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OIL PRICE AND INTERNATIONAL TRADE IN PETROLEUM CRUDE & PRODUCTS : AN INDIAN PERSPECTIVE

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Executive Summary

Commanding the single most important share in global energy, oil impacts both oil-producing and consuming countries, especially when its price changes abruptly, as had been the case in the recent past wherein oil exporting countries faced a fall in net revenue realization due to the price drop while oil importing countries saved significantly on their import. This paper presents an assessment of the recent oil price drop to address the following major questions:

- How does the recent decline in oil prices compare with the previous price drops?
- What are the causes and implications of the sharp drop?
- What has been the impact of the recent price drop, especially on the exports and imports of crude and petroleum products from India?

Historical decline in oil prices

Successive dramatic events in the early 1980s sent the price of crude oil close to US$ 40 a barrel (which would be equivalent of over US$ 100 a barrel at 2016 prices). The price remained quite volatile after the declining trend in the 1980s and was still as low as US$ 20 a barrel at the end of 2001. The next seven years saw a steady increase in which the price peaked to US$ 145 in July 2008 – its lifetime high, before its massive plummet during the later part of 2008. After reaching historic lows during the global financial crisis, oil prices, like most other commodities, peaked during the first quarter of 2011. But unlike other commodity prices that declined gradually, mostly as a result of weak global demand and robust supplies, oil prices fluctuated around US$ 105 per barrel until June 2014. By February 2015, the cumulative fall in the oil prices was considerably larger than the other commodities since their peaks in 2011.

Causes of the sharp drop in oil prices

Price fluctuations in the commodity markets, especially in the short run, are driven by market sentiment and expectations. On the other hand, the long run trend in prices mostly tend to be driven by underlying demand and supply conditions. The steep price decline since June 2014, had a mix of both. The changes in demand and supply, while noticeable were not unusually large. However, certain other developments like the significant shift in OPEC's objectives, receding geopolitical risks and the US dollar appreciation brewed the recipe for the downfall in oil prices.

Unconventional sources of oil production like the Shale oil boom in the USA and oil sands in Canada along with the production of biofuels have substantially increased the supply of oil in the global market. Better-than-expected output in OPEC nations and their decision in November 2014 to not curtail oil production only added to the supply surplus. On the other hand weaker-than-expected demand from Europe and Asia added to weakening the price.

Implications of the sharp drop in oil prices

The expectation of a positive impact of an oil price decline on the global economy stems from the fact that some of the largest economies in the world are the major oil importers. The United States ranks as the largest importer of petroleum crude and products combined. Although the US also features in the exporters list, it still is a net importer of these products. China is a close second and India ranks fourth. Other major importers are Japan, South Korea, and Germany.

While these large economies continue to depend on oil, in the short term, at the cost of generalizing, one can say that the global economy will benefit from a

moderating of oil prices. The fall in oil prices in oil importing nations will help lower inflation and current account deficits which are sources of vulnerability especially for developing nations.

But this growth would be at the cost of hurting relatively larger economies that depend highly on oil revenues including countries like Russia, Saudi Arabia, Qatar, UAE, and Iraq.

Movements in oil prices affect oil and energy-related revenues and hence government budgets of oil-exporting countries. The loss in oil revenues can strain government budgets and require spending cuts. The impact would mostly spillover to the exchange rate and other commodity prices. The effect on oil-exporters is largely expected to be negative.

On the other hand, a drop in oil prices is a positive externality for oil-importing nations. Growth is expected to rise as current accounts balances turn favourable with a cut on the oil import bill. Savings from oil import bills can relax government budgets. Pre-tax subsidies (that arise when consumers pay less than the supply cost of energy), which typically are high in many developing and emerging economies, putting pressure on the government budget, can be reduced with a fall in oil prices.

Hence, the shift in real income from net oil exporting countries to net oil importing countries generally results in a stronger global demand over the medium term. In fact, according to World Bank, a 10 percent decrease in oil prices could raise growth in oil-importing countries by some 0.1-0.5 percentage points, depending on the share of oil imports in GDP.

Impact on India's trade of crude and petroleum products

Global imports of crude petroleum amounted to US$ 663.33 billion in 2016[1]. China was the largest importer of crude oil with a share of 17.59 percent, followed by the USA (16.29 percent), India (9.18 percent) and Japan (7.65 percent) amongst others. USA, on the other hand, was the largest importer of Petroleum Products during the same year, with a share of 7.73 percent, followed by Japan (6.68 percent), Germany (6.15 percent) and Singapore (5.41 percent). The total value of imports of Petroleum Products amounted to US$ 662.71 billion.

It is noteworthy here that, India ranks fourth in terms of global imports of petroleum crude and products combined. Importing Petroleum (Crude and Products) worth US$ 75.72 billion, India had a share of 5.71 percent of global imports during 2016.

Production of petroleum products by refineries and fractionators in India has been on a steady rise. From a total production of 68.4 million metric tonnes (MMT) in 1998-99, India has come a long way to producing 242.7 MMT in 2016-17. Crude oil processed by refineries was 245.4 MMT in 2016-17 as compared to 68.5 MMT in 1998-99.

During 2016-17, India imported US$ 16.2 billion worth of petroleum products and exported US$ 31.7 billion worth of the same. The largest export destination of petroleum products from India was Singapore with a share of 15.0 percent, followed by UAE (12.1 percent), the USA (5.9 percent) and the Netherlands (4.5 percent). On the other hand, Qatar was the largest import source of Petroleum products for India with a share of 31.5 percent, followed by UAE (16.1 percent), Saudi Arabia (11.62 percent) and the USA (7.2 percent).

India's import bill for crude amounted to US$ 70.7 billion in 2016-17. Saudi Arabia, with a share of 19.3 percent, was the largest import source, followed by Iraq (16.4 percent), Iran (12.6 percent) and UAE (9.6 percent).

The total imports for Petroleum (crude and products combined) amounted to US$ 86.9 billion in 2016-17. Saudi Arabia was the largest import source with a share of 17.9 percent, followed by Iraq (13.4 percent), UAE (10.8 percent) and Iran (10.4 percent).

[1]Data for the full year 2016 is available for about 96 percent of the reporting countries and hence could be a marginal underestimate.

India imports a large quantity of crude; and a sharp drop in its prices has benefitted the economy by curbing the current account deficit despite the rise in the quantity of imports. India imported 214.9 MT of Crude in 2016-17 as compared to 189.2 MT in 2013-14, a growth of 13.6 percent during this period in volume terms. However, despite the quantity of crude petroleum imports increasing, the value registered a decline – from US$ 143.6 billion in 2013-14 to US$ 70.7 billion in 2016-17.

Similarly, imports of petroleum products amounted to US$ 16.2 billion in 2016-17 as compared to US$ 21.1 billion in 2013-14 – a decline of 23.4 percent – whereas the quantity imported increased by 77.6 percent to 52.8 MT in 2016-17 as against 29.7 MT in 2013-14.

Due to falling oil prices, India's macro-economic indicators such as inflation, current account deficit (CAD), and trade balance improved. On the back of contraction in the trade deficit, the CAD came down to US$ 22.1 billion, or 1.1 per cent of GDP in 2015-16 from US$ 26.8 billion, or 1.3 per cent of GDP, in 2014-15. On the other hand, had oil prices remained at 2013-14 levels, other things remaining same, India's trade deficit would have widened by another US$ 82 billion in 2016-17 (given the increase of more than 22 percent in imports of petroleum and crude in quantity terms during the said period).

Further, as a result of declining oil prices, the subsidy on petroleum has been reduced to Rs. 29,999 crore in 2015-16 and further down to Rs. 27,532 crore in 2016-17 from Rs. 85,378 crore in 2013-14; had oil prices remained at the same levels as in 2013, petroleum subsidy would have been to the tune of ~Rs. 61,174 crore. Thus, a decline in crude oil price has helped the government to manage its finances better as it translated into lower subsidies on petroleum products (LPG and kerosene), thereby resulting in lower fiscal deficit. Ceteris paribus, the oil price decline helped the government save an estimated Rs. 31,175 crore in 2015-16 in petroleum subsidies.

Outlook

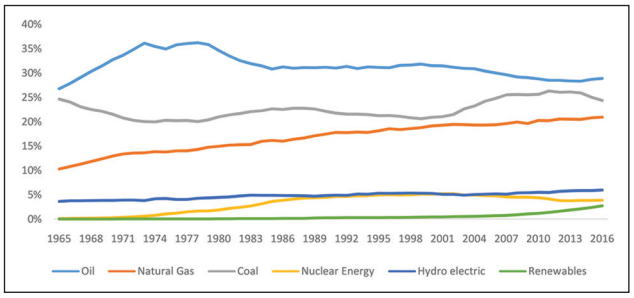
Oil prices are expected to rise as a result of steadily growing demand, agreed production cuts among oil exporters and stabilizing U.S. shale oil production. However, supplies from producers such as Libya, Nigeria, and Venezuela could be volatile. Members of the OPEC and other producers could agree to cut production further, maintaining upward pressure on prices. On the flip side, failure to renew the agreement could drive prices down, as could increased production from the U.S. shale oil industry.

1. Introduction

Oil, one of the most important sources of energy, accounted for a third of global primary energy consumption in 2016. As per BP Statistical Review of Energy (2017), global oil production and consumption in 2016 stood at 4382.4 million tonnes and 4418.2 million tonnes respectively, 0.3% and 1.5% higher than in 2015. Oil is a finite resource and is not going to last forever. At the end of 2016, oil reserve to production ratio[2] stood at 50.6, meaning at current production rate, oil would last for about 51 years. It is for this reason that scientists are looking to explore alternate sources of energy and geoscientists are working on to find out new sources of energy and unexplored reserves. Unconventional oil and gas sources are becoming commercially feasible to produce and have significantly altered the dynamics of global trade.

Oil has historically remained the primary source of energy, with its share in global primary energy consumption peaking at 36.2% in 1979. Even today, it remains the leading source of energy, with its share being 28.9% in the energy basket in 2016.

Figure 1: Shares of global primary energy consumption Sources (Percentage)



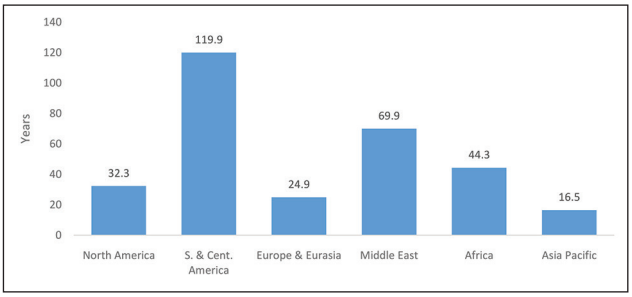
Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

The boom in oil prices that started in early 2000s reached an inflexion point in June 2014, after which it has witnessed a precipitous decline. Following four years of relative stability at around US$ 105 per barrel (bbl), oil prices declined sharply in the latter half of 2014. But, for oil prices, such sharp drop is not a new phenomenon. There have been many other fluctuations in crude oil prices over the last century.

Spot crude price (Brent) reached US$ 63.53 per barrel at the end of November 2017 from a low of US$ 29.82 per barrel at the end of January 2016. Crude oil prices are expected to stabilize around the average of US$ 56 per barrel in 2018[3].

The Reserves-to-production ratio (RPR or R/P) is the remaining amount of a non-renewable resource, expressed in time. While applicable to all natural resources, the RPR is most commonly applied to fossil fuels, particularly petroleum and natural gas. At the end of 2016, oil reserve to production ratio stood at 50.6, meaning at current production rate, oil would last about 51 years.

Figure 2: Reserves-to-production (R/P) ratios 2016 : by region



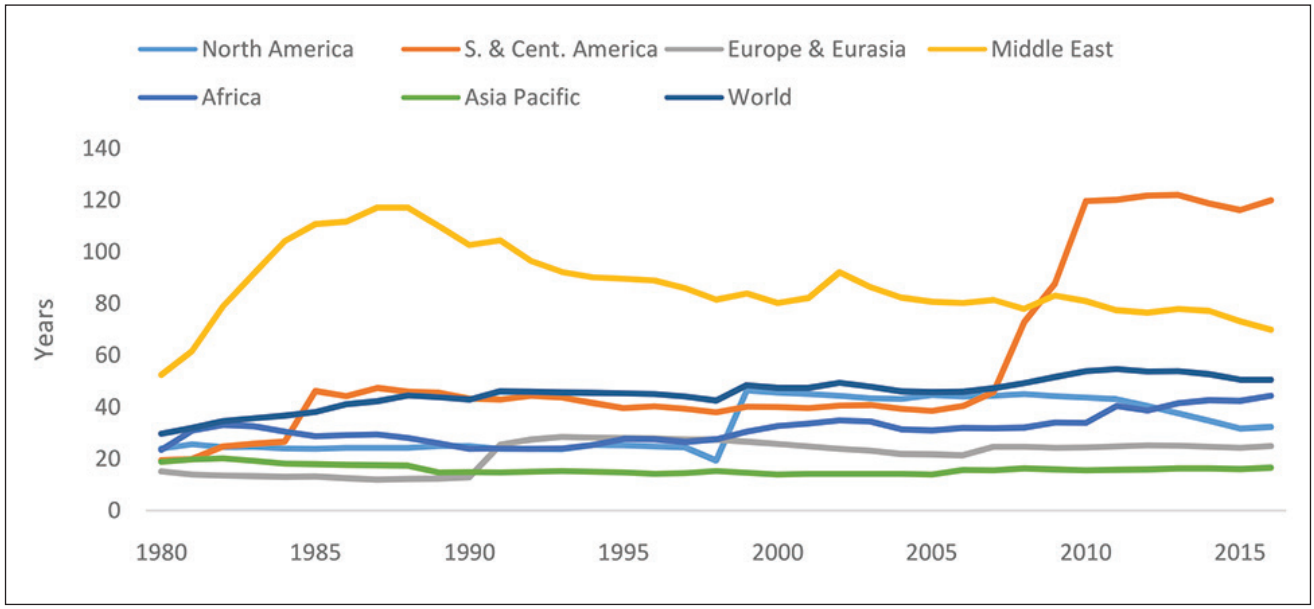
Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

Being the largest internationally traded commodity, oil price affects the global economy significantly. This paper presents an assessment of the recent oil price drop to address the following major questions:

- How does the recent decline in oil prices compare with the previous price drops?

[2]Reserves-to-production (R/P) ratio – If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if the production were to continue at that rate.
[3]World Bank Commodities Price Forecast (nominal US dollars), October 2017; US Energy Information Administration.

Figure 3: Reserves-to-production (R/P) ratios : Historical



Global proved oil reserves in 2016 rose by 15 billion barrels (0.9%) to 1707 billion barrels, which would be sufficient to meet 50.6 years of global production at 2016 levels
Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

- What are the causes and implications of the sharp drop?
- What has been the impact of the recent price drop on the exports and imports of crude and petroleum products from India?

Commanding the single most important share in global energy, oil impacts both oil-producing and consuming countries, especially with abrupt changes in its price. Oil exporting countries faced a fall in net revenue realization due to the price drop. On the other hand, it became a boon to oil importing countries. For example, India's import of crude and petroleum products has fallen from US$ 164 billion in 2012-2013 to US$ 87 billion in 2016-17, a 46.9% drop in import value.

Thus, weak oil prices are expected to lead to significant real income shifts from exporting to importing countries and result in lower prices for non-oil commodities as well. On the other hand, in oil-importing developing economies like India, the decline in prices should support stronger growth, reduce inflation and improve external and fiscal balances.

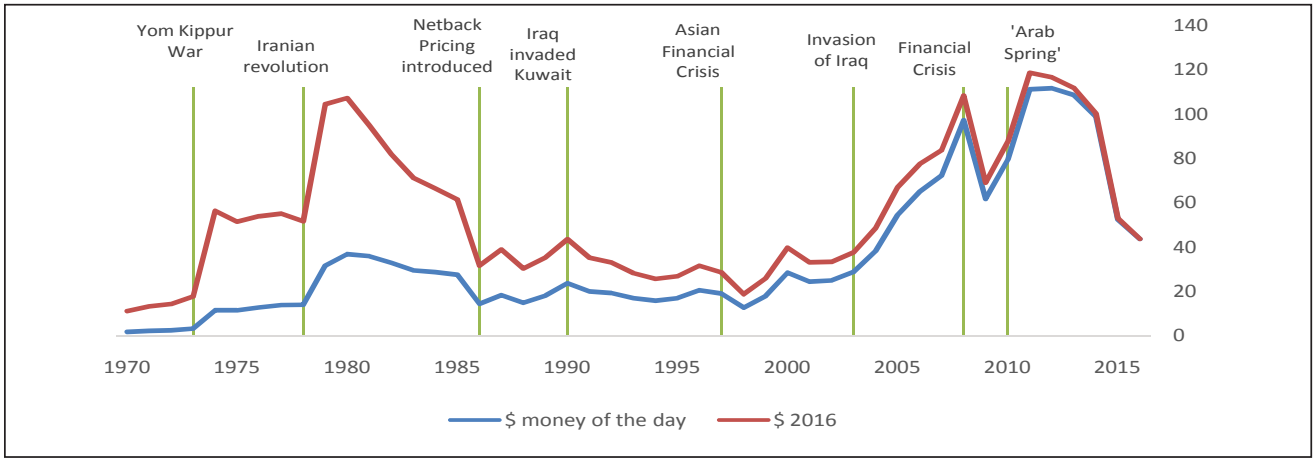
2. Historical Decline in Oil Prices

The price of oil has been anything but stable over the past few decades (Figure 4). Successive dramatic events in the early 1980s sent the price of crude oil close to US$ 40 a barrel (which would be equivalent of over US$ 100 a barrel at 2016 prices). The price remained quite volatile after the declining trend in the 1980s and was still as low as US$ 20 a barrel at the end of 2001. The next seven years saw a steady increase in which the price peaked to US$ 145 – its lifetime high, before its massive plummet in 2008. After reaching historic lows during the global financial crisis, oil prices, like most other commodities, peaked during the first quarter of 2011. But unlike other commodity prices that declined gradually, mostly as a result of weak global demand and robust supplies, oil prices fluctuated around US$ 105 per barrel until June 2014. By February 2015, the cumulative fall in the oil prices was considerably larger than the other commodities since their peaks in 2011.

Observing the price charts of the past few decades, one can evaluate that the price drop of 2014-15 is significant but not an unprecedented one. Since the time the trading in futures exchanges started in 1984, five other price drops of 30% or more have taken place (Figure 5). Interestingly, these coincided with major changes in the global economy and the oil markets.

Sharp drops in oil prices have interestingly coincided with major changes in the global economy. Some of the major historical events that triggered/helped in such oil price movements have been depicted in the following chart.

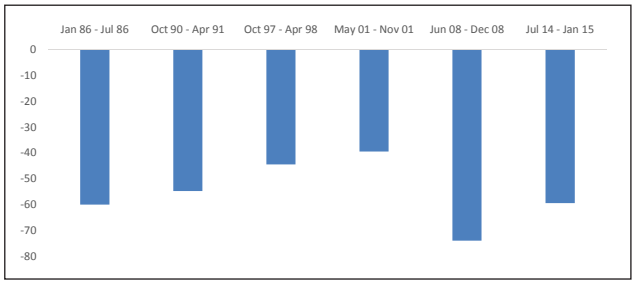
Figure 4: Average Crude oil prices 1970-2016 US Dollars per barrel (Brent Dated)



$2016 is deflated using the Consumer Price Index for the US
Source: Platts, BP Statistical Review of World Energy 2017, EXIM Bank Research

The drop in oil prices in the second half of 2014 was one of the six episodes of significant oil price declines over the past three decades. Predominantly rising supply coupled with weak global demand was mainly reflected in the price drop. Non- consecutive periods of six months for which Brent oil prices dropped by more than 30 percent have been portrayed in the graph below.

Figure 5: Magnitude of significant oil price drops (Percent)



Source: US Energy Information Administration, Thompson Reuters, EXIM Bank Research

Milestones in the History of Oil

Although oil prices are affected and impacted by a large number of factors, historically, sharp or abrupt changes in oil prices have mostly been accompanied by major changes in the global economy. Be it a financial crisis, rebellion or war, oil prices have reacted. The below mentioned milestones are the major ones in recent history.

Yom Kippur War and the Oil Embargo 1973

The Yom Kippur war, also known as the 1973 Arab-Israeli war, was fought by a coalition of Arab states led by Egypt and Syria against Israel. During the war, Arab members of the Organization of Petroleum Exporting Countries (OPEC) imposed an embargo against the United States in retaliation for the latter's support for Israel. Arab OPEC members also extended the embargo to other countries that supported Israel including the Netherlands, Portugal, Canada, Japan, the United Kingdom, and South Africa. The embargo both banned petroleum exports to the targeted nations and introduced cuts in oil production.

