



Global Oil Market : Macro Economic Scenario

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ABSTRACT

Energy is an essential commodity for most human activities, directly (as fuel) or indirectly (to provide power, light, mobility). In traditional societies, populations rely on their own physical strength for labour, then on the power of domesticated animals, such as horses and oxen, then on water and wind, steam engines, hydrocarbons (coal, crude oil, natural gas etc) and finally – electricity (nuclear fusion and fission). Energy when combined with technology, multiplies human needs (e.g. motor fuel for cars, electricity for household appliances), and thereby playing a crucial role in pre- post-industrial and very recently IT era. For other essential needs such as space heating and cooking, the transition has been from local biomass (e.g. firewood, agriculture waste) to industrialized fuels (e.g. LPG, natural gas) and also electricity (Stern, 2011). Petroleum has become an important input in nearly every form of production function and process carried out in different economic sectors. Farming, mining, agriculture, industry, service sectors and manufacturing activities of all kinds have relied on petroleum and its by products. The prices of outputs in all economic sectors, including health and wealth of many economies have depended heavily on the price of petroleum products. India has heavily relied on oil which has been playing major role in the past, present, and future for its social and economic progress. In the recent years in India, oil price has been fluctuating (increasing or decreasing) and these key issues are not constant, because they are determined by some other relative factors like demand, supply, economic growth and political situations in oil producing countries (Anandan and Ramaswamy, 2014). Energy demand or consumption has also been increasing day by day and it reached the highest rate in all over the world. In economics, the prices of any product are primarily a function of demand, supply and other economic variables. In the past decade, oil prices were on a southward drive due to the rolling demand for oil particularly in China, India and other recently emerging and growing economies of the world. It is noticed that China (Second) and India (Fourth) are the largest consumer of oil in the world. Recently, in the Global oil market, the energy demand particularly, oil demand has been growing day by day, and supply was either artificially kept low by OPEC or the market condition was disrupted due to conflict in key oil producing countries like Iraq and other OPEC federations. The gap between demand (consumption) and supply (production) resulted in high oil price upwards and it reached more than \$110/ barrel (Sandeep Nayak, 2015). High oil price mostly encouraged and resulted with an enhanced oil exploration activities and countries like the US and Canada successfully drilled to extract oil from shale formations. Thus “shale oil revolution” is the subject matter of discussion in the global oil market. Now day's crude is still sliding and its price is yet to stabilize largely contributed by the deleveraging of financial positions in crude, which is exaggerating the fall in crude oil price. It is difficult to predict where exactly the crude price will bottom. Oil at \$50/ barrel is probably very close to the bottom but short term movements on a fear-led deleveraging cycle are difficult to understand (The Economic Times, 2015). This paper attempts to look at the crude oil price trends witnessed in the recent years along with the high level of volatility associated with it. The relationship between crude oil prices and market fundamentals, factors influencing world oil market and demand supply gap to look at alternative opportunities, policies and strategies has been analyzed and elaborated in this paper.

KEYWORDS : Crude Oil, Price, Macro Scenario and Oil Market

Introduction

Energy is one of the major inputs for the economic development of any country. In the case of the developing countries, the energy sector assumes a critical importance in view of the day to day increasing energy needs which require huge investments to meet them. Energy can be classified into several types based on the following criteria: Primary and Secondary energy; Commercial and Non commercial energy; Renewable and Non-Renewable energy. The demand for commercial and non renewable energy like crude oil started to accelerate with the invention of the internal combustion engine in the late 21st century and thus it becomes one of the most important commercially traded and vulnerable commodities worldwide. Modern civilization heavily depends on crude oil and it's by products. Oil is a most precious usable and important source of energy in the world. The human consume commodities and pay the price. Of these commodities, the oil is the one of much use all over the world and particularly in the developed-industrialized countries. The industrialized nations have completely taken for granted an uninterrupted supply of cheap hydrocarbon (Ibrahim Sami Nashawi, 2010). The vehicles, bikes, buses, trains, ships, planes, jets, factories, industries, manufacturing units and other economic, social, commercial, domestic and agricultural sectors have started consuming and using huge quantity oil for their development without considering the future consequences. As a result, economic development and economic growth has been taken place all around the world at the oil usage development of nations. The needs and consumption of oil has been increasing day by day and its demand has been increasing at highest rate in all over the world. At the sometime, oil prices have been showing exceptional instability during last 5 years. This kind of volatility was not even no-

