that the development rate of offers, influence, current ratio, working costs to deals and vertical integration are the important variables which decide the gainfulness of companies in the sugar industry. Further, the creator has examined the momentary liquidity position in twenty-eight chose sugar manufacturing plants in co-employable and private sectors. A segregate analysis has been attempted to recognize the great risk companies from poor risk companies dependent on current and liquidity rations. Separating 'Z' scores have been calculated with the assistance of segregate capacity and as per the 'Z' scores the companies are positioned in the request of liquidity.

Key Sengupta (1998) contemplated the execution of the manures industry in India. Analysis of cost capacities and cobb-Douglas production work has been made to study the execution of the industry, the results of which uncover that the industry is liable to the law of expanding costs. The discoveries get further help from the examination of the production work, which uncovers that the normal efficiency of work surpasses its minor profitability. Analysis of moving cost works further highlight that the organizations having a place with this industry grow limits, even before completely abusing the current limit adjusting to the oligopolistic social inclination of the organizations having a place with the composts industry.

Sidhu and Gurpreet Bhatia (1998) examined the variables influencing gainfulness in Indian material industry. In this study an endeavor was made to identify the significant determinants of benefit in Indian material industry with the assistance of observational data taken from Bombay Stock Exchange Directory for the year 1983. To discover the components

influencing productivity, relapse analysis had been connected. From the analysis, there was no obvious connection between current gainfulness and capital power. The age of the firm was having commonly negative however factually irrelevant association with current benefit which points towards the reality firms in Indian material industry are supreme and need modernization.

Vijayakumar (1998) has inspected the determinants of corporate size, development and benefit - the Indian experience. To meet the goals of the study, Indian open sector ventures were chosen. The date identifying with size, development and gainfulness were gathered from their yearly reports distributed by the Bureau of Public Enterprises (BPE), Government of India. The study covers the period from 1980-81 to 1995-96. The technique of normal, connection and direct and straight and different relapse analysis has been utilized in this study. Entomb - industry analysis uncovers that the development is emphatically and essentially associated with the size in all the industry bunches aside from materials.

VishnuKanta Purohit (1998) in 'Benefit in Indian Industries: An analysis of firm size and productivity' inspected the connection among size and gainfulness in Indian businesses. The study highlights the accompanying two regular ends. Firstly, however the normal benefit of firms does not appear to differ altogether with their size and the fluctuation of benefit rates decreases with size. Secondly, the normal development rates of firms don't appear to change essentially with their size however the changeability of development rates as it were. The study further investigates the variables that decide benefit. Other than the size, the model additionally tests for the impact of age of the firm and development in deals on benefit at both smaller scale and full scale levels. The study infers that the chose ventures and firms have tried endeavors to build benefit through different methods incorporating increment in size through broadening and moving into higher innovation.

Govinda Rao and Mohana Rao (1999) in 'Impact of working capital on productivity in concrete industry – A connection analysis', investigate the impact of gainfulness on working capital in bond mechanical units in India. Ten variables on working capital ratios have a nearby interaction with gainfulness measures viz., current ratio, obligation value ratio, money position ratio, working capital turnover ratio, stock turnover ratio, borrowers turnover ratio, money turnover ratio, current assets turnover ratio and normal accumulation period are chosen for analysis. The between relationship are to be contemplated with the assistance of Karl-Pearson's co-productive of connection technique, by orchestrating the connection of one

variable with one another variable as lattices which are a triangular and symmetrical about the key corner to corner. On by and large premise out of 10 variables with PBDIT, 3 variables demonstrated a huge co-productive and seven showed immaterial connections. Out of the 10 variables, 5 variables demonstrated negative affiliation which the others indicated positive connections.

Raghunathan and Prabina Das (1999) have made a study of the corporate execution of post-Liberalization. In this study, they investigated the execution of Indian manufacturing sector over the most recent a long time since progression on the parameters of gainfulness, liquidity, influence and dissolvability. While the dissolvability and productivity ratios were empowering till 1996 they have been bit by bit lessening after that. This issue gets increasingly articulated when the EVA is calculated which demonstrates that the Indian Manufacturing sector has devastated riches, while the MNCs have produced riches for their investors. The study points that poor corporate execution has prompted an economic log jam and not the other route round. Corporate raised assets amid the blacken days of value markets and wound up investing these assets at beneath their expense of capital. The result has been a delayed economic log jam.

Rajeswari (2000) examined the Liquidity Management of Tamil Nadu Cement Corporation Ltd.Alangulam-A Case Study. It tends to be closed from the analysis; the liquidity position of TANCEM isn't stable. As to rations, there was a lot of liquidity in the first two years of the study time frame. An extremely high degree of liquidity is additionally awful as inert assets gain nothing and influences gainfulness. It very well may be inferred that the liquidity management of TANCEM is poor and isn't agreeable.

Aggarwal and Single (2001) in their study built up a solitary list of financial execution through the technique of Multiple Discriminate Analysis (MDA), They endeavor to personality from among the 11 ratios, utilized as inputs, those ratios, which are important in recognize benefit making units and loss making units in Indian paper industry. The study shows that model has accurately ordered 82.14 percent of units chose as benefit making and loss stamping. The study additionally demonstrates that stock turnover ratio, premium inclusion ratio, net benefit to add up to assets and acquiring per share are the most important markers of financial execution. The study likewise proposes that the results of MDA can be utilized as indicator of future benefit/affliction.

Dabasish Sur (2001) Studies the Liquidity Management: A review of four companies in Indian Power Sector. In this study a Comparative analysis in regards to the liquidity management in Electricity generation and distribution industry has been made for the period 1987-88 to 1996-97. The study uncovers that the general liquidity ought to be overseen so that it ought not to hamper benefit as well as its commitment towards increment in productivity should be certain.

Mansur A. Mulla (2002) in 'Utilization of 'Z' score analysis for evaluation of financial health of material plants - A contextual analysis' has been made and understanding into the financial health of Shri Venkatesh Co-usable Textile Mills Ltd., Arunageri of Dharwad District. The 'Z' score analysis has been connected to evaluate the general pattern in financial health of a firm over a period by utilizing a large number of the bookkeeping ratios. From the study it was inferred that the materials plant under study was simply nearly financial breakdown. From one perspective, current assets declined as a result of the negative gainfulness execution; while then again, the present liabilities were on the expansion as a result of poor liquidity execution of the plant.

Vijayakumar (2002) in "Determinants of Profitability-A firm dimension study of the Sugar Industry of Tamil Nadu", dove into the different determinants of productivity viz., development rate of offers, vertical integration and influence. Aside from these three variables, he had chosen current ratio, working costs to deals ratio and stock turnover ratio. Economic models were utilized to test the different speculations identifying with productivity execution; while then again, the present liabilities were on the expansion due to poor liquidity execution of the factory.

Vijayakumar (2002) in his study 'Financial examination of Salem Co-employable Sugar Mills Ltd, Mohanur' investigated the different parts of the working of Salem Co-usable Sugar Mills Ltd, Mohanur. Financial examination has been contemplated regarding benefit, capital structure, fixed assets and working capital. The analyst's fundamental finding is about the Mill's over dependence on outer subsidizes which results in intrigue trouble. It is sure that the Mill will have better degree to work in a productive way if the proprietor's assets are expanded and the obtaining are diminished.

Vijayakumar and Kadirvel (2003) examined the determinants of benefit of Indian Public Sector Manufacturing Industries-An Econometric analysis. It is clear from the results that age is the most grounded determinant of benefit pursued by the variables vertical integration,

influence, measure, current ratio, stock turnover ratio, working costs to deals ratio and development rate. The chose variables have both positive and negative commitment in variety of benefit rate. In a nutshell, it very well may be inferred that organizations ought to think about all these possible determinants while thinking about its gainfulness.

Vijayakumar and Kadirvel (2003) contemplated the gainfulness and size of firm in Indian Minerals and Metals industry. For the most part, it is recommended that the bigger the firm might be in a situation to win a higher rate of profit for its investment that the littler firm. Likewise, a counter contention is that measure breed's wastefulness and consequently benefit may decay with size of firms. Along these lines, they locate that some hypothetical contentions propose that benefit should increment with the firm size, others recommend a negative relationship. It is in perspective on these conflicting proposals, that it ends up important to study the connection among size and productivity of the organizations. For this reason, Indian open sector minerals and metals industry has been chosen. They study uncovers that measure is observed to be essentially associated with the productivity amid the study time frame. It is likewise obvious from the analysis that estimate is decidedly associated with the gainfulness. Subsequently, bigger firm might be in a situation to acquire higher rate of degree of profitability through enhancement and moving into higher innovation.

Sudarsana Reddy (2003) considered the Financial Performance of Paper industry in AP. The primary destinations set for the study are to evaluate the financing methods and practices to examine the investment example and use of fixed assets, to determine the working capital condition, to audit the productivity execution and to recommend measures to improve the gainfulness. The data gathered have been analyzed through ratios, pattern, regular size, similar financial proclamation analysis and factual tests have been connected in proper setting. The primary discoveries of the study are that A.P. paper industry needs the presentation of extra assets alongside rebuilding of funds and modernization of innovation for better working execution.

Smash Kumar and Reddy (2003) ponders for give an exact approval of the generally held existing speculations on the determinants of firm execution in the Indian setting. The study utilizes financial explanations and capital market data of 566 huge Indian firms over a time from of eight years isolated into two sub-periods (1992-96 and 1996-2000) and to study Indian company's financial execution crosswise over different measurements viz., investor

value, bookkeeping productivity and its segments, development and risk of the example firms. The study found that estimate, marketing use and international expansion had a positive connection with an association's market valuation. The study likewise discovered that an association's ownership structures, especially the dimension of value ownership by household financial foundation and scattered open investors, and the influence of the firm were important components influencing its financial execution.

Raghunatha Reddy and Padma (2005) in their study, an endeavor has been had to study the effect of mergers on corporate execution. It thinks about the pre and post merger working execution of the corporations engaged with merger to identify their financial qualities. Exact research on offer value execution recommends that obtaining firm commonly procures positive returns before declaration, yet less that the market portfolio in the post advancements period all in all and analysis of the pre and post-merger working execution of the securing firm.

Mallik and Debasish Mukherjee (2006) have considered the execution of renting industry in West Bengal. This experimental study conducted covering fourteen renting financing companies in West Bengal. An endeavor was made to learn the productivity and to make a relative analysis of benefit of the chose companies. With the assistance of ratio analysis execution of the chose units was evaluated. The discoveries of the study demonstrated great execution of renting industry in West Bengal over the time of the study.

Susma Vishnani and Bhupesh Kr Shah (2006) have contemplated the job of working capital in benefit producing process. On the off chance that a company wants to go out on a limb for greater benefits and losses, it diminishes the span of its working capital in connection to its deals. In the event that it was keen on improving its liquidity, it builds its dimension working capital. In any case, this policy was probably going to result in a decrease of the business volume, hence of gainfulness. Henceforth, a company should strike a harmony among liquidity and gainfulness. In this study an exertion had been made to make an exact study of Indian Consumer Electronics Industry for evaluating the impact of working capital on benefit amid the period 1994-95 to 2004-05. The impact of working capital on gainfulness had been inspected by processing co-effective of relationship and relapse analysis among productivity and working capital ratio.

House Selvi and Vijayakumar (2007) in their study entitled "Structure of Profit rates in Indian Automobile Industries – A Comparison", an endeavor had been made to inspect the

patterns in rates of benefit of chosen Indian Automobile Industries over the period 1991-92 to 2003-04. Further an endeavor has additionally been made to catch the industry tight clamp variety in the arrangement of benefit rates, which uncovers the scattering of the arrangement for every industry over the study time frame. Discoveries of the study demonstrated that the declining pattern of gainfulness was confirmation of adverse impact of different controls on costs, yield, expansion and investment and so forth applied by government on these ventures after some time.

