

Next global refinery hub of the world economics essay

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Fulfillment of the degree of

MBA (International Business)

Under Guidance of:

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CERTIFICATE OF ORIGINALITY

This is to certify that Mr. Lakshmi Pratap Singh, a student of MBA in International Business in University Of Petroleum And Energy Studies has worked under the able guidance and supervision of Dr. Prasoon Dvivedi (faculty in College Of Management And Economics Studies). This Dissertation has the requisite standard for the partial fulfillment for the award of degree of MBA in International Business. To the best of my knowledge no part of this report has been reproduced from any other report and the contents are based on original research. Lakshmi Pratap SinghMBA-International

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ABSTRACT

Oil is most essential source of energy in the world. The demand for petroleum products is directly linked to the countries' economic activities. The largest demand of petroleum products comes from Asia and Asia Pacific region in consumption shown by countries like India. Limits on petroleum products continue to tighten across the world as the demand for these resources grows with the rising global population. We can expect stringent surgical increase in the demand of petroleum products to be imposed by developing markets, while the pinch point demand in developed markets will remain constantly high. This paper will talk about the shifting of refinery hub from west (America, Europe) and Middle East (Singapore, UAE) to east (India) due to various factors including geographical location, lower transportation cost and easy access. Indian port and refinery connectivity also provides access to various international marine routes. India has gone through a long phase of development since the establishment of India's first Crude Oil Refinery located at Digboi, Assam in 1901 Under the British rule. Today, India

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Operates twenty-one Oil Refineries, which combines a total capacity of 193.386 MMTPA, which includes the largest refinery of the world by Reliance Industries Limited (RIL) located at Jamnagar, Gujarat with 33 MMTPA refining capacity, which is highest in the world. The paper will talk about the potential growth in Indian refinery sector in upcoming years. It will talk about the opportunities to attract the foreign investors that Indian firms can entertain and will examine the factors which support India to be a refinery hub and the challenges and opportunities in Indian Petroleum refining sector. This paper talks about various factors like geographical location, huge population base etc which provides India a competitive advantage over other countries in oil refinery sector. The International Energy Agency (IEA), ciphers that by 2013, India will appear as the biggest Refined Petroleum Product Exporter of Asia, excelling the former leader Singapore.

Introduction

OVERVIEW

This paper talks about the Indian petroleum refining industry. But this particular industry is extremely open; trade flows are extremely large in comparison to production. And there is also a considerable overlap between oil production and oil refining internationally, and to some extent in India. So we start with a precise discussion of the international petroleum industry and its components – of course refining is one of them. Oil has been known and used for very long time; the Bible even mentioned it as construction cement. But its way of use changed with the invention of the automobile. World demand for crude oil grows from 78 mbpd in 2002 to 103 mbpd in 2025. Much of the growth in oil consumption is projected for the emerging

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Asian nations, where the strong economic growth results in a vigorous increase in oil demand. Emerging Asia (including India and China) accounts for 45 percent of the total world increase in oil use over the forecast period. India marches on the path of sustained economic growth, achieving levels of 7-8% of GDP growth per annum, its demand for energy, particular for oil and gas, continues to rise. Today, India produces 32 million tones of petroleum annually, but actually requires 113 million tones, a gap of 70%. As our economic growth increases in coming years, this gap in next five years could reach 75%, and over the next twenty, top 85%. India is not alone in its dependence on oil and natural gas imports for economic growth; the principal industrialized countries, such as USA, Europe and Japan, are similarly placed. China became a net importer since 1993, and is expected to import 50% of its oil. The challenge in front of us is clear; we have to mount a major effort to utilize our technological and financial resources to discover more oil in order to gain the edge in oil refinery sector. Here, the task of the External Affairs and the Petroleum ministries coalesce. For a sustained diplomatic effort has to be mounted which brings together in one gigantic and coordinated national effort all of India's strengths and capabilities which are utilized to establish the engagement require by us. In this effort, our diplomatic strengths support the technological and financial capabilities of our petroleum organizations and, in working together, we achieve our national interest. This effort can be described as " oil diplomacy."

Objective

Refineries are key elements of the petroleum products supply chain contributing 10 per cent of the average price of total retailed distillates being

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ascribe to refining costs. However, given the broader macroeconomic view, refinery infrastructure investment keeps on facing severe challenges in developed jurisdictions, Western markets as well as in Asia and Asia Pacific markets. Objective of the paper is to analyze the various factors that influence the Indian refinery sector in order to show that the global refinery hub is shifting from West to East (India). Paper will talk about to do a detail study of the Indian refinery sector and historic growth, and to provide future forecasting for the industry.