ticed and witnessed during the period of oil shocks (1973 and 1979). In fact, during the 1967 oil embargo in Arab, price of oil fell from \$40/ bbl to \$15/bbl and thus a variance of \$25/bbl. Likewise, after five decades due to different incidents, the oil price came down from about \$36/bbl (1980) to \$15/bbl (1986 and 1988), \$13/bbl (1998) \$111.67/ bbl (2013) and now \$55/bbl (April, 2015). These changes were not drastic owing to the fact that huge Geo-political incidents had taken place in different time periods. Thus oil price fluctuations heavily affected consumers, producers and the overall investments in different sectors. It has been noticed that presently the price of oil does not seem to be amplified by traditional demand and supply relationships, but by dynamics of interlinked financial markets and changing Geo-political landscape (Syed Kaiser Mukhtar, 2011). Based on the discussion narrated above, this paper aims to analyze the oil production, consumption and price trends witnessed in different years along with the high level of volatility associated with it. The relationship between oil price and market fundamentals has been examined. The overall impact of rapidly changing oil price on world with respect to its inflation rate, external balances and overall growth has also been provided with authenticity of data support and data evidences. The empirical data from 1965-66 are used and projected upto 2034-35 in order to establish the driving forces behind the oil demand, supply and price. The outcome of this paper is purely based on the macro level secondary data available in the well established institute of international importance like IEA, OPEC, BP Statistics, WEO etc.

Energy and Economic Development

Energy is a highly critical commodity and basically a natural resource without which the existence of human being is highly questiona-

ble. It functions as a factor of production, as a process feed stock, as a consumer good and as a producer good. The availability of energy determines the shape of the life style of individuals and that of the economy. The evidences all over the world show that there is a positive association between per capita income and per capita energy consumption. Economic development and growth are needed for any economies, for which, and energy serves as an essential input. However, the relationship between economic growth and increased energy demand is always a straight linear. The per capita consumption of energy in India is one of the lowest in the world. India consumed 613 kgoe in 2011 compared to other countries. For example 7032 kgoe by US, 2029 kgoe by China, 5680 kgoe by Norway, 17418 kgoe by Qatar, and 10408 kgoe by Kuwait. Macro picture of global energy consumption shows that there has been a continuous and tremendous increase in energy use in different parts of world, particularly OECD countries, China and India. There are caused by several factors such as industrialization, urbanization and population explosion, coupled with expansions of automobile industry and mechanization of major activities in all production economic sectors. For all expansions in the economic sectors require huge quantity of energy, particularly oil. Thus the demand for oil has been continuously growing.

Global Oil Market: Consumption (Demand) and Production (Supply)

The demand for oil has always been a derived demand. Oil is not used for direct consumption. It is mainly used as a fuel for transportation, aviation, synthetic fibres and electricity. So the demand for oil is very large in strong as well as weak economies, due to increase in purchasing power caused by enhanced of global GDP. Let another significant contribution to global oil demand is from developing economies like China and India, caused by two important factors such as heavy industrial development on the one hand and on the other population explosion. The following section, global oil production, consumption and growth rates (annual and decadal) is explained in details.

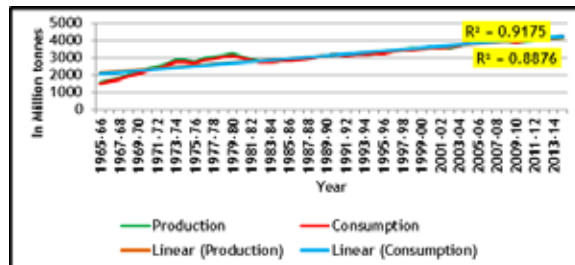
Table 1
Global Oil Production and Consumption
(Million tonnes)