P.D. Erasmus (2010) It has for quite some time been contended that productive working capital management ought to add to the formation of investor value. This study investigates the connection between working capital management and firm benefit for an example containing both recorded and delisted South African mechanical firms. The results acquired from the full example uncovered measurably huge negative connections between an association's benefit (as evaluated by the arrival on assets in the smaller sense) and its net exchange cycle (NTC), obligation ratio and liquidity ratio. Comparable results are onserved if the recorded firms are investigated independently.

On account of firms that delisted amid the period under audit, in any case, the liquidity and obligation ratios seem to assume a more important job than the NTC. In light of the results of this study, no doubt management could endeavor to improve firm gainfulness by diminishing the general investment in net working capital. Survey of the current writing demonstrates that so far no particular study has been carried on to look at the benefit analysis of Indian Oil industry after advancement in the manufacturing sector. The present study is an endeavor toward this path and accordingly, intends to improve the writing of financial execution connection to Indian Oil industry. Further, the study is planned to utilize different modern measurable techniques, before qualifying any parts of benefit analysis for more extensive agreeableness and appreciation. The present study is a modest endeavor in such manner.

An article created by Qamar (2003) entitled, "Gainfulness and Resource Use Efficiency in Scheduled Commercial Banks in India: A Comparative Analysis of Foreign, New Private-sector, Old Private-sector and Public-sector" uncovered that distinction in terms of blessing factor, risk factor, income expansion, productivity, and proficiency that may have existed among 100 planned commercial banks, partitioned into three gatherings for the year 2000-01. This study demonstrated that open sector banks are better enriched in terms of their assets

base offer capital and investors' value than different banks, though foreign banks and old private sector banks work at a high capitalization ratio.

An article written by Bhole and Mahakud (2004) entitled, "Patterns and Determinants of Corporate Capital Structure in India: A Panel Data Analysis" dissected the patterns in corporate capital structure in Indian open and privately owned businesses from 1966 to 2000. For the study the board data of 330 privately owned businesses was utilized. The study found that the influence ratios of both the sector had improved essentially and reliance on obligation was more if there should be an occurrence of open constrained when contrasted with private restricted companies. Crafted by Selvam (2004) entitled, "A Study of Financial Health of Cement Industry - Z Score Analysis" reasoned that the financial health of the company was bad in the study time of five years as it were. In addition, the scientist recommended making vital strides for the improvement of financial health of the company.

An article wrote by Chaitanya (2005) entitled, "Estimating financial Distress of IDBI utilizing Altman Z score model" has utilized the Z score model to break down the financial health of IDBI. He proposed that IDBI isn't in the health zone. An article written by Lopoyetum (2005) entitled, "A Study of Business Performance with Special Reference to Profitability and Viability Dimension – Uthamapalyam Urban Cooperative Bank, Theni District" recommended that the productivity execution of the urban helpful bank can be improved through heightening of weight ratio. The weight ratio can be brought down by diminishing the labor costs, different costs and expanding different incomes. The spread ratio can be improved by expanding the intrigue receipts quicker than the intrigue installments.

An article created by Jatinder (2007) entitled, "Capital Structure Practices of Private Sector in India" inspected the obligation and value blend by the privately owned businesses and dissected the greatness of short and long haul obligation and real changes of capital structure rehearses in regard to the progression and globalization of top most 25 companies which are browsed BT. It was discovered that the value market have upgraded Indian firms adaptability in picking their capital structure at ideal dimension. An article delivered by Kaur and Kapoor (2007) entitled; "Productivity Analysis of Public Sector Banks in India" uncovered the gainfulness of PSBs in India in Post Liberalization period.

It broke down the relative productivity and distinguished the way to deal with increment the benefit of open sector banks in India in post advancement period. This study was restricted to just a time of five years and secured twenty eight banks of India. For assessing the

gainfulness of PSBs the different ratios had been utilized like Credit Deposit Ratio, Return on Assets, Operating Profit to Total Assets, Interest Income to Total Income and Interest Expenditure to Total Expenditure. An article inked by Dheendhyalan (2008) entitled, "Financial Health of Steel Authority of India Limited: A Z-score Approach" found that the Z score model demonstrate sound financial health of the Steel Authority of India Limited.

An article created by Makesh (2008) entitled, "Financial Performance Analysis of Commercial Banks: A Comparison of Federal Bank, Dhanlakshmi Bank, and SBI" evaluated the financial management practice and found that all the three banks kept up capital in abundance of the stipulated standards of the RBI for the study time of 2006-07.

2.4 RISK MANAGEMENT POLICY

Risk is innate to all businesses and the key to success is to envision, go for broke and deal with the correct risks. In the present VUCA (Volatile, Uncertain, Complex and Ambiguous) world, the outer and inside environment is changing at a regularly expanding pace and which, thusly, expects businesses to deal with the current risks as well as foresee developing risks and send relieving systems on a persistent premise. It is basic for businesses to plan a vigorous undertaking risk management framework to identify all current and rising risks, limit the impact and catch the open doors made by these constantly advancing changes. Your Corporation has embraced a well-characterized process for dealing with its risks on a progressing premise and for conducting the business in a risk cognizant way.

There are characterized processes for distinguishing proof, assessment and relief of risks on a continuous premise. Risk assessment is considered as critical input for decision making identified with system definition and capital assignment. Your Corporation has likewise utilized innovation to incorporate and computerize the whole process of big business risk management. Your Corporation has likewise drawn in the administrations of a free master to aid proceeded with implementation of successful Risk Management framework and improve the framework further. These self-regulatory ERM processes and procedures structure some portion of our Risk Management Charter and Policy, 2007. Risk Management Steering Committee (RMSC) keeps on giving its direction in such manner.

Your Corporation has set up system to advise Board Members about the risk assessment and minimization procedures, and periodical audit to guarantee that official management controls risks by methods for an appropriately distinguished framework. Cautiousness During the

year, as a piece of Preventive Vigilance outreach movement, different crusades were kept running for managing E-Integrity Pledge. More than 2.70 lakhs E-Integrity vows were taken by employees and different partners like merchants, vendors, customers and so on through e-stands, LPG shopper IVRS and so on Interactions with employees including newcomers and different partners were held. Shock reviews were completed. Coordination with offices like CBI, CVC, Vigilance wing of MOP&NG and so on was done separated from completing investigation of grumblings got from workplaces of MOP&NG, CVC, CBI and different sources. Amid the year, your Corporation's Vigilance Department was met with Vigilance Excellence Award in the exceptional classification from the Central Vigilance Commission (CVC). Audit of a few working regions for framework improvement was likewise done amid the year. Modern Relations because of a proactive methodology, Industrial Relations stayed harmonious over the Corporation.

It merits referencing that not exclusively was there no loss of profitability because of IR issues, yet in addition this year saw efficiency increment crosswise over areas which plentifully exhibit the development of our Unions and responsibility of employees. Different Settlements were marked with the Unions in the territories of Productivity Enhancement, Redeployment and so on which is the result of Trust and the healthy IR atmosphere in your Corporation. Association delegates assume a noteworthy job and go about as communication channel/change specialists for conveying and implementing of different policies and activities. In this manner, it is basic that the different activities and policies are imparted to the important partner in order to speak with the non-management employees separated from our normal communication channels. In such manner 8 workshops were held under the program "HP Connect" over all zones/refineries in which 236 employees were secured.

Additionally, so as to build up the administration abilities of association pioneers seven days in length program was conducted at Hyderabad. Your Corporation found a way to guarantee that all our agreement laborers were secured under Pradhan Mantri Jan Dhan Yojana and Prime Minister Suraksha Beema Yojana. To advance Digital India and money less economy, it was guaranteed that all Contract Labor sent over the Corporation are paid their wages through NEFT. Further, different projects over the Corporation were sorted out for Contract laborers to empower them utilize different methods of cashless installments. At your Corporation, we trust that safety and wellbeing of all partners including Contract Workmen is of vital significance. Under the (Prerna) program propelled by the Corporation to soak up

safe work culture and improve well-being of agreement laborers, 248 Prerna Program covering 10743 Contract laborers were conducted amid year 2017-18.

2.5 OFFICIAL LANGUAGE IMPLEMENTATION

The utilizations of Hindi is guaranteed in the business of your Corporation by persuading the employees through influence, impetus and harmony and Hindi is being advanced by using different facilities available in the field of Information and Technology. To advance the phonetic and social ability of the employees, awareness about Hindi is made in the workplaces through All India Hindi Mahotsav, Hindi Fortnight, Official Language Conferences, Hindi Competitions and Hindi Workshops and so forth. Amid the year 2017-18, your Corporation was granted with the highest honor, Rajbhasha Keerti Pratham Purskar. HPCL additionally got Rajbhasha Keerti Pratham Purskar for magnificent coordination and notable accomplishments of Town Official Language Implementation Committee (PSUs), Mumbai. Hence, Hon'ble President of India granted your Corporation with two highest Purskars on the event of Hindi Diwas on fourteenth September 2017 at Vigyan Bhawan, New Delhi.

Your Corporation is planning Town Official Language Implementation Committee of Mumbai based PSUs since 1983 and in this way controlling Mumbai based 64 PSUs in the field of Official Language Implementation. Other than the TOLIC Meetings, we have prepared the authorities of different PSUs through conducting different projects, for example, Team Building, Digital India, IT and Hindi and Innovation in HR. Your Corporation has been granted with the Official Language Shield by Ministry of Petroleum and Natural Gas, Government of India, throughout the previous three years. A year ago HPCL has made a record in whole Oil Industry by getting 43 O.L. Grants from Government of India.

Other than this, in the specialized field, the Corporation has showed new drive and conducted Technical Hindi Article Competition and Technical Hindi Seminar additionally for which our endeavors were uncommonly valued by Ministry of Petroleum and Natural Gas.

2.6 CORPORATE SOCIAL RESPONSIBILITY

Your Corporation has always put stock in being an impetus of transformation through its CSR attempts. Your Corporation is focused on conveying joy by making important changes in the lives of individuals through its locale commitment and all-encompassing societal advancement. Being a mindful corporate native, the consistent exertion is to amplify positive

impact of our drives by incorporating and disguising CSR into the center of business operations. Your Corporation connected with bigger areas of underestimated social orders in FY 2017-18 through imaginative, value-driven and well-structured CSR projects that united aggregate exertion to emphatically impact the lives of minimized and less special.

National Development Policies, Sustainable Development Goals and lead plans of Government of India have been the essential managing powers behind all our CSR activities in the center territories of Child Care, Education, Health Care, Skill Development, Sports, Environment and Community Development. Your Corporation has always put stock in receiving techniques went for 'Crossing over the Gaps' by identifying gaps in the current framework and narrowing them instead of making new parallel systems. Your Corporation started some driven projects this year supplementing its endeavors to make a healthy, taught and engaged country. To progress in the direction of advancing Sanitation and Hygiene in government schools, an e-WASH program was started which plans to instill great cleanliness rehearses among school understudies just as neighborhood networks. "Kashmir Super 30 (Medical)" was set up in collaboration with Indian Army to enthuse another beam of trust in the underprivileged understudies of Kashmir and set them up to contend at the national dimension to verify entrance into restorative schools. Your Corporation led a first-of-itskind collective project by OMCs to improve facilities at Tulip Garden, Srinagar.

