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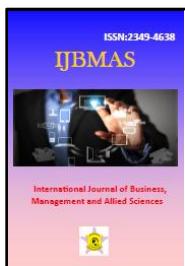
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**CRUDE OIL'S PAST AS A POWERFUL FUTURE GLOBAL RESOURCE -  
RISE OF OPEC**

**SABBANI AKHILESHWAR**

(MS), Department of Economics, Siena University, Italy

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**ABSTRACT**

This paper deals with the origin of the abundance of Crude Oil resources that have been discovered in various countries of the world in the recent past. The history and power of Crude oil in making the nation strong economically and financially has been an astounding story. The distribution of Crude oil in the Middle East and other parts of the world, its Global Consumption, the Global Crude oil production, pricing and the supply statistics with a brief note on oil shocks have been dealt in an explicable way that generalizes its study with respect to the World's oil resources and their usage. The aim of this paper is to study the rise of OPEC. Its objectives and motives have been clearly signified so as to witness its achievements and the process of its expansion in establishing stable global crude oil prices and devoting the profits of the oil producing companies for the economic development of the nations with an intention to achieving sustainability of the existing crude oil reserves.

**Keywords:** Crude Oil, WTI, Brent Crude, OPEC, non-OPEC, OECD, Sustainability

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*“Abundance of availability of Oil resources transforms darker paths towards the light years”*

**Introduction**

It is evident that 'Crude oil' has been one of the most valuable resources found in the earth's crust. It is identified as the 'black blood' that flows through the veins of the prevailing global energy system. The crude oil energy analytics have been directly linked to the global economic development. In the contemporary scenario, it is clear that the crude oil plays a pivotal role in satisfying the crucial needs including Transportation, Medicine, Industry, Plastics, and Insulation etc. The Crude oil distribution is one of the reasons for the boost in the global economic scenario of the world countries. It generates wealth to its producers and power to its controllers.

Organization for Petroleum Exporting Countries (OPEC) is the oldest persisting inter-governmental organization with developing countries as its members whose aim is to control the production, pricing and distribution of oil in the nations with large oil reserves. OPEC aims to maintain the stability in the oil market. In fact, while the oil flows from the Middle east to Europe and America, the money flows in the opposite direction. The trends of global crude oil have been very significant over the last 15 years. The climatic changes, carbon emissions and the risks in price volatilities and the occurrence of political conflicts have led to greater volatilities in the production

and supply of oil in the Middle East as well as the United States. The demand for oil continues to grow in relation to the growth of population.

### **Crude Oil as a powerful global resource**

*Discovery of Crude Oil:* Being a non-renewable resource of energy, Crude oil is the world's most actively traded commodity. The verdicts suggest that oil originated as the remains of limitless organisms (flora and fauna) that either dwelt in the water or were accumulated there with mud and silt from primitive waterbodies. The leftovers of these ancient plants and animals were converted into oil and gas by bacterial action with heat and pressure due to the deep burial beneath other sediments. Ignorant, when the humans first used Oil, the crude oil discovery takes us to Babylon 4000 years back where ancient Persians also have revealed various uses of oil.

James Young, a scientist from Scotland noticed a natural petroleum outflow at Derbyshire in the middle of 19<sup>th</sup> century. The invention of kerosene lamp had resulted in an age of 'light years'. It was identified that the world's first oil refinery was built by Ligancy Lukasiewicz. Samuel M. Kier, a native of Southwestern Pennsylvania, was the first person to refine crude oil in 1840s. The largest oil refinery that can process 9,40,000 barrels of oil each day was in Venezuela. The refining process gives rise to various refined products when crude oil goes through fractional distillation. The refined products include Diesel, Fuel oil, Gasoline, LPG and many Petrochemicals.

Knowing the rapid growth of the demand for the crude oil, George Bissell and Edwin Drake discovered the crude oil reserves and drilled for the crude oil near Pennsylvania in 1859. Eventually, considered as the first modern well has not only led to an increase in the oil production levels, but also led to falling prices of the global crude oil. Unimaginably, for the next 45 years Pennsylvania paved for half of the world's oil production. In 1901, Oil at Spindle top Hill near Texas was discovered, as one of the major benchmarks of crude oil, for which we refer as WTI. Noteworthy oil fields were being set in Iran, Peru, Venezuela and Mexico by 1910.