Utilization or significance of the study

The study will be useful to assess the India's position in future global refinery sector. Study will provide a fresh picture of India's independence in refinery sector and will depict the country as a major refiner as well as a major refined product exporter country. The study will be carried out on the cost effectiveness and quality efficiency both taking in to consideration.

Scope & limitations of the study

Limitations

The data availability is limited. The data available has been gathered for other purpose so extracting the relevant data and using it is quite difficult task. Limited variables are available for future forecasting. The estimation is based upon the limited variables only assuming other factors as constant.

Literature review

"Cracking times for Eastern markets": Gaurav Sharma (2012)" There is a palpable drive in emerging economies like India in favor of refinery

investment as they do not have to contend with overcapacity issues

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hounding the EU and North America. The need for refined products is often seen superseding concerns about low refining margins, especially in the Indian subcontinent and Asia Pacific." India imports three-quarters of the crude it refines. It exports refinery products; its net exports are roughly ten per cent of production. The government operates an elaborate set of cross-subsidies to insulate domestic from international prices; such cross-subsidies have serious effects on the finances of the Indian companies involved, and influence competition amongst them. The oil companies, both public and private, are so large a part of the economy that the cross-subsidy regime cannot be sustained in all circumstances; sooner or later, the government has to bring domestic prices closer to international prices. Hence the state of competition in the international market and international prices are important for the domestic market," from INDIAN PETROLEUM INDUSTRY: Desai Ashok

HISTORICAL BACKGROUND

1. 2. 1 HISTORY OF ECONOMIC GROWTH

The industrial revolution that started in late 18th century, England was only promising due to the abundant resource of coal which was available there and to it's relative ease of extraction. The successive industrialization of Europe, Russia , north America and japan was all fuelled by cheap and plentiful coal. It is interesting to note that it is mainly those countries with plentiful coal that got industrializes first. Coal was the fuel of 19th century as it powered all of the machines of that time. Although oil has been in use since since ancient times, it is only mid 19th century from where that it started to get extracted in non-negligible quantities in Pennsylvania (USA), <https://assignbuster.com/next-global-refinery-hub-of-the-world-economics-essay/>

Romania and Baku in theCaucasus. Petroleum is been extracted from beneath the surface reserves; then it is cracked or " refined" into end products for various uses. The petroleum industry can be divided into two parts: First one is oil exploration and production industry upstream and second one is refinery industry downstream. Most of the oil producers also own their refineries. But the vice-versa is not true all the time; a high proportion of crude oil is been sold to refinery companies which do not extract or produce crude oil. Sedimentary rocks where in hydrocarbons are trapped often hold gas also, sometimes in association with crude oil and sometimes alone. It is made mostly of methane, which by property is lighter than air and piousness. It therefore necessitate airtight tanks for storage and similarly advanced leak-proof pipes or trucks for handling and transport, which raise its total capital costs. Associated gas used to burned up in early years of the industry; though it is still burned up at remote or minor oil wells where the cost of its collection and transport would be high, or usually injected back into the oilfield to maintain adequate pressure which will forces oil up to the surface. But where the quantity of the gas is large enough to trade, natural gas is also exploited and traded. It is majorly used as a domestic, industrial and vehicular fuel. Motor vehicles run almost solely on petrol and high-speed diesel oil, both fuels derived from mineral oil – although they can be modified to run on certain bio fuels. Vehicles are so ideally dispersed that they require an extensive distribution system for these two refinery products. As motor vehicle use has spread across the world, it has brought along with it petrol pumps, logistics, storage and supply of fuels. There is thus a third part of the petroleum industry downstream from

refineries which distributes the products. It is owned by refineries in most countries. But this is not inevitable. Some countries have distribution chains that are independent of producers and refiners; and in countries which do not have refineries, distribution is undertaken by either local or foreign oil companies. Oil has collected in pools and seeps for thousands of years. The Chinese are recorded as having extracted oil from wells 800 feet deep through bamboo pipes in 347; they used it to evaporate brine and make salt. American Indians used to put it to medicinal uses. Persians, Macedonians and Egyptians used tars to waterproof ships. Babylonians used asphalt in the eighth century to construct the city's walls, towers and roads. But the easily available oil was not put to any mass use because the crude itself was not a good fuel; it gave out much soot and smoke. A distillation process using a retort was invented by Rhazes (Muhammad ibn Zakariya Razi) in Persia in the 9th century; liquid heated in it vaporized, passed through a curved spout and condensed in another container. The process could be used to make kerosene; but it was more often used to make alcohol and essence of flowers for perfume. It was a batch process, its fuel consumption was high, and it was not equally efficient at distilling kerosene from all crudes. A more efficient and reliable distillation process came out of a series of inventions after 1846. The last invention was the invention of oil fractionation in 1854 by Benjamin Silliman, a professor of science in Yale. It used a vertical column which separated components more efficiently, and which could be used continuously. Oil was first produced in Titusville, Pennsylvania (USA) in 1859 by one Edwin L Drake, who refined it into kerosene, which was then used as an illuminant. Electricity did not emerge as an illuminant till the Edison