Commitment was likewise made towards Armed Forces Flag Day Fund which is used for giving financial help to destitute Ex-Servicemen, war widows and their wards. Your Corporation likewise offered help to improve the nature of health care benefits in the field of malignant growth treatment and determination at Tata Memorial emergency clinic. Impacting the lives of school-going youngsters by loaning backing to their instructive interests has been the point of our projects Nanhi Kali, Akshayapatra, Unnati and Agastya. Project ADAPT expects to make a model of inclusivity and equivalent chance and offers specialized curriculum, best in class treatments alongside expertise advancement chances to differently abled kids in an empowering environment so as to bring them into standard. Our projects Dil without Bill, Suraksha and Dhanwantari in the center region of health care plan to give preventive and therapeudic health care facilities.

CHAPTER 3

COMPANY PROFILE

3.1 HINDUSTAN PETROLEUM CORPORATION LIMITED (HPCL)

Hindustan Petroleum Corporation Limited (HPCL) is an Indian oil and natural gas company with its headquarters at Mumbai, Maharashtra. It has about 25% piece of the pie in India among public-area organizations (PSUs) and a strong showcasing infrastructure. Oil and Natural Gas Corporation, additionally the promoter of the company, possesses 51.11% offers in HPCL and others are distributed among financial establishments, public and different investors. The company is positioned 367th on the Fortune Global 500 rundown of the world's greatest corporations starting at 2016.

History

HPCL was fused in 1974 after the takeover and merger of past Esso Standard and Lube India Limited by the Esso (Acquisition of Undertakings in India) Act 1974. Caltex Oil Refining (India) Ltd. (CORIL) was taken over by the Government of India in 1976 and merged with HPCL in 1978 by the CORIL-HPCL Amalgamation Order, 1978. Kosan Gas Company was merged with HPCL in 1979 by the Kosangas Company Acquisition Act, 1979.

In 2003, after a petition by the Center for Public Interest Litigation (CPIL), the Supreme Court of India controlled the Central government from privatizing Hindustan Petroleum and Bharat Petroleum without the approval of Parliament. As counsel for the CPIL, Rajinder Sachar and Prashant Bhushan said that the best way to disinvest in the organizations is repeal or change the Acts by which they were nationalized during the 1970s. Therefore, the government would require a majority in the two houses to push through any privatization.

HPCL has been consistently growing throughout the years. The refining limit expanded from 5.5 million metric tons (MMT) in 1984/85 to 14.80 million metric tons as of March 2013. On the financial front, the overall gain from deals/tasks grew from ₹2687 crores in 1984– 1985 to ₹2,06,529 crores in financial year 2012– 2013. Amid FY 2013-14, its net benefit was ₹1740 crores.

Merger and Acquisition

On 19 July 2017, the Government of India declared the acquisition of Hindustan Petroleum Corporation by Oil and Natural Gas Corporation. On 1 November 2017, the Union Cabinet endorsed ONGC for obtaining majority 51.11% stake in HPCL (Hindustan Petroleum Corporation Limited). On 30 January 2018, Oil and Natural Gas Corporation procured the whole 51.11% stake of Hindustan Petroleum Corporation, in this way turning into the promoter of the company. Despite the fact that ONGC Holds 51.1% in the Company, HPCL denies to distinguish it as promoter. The reason given for it is that the majority of Board of Directors is from Government of India and not ONGC.

3.2 SAFETY & ENVIRONMENT

In HP Gas Safety, Health and Environment have kept on increasing expanding importance, and which is all well and good, in perspective on the ecological imbalance that the world is looking on the loose. HPCL as a mindful Corporate Citizen has dependably strived to strike a correct harmony between working its business and maintaining a feeling of harmony with its surroundings.

The people make their working environment safe by receiving safe work practices and it is these work practices that structure a piece of any Environment, Health and Safety (Sh&e) Policy. the Objective of SH&E Policy isn't just to achieve mindfulness, yet to likewise promote a pollution free environment; and make a healthy encompassing and safe working conditions by continually managing every one of our actions inside an intentionally recognized and received arrangement of standards.

The SH&E Policy is a testimony to HP GAS's Commitment towards insurance of environment as we have an extraordinary obligation to secure the health&safety of our colleagues as well as hand over a safe word to the future generation to come we pursue the SH&E Policy, in word as well as in soul, and actively contribute towards accomplishing its objectives.

Safety

HP GAS resolved to direct its business in the manner that protects the safety of personnel engaged with the business including the clients and the public. It's our objective to have our

business 100% free from accidents, wounds and occupational illness through the active investment of everybody associated with business.

To meet objective of 100% accident free task HP Gas complete after:

- Design, Install, execute and maintain offices which control safety risks.
- Comply with statutory guidelines and standards for controlling the risks.
- Train the personnel working at work spot for safety aspects, safe conduct and compelling utilization of gear's to avoid any occurrence/accident.
- Undertake surveys, dissect, assess and install ideal value accessible safety/operational gear's for accomplishing the accident free activities economically.
- Comply with satutory guidelines and guideline of OISD(Oil Industry Safety Directorate), Ministry of Petroleum and Natural Gas,New Delhi(india) for safe activity of plants.
- Risk and DMP(Risk Analysis)- RA thinks about being led as and when required at Plants/Import offices to break down the risk included and how to manage the risk.

Essential measures gone for broke at work spots.

DMP (Diaster Management Plan)- on location and off site DMP has been set up in counsel with neighborhood organization and other concerned statutory experts to control on any crisis/exigency situation. Observing for development and well control for safe working. SH&E Department do internal safety audits and organize for 100% consistence of internal and external safety audits proposals.

Following are key activities of SH&E:

- Security of property and Personnel
- Operational Safety
- Safety Audit Programs
- Product Knowledge
- Incident/Accident/Near Misses examination for underlying driver investigation
- Emergency Response and File Protection.
- Environmental assurance
- Safety, Training, Health records.

Health

HP GAS is resolved to make a healthy working atmosphere and to defeat on any sort of Occupational Health hazard related with LPG at work spot. HP Gas have plans to assess health risk is any at work spot, and take fitting measure to defeat on such risks.

HP GAS has drawn in CDP (Company Designated Physicians) and (or) made game plan with adjacent clinic for standard medical checkup/observing health and handling of medical crisis of the workers. Likewise company has got medical centers at our fundamental controlling workplaces at metros. Likewise our workers are medically safeguarded according to HPCL Policy we agree to statutory guidelines on "HEALTH".

Scarcely any plants have done Occupational Health Survey and executed the suggestions of survey report. HP GAS intends to complete occupational health survey at all the plans and execute suggestions of surveyor.

Training on Occupational Health and Environment are normally conferred to representatives to urge them to be concerned and regard the environment and influence them to comprehend that everybody is in charge of maintain healthy environment and embrace suitable working practices.

Environment

HP GAS is resolved to lead its business in the healthy and environmental friendly. HP GAS intends to do ponder on environmental risks at all the plants and execute proposals of survey Various Environment Programs are accomplished for improvement of environment in and around work place. Training on Occupational Health and Environment are consistently bestowed to representatives to urge them to be concerned and regard the environment and influence them to comprehend that everybody is in charge of maintaining healthy environment and receive proper working practices.

We consent to environment standards and statutory guidelines/necessities on environment like:

Air and Water pollution aversion, Waste management technique and so on.

Given beneath values to Environment Eco Friendly:

- Regularly elevating to convert Oil Fuel Vehicles in to Auto LPG with the goal that pollution is decreased and ending up more environments friendly
- Plants/import facillities of HP GAS are ISO 9001:2000 Certified Plants
- MLIF(Mangalore Import Facilities) is ISO 14001:2004 Certified Plants
- Plants have stepped up to the plate for acquiring ISO 14001:2004 certifications. work in progress
- Availability of Management framework for any ooze/Solid waste transfer. We intend to have ETP(Effluent Treatment Plants) at our major plants to guarantee that no pollution leave plants through waste
- Water harvesting plant has been installed at few plants. MLIF has wanted to install in the blink of an eye second harvesting plant

Standard ranch and maintaining green belts Under ISO 9000 Certifications:

- Plants/Import Facilities of HP GAS are ISO 9001:2000 Certified Plants
- MLIF(Mangalore Import Facilities) is ISO 14001:2004 Certified Plants
- Plants/Import Facilities has stepped up to the plate for acquiring ISO 14001:2004 certification
- Mangalore LPG Import Facilities (MLIF) is ISRS (International Safety Rating System) Level 7 Certified area. It's the First Marketing Location in Oil Industry in India who has ISRS level certification

Major Fire Fighting Facilities:

Adequate limit Fire Fighting Engines

Programmed Fire Fighting System - Quarzoid Bulb heat identification framework for discovery of any fire and actuate for Auto firefighting framework and working water sprinklers for smother fire. Additionally push catches Auto firefighting framework is given

- Adequate water storage as required for 4 HRs firefighting are given
- GAA Monitoring System to identify any spillage of LPG and giving caution for Fire fighting
- Weight Vessels are given over filling caution framework and actuate auto shut off siphons/blowers framework
- Safety Equipment's/PPE's/Safe Clothes for safe working

Successful interchanges frameworks

Electrical stumbling frameworks to trip off VCB/OCB/other electrical circuits if there should be an occurrence of any spillage/cut off

Under Safety Activities

Mock Drill Considering LPG locations are risky, each one working at such area should be trained to manage any exigency situation. They are given training by method for Mock drills. HP GAS do 2 mock drills in a month at each plant with the goal that personnel working at spot are enough trained to meet exigency situation.

Mock Drill Involving External Agencies An objective of 2 mock drills in a year is set by HP GAS, with the goal that personnel working at spot are all around trained and active to meet any sort of exigency.

Training

The most extreme consideration is given to import training to company representatives, Contractor workmen, security personnel, Trucks team, Cylinder Delivery Men and Mechanics. A few training programs covering a few peoples have been sorted out and is a consistent procedure.

In current year as of Feb.2005, more than 20000 personnel have been secured under training programs by HP GAS training venture "UTSAH" for sorting out Behavior and Functional Training programs. HP GAS has secured different locations under this program and programs are preceded till all LPG Plants are secured.

3.3 HINDUSTAN PETROLEUM RESTRAINED FROM OPERATING DELHI OIL DEPOT

The Delhi High Court Thursday restrained Hindustan Petroleum Corp. Ltd. (HPCL) from working its petroleum storage almost a village in west Delhi till the company consents to safety issues.

A division seat of Chief Justice D. Murugesan and Justice V.K. Jain, restraining HPCL from working the station, requested that it clarify the safety measures taken by it.

HPCL was likewise approached to disclose to the court the steps taken on consistence to safety standards on the suggestion of the Delhi Disaster Management Authority. The court posted the issue for March 20.

The court's direction went ahead a PIL recorded by residents of Tikri Kalan village restricting the structure of a petroleum terminal close to their homes. It would open them to risks, the residents battled.

Promoter Indira Unninayar, showing up for villagers, told the court that the petroleum company had disregarded the safety standards and people of Tikri Kalan village confronted peril. Counsel for Delhi Disaster Management Authority told the court that HPCL ought to have taken the safety measures to avoid imperiling lives in the event of any mishappening.

Unexpectedly, counsel for HPCL said that all safety measures have been taken by it and the stop is 500 meters from the village. The company said that the station is prepared and encouraged the court to offer authorization to start its activity.

The petition by Tikri Kalan villagers looked for direction to government agencies not to permit the storage warehouse, asserting it would open them to risks if there should arise an occurrence of fire, blast or accident. As indicated by them, the petroleum storage tanks are found just 1,440 feet (440 meters) from their houses.