Year	World		World Excess		Annual Growth Rate in (%)		Decade Growth Rate in (%)	
	Pro	Con	Pro	Con	Pro	Con	Pro	Con
1965-66	1567.9	1512.8	55.1	****	****	****	****	****
1974-75	2879.4	2727.4	152.0	****	0.3	-1.5	9.29	8.92
1984-85	2818.7	2817.8	3.9	****	2.0	2.2	0.32	0.48
1994-95	3244.0	3239.5	4.5	****	1.5	2.0	1.77	1.67
2004-05	3879.3	3856.6	22.7	****	4.7	4.2	2.00	1.95
2014-15	4187.7	4230.8	****	43.1	1.0	1.1	0.76	0.93
2024-25	4603.6	4675.6	****	72.0	0.9	0.6	0.98	1.04
2034-35	5019.5	5120.4	****	100.9	0.8	0.6	0.89	0.94

Source: Compiled and converted from BP statistics 2014 and 2015;

Note: Pro- Production; and Con- Consumption; Differences between these world consumption and world production are accounted for by stock changes, consumption of non-petroleum additives. Data from 2015-16 to 2034-35 projected on a based on application of Time series analysis

Figure 1
World Oil Production and Consumption: From 1965-66 to 2014-15



Source: Compiled and Converted from BP Statistics 2013 and 2014 and also derived from Table.1

Oil Production: The Table 1.0 and Figure 1.0 explain the world oil production from 1965-66 to 2034-35. It clearly elucidates that the world oil production is 4187.7 Mt in 2014-15; whereas, it was 1567.9 Mt in 1965-66. Over the past five decades average world oil production is 3127.2 Mt. The average annual growth rate constitutes 1.0 per cent in 2014-15 and it was 8.6 per cent in 1966-67. It is noticed that the annual growth rate of world oil production has been fluctuating over the past five decades. The different oil shocks occurred in different periods casused and resulted with increased crude oil production growth rate. For instance, crude oil production and averge annual growth rate was (2358 Mt) 10.0 per cent, (3091.9 Mt) -4.5 per cent, (3175.4 Mt) 2.1 per cent, (3618.2 Mt) 3.8 per cent and (3945.4 Mt) 2.0 per cent in 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively. Statistically specking High positive correlation (R² is 0.887) was found in and shown in the figure-1. It is also observed from table-1 that oil production have a positive impact during the past five decades except for 1880-81; but average annual growth rate during the past five decades reduced to 0.76 per cent in 2000s (2005-06 to 2014-15) and it was 9.29 per cent in 1960s (1965-66 to 1974-75); 0.32 per cent in 1970s (1975-76 to 1984-85); 1.77 per cent in 1980s (1985-86 to 1994-95); and 2.00 per cent in 1990s (1995-96 to 2004-05). The data on world oil production clearly stated that instability on the production of oil due to several macro economic events took place during these periods. The demand for crude oil mainly depends upon the changing different secotrs in world economic scenario. For instance various down turns like the Great Depression (1929-33), East Asian Crisis (1997) and the recent Financial Meltdown (2008) have lead to considerable fall in oil prices. Recent financial crisis and subsequent global downturn lead to fall of prices from a peak of \$147/bbl in June 2008 to less than \$50/bbl by December 2008. The global demand has registered a negative annual growth rate for past few years but overall crude oil production has been increasing lead the reasons being for some developed and developing countries have indentified new oil exploration areas.

Oil Consumption: Table 1 and Figure 1 also show the actual total world oil consumption from 1965-66 to projected oil consumption 2034-35. In general the oil consumption trend has been increased during these periods. The major factors for growing oil consumption was due to the growing world economy coupled with population explosion, an increasing need for oil in transport sector, and petrochemical industry, growing heavy industrial sector, as well as increased in number of households and expansion of commercial sectors in developed and developing countries. Further, it is understood from the table that World oil consumption in 2014-15 is 4230.8 Mt; whereas, it was 1512.8 Mt in 1965-66. From this analysis, one can conclude that on an average the world oil consumption is 3096.5 Mt during the study period. The world crude oil boom has lifted the levels oil consumption above 3096.5 Mt world output in 1960's to 2010's. The annual growth rates world oil consumption decreased by 1.1 per cent in 2014-15 and it was 8.8 per cent in 1966-67. During oil shocks of different periods, the growth rate of crude oil consumption decreased to (2260.3 Mt) 8.6 per cent, (2979.0 Mt) -3.8 per cent, (3158.1 Mt) 1.8 per cent, (3571.8 Mt) 1.3 per cent and (4031.9 Mt) 3.1 per cent in 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively. The average consumption of oil in the world was 2101.35 Mt during 1960s to 2010s. These high positive correlation was found in (R² is 0.917) figure 1. Further, the table revealed a fact that from 1965-66 to 1973-74 oil