Proceeding with the modern history of crude oil, in 1938, the oil reserves discovered in Kuwait and Saudi Arabia have driven the Middle East economies towards the path of progress. The existence of 80 billion barrels of crude oil made Ghawar field in Saudi Arabia the largest conventional oil field. A low price of \$1.17 per barrel has been recorded in 1946. The discovery of oil reserves in Algeria and Nigeria in 1956 enriched the production and supply of world crude oil markets and changed the world economic scenario.

At that time, Venezuela has the world's largest oil reserves. The United States, Russia, Saudi Arabia, Iran, Nigeria have also been found to have large crude oil reserves and have been playing a key role in the crude oil supply. The presence of Crude oil reserves in various countries have made them resource-rich and led to a new era of Oil Economics. For instance, considering UAE's economy thirty years ago when it was one of the least developed countries of the world, the growth in the income levels and economic progress of UAE in a short span has been incredible. Massive oil revenues have allowed her towards high mass production and enabled to advance their economy in the fields of Transport, Construction, Employment, Banking and Luxury. Provided with a plenty of natural resource endowments, the UAE has incorporated resource-based industries that is based on utilization of natural resources as its strategy of development.

### **The Rise of OPEC and its Extent**

According to a study by OPEC, "The multinational companies were the soul authority and showed their dominance in the international oil market by deriving the greatest benefit from all stages of the business process, from oil exploration to final distribution." These companies extracted as much oil as they needed and sold it for their own benefit, without consulting the host governments by suppressing their action with small offers. Later in 1959, the First Arab Petroleum Conference, held in Cairo adopted a resolution notifying the oil companies to consult with the Governments of the oil producing countries before taking future decisions on oil prices unilaterally. In addition, the refusal of this price regulation policies, the exploitation of oil producing companies, the 10% cut on oil prices by

British Petroleum in 1960, paved way for the formation of OPEC by the high-level delegations of the five countries which consisted of Iran, Kuwait, Saudi Arabia, Iraq and Venezuela, which were later joined by Qatar, Indonesia, UAE, Libya, Algeria, Nigeria.

The Organization of the Petroleum Exporting Countries (OPEC) was created at the Baghdad Conference in Iraq on September 10, 1960 and was established as a permanent intergovernmental organization. Then, OPEC developed its collective vision, set up its objectives and established its Secretariat, first in Geneva, and then in Vienna after five years. Soon after it adopted a member country declaratory statement regarding the petroleum policy in 1968, which emphasized to exercise permanent right of all countries over their natural resources in the interest of their national development.

The purpose of OPEC is to keep crude oil prices high by limiting its limitless supply. On the other hand, the increased oil supply from the Middle East drove the oil market prices even further down by eroding the profits of the multinational oil producing companies. This downward push on global crude prices led to a policy debate in Washington. Although, being a net exporter of oil until 1948, the expansion of cheaply produced oil from the Middle East led the US to increase its oil imports. As prices fell, domestic producers were unable to compete. By 1970, the world price of oil was \$1.30 and the domestic price of oil was recorded at \$3.18 per barrel.

Members of OPEC met frequently to set suitable production levels by maintaining the crude prices. During the first decade, OPEC was able to cease the free fall in the oil prices. Due to the presence of many potential producers and many substitutes of the product, OPEC could not succeed in raising the prices further. The expansion of crude oil production and increase in the oil revenues secretly by these countries was also a major reason for its policy failure.

During the first decade, i.e., by 1970, OPEC rose to international importance, while OPEC's share of world oil production rose to 41%, which was 28% ten years before. The power of the oil producing countries was limited as the oil reserves in the ground were controlled by the multinational corporations that were involved in oil extraction. The oil exporting countries were desperate to earn more revenue to fuel economic development. Although significant political divisions and conflicts which existed in the Arab countries led to diverse regulations, Iran and Saudi Arabia contended for the leadership of the Middle East.

By 1975, OPEC consisted of 13 member countries. A steep rise of oil prices in a volatile market, has been seen, sparked by the Arab oil embargo. The first OPEC summit held in 1975 in Algiers has initiated the need for the development of the backward nations and aimed for cooperation in International relations through economic stability which resulted in the evolution of the OPEC fund for International development in 1976.