Accusing HPCL and the authorities of "merely paying lip administration in regards to safety", the petition said the oil company had overlooked the safety steps proposed by the M.B. Lal Committee. The Lal Committee was set up by the petroleum and natural gas service to test a fire at Indian Oil's storage terminal in Jaipur in October 2009.

Unninayar has said that after the Jan 5 fire at the Hazira plant of Indian Oil Corp in Gujarat, critical steps should have been taken immediately to move the petroleum storage installation from the village.

3.4 HINDUSTAN PETROLEUM TO CONSTRUCT UNDERGROUND STORAGE FACILITIES

Public Sector Hindustan Petroleum Corporation Limited (HPCLNSE 1.91 %) has taken up development of underground storage offices for keeping crude petroleum stocks which could be utilized to meet petroleum prerequisite amid oil emergency, Union Minister S Jaipal Reddy said.

Tending to a social occasion subsequent to committing the spotless powers venture at the Visakha refinery of the HPCL here, the Union Minister for Petroleum and Natural Gas said HPCL had wanted to develop an underground storage office at Visakhapatnam and Mangalore.

To encourage keeping 13 lakh huge amounts of unrefined petroleum which would be adequate for giving continuous supply of oil to 90 days amid the season of worldwide oil emergency and Visakhapatnam's underground storage office would be finished inside three months.

The Indian government has been finding a way to redesign fuel quality to meet Euro-3 and Euro-4 particulars with worldwide standards. As indicated by him, oil organizations are at present giving EURO-4 fuel in 13 urban areas in the nation and a similar will be provided to Visakhapatnam city very soon as the city is confronting pollution issue.

Oil organizations in the nation need to contribute Rs 40,000 crore to overhaul fuel determinations from EURO-3 to EURO-4 the pastor clarified oil organizations in the nation are bringing about lost Rs 1.50 lakh crore at present.

In any case, the government isn't mulling over to expand the costs of petroleum products in spite of a climb in raw petroleum costs in the universal market. Roy Choudhary, Chairman and Managing Director the HPCL, said the company had taken up the spotless fuel venture at an expense of Rs 2,200 crore.

3.5 COMMUNICATION ON PROGRESS HINDUSTAN PETROLEUM CORPORATION LTD

HPCL is a Government of India Enterprise with a Navratna Status, and a Fortune 500 and Forbes 2000 company, with a yearly turnover of Rs. 1,90,048 Crores and deals/salary from tasks of Rs 2,15,675 Crores (US$ 39.726 Billions) amid FY 2012-13, having about 20% Marketing share in India among PSUs and a strong market infrastructure. HPCL's Crude Thruput and Market Sales (counting sends out) are 15.78 Million Metric Tons (MMT) and 30.32 MMT individually in a similar period.

HPCL works 2 major refineries creating a wide assortment of petroleum energizes and claims to fame, one in Mumbai (West Coast) of 6.5 Million Metric Tons Per Annum (MMTPA) limit and the other in Visakhapatnam, (East Coast) with a limit of 8.3 MMTPA. HPCL holds

a value stake of 16.95% in Mangalore Refinery and Petrochemicals Limited, a best in class refinery at Mangalore with a limit of 15 MMTPA. Moreover, HPCL has developed a 9 MMTPA refinery at Bathinda, in Punjab, with Mittal Energy Investments Pte. Ltd.

HPCL additionally possesses and works the largest Lube Refinery in the India delivering Lube Base Oils of global standards, with a limit of 335 TMT. This Lube Refinery represents over 40% of the India's complete Lube Base Oil production. HPCL's tremendous showcasing network comprises of 13 Zonal workplaces in major urban areas and 101 Regional Offices encouraged by a Supply and Distribution infrastructure containing Terminals, networks, Pipeline Aviation Service Stations, LPG Bottling Plants, Inland Relay Depots and Retail Outlets, Lube and LPG Distributorships. HPCL, throughout the years, has moved from solidarity to quality on all fronts. The refining limit relentlessly expanded from 5.5 MMTPA in 1984/85 to 14.8 MMTPA by and by. On the financial front, the turnover has developed from Rs. 2687 Crores in 1984-85 to a noteworthy Rs 1,69,011 Crores in FY 2011-12.

3.6 OPERATIONS & DISTRIBUTION

The backbone for petroleum promoting is powerful production network management which is taken care of by the Operations and Distribution (O&D) vertical in the company. O&D is a key empowering influence to the Marketing SBUs/work, giving unstinted help and inventive solutions for remain in front of competition. A record showcase throughput of 47.6 million tons was accomplished in the year 2015-16 which assumed a key job in expanding piece of the overall industry. Auspicious and satisfactory conveyance through streamlining of assets remained a center region, bringing about upgraded consumer loyalty levels in both Retail and I&C business lines.

Upgraded Safety forms at POL installations empowered continuous product supplies and improved administration levels. MOP&NG additionally recognized extraordinary reputation on safety by presenting 4 out of 5 POL Safety OISD grants including "Best POL Safety Performance". Usage of MB Lal Committee proposals stayed another center territory, which improved the foundational and procedure quality of the company.

Nitty gritty arranging was completed for fulfilling future market need alongside time bound infrastructure improvement. Amid 2015-16 a condition of-craftsmanship POL terminal at Kanpur with 227 TKL storage limits was charged. Also, another POL stop at Bokaro in Jharkhand was appointed with a storage limit of 29 TKL. The new limit increments alongside

infrastructure reinforcing at existing locations are relied upon to diminish auxiliary dispersion cost significantly.

Utilizing Technology has been a huge power multiplier switch for accomplishing Operational Excellence. Different Innovative innovation based ways to deal with check pilferage and malpractices viz. Electro Mechanical locking, Vehicle Tracking System (VTS) and so forth were redesigned amid 2015-16 in accordance with the changing business sector needs. VTS was installed on 8700 (93% of aggregate) Tank Trucks and took off effectively at all locations with 91% uptime. Electro Mechanical Locking framework was directed at Vashi and Manmad locations without precedent for the Oil Industry and has been enrolled for Patent rights. To screen the execution of Operating locations crosswise over India, an execution benchmark Dashboard was created which catches continuous execution of all the indispensable parameters and cost decrease activities were undertaken which helped in diminishing the working consumption.

Continued spotlight on usage of Ethanol Blending Plan saw accomplishment of 3.3 % mixing as against industry normal of 2.7%. The accentuation was on environment security, manageability measures and steps for decrease in ozone harming substance (GHG) outflows at locations. A far reaching vitality and power quality review was finished for 3 major terminals amid the year for improving productive use of vitality. Severe checking of Specific vitality and water utilization crosswise over locations was accomplished through continued mindfulness building. Rain water harvesting at all major locations alongside new water management has decreased water utilization essentially.

For accomplishing the objective of enchanting client through auspicious conveyance, De-bottle necking through Process improvement utilizing speedy successes in man, machine and strategy related arrangements and productivity upgrade strategies keeps on being key region. Subtleties of Project Utkrisht and Daksh have been nitty gritty under the Human Resources segment. Thinking about the noteworthy and irreplaceable job of personnel in operational region, capacity building and Skill Development of workers crosswise over dimensions remained a key push region. Officers and workmen were trained on Live Fire Simulation, Handling of hardware installed in accordance with MBLC suggestions and HSE.

3.7 PIPELINES & PROJECTS

Over some stretch of time, HPCL has created key Cross Country Pipeline network and is at present working 3015 Km of Pipelines with complete limit of 33.09 MMTPA barring JVC Pipelines. HPCL has accomplished momentous victories on pipelines activity front with a record joined throughput of 17.61 million tons amid the year 2015-16. The 443 KM long Rewari Kanpur Pipeline was authorized amid the year, a month in front of PNGRB affirmed plan date of November 2015. The pipeline alongside green field Kanpur terminal is relied upon to acquire immense coordinations funds and help piece of the overall industry development in North Central India. The continuous LPG Pipeline Project from Mangalore-Hassan-Bangalore with a goad line to Mysore of all out length of 356 KM has accomplished a physical progress of 94.5% as of 31st March 2016 and is in cutting edge phase of finish. As a piece of maintainability activities, Green Administration building was developed in Kanpur terminal. The terminal likewise has a 10 KW sunlight based power framework to take into account administrator load, Vapor Recovery System to control criminal discharges, Effluent treatment plant of 150 KL/Hr limit and Rain water harvesting framework. Sunlight based Power frameworks with a limit of 7.2 KW each has been installed crosswise over 3 Sectionalizing Valve stations of 443 Km long Rewari Kanpur Pipeline.

3.8 RESEARCH & DEVELOPMENT

Hindustan Petroleum Green Research and Development Center (HPGRDC) Project at Bengaluru was finished and Labs have been made completely utilitarian amid the year. HPGRDC has been set-up with best in class infrastructure offices involving vitality effective green structures following eco-friendly design standards with developed region of around 3 lakh square feet in rambling grounds of 120 sections of land. Stage I of the venture has been executed with a speculation of Rs.395 crore.

Further stage astute extension is arranged. The Project has been worked for consistence for certification under Energy effectiveness rating of 5 Star under GRIHA and Platinum rating under IGBC. HPGRDC has been setup to give propelled specialized help to the Refineries and Marketing SBUs for operational improvement, assimilate new advances, create inventive and way breaking innovations, permit advances and become a knowledge center.

HPGRDC is completing exploration activities for advancement of procedure innovations to improve corporation's abilities for future innovation up degrees and presentation of new

products. A few products and procedures have been created/shown at business scale. Amid 2015-16, 28 Indian and 10 International Patents have been recorded.

Key Technologies marketed are HP Hi Gas for assimilation/partition process, H2 PSA for hydrogen cleaning, Catalytic Vis Breaking for better yields and HP Cosol Process Novel dissolvable framework has been produced for Lube extraction to upgrade distillate recuperation and selectivity.

Key products viz. HP FurnoKare for online heater cleaning, HP Bio Activa for gushing treatment, and HPDUCER a dispergent compound to diminish weight drop in hydroprocessing units were marketed. Key research extends in progress are in the zones of advancement of innovation, impetuses and execution improvement of products which incorporate FCC Feed Nozzle, HP2FCC innovation, Slurry Hydrocracking innovation, Cellulosic Bio Ethanol, Light Naphtha Aromatization, HP Bioremedia, DHDS Catalyst advancement and Dual Functional FCC Catalyst added substance.

3.9 QUALITY ASSURANCE

In accordance with the orders of MOP&NG, HPCL has a devoted Quality Assurance Cell (QA Cell), having officers posted at all the seven zones. QA Cell does astound investigations covering Retail Outlets, SKO agencies, LPG Distributors, Depots/Terminals in consistence with the amended Marketing Discipline Guidelines (MDG) and HQO mandates. The QA cell acts as a critical nodal organization for guaranteeing supply of value and amount of products from all supply sources, storage focuses, wholesalers and outlets to clients. QA Cell has been conveying best in industry execution amid the most recent 5 years.

Amid 2015-16, QA Cell execution has again been the best among the Industry both as far as outright number of assessments did and furthermore by every one of the quality confirmation parameters. QA Cell has done reviews of 3211 Retail Outlets, 175 SKO Agencies, 443 LPG Distributors, 14 O&D locations, 17 Direct Sales clients and 2 LPG Plants in 2015-16. Foundation of such strong framework has empowered HPCL set high client administration benchmarks both for supply locations and directs accomplices and aided in reinforcing key center regions in accordance with the Vision of the company to give high quality products and imaginative administrations.