consumption has increased very fast and thus having higher growth rates of above 5.0 to 6.0 per cent. But after the oil embargo ie in 1973-74, the oil consumption has increased up to 1979-80. At the same time, due to increased world oil consumption, the OPEC countries took a decision to reduce their oil production. As a result, the oil price again has gone up in 1979-80. Due to rise in price, major oil consuming countries like USA and Japan have reduced their consumption which in turn reduced the overall world oil consumption, from 1979-80 to 1985-86. Thus negative growth rates in world oil consumption was reflected and noticed. However, the world oil consumption has produced a positive impact during the past five decades but, at the same time annual and decade growth rates show a decreasing trends; that is 0.93 per cent between 2005-06 and 2015-16 it was 8.92 per cent between 1965-66 and 1974-75; 0.48 per cent between 1975-76 and 1984-85; 1.67 per cent between 1985-86 and 1994-95; and 1.95 per cent in 1995-96 between 2004-05. But in need it years global oil consumption has been increasing day by day, which are caused by many economic and social factors.

Factors determine the Global Oil Demand and Supply

Oil is one of the important strategic commodity which guarantees the development of modern industry and economy. It is also an important resource, which is scrambled by each interest group in the global oil market. Oil price fluctuation is always regarded as the barometer in changing worldwide economy and each change in oil price would be the hot issues which are and discussed generally in political and economic circle in every country (Lingyu Yan, 2012). The Long-term growth in demand for petroleum (oil) products depends upon a number of factors such as economic growth (GDP), elasticity of demand for petroleum (oil) products with respect to GDP growth, relative price levels of substitute products particularly LNG/CNG, saturation of LPG demand, and the impact of energy conservation measures. The demand for petrol and diesel is dependent on the growth of road infrastructure, the price of oil, the future efficiency of vehicles, the growth of alternate modes of transport and the emergence of substitutes like bio-fuels and/or technologies such as hybrids. Naphtha demand is dependent on the growth plans for fertilizer and petro-chemicals and its price relative to the price and availability of natural gas. In this paper, the authors hand systematically reviewed the historical path of international oil price fluctuation, analyzed comprehensively all factors, which effect the oil production, consumption and price fluctuation and finally proposed the countermeasures and suggested to respond the international oil price fluctuation. Through the indepth analysis, the researchers have identified the various factors influencing the price of oil. Such factors are oil demand and oil intensity. Global oil demand are subject to many factors such as growth factors uncertainty in supply and demand for oil, changes in macroeconomic and geo-political situations, population growth, urbanization, growing costs of exploration and production, Chnages OPEC policy, Dollar depreciation, taxes subsidies, the dynamics of the US dollar exchange rate and conditions of the global financial markets, including the cynical demand, prices of substitutes, changes in climate and market speculation.

Trends in Crude Oil Prices

A review of the trends in oil prices shows that oil displays quite wide price swings when markets suffer from scarcity or oversupply. From 1948 to 1970, oil prices remained more or less stable at around \$3 per barrel. In the history of oil market, formation of OPEC under cartel mode in 1960 by joining some oil surplus economies such as Iraq, Iran, Saudi Arabia, Kuwait and Venezuela is notable one in the context of oil prices. If we look at various periods it is quite clear that political or economic factors have played a significant effect on the pricing decisions of oil. In this context, one should know what is cartel. A cartel is an agreement among the competing firms and OPEC in a formal organization of oil producers that agree to coordinate oil prices, marketing and production of oil (Sana Samreen, 2014). Further, crude oil prices is also influenced by the consumer behaviour, coupled with different factors such as the pre-tax price of gasoline (or any other refined oil product); its raw material namely crude oil, transportation of crude oil from oil field to refinery, processing raw materials into refined products, transportation from the refinery to the consuming market, storage and distribution between the market distribution center and the retail outlet or consumer and market conditions at each stage in the local market. It is further noted that the production of oil is almost constant through control of OPEC countries and