In the 1980s, the decline of crude oil prices followed by the fall in OPEC's share of the oil market and an enormous drop in total petroleum revenue caused severe economic hardship for many member countries. Soon after the decline, a solid recovery followed in a more integrated oil market in the next decade as an outcome of high-tech developments. Then, the prices moved less radically due to a well-timed OPEC action that reduced the market impact of the Middle East.

#### **Global Crude Oil Statistics and Scenario: Production and Supply Statistics:**

The formation of OPEC in 1960 led to a drastic change in the global monopoly of oil producing countries. In 1973, \$9 per barrel increase in the crude oil prices were noted, which stood at \$11.65 per barrel. Further rise in the prices at \$35 per barrel in 1980 to \$78.4 on NYMEX (which is the world's liquid forum for crude oil trading) in 2006 has been observed. The global financial crisis caused prices to rise even higher leading to a record high price over \$147 per barrel. But, with the U.S. output reaching its highest level after 100 years, prices hover near \$50 a barrel. In the early 20th century, however the USA was one of the world's leading oil producers.

Today, the world's economy is largely dependent on oil and fossil fuels. In the present century, an innovative OPEC oil price band mechanism helped stabilize crude oil prices. Due to an

immense current population and industrial growth and a rise in the usage of automobiles, the oil prices rocketed to record levels in mid-2008, before the economic recession. But, OPEC played a dynamic role in stabilizing the global crude oil market through eradicating energy poverty and implementing firm distribution and national control over energy reserves.

The OPEC Conference held in September 2005, provided a consistent vision and framework for the Organization's future by examining crude oil's enhanced role in the future world energy demand. Further, the third summit of OPEC held in Riyadh in 2007 enhanced the norms of three guiding themes for the future economic, energy and environmental endeavors of OPEC namely, stability of global energy markets, energy for sustainable development, and environmental protection. The summit has ultimately targeted in reducing poverty levels and global energy crisis in developing countries by encouraging dialogue and cooperation.

The factors and forces driving the oil market today are different from those existed long ago. An update to our analytic tools is needed to take account of today's oil market. Remembering oil as an exhaustible resource, the oil flow from East to West, we finally go through the statistics, by EIA, the projected Oil production of OPEC and NON-OPEC members in million barrels per day is seen below in the Figure 1.