Electric Light Company was founded in 1878. Well into the 20th century, kerosene, gas and electricity continued to compete as illuminants. Whilst the use of gas as an illuminant has virtually disappeared, a large population, especially in India, continues to use kerosene as illuminant. The invention of the motor car by Karl Friedrich Benz in 1885 created a market for petrol, a new refined product (petrol is called Benzin in Germany, but is not named after Karl Benz). In 1898, Rudolf Diesel invented an engine in which oil was ignited by compression; the diesel engine he invented came to power larger vehicles, principally trucks and buses. Diesel engines used a different fuel, which was named diesel oil. After this, the production and use of motor vehicles spread rapidly in the United States, especially after 1908 when Henry Ford began mass manufacture of his Model T; and petroleum and diesel oil became the most important refined products, first in the US and progressively across the world. However, only a certain proportion of crude oil can be converted into motor fuels. The demand for kerosene, the original distillate extracted from crude oil, has gone down with the spread of electricity. So other refined products have been developed, and non-vehicular uses developed for them. Some of the products differ little from motor fuels; for instance, naphtha, extensively used to make nitrogenous fertilizers and chemicals, is little different from petrol; and jet fuel is very similar to kerosene. Thus, refineries find markets for their products in many industries other than motor transport. See (Appendix-table C4)

Methodology

This is an empirical research based on observed and measured phenomena.

This paper is based on actual observations or experiments using quantitative research methods.

Data sources

As the study is being carried out on macro level so it completely consists of secondary data. The data being used is taken from ministry of commerce and various other international organizations.

Method of data collection

Data collection will be done electronically as it is mentioned above that it is a secondary recourse based study. The comparative study and graphs will be drawn on the basis of the information provided by ministry of commerce. Various economic journals and business magazine of related sector will also be referred as required.

Model

The study will include both models quantitative as well as qualitative. Some experiments are need to be done in order to forecast within the given parameters. And some factors are needed to be interpreted in order to draw the impacts on the topic.

Technology and Products of refinery

This part of the dissertation provides a précised overview of the technological and production process. A basic understanding of these issues is essential as it helps to understand the industry structure. Crude oil is a

liquid mixture of hydrocarbons – chemical compounds consisting roughly of six parts of carbon and one of hydrogen, both of which are fuels; it generally also carries small quantities of sulphur, salts, metals, oxygen and nitrogen. It was formed from organic remains accumulated undersea and eventually trapped in sedimentary rocks; these rocks are where crude oil exploration is concentrated. Generally the oil is compressed, and gushes out if a pipe is pushed into an oil-bearing trap. But as it is extracted, the pressure diminishes, and it is often artificially reinforced by injection of air or water into the reservoir to push up the oil. Crude oil contains hydrocarbons that vary in their boiling point; refining is a process in which crude oil is heated in a vacuum until it evaporates and then allowed to rise up a column. Different hydrocarbons liquefy at different temperatures and can be collected at various heights in the distillation column. In the basic refinery process, crude is heated to 600°C by injection of superheated steam and pumped in at the bottom of a vertical distillation column. As the vapour rises up the column, it cools. The column has trays at various heights with holes. As the vapour cools, fractions with different boiling points liquefy, collect in the trays and are drained off; products with high boiling points rise to the top, while products with low boiling points collect on lower trays. The principal products, with their approximate boiling points, are petroleum gas (20°C), naphtha (40°C), petrol (70°C), kerosene and jet fuel (120°C), diesel (200°C), lubricant (300°C), and furnace oil (370°C); solid petroleum coke collects at the bottom after the liquid fractions are removed. The proportions in which these products come out vary to an extent with the crude; crudes are classified as light or heavy according to the proportion of light products. But