The crisis had a major impact on international relations as some European nations and Japan sought to disassociate themselves from United States foreign policy in the Middle East to avoid being targeted by the boycott. It was in January 1974 that the United States negotiated an Israeli troop withdrawal that convinced Arab oil producers to lift the embargo in March 1974. By the end of the embargo, the price of oil had risen from US$ 3 per barrel to nearly US$ 12 globally; the prices in the United States were significantly higher.

Iranian Revolution 1978

The second oil crisis or oil shock occurred in the United States due to decreased oil output in the wake of the Iranian Revolution. The Iranian Revolution refers to events involving the overthrow of the Pahlavi dynasty (under Mohammad Reza Shah Pahlavi), supported by the United States, and its eventual replacement with an Islamic Republic, supported by various leftist and Islamist organizations and student movements.

During October of 1977, demonstrations against the Shah developed into a campaign of civil resistance that only intensified with time. In 1978, strikes and demonstrations paralyzed the economy. Iran voted by national referendum to become an Islamic Republic on April 1, 1979, and to approve a new theocratic-republican constitution.

Despite the fact that global oil supply reduced only marginally, widespread panic resulted in driving the prices far higher. Further, following the outbreak of the Iran-Iraq war in 1980, oil production in Iran nearly stopped, and Iraq's oil production was severely cut as well.

Netback Pricing Method 1986

During early 1986, Saudi Arabia discontinued selling its oil at official prices – the OPEC administered pricing system, and switched to a market based pricing system called netback pricing. This pricing system implies the method to value crude by 'netting' costs from the value of products obtained through the refining process, thereby guaranteeing purchasers a certain refining margin. With this, Saudi Arabia recaptured a significant market share from the rest of OPEC.

After the collapse of the OPEC administered pricing system in 1985, and the short lived experiment with netback pricing, a market linked pricing mechanism was adopted by oil-exporting countries. The current reference, or pricing markers are Brent, West Texas Intermediate (WTI) and Dubai/Oman.

Iraq invaded Kuwait 1990

In early 1990, Iraq accused Kuwait of stealing Iraqi petroleum through slant drilling[4]. In addition, Kuwait had been producing oil above treaty limits established by OPEC. Following this, Iraq conducted a two-day

[4]Directional drilling (or slant drilling) is the practice of drilling non-vertical wells.

operation against Kuwait, on August 2, 1990, that resulted in the seven-month long Iraqi occupation of Kuwait. The United Nations mandated a deadline for Iraq to withdraw from Kuwait which was refused by Iraq. This led to a military intervention by a United Nations authorized coalition of forces led by the United States. These events came to be known as the first Gulf War that resulted in the expulsion of Iraqi forces from Kuwait and the Iraqis setting fire to more than 600 Kuwaiti oil wells along with an unspecified number of oil-filled low lying areas, such as oil lakes during their retreat. The United Nations redrew the border after the Gulf War to give part of Iraq's only port at Umm Qasr to Kuwait along with eleven new oil wells, some farms and an old naval base.

The 1990 oil price shock occurred in response to all this. The price spike was less extreme and of a shorter duration than the previous oil crises of 1973-74 and 1979-80. Average monthly price of oil rose from US$ 17 per barrel in July 1990 to US$ 36 per barrel in October 1990.

Asian Financial Crisis 1997

The Asian Financial Crisis was a period of financial crisis which started in Thailand with the collapse of the Thai Baht after the Thai government was forced to float the Baht due to lack of foreign currency to support its currency peg to the US Dollar. At the time, Thailand was already under huge foreign debt and was effectively bankrupt even before the collapse of its currency. This gripped much of East Asia and raised fears of a worldwide economic meltdown due to financial contagion[5].

The International Monetary Fund stepped in to initiate a US$ 40 billion program to stabilize the currencies of South Korea, Thailand, and Indonesia. These were the economies particularly hard hit by the crisis. The effects of the crisis lingered through 1998. By 1999, however, the economies of Asia were beginning to recover.

Invasion of Iraq 2003

The invasion of Iraq by the United States-led coalition lasted from March 20 to May 1, 2003. This invasion signalled the start of the Iraq war which was a protracted armed conflict that toppled the government of Saddam Hussein. The invasion consisted of twenty-one days of major combat operations carried out by the combined force of troops from the United States, the United Kingdom, Australia and Poland. The oil infrastructure of Iraq was rapidly seized and secured with limited damage at the time.

Financial Crisis 2008

The Financial Crisis of 2007-08 began in 2007 with a crisis in the subprime mortgage market in the United States, and developed into a full-blown international crisis with the collapse of Lehman Brothers on September 15, 2008. Excessive risk taking by banks magnified the impact globally.

Oil prices tumbled from historic highs of US$ 145 in July 2008 to around US$ 33 five months later. OPEC, led by Saudi Arabia, the group’s largest producer, took traditional actions of cutting production to bring stability to global prices.

Arab Spring 2010

The Arab Spring or the Arab Revolutions was a revolutionary wave of demonstrations and civil wars in North Africa and the Middle East that began in Tunisia with the Tunisian Revolution. The effect spread strongly to five other countries: Libya, Egypt, Yemen, Syria and Iraq. There was a chain reaction in the global economy. As the protests began and spread to other MENA (Middle East and North Africa) countries, the fear of instability reaching major oil producing Arab countries caused unrest in the global oil market. Additionally, the Arab Spring began at an already delicate time for the global economy that was still lurching from the global financial crisis.

[5]Financial contagion refers to "the spread of market disturbances – mostly on the downside – from one country to the other, a process observed through co-movements in exchange rates, stock prices, sovereign spreads, and capital flows"

3. Causes of the Sharp Drop in Oil Prices

CAUSES

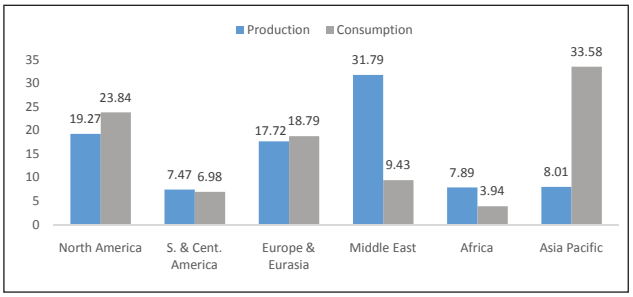
While commodity prices are prone to cyclical price changes, in the case of oil, the concerns about geopolitical risks and pricing policies of the OPEC, to a large extent, offset the impact of moderating global demand during 2012 and 2013. Once these factors started to unravel themselves, oil prices came under pressure and started to drop steeply in June 2014.

Price fluctuations in the commodity markets, especially in the short run, are driven by market sentiment and expectations. On the other hand, the long run trend in prices mostly tend to be driven by underlying demand and supply conditions. The steep price decline since June 2014, had a mix of both. The changes in demand and supply, while noticeable were not unusually large. However, certain other developments like the significant shift in OPEC's objectives, receding geopolitical risks and the US dollar appreciation brewed the recipe for the downfall in oil prices.

This section first presents a brief discussion about each of the causes for the sharp drop in oil prices. It concludes with an analysis of their relative contribution to the recent oil price drop and highlights the implications for oil exporting and importing economies.

Figure 6 represents the global production and consumption of Oil in the year 2016 by region. Not surprisingly, the Middle East is the largest producer of oil and the Asia Pacific is the largest consumer. This is because of the concentration of oil reserves in the Middle Eastern region.

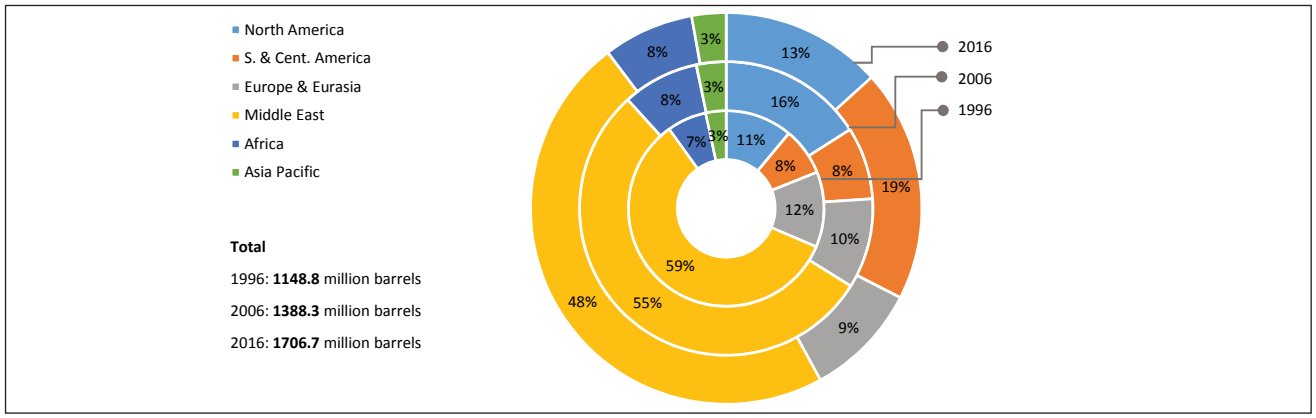
Figure 6: Oil Production & Consumption by Region 2016 (Million barrels per day)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

Figure 7 depicts the distribution of proved oil reserves by region. It also portrays the data historically by displaying the change over the past three decades. Global proved reserves have risen from 1148.8 million barrels in 1996 to 1706.7 million barrels in 2016; majority of which have always been concentrated in the Middle East. This is followed by North America, but more recently the shift has been to South and Central America with new Oil discoveries in the region.

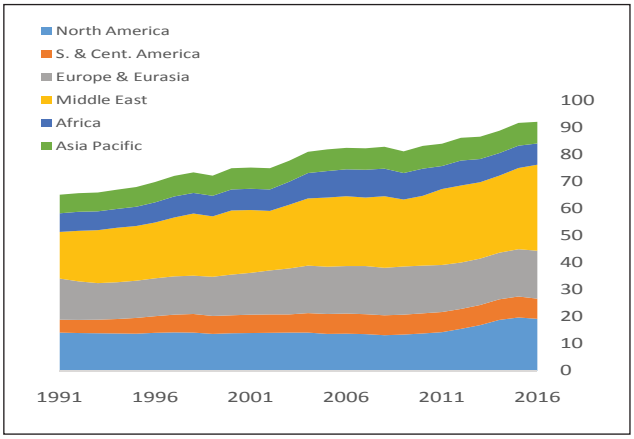
Figure 7: Distribution of Proved Reserves in 1996, 2006 & 2016 (Percentage)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

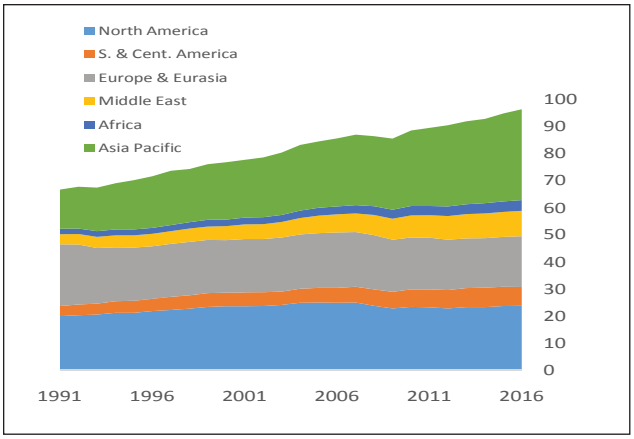
World oil production grew by only 0.4 million b/d in 2016, the slowest growth since 2013. Production in the Middle East rose by 1.7 million b/d, driven by Iran, Iraq and Saudi Arabia, but this was largely offset by declines in North America, Africa, Asia Pacific and South & Central America. Global oil consumption growth averaged 1.6 million b/d, above the 10-year average of 1 million b/d for the second successive year as a result of stronger than usual growth in the OECD. However, China (400,000 b/d) and India (330,000 b/d) still provided the largest contributions to incremental growth.

Figure 8: Oil production by region (Million barrels per day)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

Figure 9: Oil Consumption by region (Million barrels per day)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

A. Supply and Demand Dynamics

Unconventional sources of oil production like the Shale oil boom in the USA and oil sands in Canada along with the production of biofuels have substantially increased the supply of oil in the global market. Better-than-expected output in OPEC nations and their decision in November 2014 to not curtail oil production only added to the supply surplus. On the other hand weaker-than-expected demand from Europe and Asia added to weakening the price.

Time and again, economists have opined that over time, the cost of unconventional oil production is likely to decline as new technologies will reduce the cost of exploration and extraction[6]. Some key new technologies that have impacted the supply side economics are highlighted below:

- **Shale oil:** Peak oil, which was widely discussed a decade ago, is the point in time when the maximum rate of extraction of petroleum is reached, after which it is expected to enter terminal decline (M. King Hubbert's theory). But by 2014, U.S. oil production reached 11.7 million barrels per day, a figure not seen since the nation's previous peak production in 1972. This was commonly known as the shale oil revolution. It is often argued that this revolution was the result of technological change, especially horizontal drilling and fracking. Technological change was an important contributing factor to the increase in production, but such change involved much more. The rise in oil prices after 2009 and favourable financing conditions facilitated by low interest rates and quantitative easing made extraction of oil from tight rock formations and tar sands profitable. What differentiates these 'unconventional' oil projects from their conventional counterparts is that they have a shorter life cycle (2.5-3 years from the start to full extraction) and relatively low capital

[6]The Future of Oil: Geology vs Technology, IMF Working Paper 12/109

costs. As a result, oil supply from these sources are more elastic to price changes than from conventional sources, even in the short term[7].

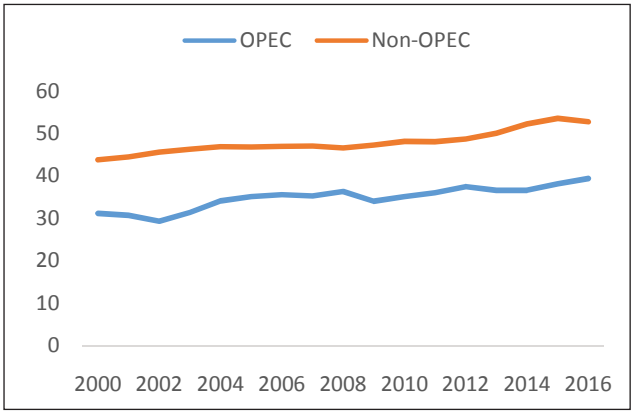
- **Oil sands:** Oil sands are a mixture of sand, water, clay and bitumen. Bitumen is oil that is too heavy or thick to flow or be pumped without being diluted or heated. Bitumen is so viscous that at room temperature it acts much like cold molasses. Oil sand producers have a variety of treatment methods available and new methods are put into practice as new technologies are researched and developed. Oil sands are found at several locations around the globe, including Venezuela, the United States and Russia, but the Athabasca deposit in Alberta is the largest, most developed and utilizes the most technologically advanced production processes. The cost of extracting oil from the Canadian oil sand is perhaps the highest of any source; nevertheless, Canada's oil output reached almost 4.5 mb/d in 2016, up from 3.2 mb/d in 2006, mostly reflecting expanding extraction from oil sands.

- **Biofuels:** Biofuels have been around as long as cars have. Henry Ford planned to fuel his Model Ts with ethanol at the start of the 20th century. But discoveries of huge petroleum deposits kept gasoline and diesel cheap for decades and biofuels were largely forgotten. However, with the rise in oil prices and concerns about global warming caused by carbon dioxide emissions, biofuels have been regaining popularity. Gasoline and diesel are actually ancient biofuels. But they are known as fossil fuels because they are made from decomposed plants and animals that have been buried in the ground for millions of years. Biofuels are similar, except that they're made from plants grown today. Biofuel production has risen sharply since the mid-2000s. Production reached 1.5 mb/d of oil equivalent in 2016, corresponding to 1.5 percent of global oil consumption. The largest producers of biofuels are the United States (43.5 percent of global biofuel production, mostly from maize based ethanol), Brazil (22.5 percent, mostly from sugarcane based ethanol) and the European Union (16.5 percent, mostly from edible oil-based biodiesel). The profitability of biofuels has been questioned, however, even at oil prices above US$ 100/bbl.

The Organization of the Petroleum Exporting Countries (OPEC), an intergovernmental Organization of 14 nations (as of September 2017), accounts for an estimated 42.7 percent of global oil production and 71.5 percent of total proved reserves, giving it a strong clout to influence global oil prices. The Organization for Economic Co-operation and Development (OECD) is an intergovernmental economic organization with 35 member countries. Most OECD members are high-income economies with a very high Human Development Index (HDI) and are regarded as developed countries.

India and China, the largest contributors to oil consumption growth in 2016, are not a part of these organizations, which is why, of late, a growth in oil consumption is led by Non-OECD countries as depicted in the Figures 10 and 11.

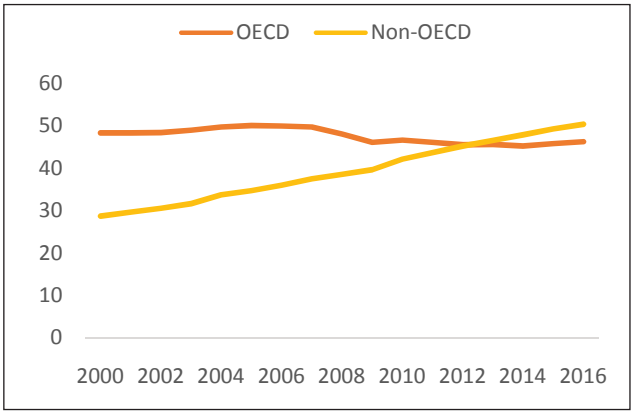
Figure 10: OPEC and non-OPEC oil production (Million barrels per day)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

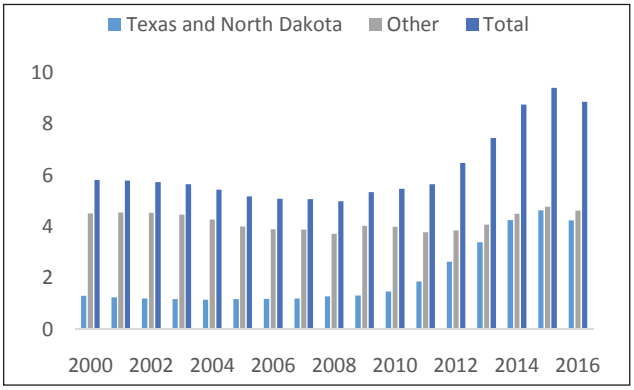
[7]Shale oil's response to prices may call for industry re-evaluation, Energy Economist, Platts, February 2015

Figure 11: Oil Consumption by OECD and non-OECD (Million barrels per day)



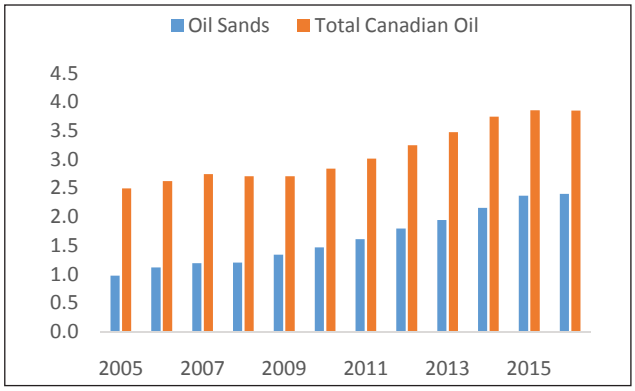
Source: BP Statistical Review of World Energy 2017, EXIM Bank Research

Figure 12: U.S. oil production[1] (Million barrels per day)



[1]Crude oil production only. Texas and North Dakota are the U.S. states with the largest shale oil production.
Source: U.S. Energy Information Agency, Canadian Association of Petroleum Producers, EXIM Bank Research

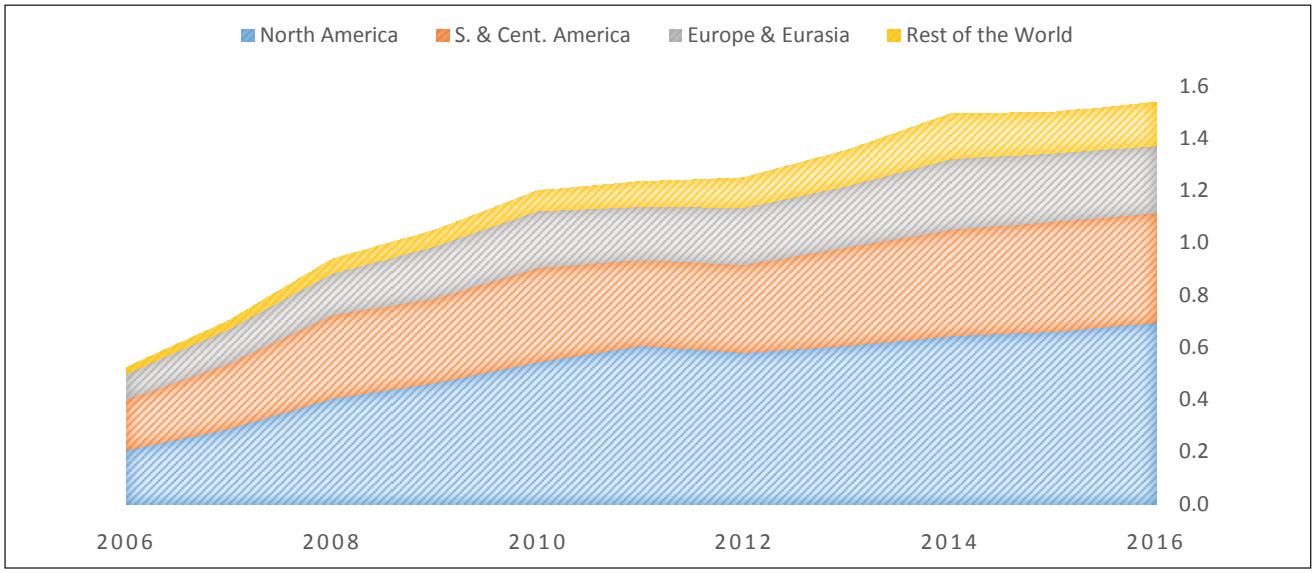
Figure 13: Canada oil sands and total oil production (Million barrels per day)



Source: U.S. Energy Information Agency, Canadian Association of Petroleum Producers, EXIM Bank Research

A biofuel is a fuel that is produced through contemporary biological processes, such as agriculture and anaerobic digestion, rather than a fuel produced by geological processes. Biofuels can be derived directly from plants, or indirectly from agricultural, commercial, domestic, and/or industrial wastes. Global biofuels production rose by 2.6 percent in 2016, well below the 10-year average of 14.1 percent, but faster than the growth in 2015 (0.4 percent). The US provided the largest increment (1930 thousand tonnes of oil equivalent, or ktoe) as is evident in Figure 14.