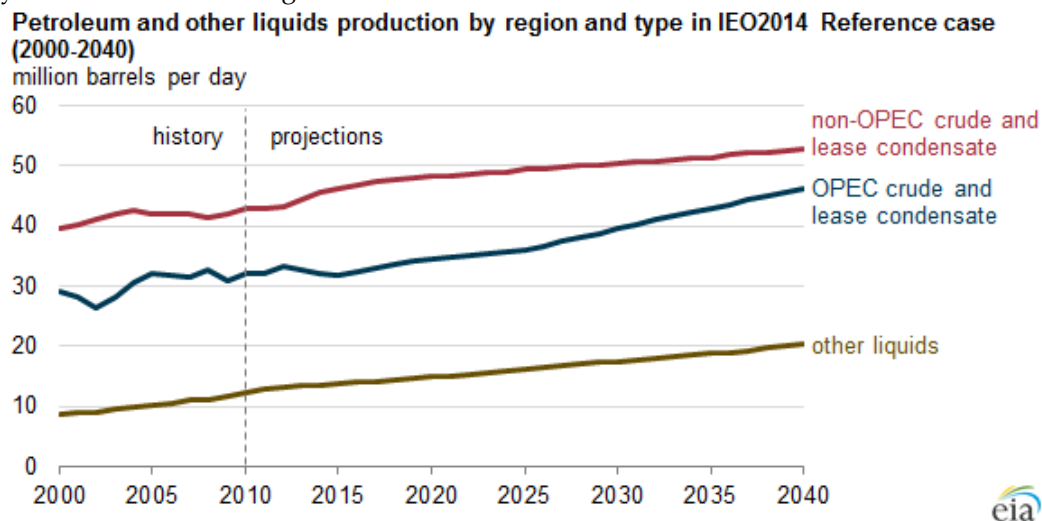


Fig.1

OPEC survives as an indicator to stability and sustainability of the global oil market. As stated above, Global oil demand raised by 1.6 Mb/d. With both India (0.3 Mb/d) and Europe (0.3 Mb/d) pointing unusually strong increases in 2015, the growth in China (0.4 Mb/d) and the US (0.1 Mb/d) was more passive. Production fell 0.8 Mb/d, its largest decline for almost 25 years due to the weakness of the supply side of non-OPEC nations with China facing its largest ever decline in oil production (-0.3 Mb/d). In contrast, crude oil production noted another year of solid growth (1.2 Mb/d), with Iran (0.7 Mb/d), Iraq (0.4 Mb/d) and Saudi Arabia (0.4 Mb/d) leading an increase.

In the figure 2 below, the World's Crude Oil Supply and the projected million barrels per day from 2014 until the end of 2020 has been tabulated.

As depicted from the below table according to the World Crude Oil Production Statistics (2016), Russia (10,551,497 billion barrels per day) has been in the lead in the list of world's largest producers of Crude oil, followed by Saudi with 10,460,710 bbl/day and USA with 8,875,817 bbl/day. It is followed by Iraq (4,451,516), Iran (3,990,956) and China (3,980,650). Canada, UAE, Kuwait, Brazil simultaneously occupy the next places in the top 10 producers list. Total World crude oil production in 2016 averaged 80, 622, 000 barrels per day. A rough 68% came from the top 10 oil producing countries and an overlapping 44% came from the 14 current OPEC members.

## Medium-term liquids supply outlook in the Reference Case

mb/d

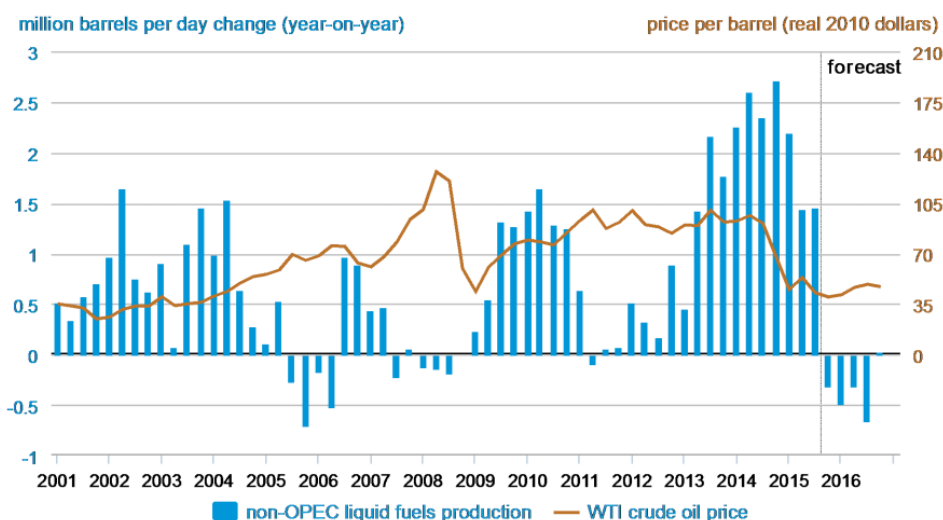
	2014	2015	2016	2017	2018	2019	2020
US & Canada	17.3	18.1	18.5	18.9	19.2	19.6	19.8
of which: tight crude	4.0	4.4	4.5	4.7	4.9	5.0	5.2
<b>OECD</b>	<b>24.2</b>	<b>24.9</b>	<b>25.2</b>	<b>25.5</b>	<b>25.8</b>	<b>26.1</b>	<b>26.3</b>
Latin America	5.0	5.1	5.2	5.4	5.6	6.0	6.2
<b>DCs, excl. OPEC</b>	<b>16.5</b>	<b>16.7</b>	<b>16.7</b>	<b>17.0</b>	<b>17.4</b>	<b>17.9</b>	<b>18.1</b>
Russia	10.7	10.7	10.6	10.6	10.6	10.6	10.6
<b>Eurasia</b>	<b>13.7</b>	<b>13.7</b>	<b>13.5</b>	<b>13.4</b>	<b>13.4</b>	<b>13.4</b>	<b>13.5</b>
<b>Non-OPEC</b>	<b>56.5</b>	<b>57.4</b>	<b>57.6</b>	<b>58.0</b>	<b>58.8</b>	<b>59.6</b>	<b>60.2</b>
Crude	42.7	43.2	43.1	43.3	43.7	44.1	44.3
NGLs	6.9	7.0	7.1	7.2	7.3	7.4	7.5
of which: unconventional NGLs	2.0	2.2	2.3	2.3	2.4	2.5	2.5
Other liquids	7.0	7.2	7.4	7.6	7.8	8.1	8.3
<b>Total OPEC supply</b>	<b>35.9</b>	<b>37.1</b>	<b>37.1</b>	<b>37.2</b>	<b>37.3</b>	<b>37.2</b>	<b>37.4</b>
OPEC crude	30.0	31.0	30.9	30.8	30.7	30.6	30.7
<b>Stock change</b>	<b>1.1</b>	<b>1.7</b>	<b>0.6</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>
<b>World supply</b>	<b>92.4</b>	<b>94.5</b>	<b>94.7</b>	<b>95.2</b>	<b>96.1</b>	<b>96.8</b>	<b>97.6</b>