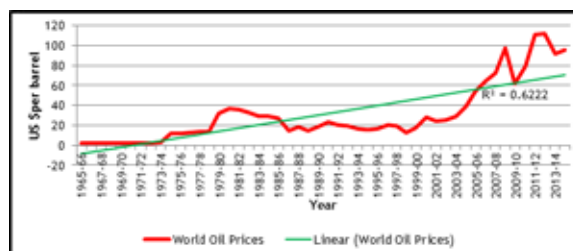
oil prices are fixed on the basis of order in international market. When the demand is more and supply is less, the bidder will be forced to pay more. This is called strong market. When the demand is less supply is more, the bidder will be interested in paying less. This is called weak market. Therefore both strong and weak markets prevail depending upon the nature of demand and supply conditions. Bidders need not always compete. Depending upon their stock position, they may wait for the price to come down to their desired level.

Table 2
World Crude Oil Prices during 1965-66 to 2014-15 and Projected Up to 2034-35
(US dollars per barrel)

Year	World	Annual Growth Rate	Decade Growth rate
1965-66	1.80	-	-
1974-75	11.58	251.98	60.37
1984-85	28.78	-2.61	16.62
1994-95	15.82	-6.78	-4.73
2004-05	38.27	32.74	13.87
2014-15	95.87	4.45	8.42
2024-25	136.78	3.08	4.09
2034-35	177.70	2.35	2.90

Source: Compiled and converted from BP statistics 2014 and 2015;

Figure 2
World Crude Oil Prices during 1965-66 to 2013-14



Source: Compiled and Converted from BP Statistics 2013 and 2014 and From Table No.2

The Table 2 and Figure 2 clearly show that the crude oil price was \$91.78/bbl in 2013-14 and enhanced to \$95.87/bbl in 2014-15; whereas in 1965-66, the crude oil price was only \$1.8/bbl. The world oil prices have reached a maximum level of \$116.67/bbl in 2013-14 and it drastically declined to \$56/bbl in December 2014. During oil shock/crises period the annual average growth rate of price was increased to (\$2.24/bbl) 24.4 per cent, (\$36.83/bbl) 16.5 per cent, (\$23.73/bbl) 30.1 per cent, (\$28.5/bbl) 58.6 per cent and (\$79.5/bbl) 28.91 per cent in 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 respectively. The projected world crude oil price will increase from \$99.96 in 2015-16 to \$177.70 in 2034-35. Crude oil prices now come down to 31.0 per cent to below \$79/bbl after peaking to \$115.15/bbl on June 19, 2014 (Lalendu Mishra, 2014); and recently crude oil prices declined to \$60/bbl.

Moderate positive correlation was found (R^2 is 0.622) between the prices and the years (Figure 2). During 1973 to 1975 a lot of geopolitical factors were involved in dealing the oil price. Before oil embargo period, that means after post World War II, crude oil prices ranged between \$2.5/bbl to \$3.0/bbl from 1948 to end of the 1960. From 1958 to 1973, oil prices were stable at about \$3.00 per barrel. Table 2 shows that world oil prices in 1965-66 to 2014-15. After oil crisis in 1973-74, the world oil price increased from (\$3.29) 32.66 per cent in 1973 to (\$11.58) 252.0 per cent in 1974. From 1974 to 1978 oil prices increased at moderate pace from \$12/bbl to \$14/bbl. During this period, oil consumption has increased and OPEC had played as Cartel role in world oil market. In 1979 the world oil demand in-