Figure 14: World biofuels production (Million barrels per day oil equivalent)



Source: BP Statistical Review of World Energy 2017

B. Changes in OPEC Policy

With production of about 39 mb/d in 2016, OPEC still accounts for 42 percent of global oil supply and continues to have an overwhelming influence on the global oil market. Especially OPEC's largest producers have adjusted oil supply in the past to stabilize prices within a desired price range. Through the early 2010s, this desired price range increased gradually to US$ 100-110/bbl, up from US$ 25-35/bbl during the early 2000s. It was only in 2016 that OPEC forecasted a price of US$ 65/bbl for 2021.

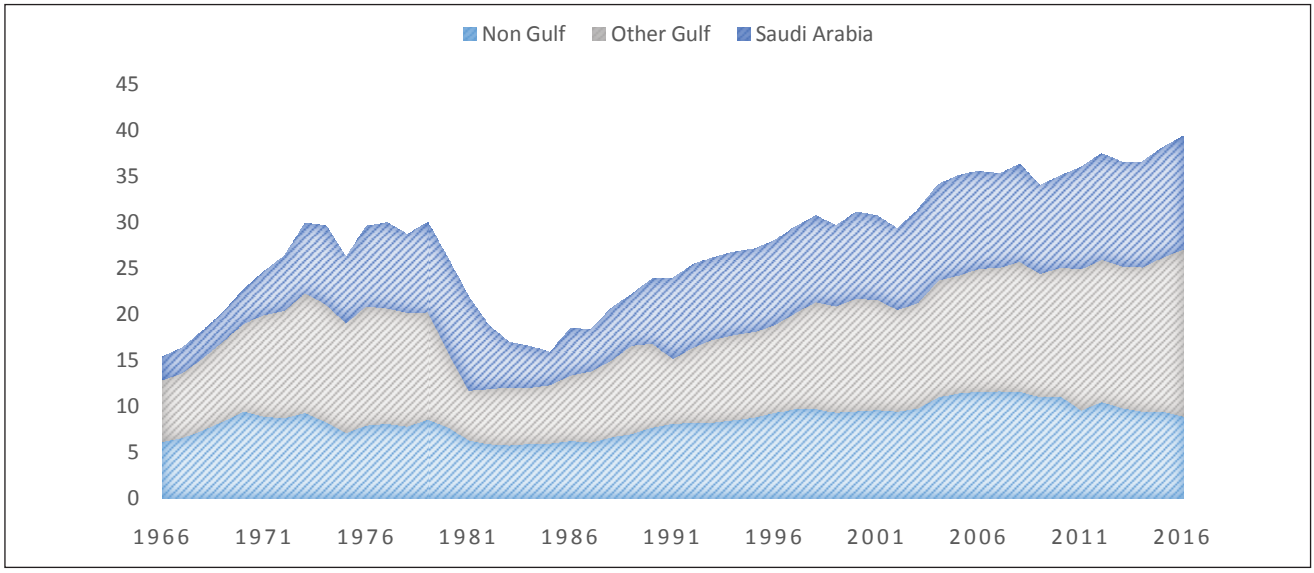
Now, as a result of these policies and also the rise of unconventional oil production, as discussed earlier, OPEC's share of global oil supply has steadily been eroded. To protect market share, several OPEC members began to offer discounts to Asian oil importers in the third quarter of 2014; thus indicating that they are abandoning price targeting.

With an objective to reverse the trend, the members of OPEC agreed upon production cuts to the tune of 1.2 million b/d, to 32.5 million b/d with effect from 1st of January 2017. Further, OPEC has also tried and to a great extent successfully influenced non-members also to cut down production with an intention to increase oil price to a sustainable level.

C. Impact of Geopolitical Developments

Geopolitical tensions usually have an impact on oil prices and oil-producing nations have traditionally been influenced by political instability. It would not be wrong to say that at times, some of the OPEC nations have themselves been the cause of global geo-political disturbance. Having said that, in the second half of 2014, it was very much apparent that the conflict in the Middle East and Eastern Europe did not have as much impact on oil supply as was expected. Despite internal conflict, Libya managed to add 0.5 mb/d of production in the third quarter of 2014.

Figure 15: OPEC Oil Production (Million barrels per day)



Source: BP Statistical Review of World Energy 2017, EXIM Bank Research
Note: Other Gulf is Iran, Iraq, Kuwait, Qatar, and United Arab Emirates. Non Gulf is Algeria, Angola, Libya, Nigeria, Ecuador, and República Bolivariana de Venezuela.

Box 1: OPEC deepens oil cuts as US Shale comes back

At the 171st Meeting of the Conference of the Organization of the Petroleum Exporting Countries (OPEC) during November 2016, the member countries agreed to OPEC's first production cuts in eight years and thus confounded its doubters and sent crude oil prices soaring.

The deal was crucial in the sense that it was designed to drain record global inventories and had overcome disagreements between the Group's three largest producers -- Saudi Arabia, Iran and Iraq -- and ended its efforts or rather intent to move towards free markets that started in 2014. It was also broader than expected, extending beyond OPEC. Most strikingly, Russia, the biggest producer outside the bloc, agreed to unprecedented cuts to its own output.

The impact of this agreement on the energy prices was immediate: the stock prices of energy companies, currencies of major exporters and, benchmark oil prices, all jumped up.

In line with the decision taken in November 2016, the Conference decided to extend its production adjustments for a further period of nine months, with effect from 1 July 2017, at its 172nd meeting in May 2017.

OPEC curbed output as promised in May 2017, even though Iraq, the Group's second largest producer, did not comply with the agreement in the first half of 2017. Non-OPEC nations trimming supplies made steady gains, without help from Kazakhstan. Although there is still time to improve, the cuts are set to remain in place through March 2018.

The 21 nations participating in supply cuts are collectively trying to reduce output by almost 1.8 million barrels a day, in most cases using October 2016 levels as the starting point. More than half of the burden for reaching the total supply-cut goal falls upon Saudi Arabia, Russia and Iraq. Only Saudi Arabia has consistently met its target, lifting OPEC's compliance in the process. Russia, responsible for much of the non-OPEC pledged cuts, has said it would curb output gradually.

Kazakhstan, which is boosting output from its Kashagan oil field, again produced more crude than it pledged to do under the supply agreement. Small producers Gabon and South Sudan also pumped more than they said they would, according to OPEC and IEA data. Other nations that did not cut as much as promised include Algeria and Malaysia. OPEC members Libya and Nigeria are exempt from supply curbs, and Iran is allowed to boost output.

By the end of May 2017, oil prices had fallen to within cents of where they were on November 30, when OPEC announced the supply cuts. That's largely because others, notably U.S. shale producers, have ramped up output. Libya and Nigeria have also boosted production, and the IEA sees new supplies from OPEC's rivals outpacing global demand growth next year.

Source: Bloomberg, EXIM Bank Research

Russia - the world's most resource endowed state - is the largest natural gas producer and one of the two largest producers of crude oil. While this position does help in the nation's economics, the abundance is used to remain politically relevant in the global sphere. The important role that Russian energy plays in the world geopolitics, especially that of Europe and Ukraine was highlighted by the Crimea crisis and moves against Eastern Ukraine in 2014.

Elsewhere, in the Middle East – on the one hand where Saudi Arabia's unique position allows it to influence global economics and together with Kuwait and the United Arab Emirates has the financial muscle to voluntarily reduce oil production, the others like Nigeria, Libya, Algeria, Iran, Iraq and Venezuela rely on maximum production and high prices to finance their budgets.

Despite rising domestic production, the United States continues to import oil from the Middle East. America's strategic relationship with the Middle East is perhaps more important than the rising production. Needless to say, all these happenings have significant geopolitical implications.

D. Appreciation of the US Dollar

A dollar can be described as either weak or strong, to describe the value of the U.S. dollar against other currencies. A dollar is considered strong "when the U.S. dollar has risen to a level against another currency that is near historically high exchange rates for the other currency relative to the dollar". When the dollar increases in value compared to another currency over a period of time, it is seen as getting stronger, or appreciating. There are many factors that affect the strength of the dollar; in addition, the strong dollar, in turn, also affects multiple facets of the economy, mainly the price of oil. Since oil is traded in U.S. dollars, a stronger dollar will force commodity prices, particularly oil, to fall.

As a general rule, when the dollar moves higher, commodities tend to move lower. There are many reasons why commodity prices are influenced by the value of the dollar. As the US Dollar is the reserve currency of the world, it is the benchmark pricing mechanism for most commodities. Most other nations hold dollars as reserve assets as the US dollar is considered to be the most stable foreign exchange instrument. Therefore, the currency has become the exchange mechanism in most cases of international trade.

Another reason is that commodities are global assets, they trade all over the world. When the value of the dollar drops, it costs more dollars to buy commodities. At the same time, it costs lesser amount of other currencies to purchase the same commodities. When this happens, they will have more buying power as it takes less of their currencies to purchase a dollar. Classic economics teaches that demand typically increases as prices drop.

The US dollar appreciated by more than 10 percent against major currencies in trade weighted nominal terms during June 2014 through January 2015 (Figure 16). Normally, an appreciation of the US dollar raises the cost of oil in countries using currencies not linked to the US dollar. The effect of this phenomenon is a weaker oil demand in those countries and a stronger than before supply from non-US dollar producers.

Box 2: Oil Pipelines : Strategic Importance

There is much more to the strategic importance of pipelines in the global petroleum industry than being a resource transport mechanism. They not only help diversify a region's petroleum supply routes, but also influence the regional balance of power and connect trading partners, quite literally. For instance, Europe is served by a pipeline put in place up north by Russia. Economic ties remain one of China's most potent instruments in Central Asia.

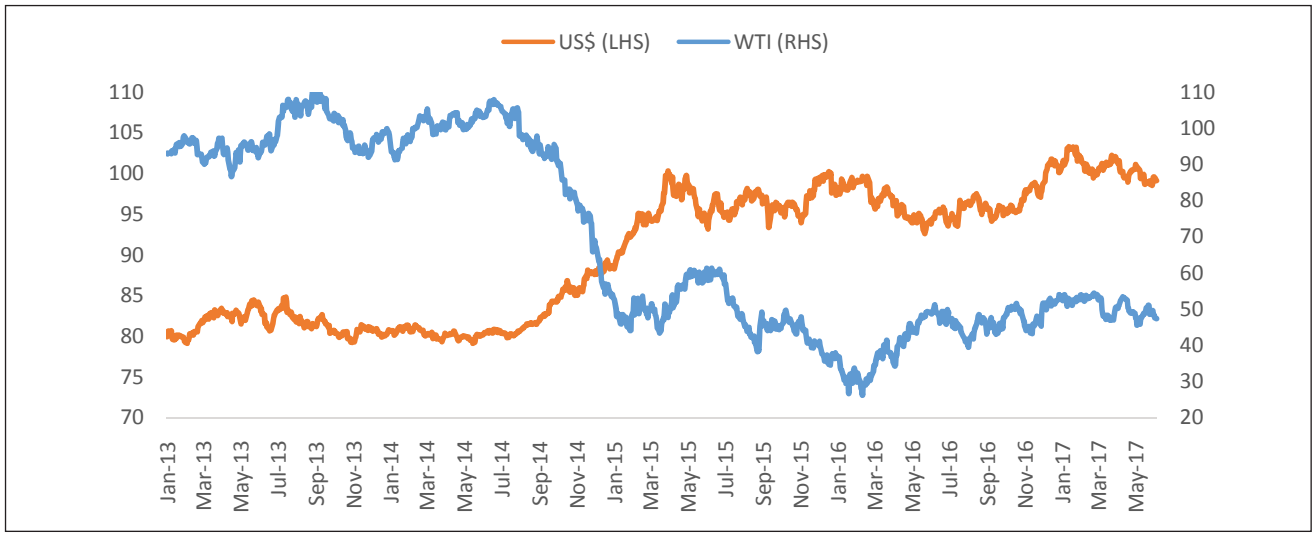
In fact, one of the most 'political' Chinese investments in Central Asia are the pipelines; the Turkmenistan-China gas pipeline – which passes through Turkmenistan, Uzbekistan and Kazakhstan – and delivers gas into Xinjiang. The Chinese have a pipeline going as far as Shanghai and connecting with their network east. While these pipelines generate great economic benefits to the participating regions, by leveraging its economic clout, China is able to significantly shape the direction of many Central Asian states' foreign policies.

Another example of how the rapidly changing global energy geopolitical landscape continues to play out is the more than a decade-old proposed Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline project. Important security and financing concerns through Afghanistan have hampered the progress of TAPI project that is estimated at US$10 billion with the capacity to transport 33 billion cubic meters of Turkmenistan gas over 30 years. The TAPI countries decided to begin constructing the pipeline with completion estimated for the end of 2018. With the Asia Development Bank designated as transaction advisor, hopes are high that the 1,800 km pipeline project may see the light of the day. The one question that remains on the lips of many is how Sino-American relations might have impacted the political chess game of the project. While the Americans favour it, the Chinese are skeptical. A successful completion of the project will imply total avoidance, or at least, a reduction in total dependence on Chinese gas purchases. The U.S. position is relatively easier to understand –increased U.S. oil and gas production has had a profound impact on the country's position in global energy markets – more so than at any other time in decades. Nonetheless, the Americans continue to watch and assess events on the global energy geopolitical stage, and from time to time, react to suit their economic and national security interests.

The proposed Keystone XL pipeline by TransCanada has become another reference point in the complex interplay of economics, geopolitics and technology. While advocates believe that increased flow of Canadian oil into the U.S. will lower gasoline prices, strengthen energy security and generate substantial economic benefits, pipeline opponents cite environmental consequences, including climate-warming greenhouse gas emissions. While both views have their merits, the global commodity status of oil makes this argument more a function of global economics, geopolitics, security and technology than any other thing.

Source: 'The Geopolitics of Oil and Gas', International Association of Energy Economics

Figure 16: US Dollar index
(US$ = 100 in 1973)



'US$' is the nominal effective exchange rate of the US Dollar against a trade-weighted basket of major currencies. Latest data for Jun 5, 2017
'WTI' is oil prices West Texas Intermediate
Source: Bloomberg, EXIM Bank Research

To sum up, many factors explain the recent global slide of oil prices, chief among which are increase of unconventional oil production mainly in United States and Canada, increased energy efficiency, slowing economic growth in China, and Saudi Arabia's refusal at the time to help stabilize price by cutting production. Among other things, energy prices are influenced and determined by a complex interplay of economics, geopolitics, currency movements and technological changes.

4. Implications of the Sharp Drop in Oil Prices

Global Activity

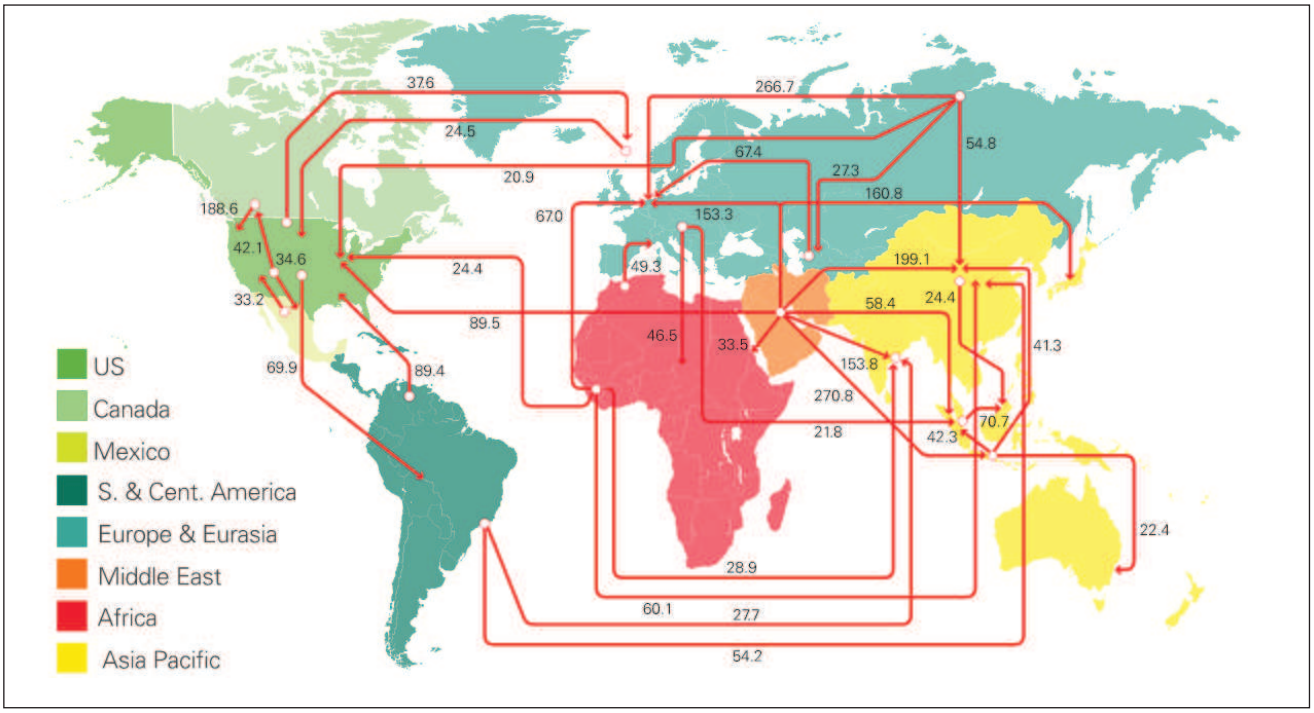
In a world that is closely interlinked not just for its energy resources, but for practically every other commodity or service, it is quite impossible that nations do not face an impact of abrupt changes in oil prices. Oil prices influence economies in various ways. Given that a country is an importer or an exporter of crude and/or petroleum products, the price change has an impact. Growth and inflation face an impact with the direct effect on prices and indirect effects on trade and other commodity markets.