the balance of demand and supply of the products is such that the prices of furnace oil are much lower than those of light products such as petrol, kerosene and diesel oil. In August 2008, international prices of residual fuel oil ranged from \$2.29 to \$2.48 a gallon; the corresponding range was \$2.68-3.05 for petrol, \$3.06-\$3.29 for diesel oil, and \$3.18-\$3.38 for jet fuel. So other technologies are employed to crack, alter or recombine molecules and make lighter hydrocarbons from residual fuel oil. The principal products obtained from the primary refining and cracking processes are (see Appendix - table B5 and C1 for product-wise production and consumption): Liquefied petroleum gas (LPG), mostly a combination of butane and propane. It is heavier than air, and liquefies under pressure. It is used as a household cooking fuel, refrigerant, and vehicular fuel; 4 million vehicles are estimated to be powered by LPG in the world. Petrol is used to fuel internal combustion engines, mainly vehicular. Its early use as a killer of lice and their eggs has completely disappeared. Naphtha is used to make additives for high-octane petrol, and to make polymeric plastics and urea, a nitrogenous fertilizer. Aviation turbine fuel (ATF) is the fuel used in propeller planes. It is akin to petrol. Kerosene, also known as paraffin, is used as an illuminant and cooking fuel in India and other poor countries, and as a space heating fuel in industrial countries. Jet fuel, used in jet planes, is closely akin to kerosene. High-speed diesel oil is used in engines running at 750 revolutions per minute (rpm) or more. It is mostly used in diesel-powered vehicles. Light diesel oil is used in diesel engines running at lower speed – mainly irrigation pumps and generation sets. 4Furnace oil is made by diluting residual fuel oil from refining with middle distillates such as diesel oil. It is used in boilers,

bunkers, heaters, furnaces, or as fertilizer feedstock. Low-sulphur heavy stock (LSHS) is a variant of furnace oil. Lubricating oil consists of greases and viscous oils used to lubricate moving parts in industry, automobiles, railway engines and carriages and marine engines. Paraffin wax is used as an electrical insulator, for heat storage and in thermostats. Asphalt is a black thermoplastic product that is used to make roads and sometimes for waterproofing. It is similar to tar, which is made from coal. Asphalt is also found in natural form; it was used to waterproof Egyptian mummies. Petroleum coke is mostly used as fuel, but is also used to make electrodes and dry cell batteries. Some petrochemicals are produced in large enough bulk to take a significant proportion of refinery products: the world consumed 345 million tons of hydrocarbons in 2004 to make 310 million tons of petrochemicals. Most of the hydrocarbons are first turned into one of three intermediates - ethylene, propylene and aromatics - before being converted to other products. Of the latter, plastics accounted for 225 million tons, and fibers for 38 million tons; solvents, detergents and synthetic rubber accounted for most of the rest.

Global Oil Industry

In the early years of the industry, oil or gas seeped out of the earth in many places; elsewhere it was discovered by accident while drilling for water. But such easy discoveries are long gone. Undiscovered oil is all underground, and oil exploration today uses considerable instrumentation - gravimeters, magnetometers, seismic reflectors and refractors - and stratigraphy, which is essentially correlation of available geological data. The data obtained are correlated to guess the location of rock formations and identify those that

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are most likely to contain hydrocarbons. Then rigs are used to drill into those formations. Drilling costs much more than geological tests; so oil companies invest heavily in geological investigation. Oil production requires drilling a well into land or seabed. Land usually belongs to someone; if it is not privately owned, it belongs to the government. Similarly, maritime countries claim ownership of the continental shelves along their coastlines. If someone wants to explore for oil, he has to get permission to drill. If he finds oil, he will normally want first right of exploitation. So it is normal for explorers to make an agreement with the owner, called a concession, which lays down the rights of the concessionaire and the payments he would make for them. In the early years, when oil developments were small, it was generally enough to get a concession from a private owner or a number of neighbors. In the US, there were large unoccupied areas where companies could drill without anybody's permission. But as oil is came to be extracted from deeper formations, investment went up, and exploration passed into the hands of companies which could raise capital. Also, a large area of concession became necessary to avoid disputes with neighbouring concessionaires. Such large areas required the intervention of governments. In the early concessions, governments played the role of landlords, and generally levied a royalty per barrel of oil extracted. For instance, the Shah of Persia gave a concession in 1901 to William D'Arcy, a rich Englishman, to prospect for oil in most of Iran for 60 years, for which he was promised £20,000 in cash, £20,000 in shares of the oil company and 16 per cent of profits. Standard Oil of California negotiated a concession with the King of Saudi Arabia in 1933.

Indian Oil refining scenario

India produce only a quarter and imports three-quarters of the total crude it refines (Appendix-table D1). It exports refinery products (Appendix-table E2); its net exports are roughly ten per cent of production. The government operates an elaborate set of cross-subsidies to insulate domestic from international prices; such cross-subsidies have serious effects on the finances of the Indian companies (Appendix-table I2) involved, and influence competition amongst them. The oil companies, both public and private, are so large a part of the economy that the cross-subsidy regime cannot be sustained in all circumstances; sooner or later, the government has to bring domestic prices closer to international prices. Hence the state of competition in the international market and international prices are important for the domestic market.