Fig.2

Being, a function of supply and demand forces, oil prices tend to fall when supply and demand increases. But, this also takes into consideration, various geopolitical and environmental factors. A forty percent market share of OPEC-produced oil in the global oil market was noticed and accounts for around 60% of export of world oil, showing its prominent place in the global market.

Deciphering the EIA (Energy Information Administration) graph shown below, the high production levels achieved by non-OPEC nations in recent times can be signified, while high shale oil boom was recorded. High production levels during 2002-2004 and in 2010 resulted in no price declines, and were instead accompanied by raised prices. But, in 2014-15 it is noticeable that the price declined even after the increased production, indicating that non-OPEC oil producers have a limited role to play in the oil price determination process. Saudi Arabia, being an active OPEC member, hopes for a dominant position as it is the largest oil producer in the world.

## Changes in non-OPEC production can affect oil prices



Sources: EIA Short Term Energy Outlook, Thomson Reuters

Fig.3

The consumption or the demand in some non-OECD regions are in decline and this with an oil price below \$50/b. Only OPEC has shown growth in crude oil supplies relative to 2015. It can be seen that in 2006 and after ten years, i.e., in 2016, the non-OPEC fuel production has been recorded negative. This suggests the oil production increase of OPEC member countries while decrease in the non-OPEC member countries indicating the WTI crude price tends to decrease eventually.

Going through the crude oil reserve statistics of the world, North America owned the crude oil reserves that reached 227 thousand million barrels with an estimated 13.3% stake of the total world crude reserves. Referring to the Middle East, estimated crude oil reserves are found to be 813.5 thousand million barrels approaching 47.7 % share of the total world's oil reserves. Comparatively, Asia Pacific has 48.4 thousand million barrels with just 2.8% share. While the South American reserves were 328 thousand million barrels with a share less than 20%. African continent has a 7.5% share with 128 thousand million barrels. With a 9.5% share, Europe and Eurasia has total proven oil reserves of around 162 thousand million barrels.

From the below graph, the weighted areas in the Figure 4 show changes to crude oil supplies split with North America, OPEC and the other non-OPEC with January 2007 as a baseline and per June 2016. Developments in the oil price are shown against the left axis.