Given the backdrop of a sudden drop in oil prices, the shift in real income from net oil exporting countries to net oil importing countries should generally result in a stronger global demand over the medium term. This is so, as oil exporting nations tend to have higher average savings rate compared to net oil importers, where the propensity to spend tends to be higher (World Bank, 2015). However, the effects could vary considerably depending on the government policies, precautionary savings, confidence in the economy, and of course, time.

By increasing uncertainty, abrupt changes in oil prices, can also reduce investment and durable goods consumption. So much so that increased uncertainty about the future price of oil could cause firms to delay investment and reduce capital expenditure.[8]

The major trade flows of Petroleum Crude and Products during the year 2016 are represented below

Figure 17: Major Trade Movements 2016
Crude + Products Trade flows worldwide (million tonnes)



Source: BP Statistical Review of World Energy 2017

[8]Kilian 2014, Bernanke 1983, Pindyck 1991

Figure 18: Major Importers of Crude & Petroleum Products 2016 (US$ Billion)

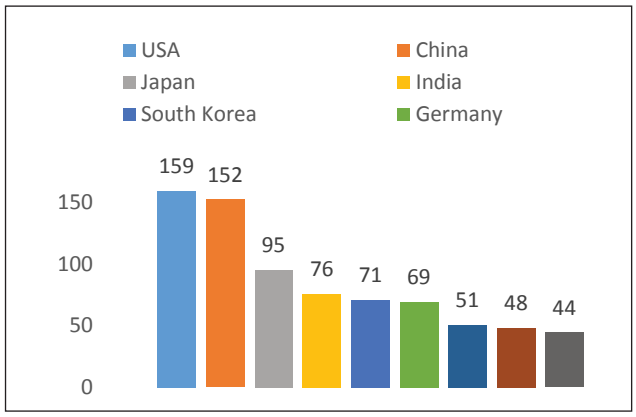
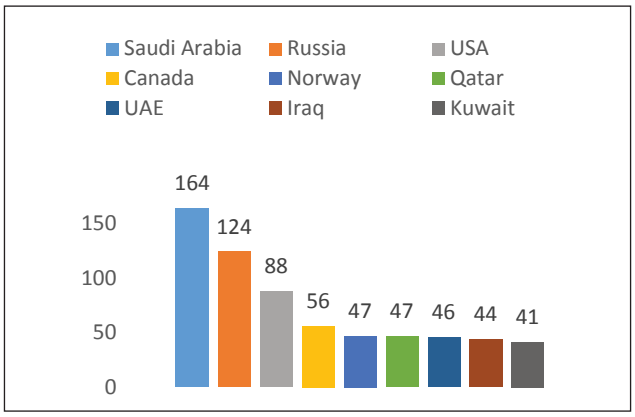


Figure 19: Major Exporters of Crude & Petroleum Products 2016 (US$ Billion)



Source: UN Comtrade, EXIM Bank Research
Note: Based on 95.61% data availability for 2016 as on December 6, 2017

The expectation of a positive impact of an oil price decline on the global economy stems from the fact that some of the largest economies in the world are the major oil importers. The United States ranks as the largest importer of petroleum crude and products combined. Although the US also features in the exporters list, it still is a net importer of these products. China is a close second and India ranks fourth behind Japan. Other major importers are South Korea, and Germany.

While these large economies continue to depend on oil, in the short term, at the cost of generalizing, one can say that the global economy will benefit with a moderation in oil prices. The fall in oil prices in oil importing nations will help lower inflation and current account deficits which are sources of vulnerability especially for developing nations.

But this growth would be at the cost of hurting relatively larger economies that depend highly on oil revenues including countries like Russia, Saudi Arabia, Qatar, UAE, and Iraq (Figures 20 and 21).

Figure 20: Fuel Exports, 2015 (Percent of merchandise exports)

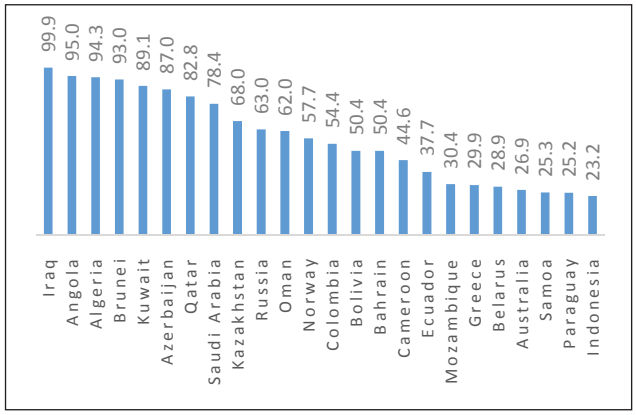
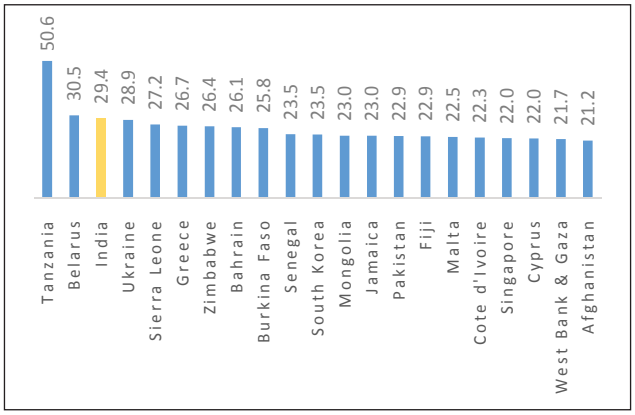


Figure 21: Fuel Imports, 2015 (Percent of merchandise imports)



* data on some major oil dependent countries like Venezuela and Nigeria are not available
Source: World Bank; EXIM Bank Research

Impact on Oil Importing Countries

In oil importing nations, a drop in oil prices raises household and corporate real incomes in a manner similar to a tax cut. Hence, the oil price decline generally benefits such countries. A 10 percent decrease in oil prices could raise growth in oil-importing countries by some 0.1-0.5 percentage points, depending on the share of oil imports in GDP[9].

A decline in oil prices would also have a positive effect on the current accounts in oil-importing countries as usually a large portion of the payments go towards oil imports.

Also, majority of the food production tends to be energy intensive. Hence, falling oil prices would likely be accompanied by a reduction in agricultural prices. A World Bank study[10] states that a 45 percent decline in oil prices could be expected to reduce agricultural commodity prices by about 10 percent. Once that is materialized and passed through into domestic food prices, it would benefit majority of the poor.

Impact on Oil Exporting Countries

While falling oil prices are expected to support global activity and reduce inflation, they might put pressure on some oil exporting countries. This is because a sharp drop in oil prices will impact oil-related revenues in the negative and put fiscal balances under pressure. Moreover, the exchange rates also depreciate on deteriorating growth prospects.

In addition, falling oil prices can have a number of indirect effects on oil-exporting economies. In many such countries, government finances rely heavily on taxing the oil sector. For example, oil based revenues in the oil exporters of the MENA region account for more than half of overall fiscal (World Bank 2015c). Further, fiscal strains accompanied by corporate sector weakness (i.e. oil companies) would only worsen the situation.

Sustained low prices will weaken activity in exporting countries, with adverse implications for trade and tourism and may also spillover weakness in neighbouring or dependent countries.

The Effects of Lower Oil Prices on Select Exporting Nations

Falling oil prices in 2014 was coupled with a worsening geopolitical situation and the introduction of economic sanctions on **Russia**. Being one of the largest exporters of petroleum crude and products, Russia was hit hard, leading to increased uncertainty, a rapid economic decline, and a deterioration of the conditions for further economic growth. GDP per capita in Russia was down from an all-time high of US$ 11,615 in 2013 to US$ 11,099 in 2016. In percentage terms, GDP growth fell from a positive rate of 1.28 percent in 2013 to a negative rate of (-)2.84 percent in 2015 and (-)0.25 percent in 2016. With some firming up of oil prices in 2018, GDP growth of Russia is is projected to crawl back to the positive domain and grow at a rate of 1.41 percent in 2018.

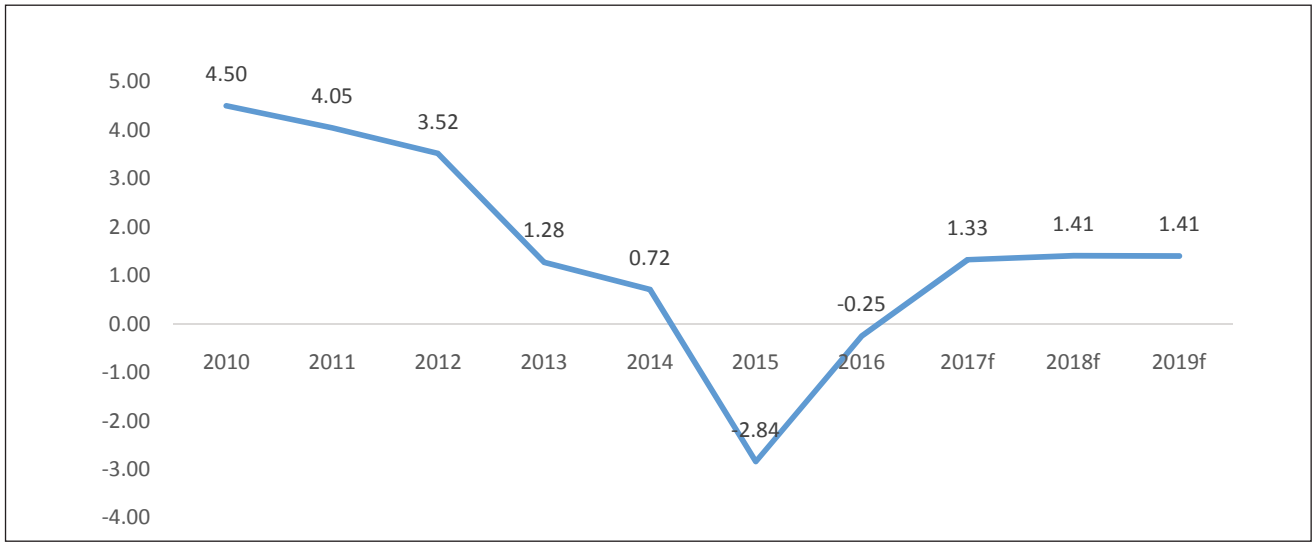
The government had to provide state support to the companies affected by falling oil prices by taking assets out of the National Welfare Fund (NWF). Further, low oil prices challenged implementation of large upstream projects. Coupled with falling demand in the European market and growing competition for European consumers among Russian, Middle Eastern, and African suppliers of oil and petroleum products, resulted in reorientation of Russia's exports towards the Asian markets on a large scale. The subdued level of oil prices also led to stagnating wages over the last two years, with no real growth; this situation was further exacerbated by an increase in the poverty levels and the general cost of food.

Elsewhere, the fall in oil prices also hit the **Nigerian** economy hard. In the boom years, malls, private schools and hospitals were built and western

[9]World Bank 2013; Rasmussen and Roitman 2011

[10]'The Great Plunge in Oil Prices: Causes, Consequences and Policy Responses', World Bank 2015

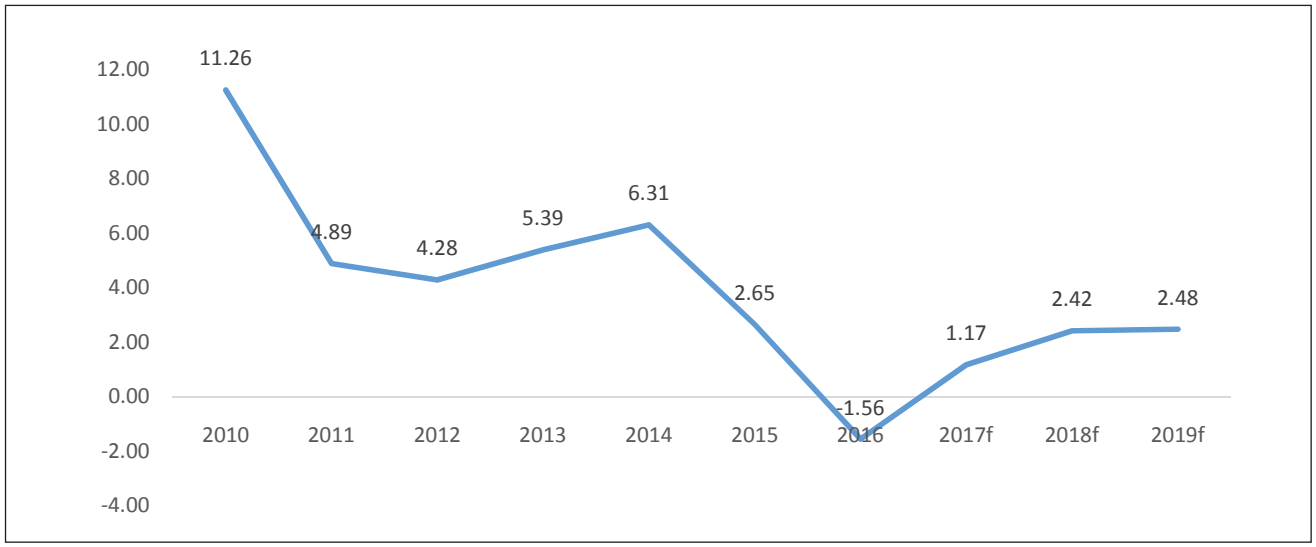
Figure 22: Russia GDP growth, constant 2010 USD; in Percentage



f: Forecast
Source: Global Economic Prospects, World Bank

products imported. At the same time, passive portfolio investments, which generate financial returns but give no management control over a business, soared. But the country had not invested in infrastructure from which sustainable growth could be built. In August 2014 "the perfect storm of collapsing oil prices" arrived. The overreliance on oil has been central to the country's economic crisis, since oil accounted for more than 90 per cent of foreign income[11].

Figure 23: Nigeria GDP growth, constant 2010 USD; in Percentage



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Source: Global Economic Prospects, World Bank

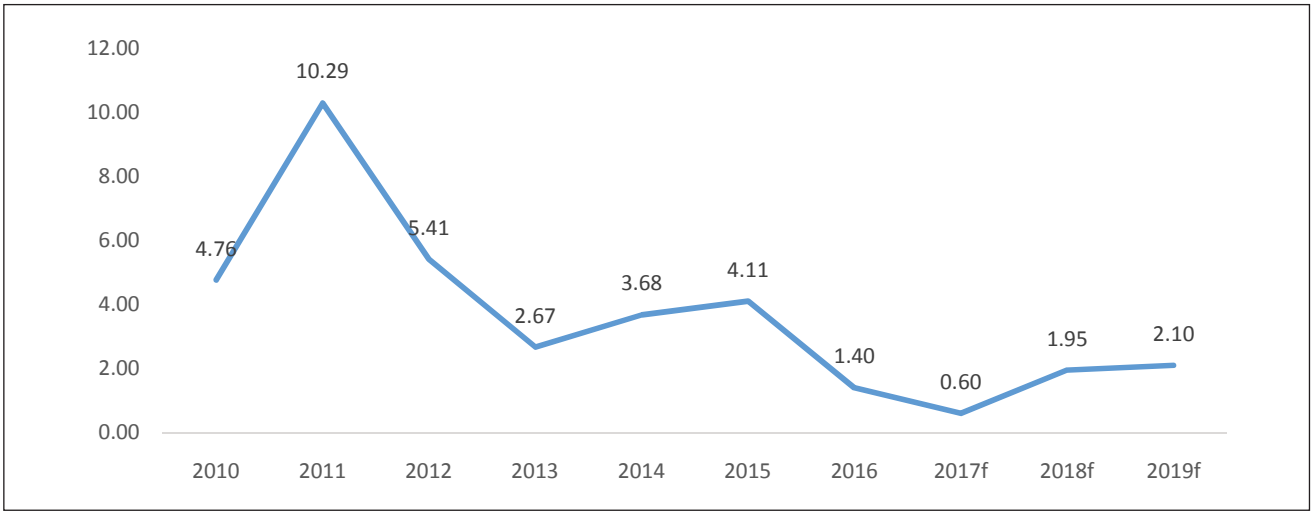
[11]Nigerian National Petroleum Corporation

The setback is evident from the GDP growth numbers. From a high growth rate of 6.31 percent in 2014, the GDP growth rate has seen its worst in 2016, contracting by (-)1.56 percent, although, going forward, it is expected to recover with gradual increase in oil prices and is projected to expand by 2.42 percent in 2018.

For the Kingdom of **Saudi Arabia**, it has been a strange few years, as its endured budget deficits for the first time in its modern history, stagnation in oil prices and rising competition from other OPEC members coupled with the American shale boom. The 2014 price crash together with the high spending of the last several years have been draining Saudi Arabia's government budget. The Saudi leadership had been pivotal in the campaign to bring about an OPEC cut, after resisting production deals for years.

The GDP numbers have also tumbled from a growth rate of 4.11 percent in 2015 to 1.40 percent in 2016 and an estimated 0.60 percent in 2017. With the anticipated stabilization of oil prices in the foreseeable future, GDP growth is likely to recover to 1.95 percent in 2018.

Figure 24: Saudi Arabia GDP growth, constant 2010 USD; in Percentage

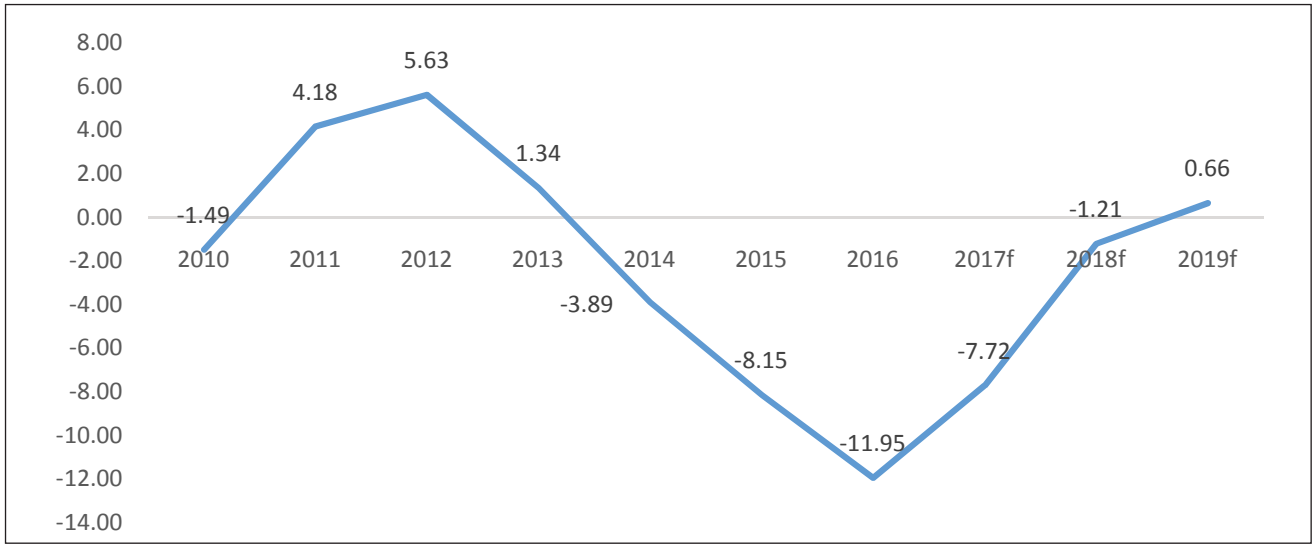


f: Forecast
Source: Global Economic Prospects, World Bank

Venezuela experienced a worsening in its economic and political situation mainly on account of the falling oil prices. The nation has the world's largest oil reserve and has remained highly vulnerable to fluctuations in oil prices, so much so that even a US$1 dip in per-barrel price means a significant loss of government revenue. The nation is suffering an economic collapse that has sparked massive protests against the government.

During the prolonged oil bonanza, Venezuela's economic mismanagement was masked by its soaring oil revenues, which were used to finance populist social programs. This improved the country's social indicators and led to macroeconomic balances. However, the oil-dependent economy, without a competitive non-oil sector, has now been facing a huge challenge as is evident from the falling GDP numbers (1.34 percent in 2013 to -11.95 percent in 2016), which is expected to recover and turn positive only in 2019.