Structure of Indian oil and gas industry

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Analysis

2. 1 India's refining capacity

India's refining industry has done excellently well in setting itself as a key player globally. India is establishing itself as a refinery hub and refining capacity excels the domestic demand. The last ten years have seen a wonderful growth in the refining sector. The country's refining capacity has increased from a modest 62 Million Metric Tonnes Per Annum (MMTPA) in 1998 to 215. 066 MMTPA at present, comprising of 22 refineries - 17 under Public Sector, 3 under private sector and 2 in Joint Venture (JV). During 2011-

12, two new JV refineries of 6 MMTPA and 15 MMTPA were commissioned in Bina, Madhya Pradesh and Bathinda, Punjab. These refineries would augment the availability of BS IV compliant fuels in Central and Northern parts of the country. The capacity wise detail of the refineries is mentioned bellow in the table

2. 1. 1 Table

Serial No.

Refinery Location

Name of the company

Name Plate Capacity (MMTPA)*

PSU Refineries

Guwahati	Indian Oil Corporation	1. 00	Baruani	6. 00	Koyali	13.70	Haldia	7. 50
Mathura	8. 00	Digboi	0. 65	Panipat	15. 00	Bongaigaon	2. 35	Mumbai
Hindustan Petroleum Corporation Ltd.								
6. 50	Vishakhapatnam	8. 30	Mumbai	Bharat Petroleum Corporation Ltd.	12. 00	Kochi	9. 50	Manali
Chennai. Petroleum corporation Ltd								
10. 50	Nagapattinam	1. 00	Numaligrah	Numaligrah Refinery Ltd	3. 00	Mangalore	MRPL	15. 00
Tatipaka, AP								
ONGC								
0. 66								

Total

120. 066

Joint Venture Refineries

Bina	Bharat Oman Refinery Ltd.	6. 00	Bathinda	HPCL Mittal Energy Ltd.	9. 00
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Total**15. 00****Private Sector Refineries**

JamnagarRelience Industries Ltd. 33. 00SEZ, Jamnagar27. 00VadinarEssar Oil
Ltd20. 00

Total**80. 00****Grand Total****215. 066****MMTPA*= Million Metric Tons PER Annum**

The refining capacity of Indian refineries is on it's way to boost and not only making india self sufficient for domestic consumption but also providing a significant surplus for export of petroleum products which is helping india to enhance it's current account balance deficit on such a crucial time. Since 2001-02, india has been a net exporter of petroleum products. During 2011-12, india also found out 60. 5 million metric tons of petroleum products in exploration process which worth US Dollar 58. 2 billion. As per Platts assessment, India is the largest exporting country in Asia since August 2009.

2. 2 Expansion of existing refineries capacity**2. 2. 1 Table**

Serial No	Name Of The Company	Location Of The Refinery	Increase In Capacity, Mmtpa
1	Indian Oil Corporation Ltd (IoCl)	Koyali, Vadodara, Gujrat	4. 300
2	Indian Oil Corporation Ltd (IoCl)	Haldia, West Bengal	0. 500
3	Hindustan		

Petroleum Corporation Ltd. (HPCL)Mumbai, Maharashtra2. 000Hindustan
 Petroleum Corporation Ltd. (HPCL)Vishakhapatnam, Andhra Pradesh6.
 700Bharat Petroleum Corporation Ltd. (BPCL)Mumbai, Maharashtra1.
 500Bharat Petroleum Corporation Ltd. (BPCL)Kochi, Kerala6. 000Chennai
 Petroleum Corporation Ltd. (CPCL)Manali, Tamil Nadu0. 600Numaligarh
 Refinery Ltd. (NRL)Numaligarh, Assam5. 000Mangalore Refinery &
 Petrochemical Ltd. (MRPL)Mangalore, Karnataka3. 000Bharat Oman Refinery
 Limited (Bhaat Petroleum Corporation Ltd. & Oman Oil Company, Joint
 Venture), BinaBina, Madhya Pradesh3. 000Essar oil Ltd. (EOL); Private
 SectorJamnagar, Gujarat18. 000

TOTAL

50. 600

Trend Analysis

Trend Analysis is an aspect of technical analysis that tries to predict the future movement of a commodity in terms of import and export based on past data. Trend analysis is based on the idea that what has happened in the past gives economist an idea of what will happen in the future. There are three main types of trends: Short term trendIntermediate term trendLong-term term trend.

In this report we will only talk about the long term trend.

As it is clearly visible through the bellow shown graph that the export of the commodity has increased every year with a rapid rate. The production of domestic crude oil has also increased from 169. 25 Mn Tonne in 2006-2007

to 228. 07 Mn Tonne in 2010-2011. (Source: Based on Ministry of petroleum publication.)