3.10 HEALTH, SAFETY & ENVIRONMENT HPCL

Health, Safety and Environment Hpcl conducts its business with strong spotlight on Health, Safety and Environment (HSE) aspects of the activities and a vigorous Sustainability Development (SD) Model and Framework. Safe tasks and usage of health and environmental activities keep on being at center of all business activities at HPCL. To accomplish greatness in all circles of HSE, the company is centered around embracing new advances, up-degree of infrastructure, enhancements in frameworks and systems and cultivating a HSE culture over the association. A committed group has been set up to screen the HSE execution over the Organization.

Health

Guaranteeing occupational and individual health of all representatives at work locations has dependably been seen as an imperative factor in general execution of HPCL. The best in class Occupational Health Centers (OHC) at refineries gives crisis medical administrations to the working personnel. The OHCs additionally offer preventive and remedial health administrations to representatives. Designated Physicians are accessible at advertising terminals and LPG Plants and other littler locations have tie ups with neighborhood medical clinics. To improve and maintain representatives Health, Employee Wellness programs are directed by corporation. Health training and mindfulness sessions and analytic camps were done at all major locations amid the year. All HPCL representatives experience customary Periodic Medical Examinations and the outcomes are broke down to give focused on mediations at the individual and gathering levels.

Safety

HPCL is resolved to give a safe workplace to its representatives and contractors and safety to the networks where it works. The point is to work towards zero occurrences. HSE Management frameworks have been set up over all locations of HPCL to reinforce HSE administration and consistence through reconnaissance audits and benchmarking. Amid 2015-16, Mumbai refinery accomplished the record of highest ever, 15.0 Million Employee Safe Man-hours and kept on overhauling the safety frameworks and procedures.

Visakh Refinery left on the activity of Front Level Safety Drive (FLSD) went for sharpening all the front dimension staff. Both the refineries have executed Process Safety Management frameworks. Safety at Retails outlets has considered improvement to be an aftereffect of

infrastructural upgrades, execution of Standards Operating strategy (SOP) and different safety training programs. Major locations of HPCL are certified with International Safety Rating System (ISRS).

Perceiving that personnel competency is a key region to guarantee safe and productive tasks, different training programs were directed during the time for knowledge scattering relating to the hardware installed in consistence with M B Lal Committee Recommendations, OISD Standards, Contract Workmen Safety, Electrical Safety, LPG Customer Safety and so forth. Constant up degree of offices, consistence to statutory prerequisites, improvement in frameworks and methods, hearty training framework has cultivated a strong safety culture over the association.

Environment

HPCL is resolved to guarantee environmentally supportable and dependable activities to accomplish highest standards of environmental magnificence. The installations are certified with Environmental Management System dependent on ISO-14001. Gushing Treatment Plants, air outflow control and waste transfer frameworks have been installed at major locations in accordance with the business' accepted procedures. Occasional observing of air, water quality in accordance with the current standards and guidelines is done at all locations. Refineries' nonstop discharge observing information framework is associated with state pollution sheets. Vitality sparing gadgets are being utilized at locations and nonconventional vitality sources like sun powered boards have been installed as a piece of green activities. These coordinated endeavors have prompted improvement in different Sustainability parameters and better environmental consistence. HPCL pursues an exhaustive philosophy, to assess the Environmental Impact Assessment (EIA) for each new and extension venture. Towards water preservation, Refineries and Marketing SBUs have actualized 'Downpour Water Harvesting' frameworks and reusing of waste water.

3.11 INFRASTRUCTURE DEVELOPMENT

We have undertaken investments for upgrading refining limit and manufacture showcasing infrastructure. Environmental freedom for Visakh Refinery Modernisation Project (VRMP) for upgrading the refinery ability to 15 MMTPA and Mumbai Refinery extension Project (MREP) for improving the refinery ability to 9.5 MMTPA have been gotten. Undertaking activities for both the tasks are on track.

On the Marketing front, development of Mundra Delhi (MDPL), Visakh Vijayawada Secunderabad (VVSPL), Ramanmandi Bahadurgarh (RBPL) Pipelines, Extension line from Palanpur to Vadodara with related terminal offices, new POL Depots, LPG Plants and Lube Blending plants have been arranged this year, 624 new retail outlets were authorized, taking the aggregate to 14,412 that take into account products, for example, diesel, oil, Turbojet, Auto LPG, CNG and greases.

We dispatched 252 new LPG distributorships. We additionally appointed a 356 km long Mangalore Hassan Mysore Yediyur LPG Pipeline and our Hon'ble Prime Minister devoted the RKPL Pipeline and Kanpur Terminal to the Nation in December 2016. Major patch up of offices was done at Jabalpur, Loni, Akola, Nalagarh, Manmad, Visakh dark oil and Bahadurgarh locations. Likewise, transitory product storage offices were authorized at Leh Depot. To keep pace and oblige the expansion in LPG request, we authorized another LPG plant in Bhopal which has a packaging limit of 60 TMTPA amid the year 2016-17. What's more, limit expansion undertakings of 60 TMTPA each at the Ajmer, Patna and Loni LPG plants were additionally finished.

Aeronautics Service offices was enlarged by setting up fixed office at Pune, Vijayawada, Dehradun and Jaipur. The supply infrastructure was expanded to achieve product up to Infrastructure Development 624 New Retail Outlets 252 New LPG Distributorships Commissioned To keep pace and take into account the expansion in LPG request, we charged another LPG plant in Bhopal which has a packaging limit of 60 TMTPA amid the year 2016-17. Bengaluru Airport. Our Corporation is finding a way to make and develop our quality in the new business of Petrochemicals. We have marked a Revised Memorandum of Understanding (RMOU) with the Government of Rajasthan for setting up of an Integrated Petroleum cum Petrochemical Refinery in Rajasthan. The arranged Capex cost amid the period 2017-21 is around '61,000 crore.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 RESEARCH METHODOLOGY

Research methodology is a systematic way to solve he research problem. It is a science of study how the search is actually done. It presents the source of data collection, the sampling procedures and tools of investigation and limitations of the study. My research project has a specified framework for collecting the data in an effective manner. Such framework is called "research design".

RESEARCH DESIGN

The type of research chosen for the study is combination of exploratory research and a case study. In this combination research various parameters will be chosen and analyzing the variations between these parameters. This would be done with an objective to analysis the risk in HPCL's oil Depot.

RESEARCH METHOD

The research method of the thesis consists of combination of exploratory and a case study. To would begin with, the exploratory research would be carried out to find out what is happening, to seek new insights, to ask questions and asses phenomenon in a new light. It would helpful in deeper understanding of the problem. The risk analysis is a vast area. Initial focus would be broad and narrowed down progressively as thesis would progress. Accordingly, the first step would be in developing a theoretical framework of risk analysis in oil depot based on detailed literature survey of the subject with the help of relevant books, journals and various web sites related to the subject. The second step would be to analysis of risk strategies of the company and find out the opportunities, based on the observation and documentary analysis of the risk carried out in HPCL's oil Depot. Secondary data would be used in the thesis. Secondary data would be collected from various publications and official records available in the organization. Both qualitative and quantitative analysis has been carried out in the research. The data collected would be analyzed.

4.2 RESEARCH STRATEGY

The research strategy would be in line with the research objectives and the available resources and also add that the types of strategy are frequently combined with each other throughout the study. The two main types of research strategy to be considered are data collected from the secondary sources and case studies.

4.3 SOURCES OF DATA

The data was collected mainly through the interview methods for the study; observation at different departments, historical data of the last few studies, to be precise the data collected for study was both primary and secondary sources:

I **I. Primary data.**

II **II. Secondary data.**

PRIMARY DATA

Primary data is a data, which is gathered by the researcher himself. For the collection of information and data the researcher was taken the help of following methods:

- **Observation method**: Observation is a systematic data collection approach. Researchers would use all of his senses to examine people involved in the organisation directly or indirectly. Observation methods are useful to researchers in a variety of ways. They provide researchers with ways to check for nonverbal expression of feelings, determine who interacts with whom and check for how much time is spent on various activities.

- **Interview method**: Interviewing involves asking questions and getting answers from respondents in a study. Respondents are manager and the other employees of HPCL's oil Depot who have the best knowledge about the various risk involve in the oil depot. This is the most versatile method. The interviewer can ask more number of questions; can record additional **observations** about the respondents.

SECONDARY DATA

Published Data is the most basic secondary source of information for data collection. Published data can be obtained from various sources like books, magazines, newspapers,

journals and periodicals etc. Published data is the most reliable secondary source of information. For the study purpose the researcher would take the help of **historical data**.

4.4 SAMPLING

POPULATION

Population is a set from which samples are drawn. A population can be defined as including all people or items with the characteristics wishes to understand. I had selected the employees of HPCL's oil Depot for study from the city of New Delhi, India.

SAMPLE FRAME

Sampling frame is the source material or device from which a sample is drawn. It is a list of all those within a population who can be sampled, and may include management, staff, and customer. For my study purpose I had selected respondents who are currently working in the Office of HPCL's oil Depot at New Delhi.

SAMPLE UNIT

Employees of HPCL's oil Depot, New Delhi, India = 25 Units.

SAMPLE SIZE

A Sample size of 25 respondents had taken for the current study because it is not possible to cover the whole universe in the available time period. So it was necessary to take the smaller sample size.

SAMPLING TECHNIQUE : The sampling technique was **probabilistic sampling** more specifically the **random convenient** and **judgmental sampling** was used.

SAMPLING TYPE: Non probability judgment sampling.

SAMPLING AREA: New Delhi, India.

SAMPLE PROCEDURE: To obtain a representative sample, a probability sample of the population was drawn i.e. Cluster (area) sample, where the HPCL's oil Depot situated in New Delhi City would be taken.

CHAPTER 5

DATA ANALYSIS AND INTERPRETATION

Table 5.1: Quantitative risk analysis performed for oil depot in HPCL

Options	Percentage
Maximum Risk criteria	68%
Minimum Risk Criteria	32%
Total	100%

It is interpreted that during quantitative risk analysis, performed to identify potential hazard scenarios of oil depot were found to be at maximum risk criteria of 68% and minimum risk criteria at 32% located of oil depots found in Delhi HPCL

Chart 5.1: Quantitative risk analysis performed for oil depot in HPCL

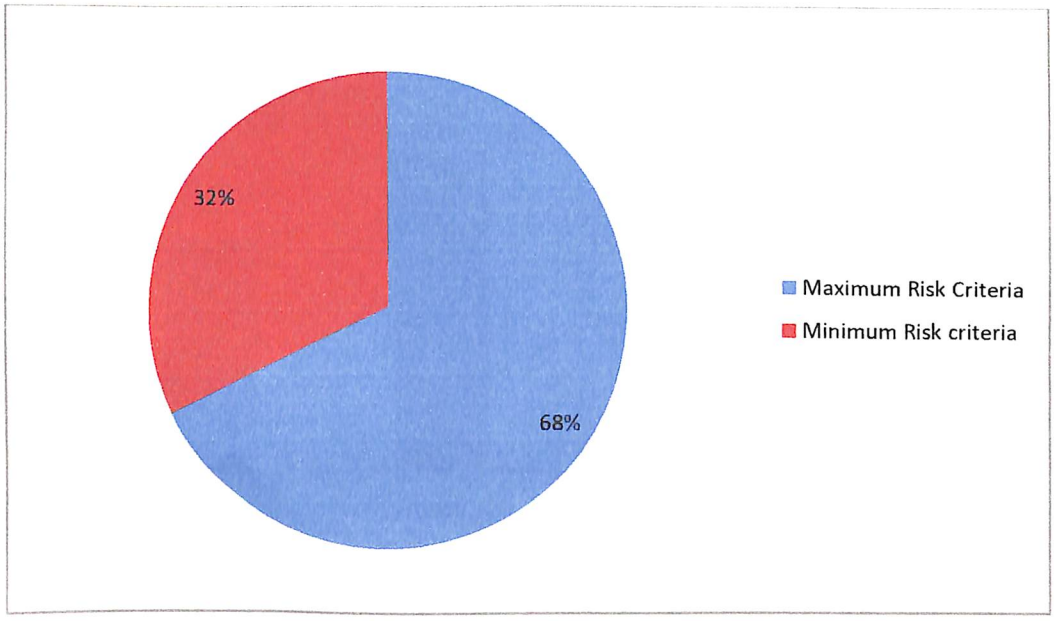


Table 5.2: Risk level average in a year of oil depots

Year	Percentage
2015	16%
2016	22%
2017	30%
2018	32%
Total	100%

It is interpreted that average risk level in a previous years were, 16% in 2015 , 22% in 2016 which increased to 30% in 2017 and in even higher in 2018 i.e., 32 % risks of storing oil in oil depots.