Figure 25: Venezuela GDP growth, constant 2010 USD; in Percentage



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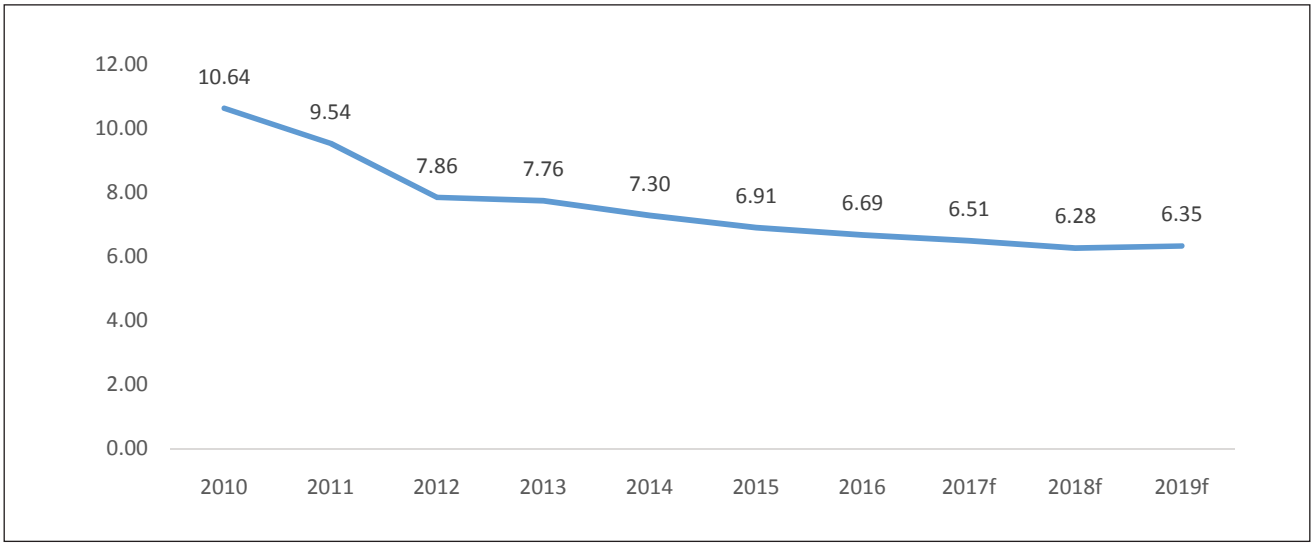
Source: Global Economic Prospects, World Bank

The Impact of Low Oil Prices on Select Importing Nations

China, the largest importer of oil, has mostly gained from the falling oil prices. However, falling oil prices have not fully offset the effects of a slowing economy. The implications of sustained low oil prices have been wide-ranging for the Chinese economy. Mainly, this has resulted in the increase in China's current account surplus. From US$ 148.20 billion in 2013, just before the sharp drop in oil prices, to US$ 304.16 billion in 2015, this is a huge positive for the nation. Low oil prices have also helped stimulate the growth of China's GDP.

Figure 26: China GDP growth, constant 2010 USD; in Percentage



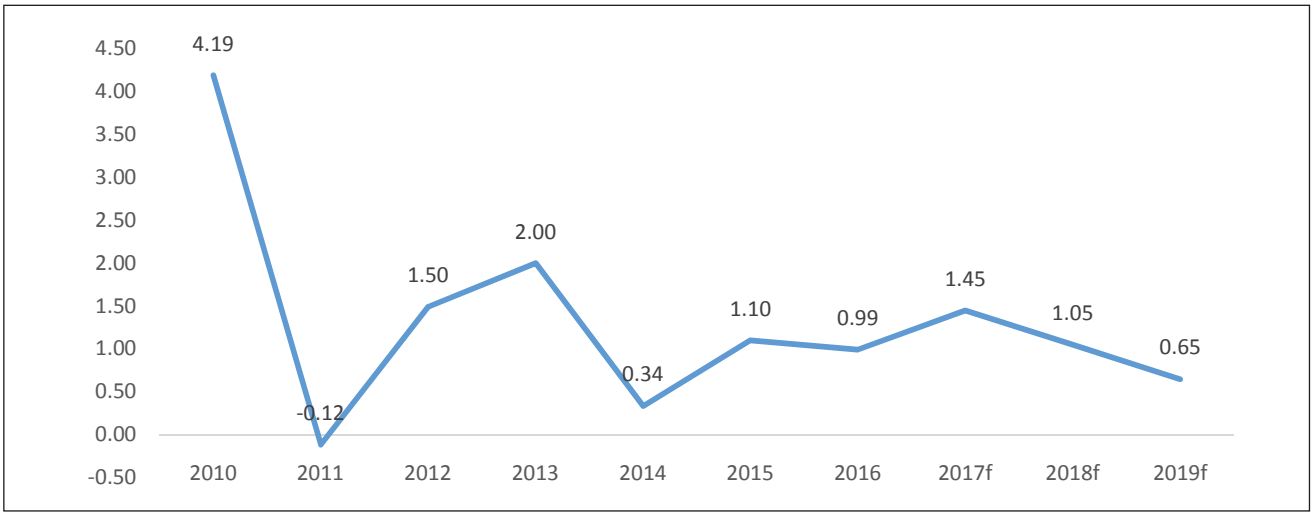
f: Forecast
Source: Global Economic Prospects, World Bank

Low oil prices presented an opportunity for the government to reform its tax and fiscal systems and the oil price regime. The Chinese government had done so by raising consumption taxes on gasoline and diesel three times during November 2015 and January 2015.

Lower prices in **Japan** have been a mixed blessing, or to put it differently, had limited impact on the economy. The country imports nearly all of the oil it uses. While oil demand has maintained its downward trend, due to demographic factors as well as improving fuel efficiency, high energy prices had earlier helped to push inflation higher, which has been a key part of Prime Minister Shinzo Abe's growth strategy to combat deflation.

The GDP growth in Japan was at the rate of 2.00 percent in 2013 which dropped down to 0.34 percent in 2014 before rising to 0.99 percent in 2016, and is further expected to grow at 1.05 percent in 2018.

Figure 27: Japan GDP growth, constant 2010 USD; in Percentage



f: Forecast
Source: Global Economic Prospects, World Bank

Elsewhere, in **Tanzania**, the fall in oil prices on the whole has been good news. As Tanzania is a net oil importer, markedly lower oil prices have relieved its energy import bill. Despite the considerable depreciation of the Tanzanian Shilling since the early 2015, the inflation rate has remained low and stable mainly due to the countervailing effects of extraordinarily low import prices, notably that of oil[12].

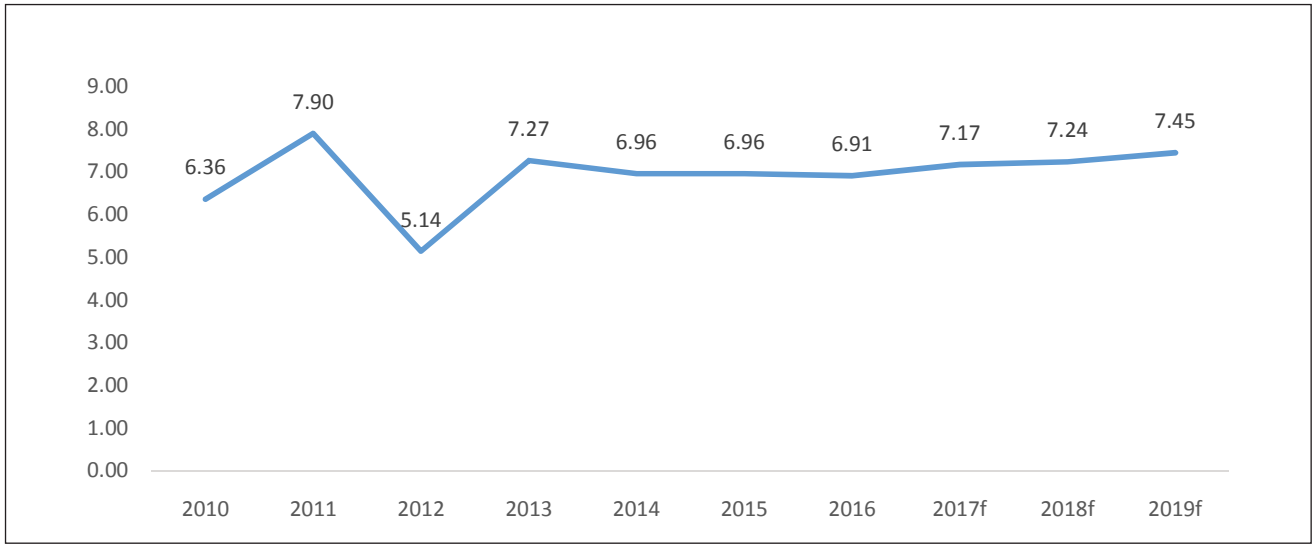
The GDP has been growing at 7.27 percent, 6.96 percent and 6.91 percent in 2013, 2014 and 2016 respectively.

The Impact of Low Oil Prices on Nations that are both Producers and Consumers

For nations that are both producers and consumers of large volumes of oil, a significant and sustained price drop presents a mixed bag, having both positive and negative implications. While some of these impacts are evident immediately, others take a bit longer to manifest themselves. Such is the case for countries in North America, which are all substantial oil producers and consumers, importers and exporters.

[12]http://www.economics-ejournal.org/economics/journalarticles/2017-9

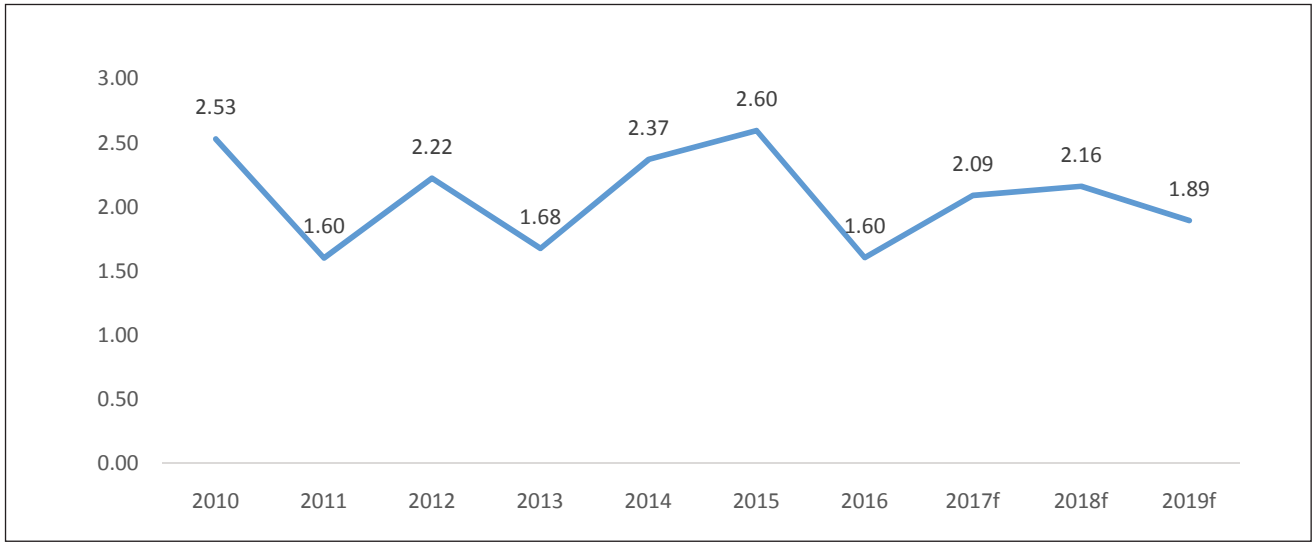
Figure 28: Tanzania GDP growth, constant 2010 USD; in Percentage



f: Forecast
Source: Global Economic Prospects, World Bank

In the last several years, the **United States** has been the largest source of incremental global oil supply growth. One of the main drivers of lower oil prices has been this growth in US energy production, where gas and oil is extracted from shale formations using hydraulic fracturing or fracking. However, given the broad-based structure of the US economy along with its huge size, the impact of oil price changes is rather limited.

Figure 29: United States GDP growth, constant 2010 USD; in Percentage



f: Forecast
Source: Global Economic Prospects, World Bank

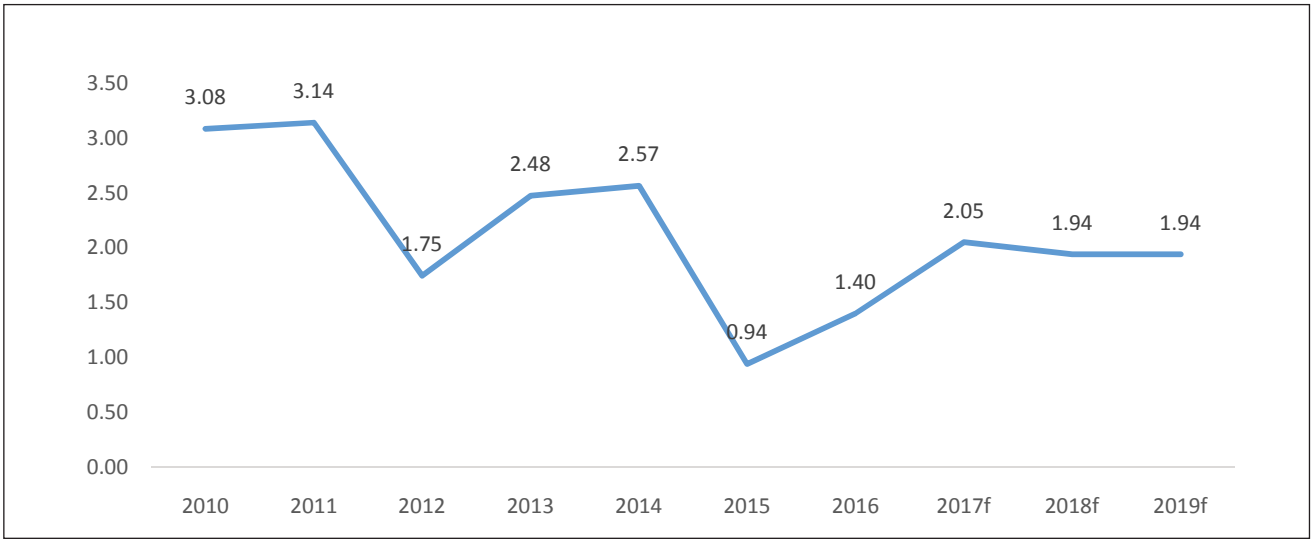
On the one hand, where lower oil prices translated into energy and fuel cost savings for the average American household, in March 2015, the U.S. economy added 126,000 jobs[13]—the lowest monthly increase since December 2013 and substantially below economists' expectations.

GDP growth was 1.68 percent in 2013 and 2.60 percent in 2015. It is expected to grow at 2.16 percent in 2018.

The assessment for **Canada** is similarly mixed. In testimony before the House of Commons Finance Committee in February 2015, Rhys Mendes, an economist at the Central Bank of Canada, told members that the "rapid fall in oil prices will have both positive and negative effects on different sectors of the Canadian economy." He noted that even though real GDP grew by 2.4% in the fourth quarter of 2014, the real incomes of Canadians contracted because the value of an important Canadian export (oil) had also declined.

Annually, the GDP has grown at 2.57 percent in 2014 and 1.40 percent in 2016 and is expected to grow at 1.94 percent in 2018.

Figure 30: Canada GDP growth, constant 2010 USD; in Percentage



f: Forecast
Source: Global Economic Prospects, World Bank

To Sum Up

Movements in oil prices affect oil and energy-related revenues and hence government budgets of oil-exporting countries. The loss in oil revenues can strain government budgets and require spending cuts. The impact would mostly spillover to the exchange rate and other commodity prices. The effect on oil-exporters is largely expected to be negative.

On the other hand, a drop in oil prices is usually very welcome by oil-importing nations. Growth is expected to rise as current account balances turn favourable with a cut on the oil import bill. Savings from oil import bills can relax government budgets. Pre-tax subsidies, that arise when consumers pay less than the supply cost of energy, are high in many developing and emerging economies[14], putting pressure on the government budget, can be reduced.

Hence, the shift in real income from net oil exporting countries to net oil importing countries should generally result in a stronger global demand over the medium term.

[13]Bureau of Labor Statistics, U.S. Department of Labor, "The Employment Situation—March 2015"
[14]IMF 2013a; Clements et al. 2014

Box 3: Implications of Oil Price Drops: A Historical Perspective

The previous five episodes of major oil price declines were often followed by weak growth and lower inflation. Several of these were also either accompanied or followed by financial market strains. Taking a look at the five major price drops preceding the 2014 oil price decline:

1985-86. Despite rising unconventional oil supply from the North Sea and Mexico, OPEC had reverted to its production target of 30 mb/d. These changing conditions in supply were the major reason for the price slump of 1985-86. Following this decline, the United States Federal Reserves embarked on a series of interest rate cuts to fend-off slowing activity and declining inflation. Significant debt problems in some large developing countries, slow growth in Japan and many European countries and a significant downward correction in global stock markets kept these supportive conditions from improving global activity.

1990-91. The first Gulf War had triggered a spike in oil prices that the decline of 1990-91 reversed. Global growth slowed in 1992 before recovering modestly in 1993 as Europe went into recession, recovery in the United States remained hesitant and Japan entered into prolonged stagnation. Elevated long term real interest rates, financial and exchange rate stress and weak confidence hampered the global upturn in the advanced countries. On the other hand, growth in many developing countries was resilient, with capital inflows helping commodity exporters offset negative terms of trade effects from weakening prices.

1998. As a result of the 1997 Asian crisis the global demand of oil weakened and the continued expansion of OPEC production led to the sharp decline in oil prices. Despite low oil prices, the global recovery remained tepid for most of 1998, partly as a result of financial market stress in the United States and major emerging markets. The situation eased only in 1999-2000, as growth in the United States, Euro area, and other large developing economies rebounded.

2001. The deflation of the 'dotcom bubble' followed by the disruptions caused by the September 11 terrorist attacks in the United States intensified the growth slowdown. Softening global activity and rising uncertainty were the main triggers behind a sharp decline in oil prices around that period. The Federal Reserve and other major central banks used aggressive monetary policy easing that led to a rapid rebound in activity, while the lower oil prices provided some support.

2008-09. The Great Recession of 2008-09 saw all commodity prices tumbling following a severe contraction in global demand. Wide ranging central bank and government interventions, coupled with resilient growth in major developing countries, gradually stabilized global activity. However, the recovery remained sluggish. The impact of a rapid rebound in commodity prices and capital flows to developing countries created favorable conditions for commodity exporting developing nations over the next couple of years.

5. Impact on India's Trade of Crude and Petroleum Products

The centre of gravity of the global energy economy has shifted. Oil prices are now significantly influenced by demand trends in China, India and other Asian countries.

Economies such as China and India have become ever more dependent on energy imports. The 2016 figures of global trade published by the United Nations (Comtrade) show this very spectacle. China and India together contributed to more than a quarter of the world imports of Crude (HS Code 2709) and more than 17 percent imports of Crude and Petroleum Products combined (HS Codes 2709, 2710, 2711, 2712 and 2713) (Table 1).

The global imports of Crude amounted to US$ 663.33 billion in 2016[15]. China was the largest importer of Crude oil with a share of 17.59 percent, followed by the USA (16.29 percent), India (9.18 percent) and Japan (7.65 percent) amongst others. USA, on the other hand, was the largest importer of Petroleum Products during the same year, with a share of 7.73 percent, followed by Japan (6.68 percent), Germany (6.15 percent) and Singapore (5.41 percent). The total value of imports of Petroleum Products amounted to US$ 662.71 billion.

It is noteworthy here that, India ranks fourth in terms of global imports of Petroleum Crude and Products combined. Importing Petroleum (Crude and Products) worth US$ 75.72 billion, India had a share of 5.71 percent of global imports during 2016.