Source: Based on Ministry of Commerce Data Bank.

Although the rate of growth was slow in the beginning of the decade. From 2001-2002 to 2004-2005 the growth was comparatively modest in comparison to the growth between 2005 to 2007 and 2009 to 2011.

Trend analysis of growth in petroleum export

Calculating the trend in petroleum refined product consist of three steps:- Subtract the current year's export value from the previous year's export value. If resulting export value is positive (+) then the trend is considered positive and if the resulting value is minus (-) then the calculated trend is considered negative. Divide the resulting value by previous year's value And multiply by 100. It will give the percentage increase/decrease change according to the sign.
$$\frac{\text{Previous year's export's value} - \text{Current year's export's value}}{\text{Previous year's export's value}} \times 100\% \text{ change}$$

Trend Percentage

To calculate the change over a quite longer period of time, the following steps should be taken:- Select the base year For each line item, divide the amount in each non base year by the amount in the base year and multiply by 100. The base year trend percentage is always 100%, a trend percentage of less than 100% means that the balance has decreased below the base year level in the particular year. A trend percentage greater than 100% means the balance in that year has increased over the base year. A negative trend percentage represents a negative number.

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Year**Value****growth****Year's total export****% share**

2001-2002 994, 794. 3316. 4620, 901, 797. 344. 7594 2002-2003 1, 218, 168. 3622. 4525, 513, 727. 664. 7746 2003-2004 1, 602, 300. 1131. 5329, 336, 674. 755. 4618 2004-2005 3, 102, 540. 2793. 6337, 533, 952. 628. 2660 2005-2006 5, 045, 468. 9362. 6245, 641, 786. 1511. 0545 2006-2007 8, 302, 695. 9464. 5657, 177, 928. 5214. 5208 2007-2008 11, 310, 857. 7636. 2365, 586, 352. 1817. 2457 2008-2009 12, 168, 634. 967. 5884, 075, 505. 8714. 4735 2009-2010 13, 168, 168. 378. 2184, 553, 364. 3815. 5738 2010-2011 18, 657, 416. 1441. 6911 14, 264, 897. 1816. 3282 2011-2012 (Apr-Jun) 6, 760, 032. 3032, 525, 048. 9220. 7841

Source: Based on Ministry of Commerce Data Bank

Here 2001-02 will be base year, a trend analysis and percentage change will be measure on the basis of base year.

Graph on Percentage Change in Petroleum's Export**Source: Based on Ministry of Commerce Data Bank.**

It is clearly visible through the graph that export of the petroleum has been increasing from 2001-2002 to 2004-2005 and it started to fluctuate since 2004-2005. Highest positive change was 93. 63% in 2004-2005 with unpredected high demand by countries like Iran, China RP, France,

Singapore and Netherland. Petroleum's export growth touched and record <https://assignbuster.com/next-global-refinery-hub-of-the-world-economics-essay/>

low in 2008-2009 (7.58%) due to constant demand of India's traditional importers Iran, France and declined demand of its major trading partner Iraq.

Share in Total Export

Source: Based on Ministry of Commerce Data Bank.

The share of export of petroleum in India's total export has always been significantly high because of steep world demand. More than seventy percent of the world's domestic transport depends upon petroleum running transport. The share of petroleum export in total export has always been in increasing slope starting from the decade. Although the growth in the beginning (2001-2002) was modest till 2004-2005. Petroleum started to acquire a high share (more than 10%) in total export right from 2005-2006. The curve of growth and bars of " export share in total export" are not showing proportioned symmetry because share in total export also depend upon the value of India's total export of that year.

India's top Exporting Destination Countries of petroleum with percentage growth

Country

2006-07

2007-08

2008-09

2009-10

2010-11

U ARAB EMTS

177. 6812. 2917. 63-7. 086. 61

NETHERLAND

-17. 13213. 439. 4921. 5313. 01

SINGAPORE

61. 386. 5-0. 94-19. 2389. 07

INDONESIA

283. 69-62. 53187. 1632. 93224. 18

KOREA RP

72. 14-28. 07269. 63-30. 02-17. 87

AFGHANISTANTIS

6. 1-92. 74805. 64503. 55-68. 62

IRAQ

29, 287. 75-98. 82-16. 896, 747. 02103. 49

Source: Indian Govt. Ministry of commerce

The top importers of India's petroleum are mentioned above. United Arab Emirate is India's permanent buyers with steady increasing growth in demand. The rest countries are also major buyers but with rapidly fluctuating demand. Iraq has been a constant fluctuating buyer all over the decade because of its political instability and ongoing war with America.