Chart 5.2: Risk level average in a year of oil depots

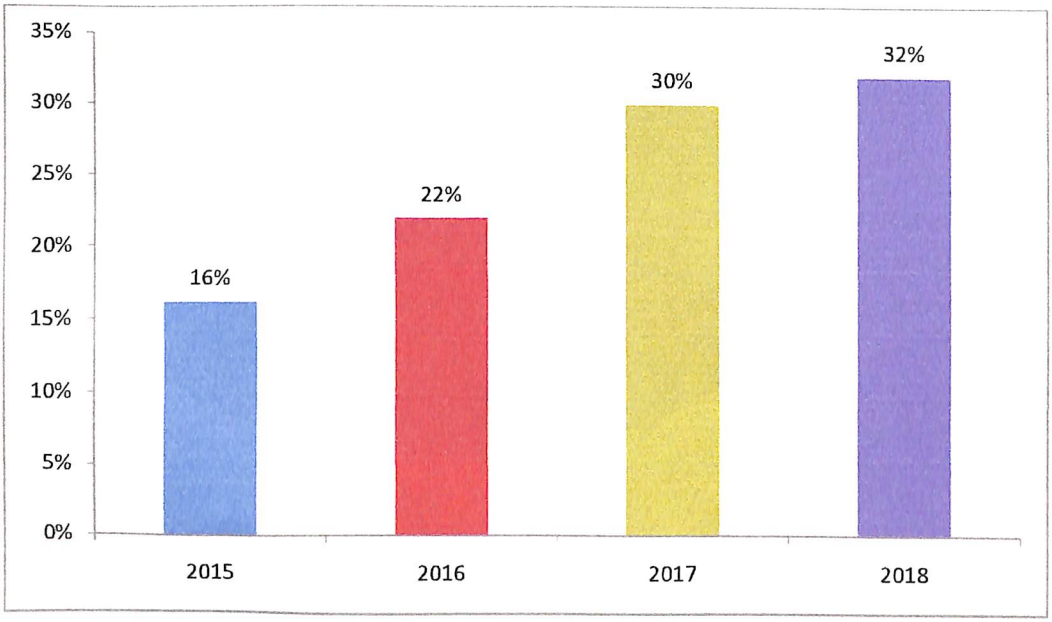


Table 5.3: population near the oil depot of HPCL

Options	Percentage
Commercial	25%
Industrial	37%
Other	28%
Total	100%

In the above table it can be seen that near the oil depot of HPCL there is 25% commercial area , 37% industrial area, and 28% others and they are exposed to greater risk for when any accidents occur.

Chart 5.3: population near the oil depot of HPCL

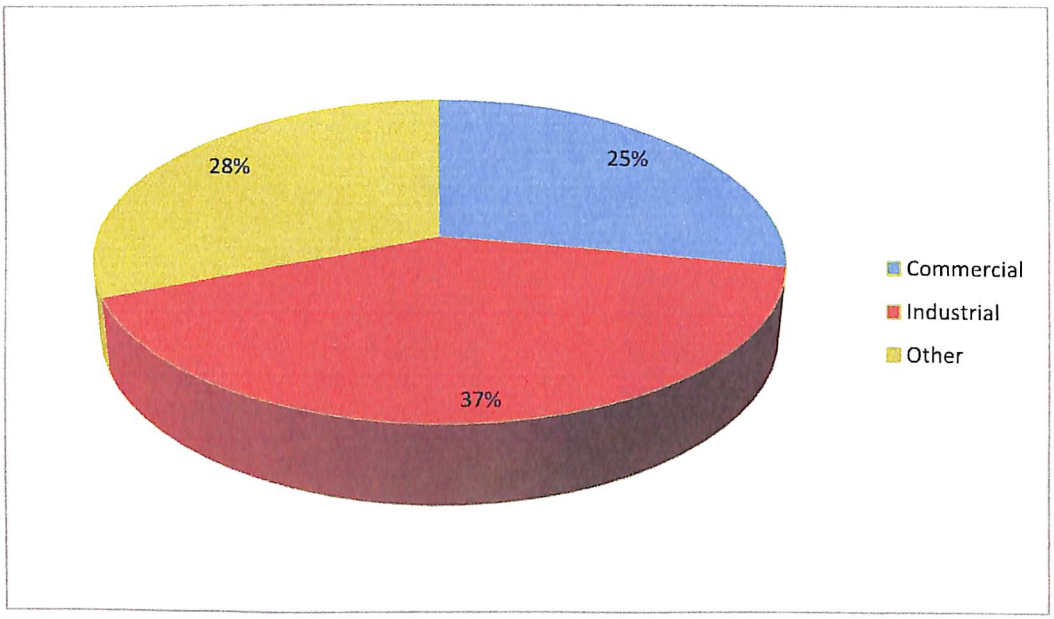


Table 5.4: Damages occurs in the oil depot

Options	Percentage
Oil spills	15%
Leakage	23%
Corrosion	25%
Electrical fire	37%
Total	100%

The above table shows that the damages that occur in the oil depot are mainly due to oil spills 15%, leakage 23%, corrosion 25% and electrical fire 37% and electrical fire is regarded as the main reason for the electrical damage, if not checked properly.

Chart 5.4: Damages occurs in the oil depot

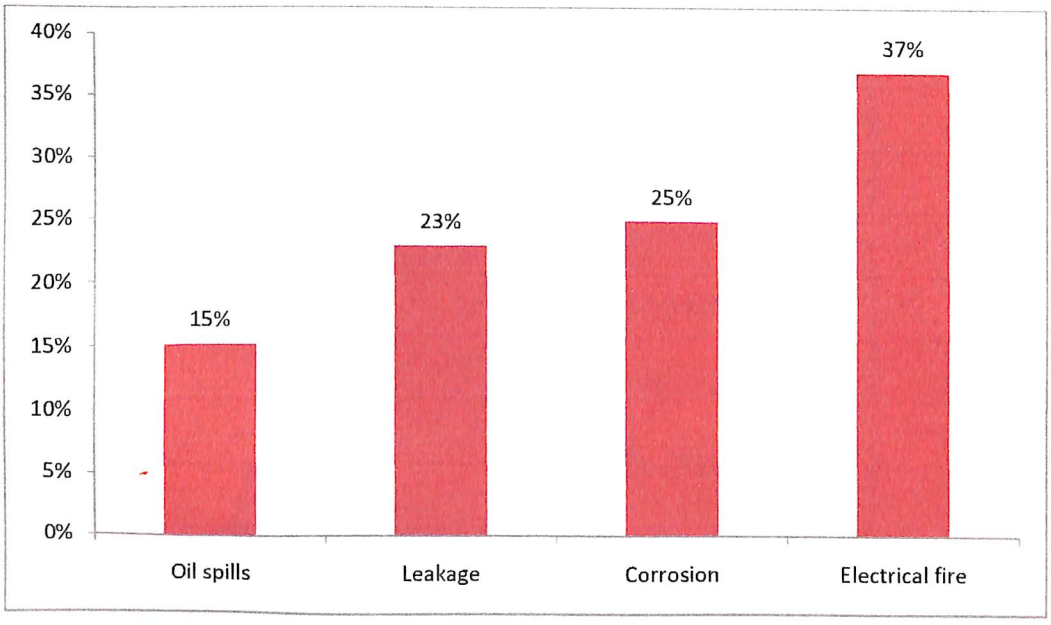


Table 5.5: Environment risk damages occurs in oil depot

Options	Percentage
Soil corrosion	39%
Earthquake	42%
Fire	19%
Total	100%

It is clearly evident in the table that the oil depot are exposed to environment risk damages such as soil corrosion 39% and major problem for oil depot is earthquake 42% and fire 19% which may occur in the surrounding of oil depot and based on this the construction of oil depot is done.

Chart 5.5: Environment risk damages occurs in oil depot

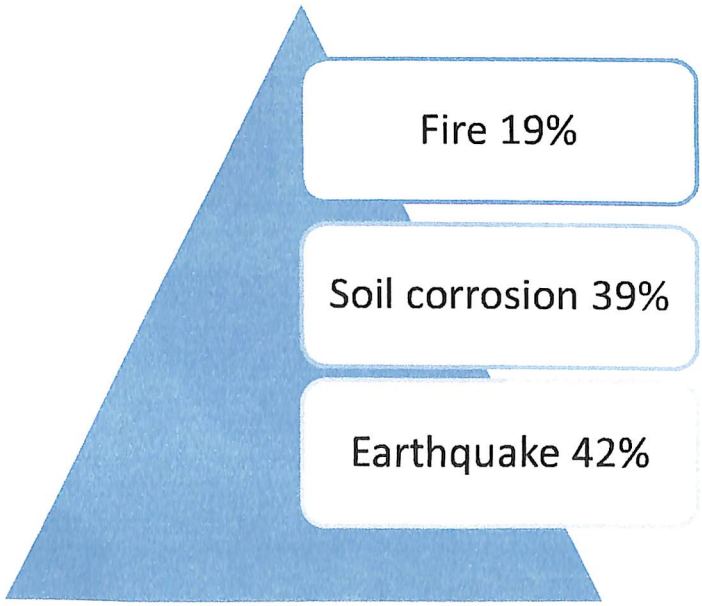


Table 5.6: HPCL safety program steps for oil depot near villages

Options	Percentage
Yes	76%
No	24%
Total	100%

From the above table it can be interpreted that HPCL undertook safety program steps where 76% of them accepted it because they would maintain suitable distance between the oil depot and the villages therefore if any disaster occurs it would not affect the villages and 24% of them did not accept.