Table 1: World Imports of Crude and Petroleum Products 2016, Value US$ Billions, and Share

Petroleum Crude (HS Code: 2709)			Petroleum Products (HS Code: 2710,2711,2712,2713)			All (Crude + Products)		
Country	Value (US$ billion)	Share %	Country	Value (US$ billion)	Share %	Country	Value (US$ billion)	Share %
China	116.66	17.59	USA	51.20	7.73	USA	159.26	12.01
USA	108.07	16.29	Japan	44.29	6.68	China	152.36	11.49
India	60.87	9.18	Germany	40.74	6.15	Japan	95.06	7.17
Japan	50.77	7.65	Singapore	35.84	5.41	India	75.72	5.71
South Korea	44.29	6.68	China	35.70	5.39	South Korea	71.06	5.36
Germany	28.72	4.33	South Korea	26.76	4.04	Germany	69.46	5.24
The Netherlands	21.58	3.25	France	26.49	4.00	Singapore	50.90	3.84
Italy	18.89	2.85	The Netherlands	26.47	3.99	The Netherlands	48.05	3.62
Spain	18.73	2.82	Mexico	24.19	3.65	France	44.40	3.35
Others	194.75	29.36	Others	351.03	52.97	Others	559.78	42.21
Total	**663.33**	**100.00**	Total	**662.71**	**100.00**	Total	**1326.05**	**100.00**

Source: UN Comtrade; EXIM Bank Research
Note: Based on 95.61% data availability for 2016 as on December 6, 2017

[15]Data for the full year 2016 is available for about 96 percent of the reporting countries and hence could be a marginal underestimate

Naturally endowed with oil reserves, Russia and Saudi Arabia are the major producers of this commodity. Unsurprisingly, Saudi Arabia is also the largest exporter, exporting over US$ 136 billion worth of Crude oil in 2016 (24.56 percent). Russia follows next with a share of 13.30 percent. Iraq (7.88 percent), Canada (7.14 percent) and UAE (5.96 percent) were the other major exporters of crude petroleum.

In the Petroleum Products category, USA was the highest exporter with a share of 11.80 percent, followed by Russia (7.57 percent), the Netherlands (5.85 percent), Qatar (5.71 percent) and Singapore (5.57 percent). With exports amounting to US$ 27.40 billion, India ranked seventh in exports of Petroleum Products (4.13 percent of global exports) during 2016.

Table 2: World Exports of Crude and Petroleum Products 2016, Value US$ Billions, and Share

Petroleum Crude (HS Code: 2709)			Petroleum Products (HS Code: 2710,2711,2712,2713)			All (Crude + Products)		
Country	**Value (US$ billion)**	**Share %**	**Country**	**Value (US$ billion)**	**Share %**	**Country**	**Value (US$ billion)**	**Share %**
Saudi Arabia	136.00	24.56	**USA**	78.35	11.80	**Saudi Arabia**	163.50	13.43
Russia	73.68	13.30	**Russia**	50.24	7.57	**Russia**	123.92	10.18
Iraq	43.62	7.88	**The Netherlands**	38.85	5.85	**USA**	87.78	7.21
Canada	39.52	7.14	**Qatar**	37.89	5.71	**Canada**	56.17	4.61
UAE	33.00	5.96	**Singapore**	37.00	5.57	**Norway**	46.81	3.84
Kuwait	30.69	5.54	**Saudi Arabia**	27.50	4.14	**Qatar**	46.74	3.84
Nigeria	26.98	4.87	**India**	27.40	4.13	**UAE**	45.57	3.74
Norway	22.83	4.12	**South Korea**	26.70	4.02	**Iraq**	43.77	3.59
Kazakhstan	19.38	3.50	**Belgium**	24.88	3.75	**Kuwait**	41.45	3.40
Others	128.08	23.13	**Others**	314.96	47.45	**Others**	561.88	46.15
Total	**553.79**	**100.00**	**Total**	**663.78**	**100.00**	**Total**	**1217.57**	**100.00**

Source: UN Comtrade; EXIM Bank Research
Note: Based on 95.61% data availability for 2016 as on December 6, 2017

Overall, with a share of 13.43 percent, Saudi Arabia led the global exports of Petroleum (Crude and Products combined) in 2016. Russia was second with a share of 10.18 percent, followed by the USA (7.21 percent), Canada (4.61 percent) and Norway (3.84 percent). On the other hand, the USA was the largest importer of Petroleum (Crude and Products combined) with a share of 12.01 percent followed by China (11.49 percent), Japan (7.17 percent) and India (5.71 percent).

Production

Production of Petroleum Products by Refineries and Fractionators in India has been on a steady rise. From a total production of 68.4 million metric tonnes (MMT) in 1998-99, India has come a long way to producing 242.7 MMT in 2016-17. Crude oil processed by refineries was 245.4 MMT in 2016-17 as compared to 68.5 MMT in 1998-99.

The figure below shows the trend in production of petroleum products by refineries and fractionators and also the crude oil processed by refineries. The production of petroleum products in India registered a CAGR of 7.29 percent from 1998-99 to 2016-17. On the other hand, crude oil processed grew at a CAGR of 7.34 percent during the same period.

Figure 31: World Imports of Crude and Petroleum Products : Country-wise Share 2016 (Percentage)

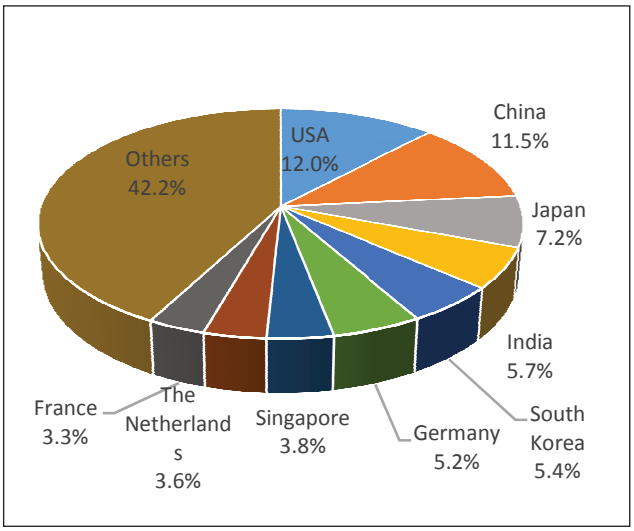
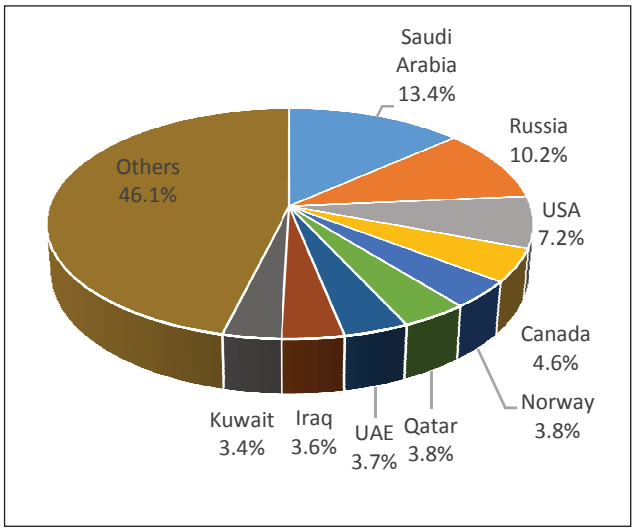
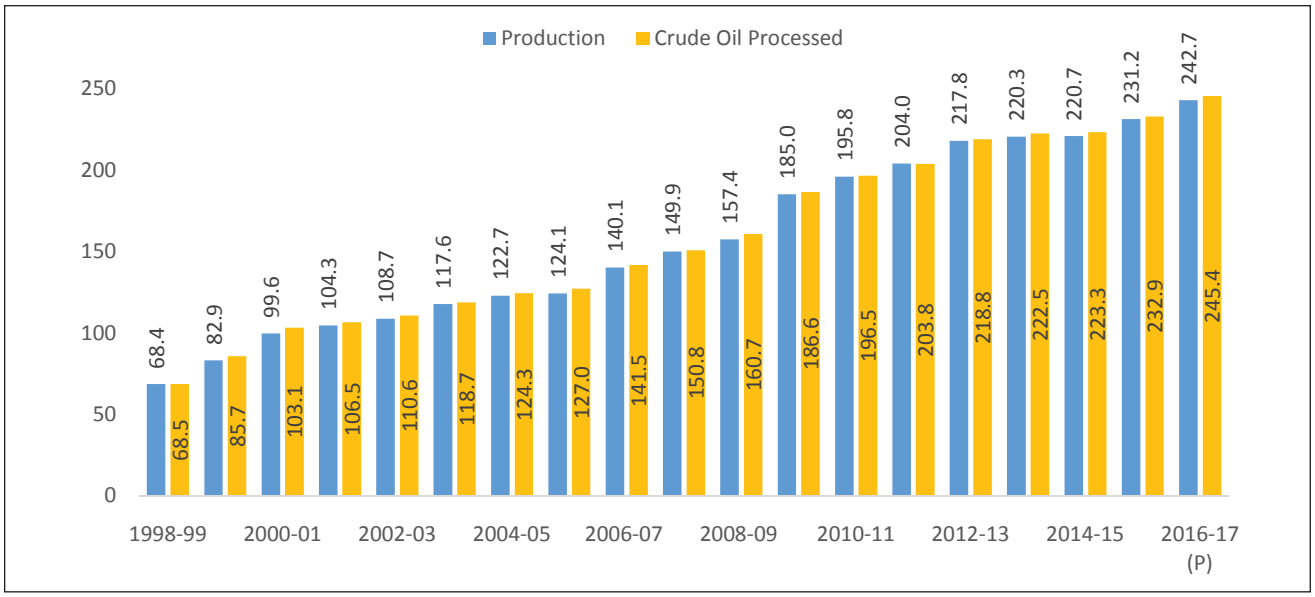


Figure 32: World Exports of Crude and Petroleum Products : Country-wise Share 2016 (Percentage)



Source: UN Comtrade; EXIM Bank Research

Figure 33: Production of Petroleum Products & Crude Oil Processed in India
Million metric tonnes

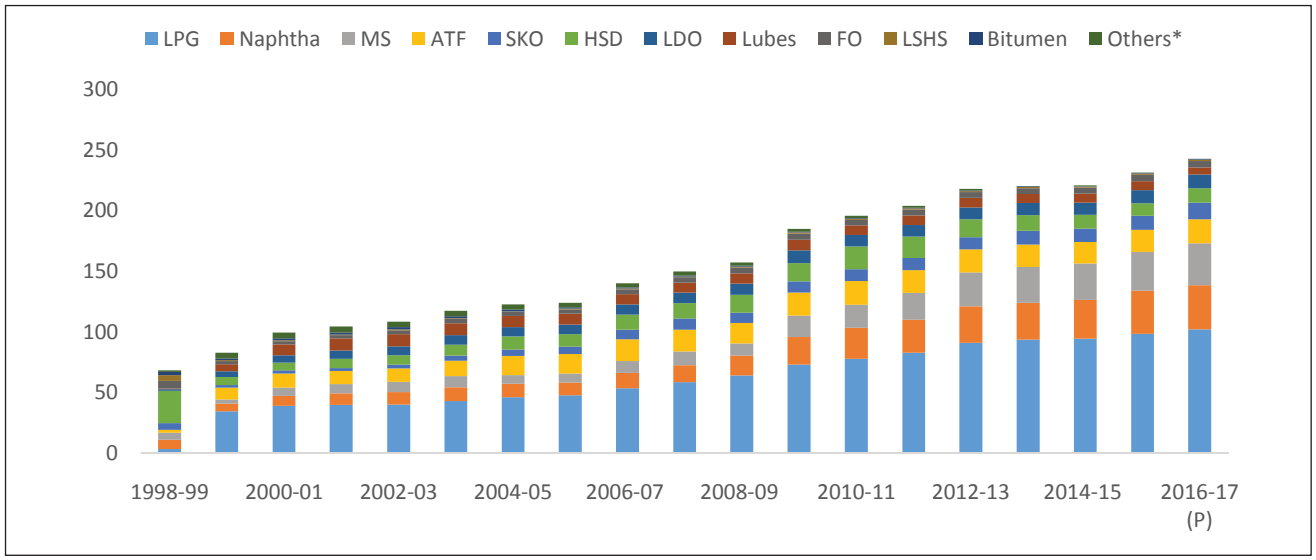


(P): Provisional
Source: Petroleum Planning and Analysis Cell, EXIM Bank Research

Figure 34 shows the historical production of petroleum products in India segregated by major items. During 2016-17, the total production was 242.69 MMT of which 102.12 MMT was Liquefied Petroleum Gases (LPG) (42.08 percent) and 36.52 MMT was Naptha (15.05 percent).

Other major products were Motor Spirit (MS) (34.38 MMT, 14.17 percent), Aviation Turbine Fuel (ATF) (19.76 MMT, 8.14 percent), Superior Kerosene Oil (SKO) (13.81 MMT, 5.69 percent) and High Diesel (HSD) (11.76 MMT, 4.85 percent).

Figure 34: Historical Production of Petroleum Products in India - Item-wise (Million metric tonnes)



(P): Provisional
* Others include products like Propylene, solvents (Hexane, Benzene, Toluene, Xylene and Specialty solvents), Reformate, Mineral Turpentine Oil, Carbon Black Feed Stock, Waxes, Sulphur and petcoke etc.
Source: Petroleum Planning and Analysis Cell, EXIM Bank Research

India's Trade

Figure 35: India's Export of Petroleum Products – Major Destinations, 2016-17

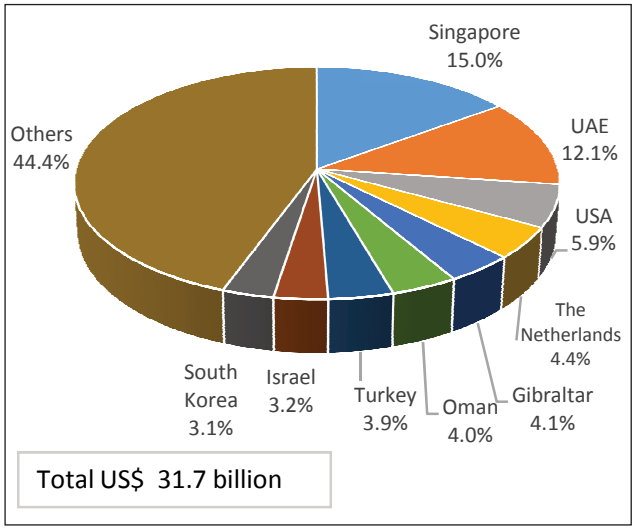
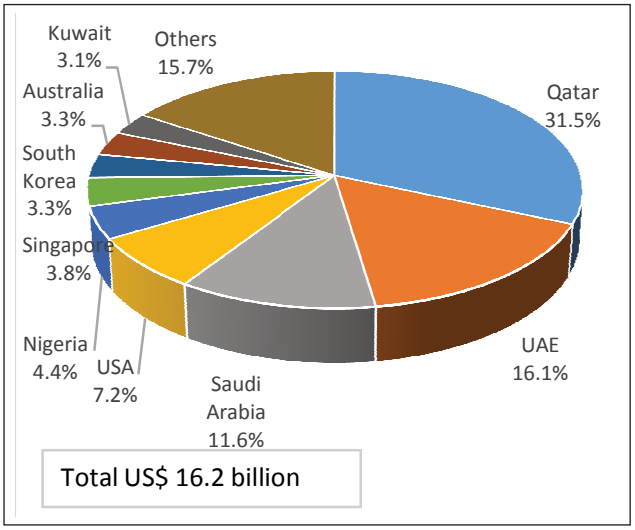


Figure 36: India's Import of Petroleum Products – Major Sources, 2016-17



Source: DGCIS, EXIM Bank Research

During 2016-17, India imported US$ 16.2 billion worth of Petroleum Products and exported US$ 31.7 billion worth of the same. The largest export destination of Petroleum products from India was Singapore with a share of 15.0 percent, followed by UAE (12.1 percent), USA (5.9 percent) and the Netherlands (4.4 percent). On the other hand, Qatar was the largest import source of Petroleum products for India with a share of 31.5 percent, followed by UAE (16.1 percent), Saudi Arabia (11.6 percent) and the USA (7.2 percent).

Figure 37: India's Import of Crude : Major Sources Percentage, 2016-17

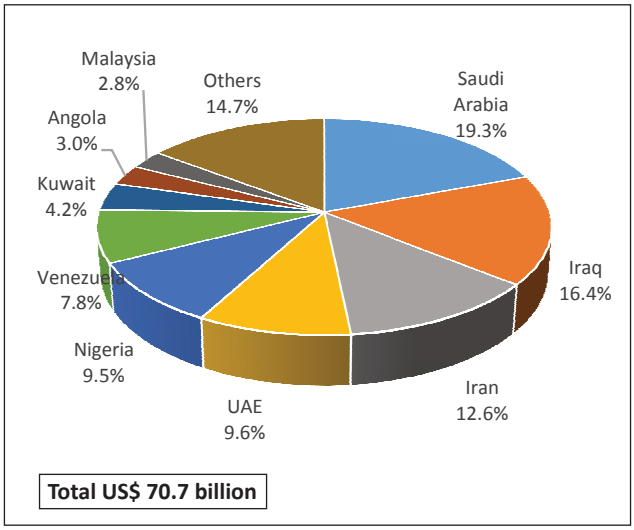
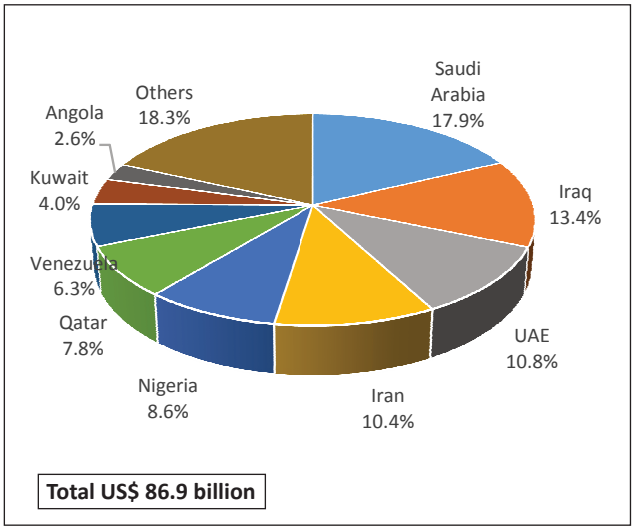


Figure 38: India's Import of Petroleum Products and Crude Combined : Major Sources Percentage, 2016-17



Source: DGCIS, EXIM Bank Research

India's import bill for Crude amounted to US$ 70.7 billion in 2016-17. Saudi Arabia, with a share of 19.3 percent, was the largest import source, followed by Iraq (16.4 percent), Iran (12.6 percent) and UAE (9.6 percent).

The total imports for Petroleum (crude and products combined) amounted to US$ 86.9 billion in 2016-17. Saudi Arabia was the largest import source with a share of 17.9 percent, followed by Iraq (13.4 percent), UAE (10.8 percent) and Iran (10.4 percent).

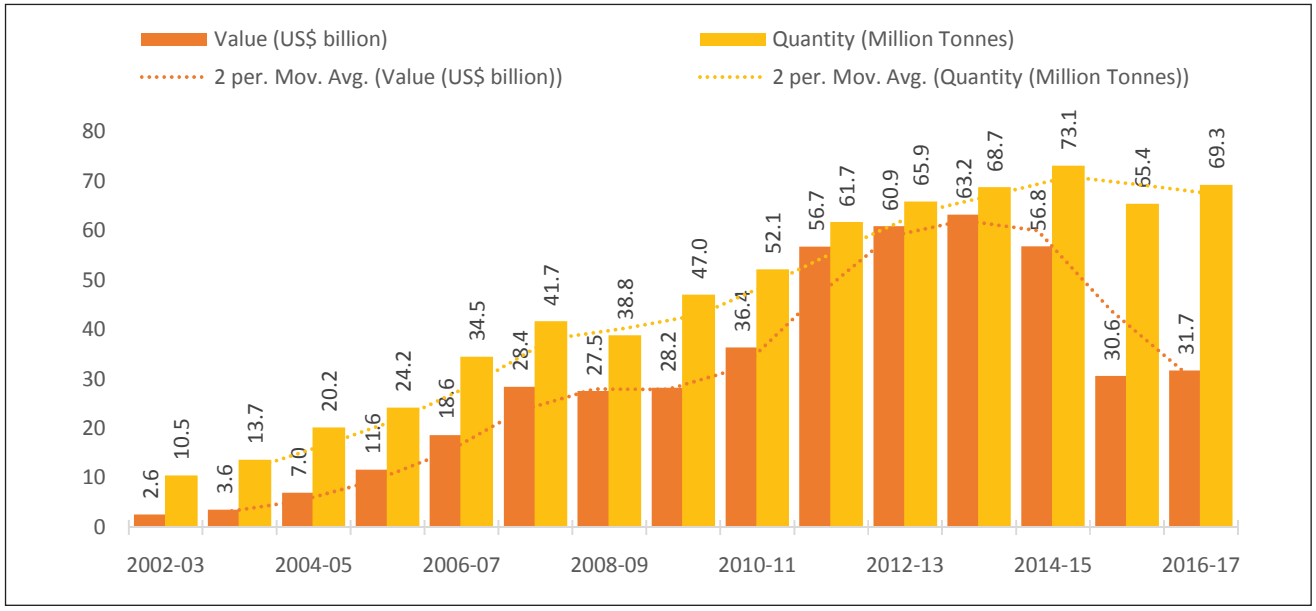
Trend in India's Trade (Value vs Volume)

While the earlier sections presented data in terms of value, given that oil prices have been declining, it may be meaningful to also analyse India's import pattern in terms of quantities. As can be comprehended from Figure 40, although the quantity of imports went up to 267.7 million tonnes (MT) in 2016-17 from 218.8 MT in 2013-14, the value of these imports have witnessed a sharp fall from US$ 164.8 billion to US$ 86.9 billion during the same period.