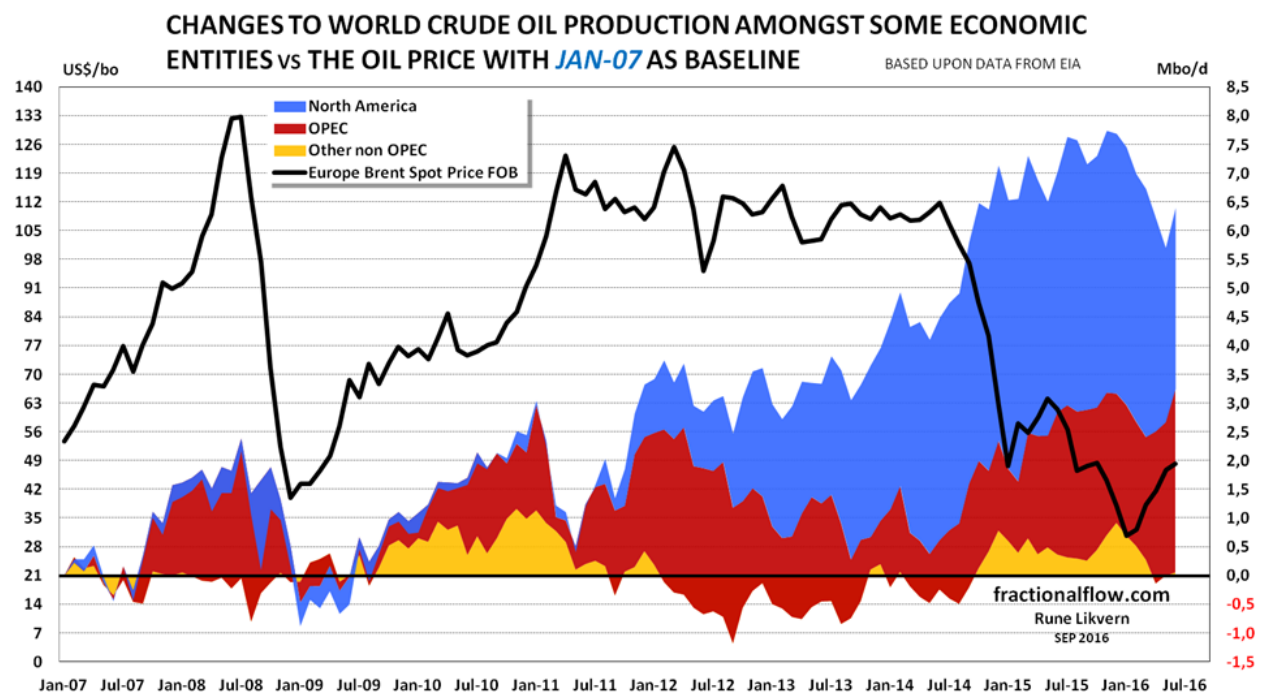


Fig.4

The stake of OECD countries however occupied 244 thousand million barrels with 14.3%, while non-OECD countries possess 1,462.7 thousand million barrels with 85.7% share. Out of which the share of OPEC is about 1,220 thousand million barrels that has about 71.5% reserves, while the remaining reserves are in the power of non-OPEC, EU and CIS.

The daily total crude oil consumption by the OECD nations was up to 46,217 thousand barrels, while the Non-OECD nations is about 50,341 thousand barrels per day. The total production in thousands of barrels per day by OPEC are 39,358, while, the Non-OPEC countries being summed up to 52,792 thousand barrels per day.

### Conclusion

The World's Oil reserves must be used in such a way that it can be also accessible for the future generations. The wastage and oil shocks must be reduced as to cope up with the stability of the oil market scenario. OPEC and the U.S. oil markets, being the key players have to assess the price and production by leading to a reasonable distribution. The reserves must not be exploited by the

monopolies for gaining wealth, but must be broadened to achieve economic co-operation and sustainable development.

In fact, the control of the global oil reserves, the price volatilities must be assessed strictly so as to prevent the irregular flow of oil supply. The climatic changes, geographical and political disturbances in the Middle East cause Supply and Demand shocks in the global crude oil and play a crucial role in global Crude price fixing.

OPEC gains a great esteem as a key player in supplying world's energy needs and its role has been absolutely decisive. OPEC's role ahead is very crucial in strengthening the international oil market from many threats. OPEC has been very much successful in the enforcement of its authority and in maintaining the steady and stable growth of supply of oil by improving the economic progress of the world's economies. Despite the present scenario of weak OPEC, Oil shocks, Crisis and instabilities, the oil market in the Middle East has inherited a significant strength in learning from the losses and gaining from the opportunities in order to maintain a stable production and distribution levels. No matter how much time it takes, the aim of sustainable development and reduction in oil shocks is rooted as its sole objective and OPEC will remain more pertinent to the global community for many years to come.

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