Chart 5.6: HPCL taken safety program steps for oil depot near villages

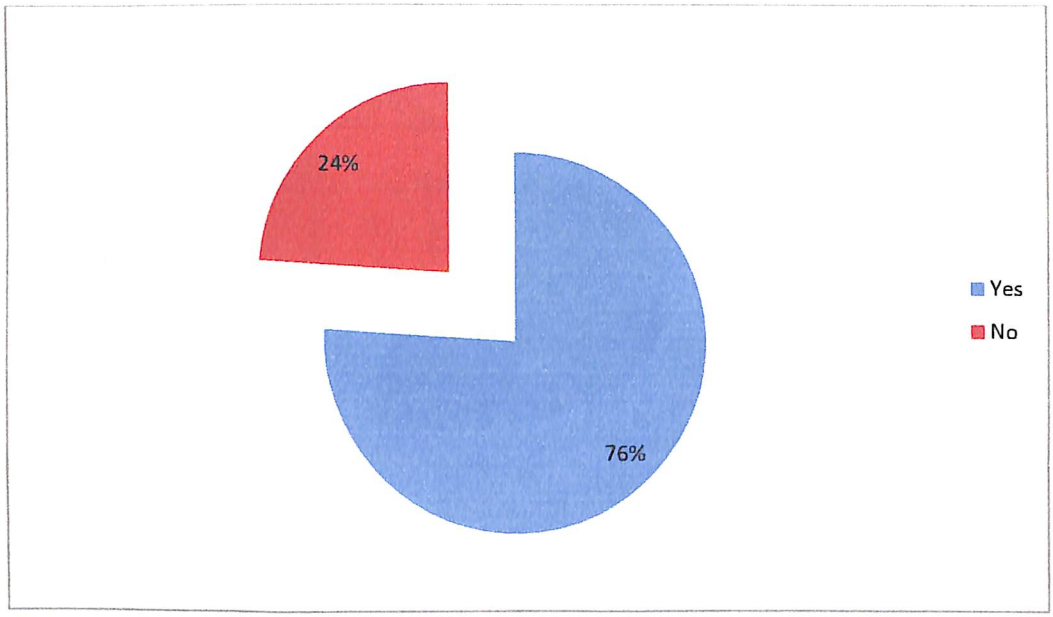


Table 5.7: New technology in storage fuel of HPCL

Options	Percentage
Underground storage	54%
Monitoring from satellite	46%
Total	100%

It is interpreted that new technology of constructing many underground storage for oil depots was considered safe by 54% respondents and that the monitoring from satellite is safe was accepted by 46% of respondents as, if any damages occur could be easy identified and resolved quickly.

Chart 5.7: New technology in storage fuel of HPCL

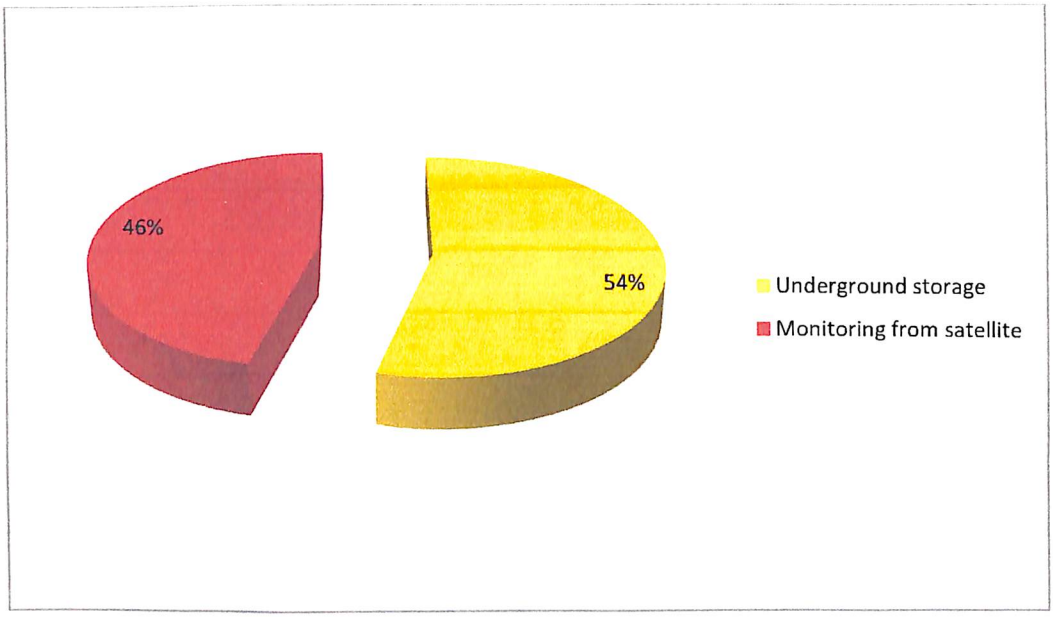


Table 5.8: various places are monitored the operations across India by HPCL

Options	Percentage
Agree	55%
Somewhat agree	26%
Disagree	15%
Neutral	4%
Total	100%

It is interpreted that 55% respondents agreed HPCL in various places are monitored by the operation across India by software program and 26% of them somewhat agree the concept that they are keeping an eye on it and 15% disagree that they did not come across the monitoring and 4% stand neutral.

Chart 5.8: various places are monitored the operations across India by HPCL

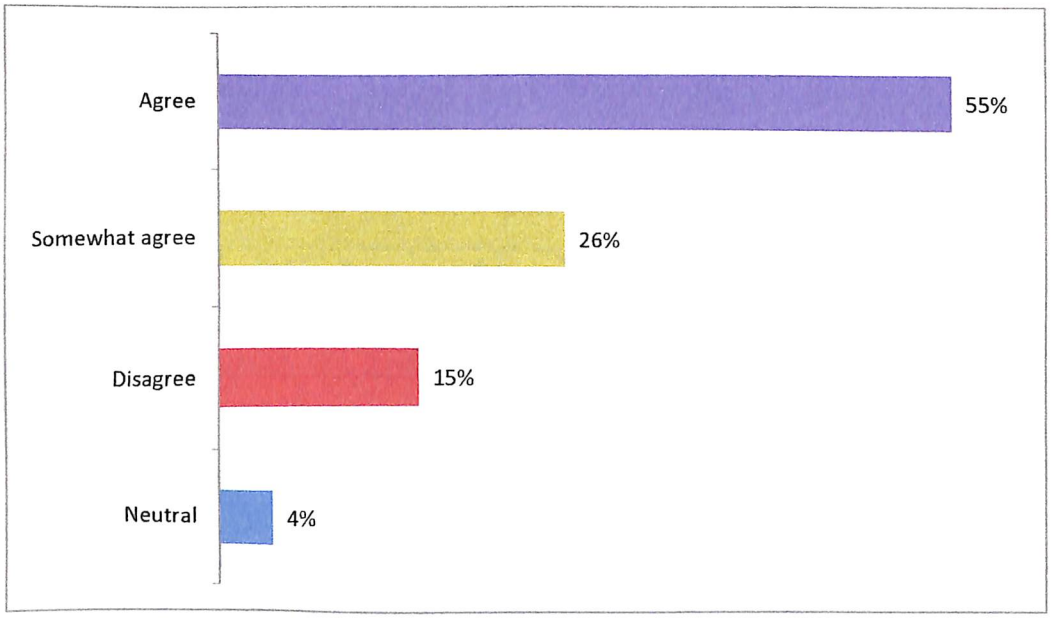


Table 5.9: Specific energy and water consumption program monitored by HPCL

Options	Percentage
Agree	57%
Somewhat agree	24%
Disagree	16%
Neutral	3%
Total	100%

It is interpreted that 57% of them agreed that specific energy and water consumption program is monitored by HPCL along with other operation oil depot and rain water is also harvested and 24% of them somewhat agreed by the concept and 16% disagree about the program monitoring by HPCL and 3% stand neutral.

Chart 5.9: Specific energy and water consumption program monitored by HPCL

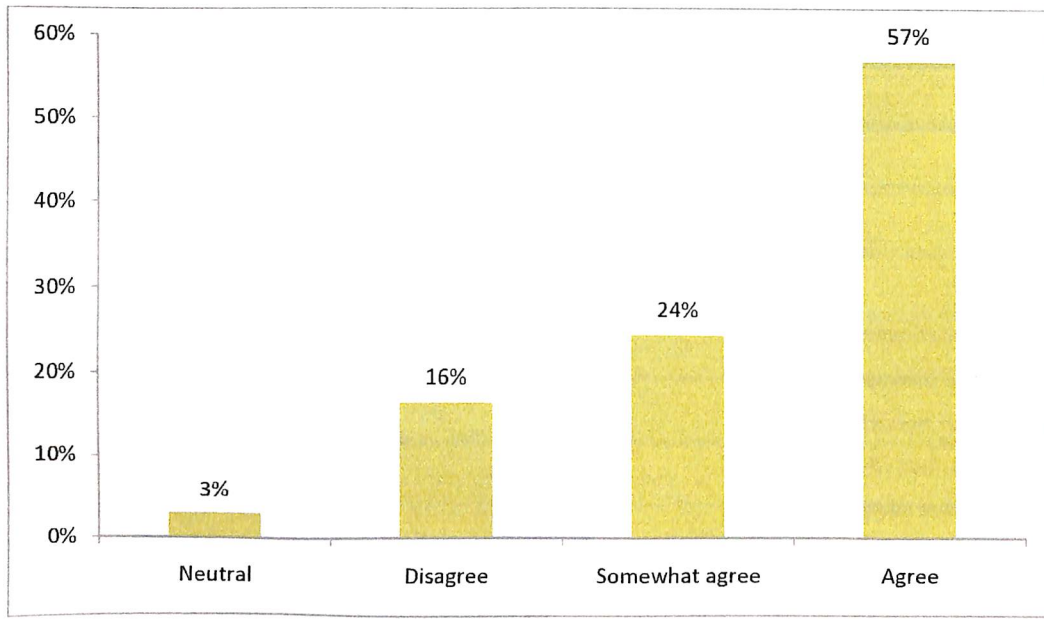


Table 5.10: Risk analysis program taken by HPCL

Options	Percentage
Risk in the organization	44%
Risk in gap security	29%
Risk in information security	26%
Risk in security controls	25%
Risk in employee awareness	12%
Risk in potential security	9%
Risk in cost management	5%
Total	150%

The above table show that that risk analysis program taken by HPCL depicts 44% risk in the organization, 29% is the gap security risk, 26% of information security risks 25% risk with security control, 12% of employee awareness risk in organization, 9% risk with potential security and 5% risk with the cost management in HPCL oil depot

Chart 5.10: Risk analysis program taken by HPCL

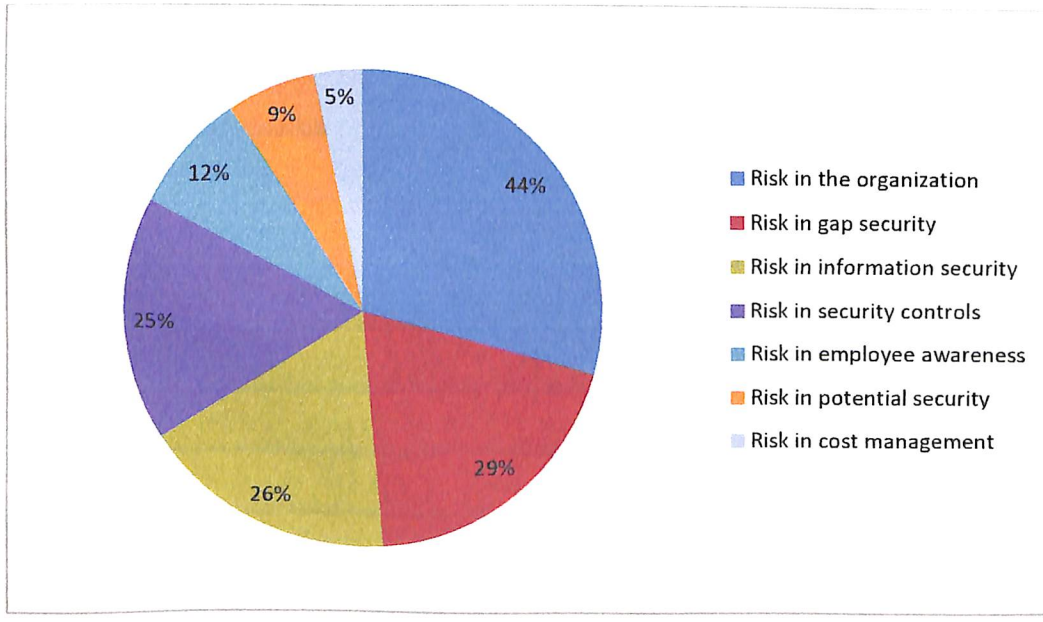


Table 5.11: Quantitative Risk Analysis submitted by the Risk managers for HPCL

Options	Percentage
Graph	43%
Scenario Analysis	38%
Sensitivity Analysis	19%
Total	100%

It is interpreted that Risk managers for HPCL need to submit the Quantitative Risk analysis in various ways for the company, such as through graphical model which is considered to be important by 43% of the respondents, 38% said scenario analysis, 19% thought sensitivity analysis is important and must be submitted by the risk managers for HPCL.