On the contrary, the value of exports of petroleum products from India fell down to US$ 31.7 billion in 2016-17 from US$ 63.2 billion in 2013-14, despite the fact that there was a marginal increase in quantity exported from 68.7 MT in 2013-14 to 69.3 MT in 2016-17.

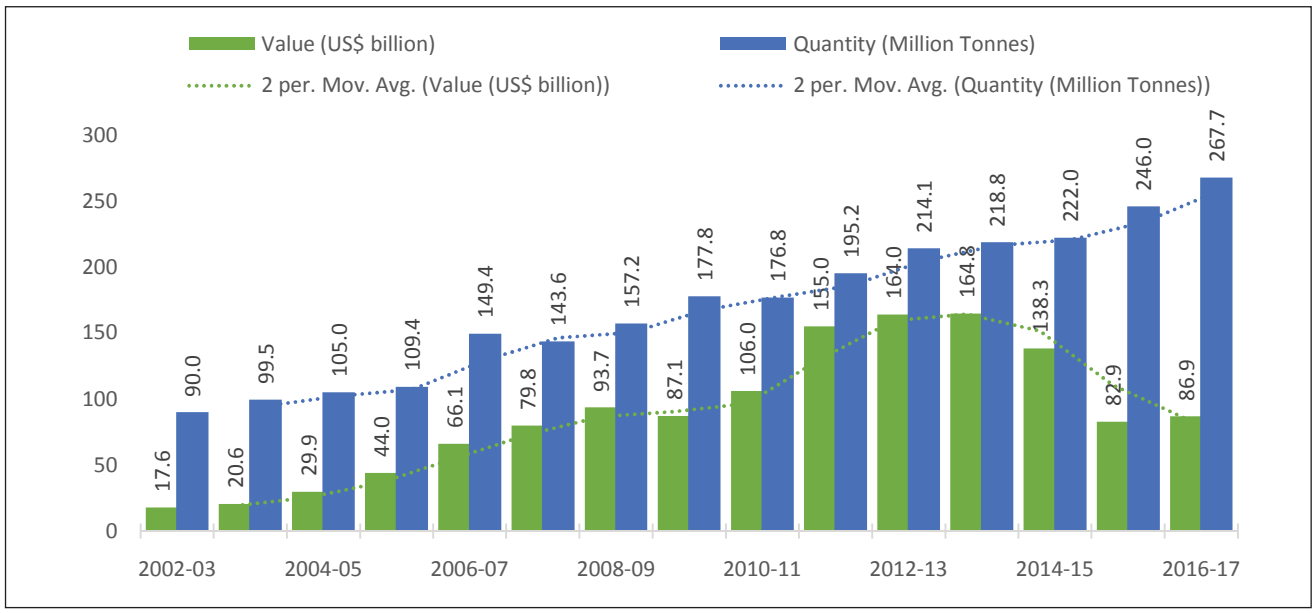
A two-period moving average trend line is a more visible representation of the movement of this occurrence. A moving average trend line smooths out fluctuations in data to show a pattern or trend more clearly. The average of the first two data points is used as the first point in the moving average trend line. The average of the second and third data points is used as the second point in the trend line, and so on.

Figure 39: Exports of Petroleum Products from India Value & Quantity : Trends



Source: DGCIS, EXIM Bank Research

Figure 40: India's Imports of Petroleum Products and Crude Value & Quantity : Trends



Source: DGCIS, EXIM Bank Research

India imports a large quantity of crude; and a sharp drop in its prices has benefitted the economy by curbing the current account deficit despite the rise in the quantity of imports. India imported 214.9 MT of Crude in 2016-17 as compared to 189.2 MT in 2013-14, a growth of 13.6 percent during this period. However, despite the quantity of Crude imports increasing, the value registered a decline – from US$ 143.6 billion in 2013-14 to US$ 70.7 billion in 2016-17.

Similarly, imports of petroleum products amounted to US$ 16.2 billion in 2016-17 as compared to US$ 21.1 billion in 2013-14 – a decline of 23.4 percent – whereas the quantity imported increased by 77.6 percent to 52.8 MT in 2016-17 as against 29.7 MT in 2013-14.

Figure 41: India's Imports of Crude Value & Quantity : Trends

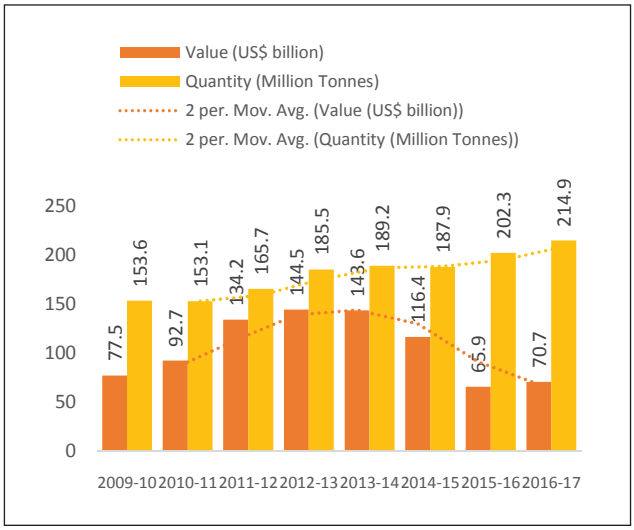
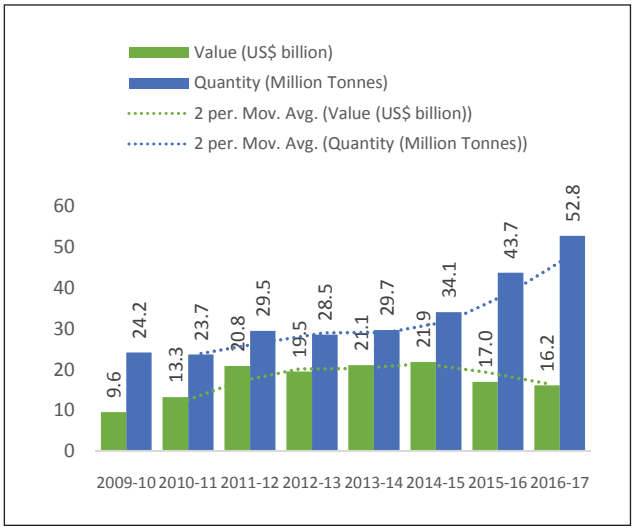


Figure 42: India's Imports of Petroleum Products Value & Quantity : Trends



Source: DGCIS, EXIM Bank Research

The Top Commodities of Trade from India

The top commodities of export from India more or less have remained the same. What is distinctive is the fact that Petroleum Products have always been the commodity of highest exports from India, with exports amounting to US$ 28.19 billion in 2009-10, which increased to US$ 31.70 billion in 2016-17.

The other commodities in the list are pearl, precious, semi-precious stones, drug formulations, gold, iron & steel and readymade garments of cotton.

Talking about fuel exports as a percentage of merchandise exports in terms of value, petroleum products have unsurprisingly ranged the highest during 2012-13 and 2013-14 at 20.3 percent and 20.1 percent respectively when the oil prices were at their peak. During 2016-17, the share has dropped down to 11.5 percent.

Figure 43: India's Top 5 Export Products (US$ Billions)

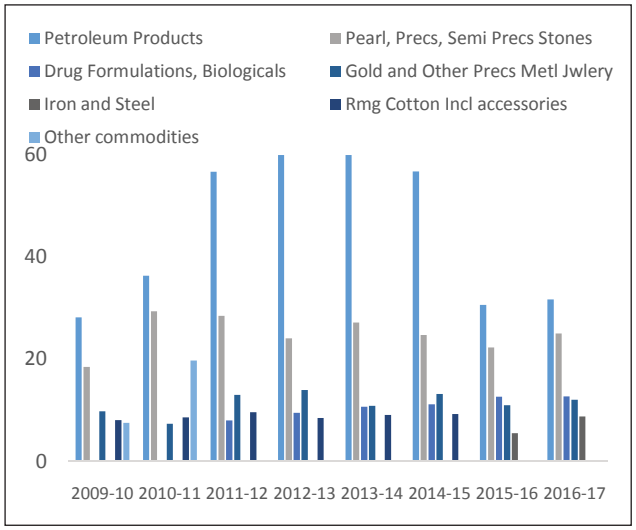
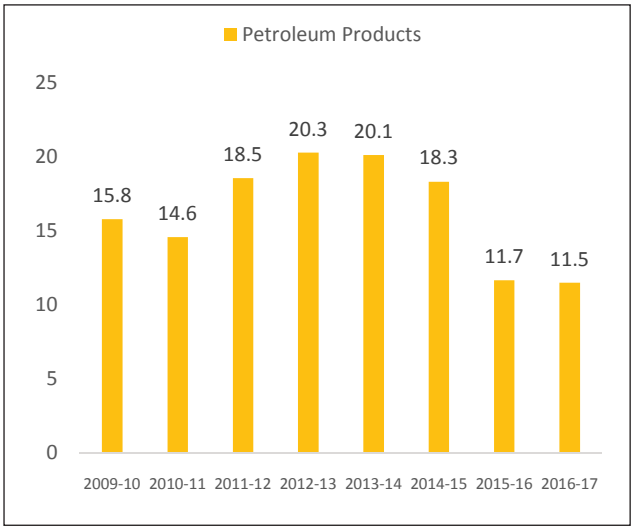


Figure 44: Fuel Exports as Percent of Merchandise Exports (Value)



Source: Ministry of Commerce; EXIM Bank Research
Note: There are gaps in the bars in Figure 43 because the top five exports have not been the same throughout the years taken into consideration

Figure 45: India's Top 5 Commodities of Import (US$ Billions)

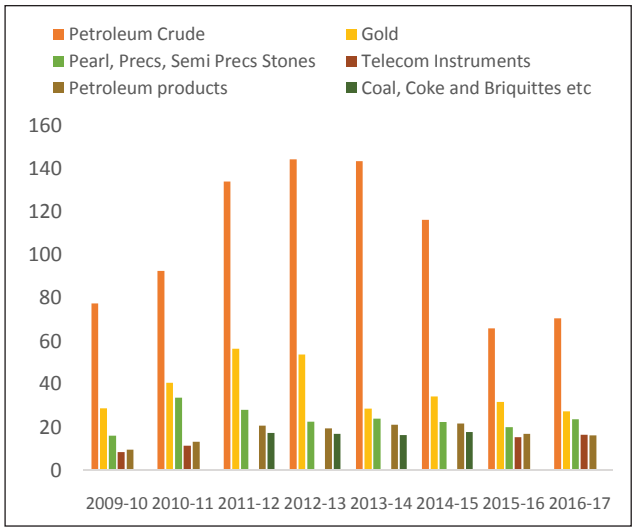
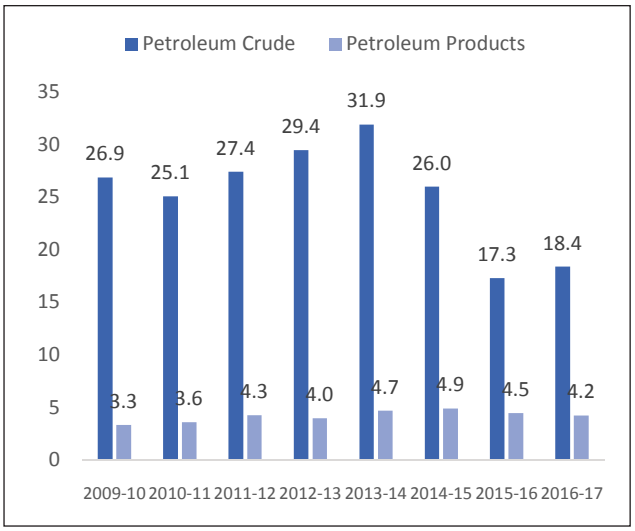


Figure 46: Fuel Imports Percent of Merchandise Imports (Value)



Source: Ministry of Commerce; EXIM Bank Research
Note: There are gaps in the bars in Figure 45 because the top five imports have not been the same throughout the years taken into consideration

India is a large importer of Crude oil and petroleum products globally. As discussed earlier, India accounts for more than 5 percent of global imports of Petroleum Crude and Products. Naturally, the commodity basket for India's import has a large section dedicated to Petroleum Crude and products.

In value terms, India imported US$ 77.5 billion of crude and US$ 9.6 billion of petroleum products in 2009-10. In 2016-17, this figure was US$ 70.7 billion and US$ 16.1 billion, respectively. This rise in imports was on account of rising consumption over the period mentioned[16]. Other products in India's import basket include gold, pearls and precious stones, telecom instruments and coal. As a percentage of merchandise imports, petroleum crude was 18.4 percent and petroleum products were 4.2 percent in 2016-17.

Table 3: Payment of Subsidies in Central Budget (Amount in Rs crore)

Indicators	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
	Actuals	Actuals	Actuals	Actuals	Actuals	Actuals	RE	BE
Major Subsidies	**164,516.10**	**211,319.10**	**247,493.10**	**244,716.90**	**253,913.10**	**241,833.20**	**232,705.00**	**240,339.00**
Food subsidy	63,844.00	72,822.00	85,000.00	92,000.00	122,675.80	139,419.00	135,173.00	145,339.00
Fertilizers subsidy	62,301.00	70,013.00	65,613.00	67,338.80	70,967.30	72,415.20	70,000.00	70,000.00
Petroleum subsidy	38,371.00	68,484.00	96,880.00	85,378.20	60,270.00	29,999.00	27,532.00	25,000.00
Petroleum subsidy (If Oil Prices were at 2013 levels)				*85,378.20*	*65,292.50*	*61,174.43*	*66,589.02*	*49,056.60*
Difference					*-5,022.50*	*-31,175.43*	*-39,057.02*	*-24,056.60*

RE: Revised Estimate BE: Budget Estimate
Source: Union Budget Documents; Calculations based on World Bank Commodity Markets Outlook

To Sum Up

India's commodity basket has traditionally been skewed towards the export of Petroleum products and the import of Crude. Therefore, it is a given that any change in the price of oil would have a substantial impact on the economy. The sharp drop in the oil prices have mostly been in favour of the oil importing nations, and India has not been any exception.

Falling oil price supports improvement of economic conditions of net oil importers. Due to falling oil prices, India's macro-economic indicators such as inflation, current account deficit (CAD), and trade balance improved. On the back of contraction in the trade deficit, the CAD came down to US$ 22.1 billion, or 1.1 per cent of GDP in 2015-16 from US$ 26.8 billion, or 1.3 per cent of GDP, in 2014-15. On the other hand, had oil prices remained at 2013-14 levels, other things remaining same, India's trade deficit would have widened by another US$ 82 billion in 2016-17 (given the increase of more than 22 percent in imports of petroleum and crude in quantity terms during the said period).

As can be analysed from Table 3, the Petroleum subsidy has been reduced to Rs. 29,999 crore in 2015-16 from Rs. 85,378 crore in 2013-14; had oil prices remained at the same levels as in 2013, petroleum subsidy would have been to the tune of ~Rs. 61,174 crore. This reduction in subsidy is inspite of the retail prices of petrol not witnessing an increase beyond the levels prevailing during 2014. Thus, a decline in crude oil price has helped the government to manage its finances better as it translated into lower subsidies on petroleum products (LPG and kerosene), thereby resulting in lower fiscal deficit. Ceteris paribus, the oil price decline helped the government save an estimated Rs. 31,175 crore in 2015-16 in petroleum subsidies.

[16]Petroleum Planning and Analysis Cell

Box 4: Oil Price Outlook

Prices for energy commodities – which include oil, natural gas, and coal - are forecast to climb 4 percent in 2018 after a 28 percent increase in 2017, the World Bank said in its October Commodity Markets Outlook.

Supplies from producers such as Libya, Nigeria, and Venezuela could be volatile. Members of the OPEC and other producers could agree to cut production further, maintaining upward pressure on prices.

However, failure to renew the agreement could drive prices down, as could increased production from the U.S. shale oil industry.

By 2025, the average price of a barrel of Brent crude oil is projected to rise to US$ 86/b (in 2016 dollars, which removes the effect of inflation). By 2030, world demand is expected to drive oil prices to US$ 95/b. By 2040, prices are foreceast to touch US$ 109/b (again in 2016 dollars). By then, the cheap sources of oil would have been exhausted, making it more expensive to extract oil. By 2050, oil prices are projected to reach US$ 117/b, according to the EIA's Annual Energy Outlook.

By 2026, the United States is expected to become a net energy exporter. It has been an energy importer since 1953. Oil production will rise until 2030, when shale oil production will slow. U.S. oil production will decline slightly through 2050.

The EIA's forecasts all depend on 1) what happens with U.S. shale oil production, 2) how OPEC responds, and 3) how fast the global economy grows. The predictions given here are for the EIA's most likely scenario.

Source: World Bank Commodity Markets Outlook, October 2017; US Energy Information Administration

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APPENDIX

Table 4: Primary Energy: Consumption by Fuel

Million tonnes oil equivalent	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2015 Total	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2016 Total
US	856.5	710.5	391.8	189.9	55.8	71.5	2275.9	863.1	716.3	358.4	191.8	59.2	83.8	**2272.7**
Canada	99.1	92.2	19.6	22.8	85.4	8.5	327.7	100.9	89.9	18.7	23.2	87.8	9.2	**329.7**
Mexico	84.4	78.4	12.7	2.6	7.0	3.7	188.8	82.8	80.6	9.8	2.4	6.8	4.1	**186.5**
Total North America	**1040.0**	**881.2**	**424.2**	**215.3**	**148.2**	**83.6**	**2792.4**	**1046.9**	**886.8**	**386.9**	**217.4**	**153.9**	**97.1**	**2788.9**
Argentina	32.2	43.4	1.4	1.6	9.6	0.6	88.7	31.9	44.6	1.1	1.9	8.7	0.7	**88.9**
Brazil	146.6	37.5	17.7	3.3	81.4	16.0	302.6	138.8	32.9	16.5	3.6	86.9	19.0	**297.8**
Chile	17.6	3.7	7.3	-	5.4	1.9	35.9	17.8	4.1	8.2	-	4.4	2.3	**36.8**
Colombia	15.6	9.6	5.3	-	10.1	0.4	41.0	15.9	9.5	4.6	-	10.6	0.5	**41.1**
Ecuador	11.8	0.6	-	-	3.0	0.1	15.5	11.0	0.6	-	-	3.5	0.1	**15.3**
Peru	10.7	6.4	0.8	-	5.4	0.4	23.7	11.4	7.1	0.8	-	5.4	0.6	**25.3**
Trinidad & Tobago	2.2	19.4	-	-	-	^	21.6	2.2	17.2	-	-	-	^	**19.4**
Venezuela	30.2	31.1	0.2	-	17.3	^	78.8	28.7	32.0	0.1	-	13.9	^	**74.6**
Other S. & Cent. America	67.5	6.6	3.2	-	20.8	4.5	102.6	68.5	6.7	3.4	-	22.5	5.1	**106.2**
Total S. & Cent. America	**334.4**	**158.3**	**35.9**	**5.0**	**152.9**	**24.0**	**710.4**	**326.2**	**154.7**	**34.7**	**5.5**	**156.0**	**28.2**	**705.3**
Austria	12.5	7.5	3.2	-	8.4	2.3	33.9	12.7	7.9	3.2	-	9.0	2.4	**35.1**
Azerbaijan	4.5	9.6	^	-	0.4	^	14.5	4.6	9.4	^	-	0.4	^	**14.5**
Belarus	7.7	14.0	0.7	-	^	^	22.4	7.5	15.3	0.8	-	^	0.1	**23.7**
Belgium	31.0	13.6	3.2	5.9	0.1	3.2	56.9	31.8	13.9	3.0	9.8	0.1	3.2	**61.7**
Bulgaria	4.4	2.6	6.6	3.5	1.3	0.7	19.0	4.5	2.7	5.7	3.6	0.9	0.7	**18.1**
Czech Republic	8.9	6.5	16.6	6.1	0.4	1.7	40.2	8.4	7.0	16.9	5.5	0.5	1.7	**39.9**
Denmark	8.0	2.8	1.7	-	^	4.3	16.9	8.0	2.9	2.1	-	^	4.1	**17.1**
Finland	8.7	2.0	3.8	5.3	3.8	3.1	26.7	9.0	1.8	4.1	5.3	3.6	3.4	**27.1**
France	76.8	35.1	8.4	99.0	12.3	7.9	239.4	76.4	38.3	8.3	91.2	13.5	8.2	**235.9**
Germany	110.0	66.2	78.5	20.8	4.3	38.1	317.8	113.0	72.4	75.3	19.1	4.8	37.9	**322.5**
Greece	14.9	2.5	5.6	-	1.4	2.0	26.4	15.4	2.6	4.7	-	1.2	2.1	**25.9**
Hungary	7.0	7.5	2.4	3.6	0.1	0.7	21.2	7.1	8.0	2.3	3.6	0.1	0.8	**21.9**
Ireland	6.8	3.8	2.2	-	0.2	1.6	14.5	7.0	4.3	2.2	-	0.2	1.5	**15.2**
Italy	57.6	55.3	12.3	-	10.3	14.3	149.9	58.1	58.1	10.9	-	9.3	15.0	**151.3**
Kazakhstan	13.2	11.6	35.8	-	2.1	^	62.7	13.2	12.0	35.6	-	2.1	0.1	**63.0**
Lithuania	2.8	2.1	0.2	-	0.1	0.3	5.4	3.0	1.8	0.2	-	0.1	0.4	**5.5**
Netherlands	38.7	28.3	11.0	0.9	^	3.1	82.1	39.9	30.2	10.3	0.9	^	3.1	**84.5**
Norway	10.3	4.4	0.8	-	31.1	0.6	47.2	10.4	4.4	0.8	-	32.4	0.5	**48.6**
Poland	24.9	14.7	48.7	-	0.4	4.7	93.4	27.2	15.6	48.8	-	0.5	4.6	**96.7**
Portugal	11.5	4.3	3.3	-	2.0	3.6	24.6	11.2	4.6	2.9	-	3.6	3.7	**26.0**