creased very fast and at that time a war between Iraq and Iran was held which affected the world oil prices. In 1980-81 the world oil price was \$36.8 per barrel. The growth rate oil price change between 35.0 to 70.0 per cent in 1979 and 1981. The basic reason for increases in oil price during the period from 1979 to 1985 was due to OPEC's initiatives in reduction of production quotas. But at the same time the consumption of oil has increased and obviously prices has also raised. From 1982 to 1988 the oil price has decreased except in 1987. The oil price growth is -47.6 per cent during 1986. In 1986 OPEC price accord set to target \$18/bbl was breaking down by January 1987. The oil price were increased from 1987 to 1990, the price of oil spiked with uncertainty associated with Iraq invasion Kuwait and ensuring Gulf War. As a result of oil prices declined steady until 1994. In 1995 the price cycled turned up due to strong economy in US and booming economy in Asia. But in 1998-99 due to low oil consumption and more oil production, the world oil price has a negative growth rate around -33.3 per cent; in 1998 the world oil price was around \$12.7/bbl. By mid 2000, after several months oil prices excess of \$30/bbl; after 2010 crude oil increases very faster rate above \$110/bbl and now above \$56/bbl. Major Reasons for crude oil increases are; US financial crisis (2008) and recent Iraq war (2014).

Recent Trends in Crude Oil Price fluctuations 2010-2015: On the back drop of improved economic growth and colder weather in the Northern Hemisphere, crude oil price surged from \$70.7/bbl in mid-December 2009 to \$80.29/bbl on January 2010, the highest since early October 2008 (EIA, 2012). For most of 2010, the monthly average price fluctuates between \$72 and \$82/bbl, reaching \$91.45/bbl in December 2010. The world economy experienced significant recovery in 2010; growing at a monthly average of 4.32 per cent (World Bank, 2010). This has been an impressive reversal from the recession in 2009 which, to a large extent explains the increase in oil price recorded in 2010. In 2011, oil price began with a strong surge following geo-political events in the Middle East and North Africa (MENA) region. From February to December 2011, oil price fluctuated in a range between \$103 and \$123/bbl. IEA (2014) Oil Market Report for November (2014) estimated the production of oil in October stood at 94.2 mbpd. Excess supply including OPEC's federation's decision in November 2014 last year not to cut production had its effect on depressing oil prices. Now day's crude is still sliding and its price is yet to stabilize largely contributed by the deleveraging of financial positions in crude, which is exaggerating the fall in crude. It is difficult to predict where exactly the crude price will reach bottom. Oil at \$50/ barrel is probably very close to the bottom, but short term movements on a fear-led deleveraging cycle are difficult to understand (The Economic Times, 2015). The fall in prices is largely due to an over-supply situation, triggered by rising US shale oil exploration. Currently, US oil output levels are at their highest in almost 30 years. The oil-drilling boom in the United States has increased crude production by over 70.0 per cent since 2008. Further, lower demand from the European countries and China, due to insipid economic growth coupled with a stronger US dollar, have also added to oil woes (Ajeet Kumar, 2015). According to AEO, (2006) pointed out that the average world crude oil price increases from \$40.09 per barrel in 2004 to \$59.10 per barrel in 2006 and then declines to \$46.90 per barrel in 2014 as new supplies enter the market. It then rises slowly to \$54.08 per barrel in 2025.

Cheapest Oil prices in the World

There are countries having the oceans like wells having gigantic gasoline reserves. But the oil prices have been consistently volatilized ever since its exploration and global trade. The regional and global conflicts of interest, especially the consistent confrontations and insurgency in the Middle East and Africa have a great influence on the hiking of the oil pricing. The countries having largest oil reserves have always had the relatively rather highly inexpensive and cheapest fuel domestic rates for the local users. The reduction in oil prices and the domestically subsidized rates facilitate the citizens and domestic consumers, i.e. common man, local and foreign investors and industries. Similarly the largest oil producers i.e. Russia, Saudi Arabia and Iran have low pricing of petrol. On the reverse, there are the countries with the most expensive and literally overpriced fuel. The oil prices are sky rocketing in Norway, Turkey, Netherlands and UK than anywhere else. Norway is topping the high-priced lists with the average petrol expenditure (monthly) of £ 198.06. Likewise, Italy, Denmark and Greece too have the high-priced gasoline; a great hitch for the motorists, preparing them to choose hitchhike.