Govt. of India's Policies

New Exploration License policy

New Exploration policy (NELP) was conceptualized by the government of India to boost the activities in the sector, during 1997-98 to avail a level playing field for both, Public and Private sector companies in exploration and production of hydrocarbon with Directorate General of Hydrocarbon (DHC) as a nodal agency for its implementation. Government of India's commitment to the liberalization process is reflected in NELP, which has been conceptualized keeping in mind the immediate need for increase in domestic production. To attract more investment in oil exploration and production, NELP has steered steadily towards a healthy spirit of competition between National Oil Companies and private companies. This has been a land mark event in the growth of upstream oil sector as well as in oil refining sector of India. The foreign and Indian private companies are invited to supplement the efforts of National Oil Companies in the discovery of Hydrocarbons. And this sector acts as the auxiliary sector for refining sector in India. The development of

E& P sector has been significantly through this policy of Government of India, which brought major liberalization in the sector and opened up E & P for private and foreign investment, where 100% Foreign Direct Investment (FDI) is allowed. Under NELP, which became effective in February 1999, acreages are offered to the participation companies through the open bidding. The term and the condition of this open and transparent policy rank amongst the most attractive in the world.

Contract terms

Fiscal stability provision in the contract Finalization of contract on the basis of Model Production Sharing Contract (MPSC) . Petroleum tax guide is in place to facilitate investors. Possibility of seismic option in the first phase of the exploration period. NOC's to compete for acreage.

Fiscal and Contractual Terms

No payments of signature, discovery or production bonus. No custom duty on import required for petroleum operation. No minimum expenditure commitment during the exploration period. No mandatory state participation/carried interest by NOCs. Freedom to sell crude oil and natural gas in domestic markets at market related price. Biddable cost recovery up to 100% Sharing of profit petroleum based on pre-tax investment multiple achieved and is biddable. No Cess on crude oil production. Royalty payment for crude oil on ad-valorem basis. 12. 5% for on land areas. 10% for offshore areas Royalty on deep water areas (beyond 400m bathymetry) Option to amortize exploration and drilling expenditures over a period of 10 years from commercial production. Contribution to site restoration fund fully deductible

in same year for income tax. Liberal depreciation provisions making companies eligible for further tax adjustments Infrastructure status. 7 year tax holiday from commencement of production. Conciliation and Arbitration Act, 1996, which is based on UNCITRAL model shall be applicable

BID TERMS

Companies would be required to bid for Work programme commitment Profit petroleum share expected by the controlling at various levels of pre-tax multiple of investments. Percentage of annual production should to be allocated towards cost recovery

BID EVOLUTION CRITERIA

Evolution of bids will be carried out based on weightage assigned under the following four main criteria. Criteria Weightage on a scale of 100 points Shallow Offshore & On land Areas Deepwater Bloks For work programme, the maximum weightage would be given to the work programme commitment for exploration phase-1.

Findings

Refining challenges of India

India has managed to become a net petroleum exporter after fulfilling its ever high demand of petroleum products by the end of 2012 with the refining capacity of 215 MMTPA. This demand is set to increase by an additional ten per cent in 2013 to 238 MPTA. Domestic demand of the petroleum product is expected to grow at the rate of 16.7 percent in coming five years, while the refinery capacity of the Indian refinery facilities is expected to grow at 22.2 percent in the same time. It will result in an

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enormous surplus for both the capacity and refined products to sell into the global market.

Key Factors of Global Refinery Hub

There is a potential and lots of possibilities for petroleum in Indian and world market, analyze possibilities of carrying out practical diversification of programmes in petroleum exporting countries within the framework of promoting industrial income and growth and fighting current Account Deficit (India's today's major problem). Petroleum has been growing industry since independence, the most notable growth in Indian market, where import have been increased double, and market price has increased more than 20 times in very short time period. Petroleum market prices are constantly increasing in the domestic as well as world market twice or thrice every year. There is a constant struggle for India in the world market to export the petroleum due to technological advancement of developed countries and less crude oil resources availability in the nation.

India's geographical Location: Sea routes

India is located in the major maritime routes of the world covering the reach from Middle East to Far East. As we know major crude oil movement happens through the sea route only. India possesses a comparative advantage over other refining countries over the logistics cost and time ground. Western and southern coast are considered the transit landfall of the Middle East crude oil. India being a low cost refiner boosts its chances to benefit from this geographical factor.

Refineries establishment on western coast

India's seven major refineries e. i. Kochi, Mangalore, Mumbai, Koyali and Jamnagar are located on western coast. Shalala Port Singapore and Colombo Port Shree Lanka are two transit ports of the south-west Middle East.