Chart 5.11: Quantitative Risk Analysis submitted by the Risk managers for HPCL

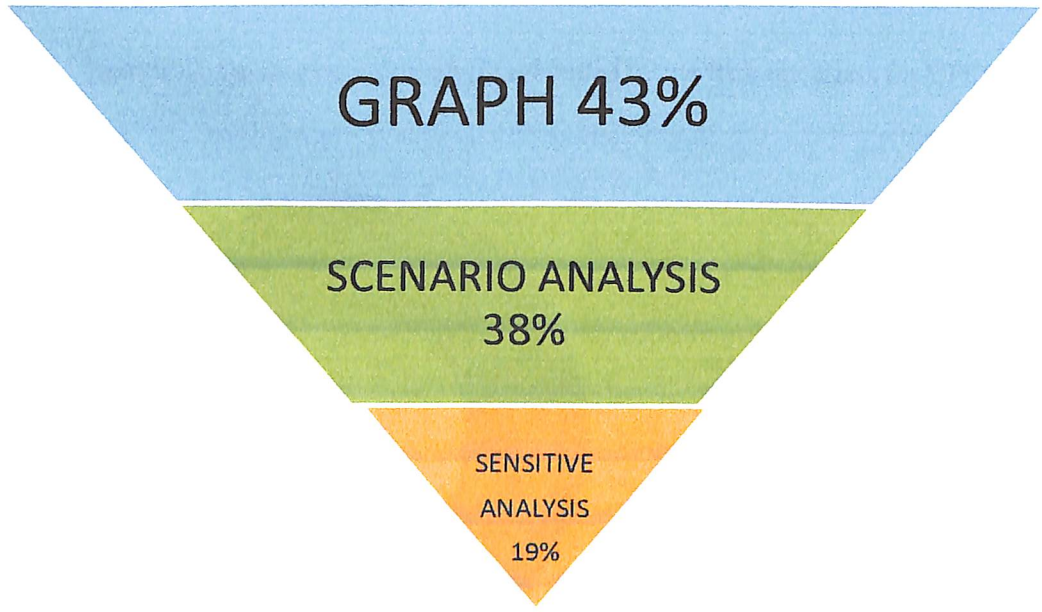
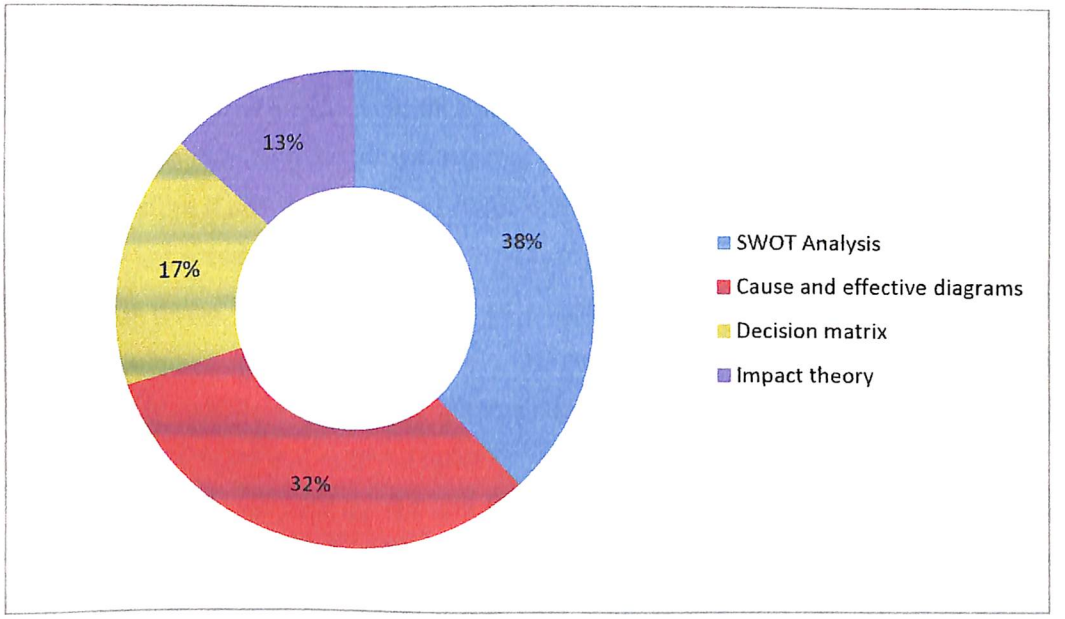


Table 5.12: Qualitative risk analysis submitted by the Risk managers for HPCL

Options	Percentage
SWOT Analysis	38%
Cause and effect diagrams	32%
Decision matrix	17%
Impact Theory	13%
Total	100%

It is clearly shown in the above table that Qualitative risk analysis submitted by the risk managers for HPCL are SWOT analysis 38%, cause and effect diagrams, decision matrix, and impact theory. Through these qualitative risk analyses the issues of the company could be analyzed and solved properly.

Chart 5.12: Qualitative risk analysis submitted by the Risk managers for HPCL



CHAPTER 6

FINDINGS

1. It is found that quantitative risk analysis performed to identify potential hazard scenarios of oil depot were maximum risk criteria of 68% and minimum risk criteria having 32% located of oil depots found in Delhi HPCL.
2. It is found that average risk level in 2015 was 16% , risk in 2016 increased to 22% and in 2017 it was 30% and in 2018 it was highest i.e., 32% risks of storing oil in oil depots.
3. It is found that the kind of population near the oil depot of HPCL is 25% commercial population, 37% industrial population, and 28 % other and being near to the oil depot they are exposed to risk when any accidents occur.
4. It is found that damages in the oil depot occur due to various reasons which include oil spills 15%, leakage 23%, corrosion 25% and electrical fire 37% which is highest. Most of industry falls prey for the electrical damage if not checked properly.
5. It is found that that environment risk damages factors could be soil corrosion, earthquake and fire among which earthquake is of the highest risk and therefore based on this the construction is done in the oil depot.
6. It is found that HPCL undertook safety program steps where 76% of them accepted it because they would maintain suitable distance between the oil depot and the villages therefore if any disaster might occur it would not affect the villages and 24% of them did not accept.
7. It is found that new technology of constructing many underground storage for oil depots was considered safe by 54% respondents and that the monitoring from satellite is safe was accepted by 46% of respondents as, in case any damages occur could be easy identified and resolved quickly.
8. It is found that 55% agreed HPCL in various places are monitored by the operation across India by software program and 26% of them somewhat agree the concept that they are keeping an eye on it and 15% disagree that they did not come across the monitoring and 4% stand neutral.
9. It is found that 57% of them agreed that specific energy and water consumption program is monitored by HPCL along with other operations at oil depot and rain

water is also harvested and 24% of them somewhat agreed by the concept and 16% disagree that the program is monitored by HPCL and 3% stands neutral.

10. It is found that under the Risk analysis program of HPCL, 44% respondents sense risk within the organization and 29% respondents sense the gap security risks and 26% sense information security risks, 25% sense security control risks, 12% sense employee awareness risk in organization, 9% sense potential security risk and 5% sense the cost management risk in HPCL oil depot.
11. It is found that Risk managers for HPCL need to submit the Quantitative Risk analysis in various ways for the company like graphical model, scenario analysis and sensitivity analysis among which graphical model was regarded of utmost importance.
12. It is found that Qualitative risk analysis submitted by the risk managers for HPCL are SWOT analysis 38%, cause and effect diagrams, decision matrix, and impact theory. Through these qualitative risk analyses the issues of the company could be analyzed and solved properly.

CHAPTER 7

CONCLUSION

Traditionally, safety has been viewed as a system component failure problem. Preventing accidents than essentially requires making every individual component entirely dependable. This methodology, in any case, misrepresents the accident process and can't prevent accidents made by interactions among components that have not fizzled. Another, systems way to deal with accidents rather believes safety to be a control problem.

The industry safety control structure of a safety management system at the industry level. Safety management systems (safety control structures) additionally exist inside each organization albeit some are not very much planned. Safety management systems are likewise being made for inside FAA exercises, for example, airport regulation.

Joining of safety engineers into operational decision making one of the surprises to by and by in the investigations was the absence of any operational safety group exhorting the decision makers on the platforms. On the off chance that such a group existed, it didn't assume an important enough job to be mentioned in the depiction of the events that happened. Ventures with solid safety programs incorporate an individual or group that is responsible for instructing management at all levels regarding the organization on both long haul decisions amid engineering structure and improvement of new platforms and on the safety ramifications of decisions amid operations. In most different businesses, a safety architect would have been inhabitant on the platform and associated with all the continuous safety-related decision making. This change should be set up by any organizations that don't as of now have such a process safety engineering group.

Certification and training: Another exercise gained from the examination of the risk analysis is that a few specialists have negligible training and little certification is required. The changes required here are self-evident.

Learning from events: A systems way to deal with accident and episode examination should be actualized by everybody in the industry so as to improve the learning and persistent improvement process.

Risk analysis: While the process industry has an extremely powerful Risk analysis technique, called SWOT analysis, the utilization of this technique isn't as common as it ought

to be. The outcomes from SWOT should be utilized to improve mechanical plan and furthermore go to operations to control maintenance and execution reviews.

Maintenance: For the oil terminal well, maintenance of safety-basic equipment, for example on the HP, was not executed as required for safety and as indicated in the equipment measures. Administrative offices can just spot-check consistence. Guaranteeing that appropriate maintenance exercises are performed is an important activity for the organization Safety Management System.

Outsider Certification: The problem is illuminated by the utilization of DERs, who might be autonomous experts or may really work for the organization in which oversight is being connected. DERs exist for individual technical engineering fortes, for example, impetus, structures, for general system engineering, and for actualizing oil terminal. The DER works under the oversight of a FAA representative and has the ability to endorse technical information and exercises in organizations. Different kinds of mechanisms are utilized to guarantee that DERs are technically very much qualified and execute their obligations with suitable consideration, persistence, and freedom from irreconcilable circumstances.

Management of change: As noted prior, accidents regularly happen after changes. Any change that has safety suggestions ought to be painstakingly assessed, including playing out a SWOT analysis, before it is permitted. Most organizations have arrangements for management of change, yet the usage and authorization of these strategies can shift extraordinarily. One of the one of a kind parts of the seaward oil and gas industry is the requirement for changes to techniques immediately dependent on information revealed about the specific geological conditions experienced. It might be unrealistic for to favor every one of these changes in an auspicious enough way. The significance of the safety engineering function inside the organizations enters here. HPCL utilized a decision tree to settle on constant decisions about exercises on the platform. Such decision trees can and ought to be investigated preceding use for the safety of every one of the branches. Furthermore, the consultation with a safety engineering master amid operations can likewise improve decisions about required changes, which is another motivation behind why a solid process safety engineering group should be firmly integrated into operations and operational decision making.

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