Table 3
Lowest Oil/Petroleum prices in the world

Sl. No	Country	Per litter Petrol (USD)	Average Monthly Cost (USD)	Per capita Energy consumption in Kgoe	Per capita CO ₂ in tonnes
1	Venezuela	0.114	13.76	2379.5	6.9
2	Egypt	0.128	15.49	978.0	2.6
3	Saudi Arabia	0.142	17.20	6738.4	17.0
4	Qatar	0.171	20.65	17418.6	40.3
5	Bahrain	0.214	25.79	7353.1	19.3
6	Libya	0.214	25.79	1369.3	5.1
7	Turkmenistan	0.242	29.25	4838.7	10.5
8	Kuwait	0.242	29.25	10408.2	31.3
9	Algeria	0.242	29.25	1108.2	3.3
10	Iran	0.299	36.13	2812.6	7.7

Source: Compiled from UNDP, Human development report 2014, WRI 2013, World Resources 2013, World Bank 2014, US EIA, and Central Intelligence Agency 2015

The above table 3 show that lowest oil/petroleum prices in the world in 2015. From this table, **Venezuela** having proven reserves of 300 billion barrels, the largest in the world has the cheapest retail of oil. The government is spending USD 12 billion a year to satisfy the subsidization of local petrol sales in the country. Venezuela is claimed to have the major proven oil reserves in the world than all other nations around the world. It's per litter price is \$0.114 and the monthly cost is not more than \$13.767 but this nation create Per capita CO₂ level of 6.9 tonnes. **Egypt** is yet another country, where the price of petrol is the cheapest. For instance per liter petrol price is \$0.128, and the average monthly cost is \$15.498, where CO₂ emission is 2.6 tonnes. **Saudi Arabia** is considered as the world's biggest oil-producing country having millions of barrels in its land areas; Saudi Arabia has the honor to have the one-fifth share of world's entire oil reserves and cheapest oil price, where per liter price is \$0.142 and the per capita CO₂ emission is 17.0 tonnes. **Qatar** is one of the richest economies in the world by the GDP per capita. In addition, its main source of earning is from oil industry because petroleum is the cornerstone of its economy. It's per litter oil price is \$0.171 and its monthly cost is estimated \$20.658. It is estimated that 70.0 per cent of its revenues comes from the oil industry, but it produces the largest per capita CO₂ emission country (40.3 tonnes) in the world and per capita energy consumption also high (17418.6 kgoe). **Bahrain** is the fifth country having the cheapest petrol prices in the world. It's per litter price is \$0.214 and its average monthly cost is \$25.795 and the per capita CO₂ is 19.3 tonnes. Bahrain is considered to diversify its economy and it is the less dependent country in the oil industry because it mainly focuses on its banking sector as well as the tourism industry. Still it is the fifth country having the cheapest petroleum prices in the world. Above table 3 is showing a list of top ten countries with lowest oil prices in the world. According to **Energy Economist**, energy consumption is an indicator of economic development and **Environmental** pointed out that Energy consumption is an indicator of environmental damage. According to (**Hotelling, 1931**) The planner understands that, due to the fixed supply of the resource, any change in the rate of extraction in one period will trigger an opposite effect at some later period, with negative consequences for the welfare of later generations (i.e. an increase in consumption of the resource today may benefit the current generation, but it will reduce the consumption possibilities of a future generation).

Conclusion

Oil is one of the most important commodities in the world. Oil is greatest in importance because of its significance of being a far easier to use than any alternative fossil fuel. Oil price has the capability to move the whole range of the market because of its demand and supply. Energy exploration and exploitation, capacity additions, clean energy alternatives, conservation, and energy sector reforms will, therefore, be critical for energy security. Energy conservation has also emerged as one of the major issues in recent years. Conservation and efficient utilization of energy resources play a vital role in narrowing the gap between demand and supply of energy. Improving energy efficiency is one of the most desirable options for bridging the gap in the short term. The developed and developing countries like India,

with its vast population and limited natural resources for meeting its energy requirements needs to maintain its momentum of growth and this can be made possible only with a clear strategy for use of best possible and available energy options. There is high potential for generation of renewable energy from various sources- wind, solar, biomass, small hydro and cogeneration, bagasse, biogas, geothermal, ocean thermal, etc. Renewable sources of energy or the alternative forms of energy which can save us from the energy crises and become the major sources of energy in future sustainable development.

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