Can serve Both Western and Eastern Market

The countries of the region with the high demand of crude oil like China, South Korea (Rp of K), Japan and Indonesia in the East and United Arab Emirates, Iran, Iraq and other Middle East and African countries depict a huge demand of refined petroleum products.

Constant Domestic Demand

Indian refining industry has an advantage of a constant demand coming from domestic market. Due to the huge population and increasing per capita income and expenditure level of Indian households, the demand for petroleum product in domestic market is independent.

NEW MARKET FOR PETROLEUM

Petroleum is the fuel of every economy's engine. The world population is growing at the rate of 1. 1 percent per year and requirement of the petroleum will also increase accordingly. India is 3rd largest oil refiner of the world according to its refining capacity. India is exporting petroleum to 147 countries in 2010-2011 fiscal years. Various negotiations are on progress with various countries for petroleum export. The petroleum market is highly competitive due to increasing refining capacity of china, South Korea and Singapore; hence India is looking for the ways to get ahead of the competition. The share of India's petroleum export is still very small in

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relation to the size and value of the world petroleum market, but the Exports are growing at very fast pace year over years.

LIST OF POTENTIAL MARKETS

These are the countries with more than 100-800 percent growth from the previous years import from India. These countries are U S A, U K, TURKEY, SYRIA, ROMANIA, BAHARAIN IS, POLAND, PAKISTAN IR, NIGERIA, NEPAL, MOZAMBIQUE and MAURITIUS.

Fresh markets

These are the countries to which India just started to export the petroleum.

These countries need focus due to being new and fresh un-penetrated market. These countries are NICARAGUA, PORTUGAL, NORWAY, SEYCHELLES, SIERRA LEONE, ST HELENA and CONGO D. REP.

RECOMMENDATIONS

Securing Strategic Partners

Although being an exporter of refined petroleum products, India still depends majorly on Imports of Crude oil. This is just because of steep increase in petroleum product consumption in country's Domestic market and relatively stagnant domestic crude oil production. If we look back, in 2010, India was the fifth largest net importer of Crude oil of the world, and was importing more than 2. 2 million bbl/d. A major part of India's crude oil imports, gets imported from the Middle East, with Saudi Arabia and Iran supplying the largest shares. For India to sustain the number one position of Refined Petroleum Product Exporter, Constant and Secure Supply of Crude Oil through Imports is Essential.

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To Increase The Capacity Of The Strategic Petroleum Reserves

The Global strategic petroleum reserves (" GSPR") are inventories of crude oil held by the governments or private companies, for the purpose of providing economic and national security during an event of high Crude oil price or energy crisis. These Petroleum Reserves Plays a Key role in insulating the customers against high crude oil prices in the international market. The Government of India Has Setup up ' The Indian Strategic Petroleum Reserves Ltd (ISPRL)', to serve as the controlling government agency for the strategic reserve. As on 2011, India has Strategic Petroleum Reserves of 5. 33 MMT. In Order to Further Secure Availability of Crude Oil at Low cost, India Must Increase its Strategic Petroleum Reserves apacity.

APPENDEX

Table: World's Top Net Oil Exporters

World's Top Net Oil Exporters, 2011

(Thousand Barrel Per Day)

Index No.

Country

Exports

1.

Saudi Arabiya8534

2.

Russia7129

3.

Iran2526

4.

UAE2458

5.

Nigeria2314

6.

Kuwait2228

7.

Iraq1909

8.

Norway1752

9.

Angola1752

10.

Venezuela1734

11.

Algeria1533

12.

Qatar1481

13.

Kazakhstan1422

14.

Canada1311

15.

Azerbaijan908

Table: World's Top Net Oil Importers**World's Top Net Oil Importers, 2011****(Thousand Barrel Per Day)****Index No.****Country****Imports****1.**

USA8804

2.

China5463

3.

Japan4328

4.

India

3272

5.

Germany2235

6.

Korea south2170

7.

France1716

8.

Spain1355

9.

Italy1301

10.

Singapore1230

11.

Taiwan1008

12.

Netherland951

13.

Belgium634

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14.

Thailand603

15.

Turkey59

Table: World's top oil producers**World's top oil producers, 2011****(thousands barrel per day)****Index No.****Country****Production**

Saudi

arabiya11154Russia10239USA10145China4347Iran4226Canada3600UAE308

8Mexico2960Kuwait2692Brazil2685Iraq2629Nigeria2554Venezuela2489Norw

ay2007Algeria1863

Table: World's top oil consumers**World's top oil consumers, 2011****(thousands barrel per day)****Index No.****Country****Consumption**

USA18949China9810Japan4464

India

3360

Russia3110Brazil2650Saudi Arabia2620Germany2400Canada2289Korea,
South2230Mexico2133France1792Iran1700United kingdom1608Italy1454