Million tonnes oil equivalent	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2015 Total	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2016 Total
Romania	9.2	9.0	5.9	2.6	3.8	2.2	32.6	9.5	9.5	5.4	2.6	4.1	2.0	**33.1**
Russian Federation	144.2	362.5	92.2	44.2	38.5	0.2	681.7	148.0	351.8	87.3	44.5	42.2	0.2	**673.9**
Slovakia	3.7	3.9	3.3	3.4	0.9	0.5	15.7	4.0	4.0	3.1	3.3	1.0	0.5	**15.9**
Spain	61.2	24.6	13.7	13.0	6.3	15.6	134.4	62.5	25.2	10.4	13.3	8.1	15.5	**135.0**
Sweden	14.1	0.8	2.1	12.8	17.0	6.1	52.9	14.7	0.8	2.2	14.2	14.1	6.1	**52.2**
Switzerland	10.7	2.6	0.1	5.3	8.5	0.7	27.9	10.2	2.7	0.1	4.8	7.8	0.8	**26.4**
Turkey	38.9	39.2	34.7	-	15.2	3.9	131.9	41.2	37.9	38.4	-	15.2	5.2	**137.9**
Turkmenistan	6.6	26.5	-	-	-	^	33.1	6.7	26.6	-	-	-	^	**33.2**
Ukraine	9.2	25.9	27.3	19.8	1.2	0.4	83.9	9.1	26.1	31.5	18.3	1.6	0.3	**87.0**
United Kingdom	71.8	61.3	23.0	15.9	1.4	17.5	190.9	73.1	69.0	11.0	16.2	1.2	17.5	**188.1**
USSR	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Uzbekistan	2.7	45.2	1.1	-	2.7	^	51.7	2.8	46.2	1.0	-	2.7	^	**52.7**
Other Europe & Eurasia	33.3	13.6	23.0	1.9	20.7	2.3	94.8	34.5	13.9	23.0	1.8	21.7	2.5	**97.6**
Total Europe & Eurasia	**865.9**	**909.2**	**471.3**	**263.9**	**194.7**	**141.6**	**2846.6**	**884.6**	**926.9**	**451.6**	**258.2**	**201.8**	**144.0**	**2867.1**
Iran	84.5	171.7	1.6	0.8	4.1	0.1	262.8	83.8	180.7	1.7	1.4	2.9	0.1	**270.7**
Israel	11.4	7.6	6.7	-	^	0.3	26.0	11.6	8.7	5.7	-	^	0.4	**26.4**
Kuwait	22.3	19.2	-	-	-	^	41.5	22.0	19.7	-	-	-	^	**41.7**
Qatar	10.7	39.5	-	-	-	^	50.2	11.7	37.5	-	-	-	^	**49.2**
Saudi Arabia	166.6	94.0	0.1	-	-	^	260.8	167.9	98.4	0.1	-	-	^	**266.5**
United Arab Emirates	40.9	66.4	1.3	-	-	0.1	108.6	43.5	69.0	1.3	-	-	0.1	**113.8**
Other Middle East	76.5	45.9	0.5	-	1.8	0.1	124.7	77.3	47.1	0.5	-	1.8	0.2	**126.8**
Total Middle East	**412.8**	**444.3**	**10.2**	**0.8**	**5.9**	**0.5**	**874.6**	**417.8**	**461.1**	**9.3**	**1.4**	**4.7**	**0.7**	**895.1**
Algeria	19.5	35.5	0.1	-	^	^	55.1	18.9	36.0	0.1	-	^	0.1	**55.1**
Egypt	39.6	43.0	0.4	-	3.2	0.4	86.7	40.6	46.1	0.4	-	3.2	0.6	**91.0**
South Africa	27.9	4.6	83.4	2.8	0.2	1.4	120.1	26.9	4.6	85.1	3.6	0.2	1.8	**122.3**
Other Africa	95.1	39.2	11.4	-	23.5	2.4	171.7	98.9	37.6	10.3	-	22.4	2.6	**171.8**
Total Africa	**182.1**	**122.2**	**95.3**	**2.8**	**26.9**	**4.2**	**433.5**	**185.4**	**124.3**	**95.9**	**3.6**	**25.8**	**5.0**	**440.1**
Australia	47.9	38.6	44.1	-	3.2	4.8	138.5	47.8	37.0	43.8	-	4.0	5.4	**138.0**
Bangladesh	6.2	24.2	0.7	-	0.2	^	31.3	6.6	24.8	0.8	-	0.2	^	**32.4**
China	561.8	175.3	1913.6	38.6	252.2	64.4	3005.9	578.7	189.3	1887.6	48.2	263.1	86.1	**3053.0**
China Hong Kong SAR	18.3	2.9	6.7	-	-	^	27.9	18.9	3.0	6.7	-	-	^	**28.6**
India	195.8	41.2	396.6	8.7	30.2	12.7	685.1	212.7	45.1	411.9	8.6	29.1	16.5	**723.9**
Indonesia	71.8	36.4	51.2	-	3.1	2.4	164.8	72.6	33.9	62.7	-	3.3	2.6	**175.0**
Japan	189.0	102.1	119.9	1.0	19.0	14.8	445.8	184.3	100.1	119.9	4.0	18.1	18.8	**445.3**
Malaysia	35.5	37.6	16.9	-	3.5	0.3	93.8	36.3	38.7	19.9	-	4.2	0.3	**99.5**
New Zealand	7.5	4.0	1.4	-	5.6	2.4	21.0	7.7	4.2	1.2	-	5.9	2.4	**21.4**

Million tonnes oil equivalent	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2015 Total	Oil	Natural Gas	Coal	Nuclear Energy	Hydro electric	Renew-ables	2016 Total
Pakistan	24.6	39.2	4.7	1.1	7.3	0.3	77.1	27.5	40.9	5.4	1.3	7.7	0.4	**83.2**
Philippines	18.3	3.0	11.6	-	2.0	2.8	37.7	19.9	3.4	13.5	-	2.1	3.1	**42.1**
Singapore	69.4	11.0	0.4	-	-	0.2	81.0	72.2	11.3	0.4	-	-	0.2	**84.1**
South Korea	113.8	39.3	85.5	37.3	0.5	3.9	280.2	122.1	40.9	81.6	36.7	0.6	4.3	**286.2**
Taiwan	46.5	16.5	37.8	8.3	1.0	1.0	111.1	46.7	17.2	38.6	7.2	1.5	1.0	**112.1**
Thailand	57.3	43.8	17.6	-	0.9	2.3	121.8	59.0	43.5	17.7	-	0.8	2.8	**123.8**
Vietnam	18.8	9.6	22.3	-	12.9	^	63.7	20.1	9.6	21.3	-	13.7	0.1	**64.8**
Other Asia Pacific	23.2	7.0	16.9	-	13.3	0.3	60.7	24.4	7.2	20.6	-	13.8	0.3	**66.3**
Total Asia Pacific	**1505.8**	**631.6**	**2747.7**	**95.0**	**354.7**	**112.7**	**5447.4**	**1557.3**	**650.3**	**2753.6**	**105.9**	**368.1**	**144.5**	**5579.7**
Total World	**4341.0**	**3146.7**	**3784.7**	**582.7**	**883.2**	**366.7**	**13105.0**	**4418.2**	**3204.1**	**3732.0**	**592.1**	**910.3**	**419.6**	**13276.3**
of which: OECD	2062.4	1464.9	972.7	446.7	309.9	248.9	5505.5	2086.8	1495.2	913.3	446.8	316.8	270.1	**5529.1**
Non-OECD	2278.5	1681.8	2812.0	136.0	573.4	117.8	7599.5	2331.4	1708.9	2818.7	145.2	593.4	149.5	**7747.2**
European Union	600.6	359.2	261.1	194.0	77.2	134.6	1626.7	613.3	385.9	238.4	190.0	78.7	135.6	**1642.0**
CIS	191.6	499.8	158.9	64.7	51.7	0.6	967.4	195.5	492.0	157.9	63.3	56.2	0.7	**965.6**

* In this review, primary energy comprises commercially traded fuels, including modern renewables used to generate electricity.
^ Less than 0.05.
Notes: Oil consumption is measured in million tonnes; other fuels in million tonnes of oil equivalent.
Source: BP Statistical Review of World Energy 2017

Table 5: Total Proved Oil Reserves : Country-wise

	at end 1996 Thousand million barrels	at end 2006 Thousand million barrels	at end 2015 Thousand million barrels	Thousand million barrels	at end 2016 Thousand million barrels	Share of total	R/P ratio
US	29.8	29.4	48.0	**48.0**	**5.8**	2.8%	10.6
Canada	48.9	179.4	171.5	**171.5**	**27.6**	10.0%	105.1
Mexico	48.5	12.8	8.0	**8.0**	**1.1**	0.5%	8.9
Total North America	**127.3**	**221.7**	**227.5**	**227.5**	**34.5**	**13.3%**	**32.3**
Argentina	2.6	2.6	2.4	**2.4**	**0.3**	0.1%	10.6
Brazil	6.7	12.2	13.0	**12.6**	**1.8**	0.7%	13.3
Colombia	2.8	1.5	2.3	**2.0**	**0.3**	0.1%	5.9
Ecuador	3.5	4.5	8.0	**8.0**	**1.2**	0.5%	40.1
Peru	0.8	1.1	1.2	**1.2**	**0.1**	0.1%	24.0
Trinidad & Tobago	0.7	0.8	0.7	**0.2**	**^**		6.9
Venezuela	72.7	87.3	300.9	**300.9**	**47.0**	17.6%	341.1
Other S. & Cent. America	1.0	0.8	0.5	**0.5**	**0.1**		10.3
Total S. & Cent. America	**90.7**	**110.8**	**329.0**	**327.9**	**50.8**	**19.2%**	**119.9**
Azerbaijan	1.2	7.0	7.0	**7.0**	**1.0**	0.4%	23.1
Denmark	0.9	1.2	0.5	**0.4**	**0.1**		8.5
Italy	0.8	0.5	0.6	**0.5**	**0.1**		18.8

	at end 1996 Thousand million barrels	at end 2006 Thousand million barrels	at end 2015 Thousand million barrels	Thousand million barrels	at end 2016 Thousand million barrels	Share of total	R/P ratio
Kazakhstan	5.3	9.0	30.0	**30.0**	**3.9**	1.8%	49.0
Norway	11.7	8.5	8.0	**7.6**	**0.9**	0.4%	10.4
Romania	1.0	0.5	0.6	**0.6**	**0.1**	✦	20.7
Russian Federation	113.6	104.0	102.4	**109.5**	**15.0**	6.4%	26.6
Turkmenistan	0.5	0.6	0.6	**0.6**	**0.1**	✦	6.3
United Kingdom	5.0	3.6	2.5	**2.5**	**0.3**	0.1%	6.9
Uzbekistan	0.6	0.6	0.6	**0.6**	**0.1**	✦	29.3
Other Europe & Eurasia	2.4	2.2	2.1	**2.1**	**0.3**	0.1%	15.6
Total Europe & Eurasia	**142.8**	**137.6**	**154.9**	**161.5**	**21.8**	**9.5%**	**24.9**
Iran	92.6	138.4	158.4	**158.4**	**21.8**	9.3%	94.1
Iraq	112.0	115.0	142.5	**153.0**	**20.6**	9.0%	93.6
Kuwait	96.5	101.5	101.5	**101.5**	**14.0**	5.9%	88.0
Oman	5.3	5.6	5.3	**5.4**	**0.7**	0.3%	14.6
Qatar	3.7	27.4	25.2	**25.2**	**2.6**	1.5%	36.3
Saudi Arabia	261.4	264.3	266.6	**266.5**	**36.6**	15.6%	59.0
Syria	2.5	3.0	2.5	**2.5**	**0.3**	0.1%	273.2
United Arab Emirates	97.8	97.8	97.8	**97.8**	**13.0**	5.7%	65.6
Yemen	2.0	2.8	3.0	**3.0**	**0.4**	0.2%	*
Other Middle East	0.2	0.1	0.2	**0.2**	**^**	✦	2.6
Total Middle East	**674.0**	**755.9**	**803.0**	**813.5**	**110.1**	**47.7%**	**69.9**
Algeria	10.8	12.3	12.2	**12.2**	**1.5**	0.7%	21.1
Angola	3.7	9.0	11.8	**11.6**	**1.6**	0.7%	17.5
Chad	-	1.5	1.5	**1.5**	**0.2**	0.1%	56.1
Republic of Congo	1.6	1.6	1.6	**1.6**	**0.2**	0.1%	18.4
Egypt	3.8	3.7	3.5	**3.5**	**0.5**	0.2%	13.7
Equatorial Guinea	0.6	1.8	1.1	**1.1**	**0.1**	0.1%	10.7
Gabon	2.8	2.2	2.0	**2.0**	**0.3**	0.1%	24.1
Libya	29.5	41.5	48.4	**48.4**	**6.3**	2.8%	310.1
Nigeria	20.8	37.2	37.1	**37.1**	**5.0**	2.2%	49.3
South Sudan	n/a	n/a	3.5	**3.5**	**0.5**	0.2%	80.9
Sudan	0.3	5.0	1.5	**1.5**	**0.2**	0.1%	39.6
Tunisia	0.3	0.6	0.4	**0.4**	**0.1**	✦	18.4
Other Africa	0.7	0.7	3.7	**3.7**	**0.5**	0.2%	43.2
Total Africa	**74.9**	**116.9**	**128.2**	**128.0**	**16.9**	**7.5%**	**44.3**
Australia	3.8	3.5	4.0	**4.0**	**0.4**	0.2%	30.3

	at end 1996 Thousand million barrels	at end 2006 Thousand million barrels	at end 2015 Thousand million barrels	Thousand million barrels	at end 2016 Thousand million barrels	Share of total	R/P ratio
Brunei	1.1	1.2	1.1	**1.1**	**0.1**	0.1%	24.9
China	16.4	20.2	25.7	**25.7**	**3.5**	1.5%	17.5
India	5.5	5.7	4.8	**4.7**	**0.6**	0.3%	14.9
Indonesia	4.7	4.4	3.6	**3.3**	**0.5**	0.2%	10.3
Malaysia	5.0	5.4	3.6	**3.6**	**0.5**	0.2%	14.0
Thailand	0.2	0.5	0.4	**0.4**	^	✦	2.3
Vietnam	0.9	3.3	4.4	**4.4**	**0.6**	0.3%	36.2
Other Asia Pacific	1.3	1.4	1.3	**1.3**	**0.2**	0.1%	12.5
Total Asia Pacific	**39.0**	**45.5**	**48.8**	**48.4**	**6.4**	**2.8%**	**16.5**
Total World	**1148.8**	**1388.3**	**1691.5**	**1706.7**	**240.7**	**100.0%**	**50.6**
of which: OECD	151.0	240.2	244.5	**244.0**	**36.6**	14.3%	28.8
Non-OECD	997.8	1148.1	1447.0	**1462.7**	**204.1**	85.7%	57.9
OPEC	805.0	936.1	1210.3	**1220.5**	**171.2**	71.5%	84.7
Non-OPEC	343.8	452.2	481.1	**486.2**	**69.6**	28.5%	25.2
European Union #	8.7	6.6	5.2	**5.1**	**0.7**	0.3%	9.3
CIS	121.9	121.9	141.1	**148.2**	**20.1**	8.7%	28.6
Canadian oil sands: Total	42.1	173.1	165.3	**165.3**	**26.9**		
of which: Under active development	4.2	21.0	24.0	**24.0**	**3.9**		
Venezuela: Orinoco Belt	-	7.6	222.3	**222.3**	**35.7**		

* More than 500 years.
^ Less than 0.05.
✦ Less than 0.05%.
Excludes Estonia and Latvia in 2006.
Notes: Total proved reserves of oil - Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. The data series for total proved oil does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country.
Reserves-to-production (R/P) ratio - If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.
Shares of total and R/P ratios are calculated using thousand million barrels figures.
Source: BP Statistical Review of World Energy 2017

Table 6: Counrty-wise Oil Production : Trends (in thousands of barrels per day)*

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-15	
US	6825	6860	6784	7263	7549	7862	8894	10073	11779	12757	**12354**	-3.2%	6.3%	13.4%
Canada	3208	3290	3207	3202	3332	3515	3740	4000	4271	4389	**4460**	1.6%	3.7%	4.8%
Mexico	3689	3479	3165	2978	2959	2940	2911	2875	2784	2587	**2456**	-5.1%	-3.7%	2.7%
Total North America	**13722**	**13628**	**13156**	**13444**	**13841**	**14317**	**15545**	**16948**	**18833**	**19733**	**19270**	**-2.3%**	**3.7%**	**20.9%**
Argentina	852	815	803	729	715	660	664	655	641	641	**619**	-3.3%	-2.7%	0.7%

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-15	
Brazil	1806	1831	1897	2029	2137	2179	2145	2110	2341	2525	**2605**	3.2%	4.0%	2.8%
Colombia	529	531	588	671	786	915	944	1004	990	1006	**924**	-8.1%	6.7%	1.0%
Ecuador	538	513	507	488	488	501	505	527	557	543	**545**	0.4%	0.2%	0.6%
Peru	118	117	122	147	158	153	154	167	169	145	**135**	-6.6%	2.6%	0.1%
Trinidad & Tobago	177	154	152	151	145	137	117	115	114	109	**96**	-11.2%	-4.4%	0.1%
Venezuela	3340	3233	3222	3042	2842	2755	2704	2680	2692	2644	**2410**	-8.9%	-2.2%	2.6%
Other S. & Cent. America	138	139	138	129	134	137	143	148	154	149	**138**	-7.5%	0.3%	0.2%
Total S. & Cent. America	**7498**	**7334**	**7430**	**7384**	**7404**	**7436**	**7376**	**7407**	**7659**	**7761**	**7474**	**-3.7%**	**0.6%**	**8.1%**
Azerbaijan	646	856	895	1014	1023	919	872	877	849	840	**826**	-1.6%	6.6%	0.9%
Denmark	346	311	287	265	249	225	204	178	167	158	**142**	-10.2%	-8.4%	0.2%
Italy	120	122	108	95	106	110	112	116	121	115	**79**	-31.3%	-1.0%	0.1%
Kazakhstan	1370	1415	1485	1609	1676	1684	1664	1737	1710	1695	**1672**	-1.4%	2.7%	1.8%
Norway	2772	2551	2466	2349	2136	2040	1917	1838	1889	1948	**1995**	2.4%	-4.1%	2.2%
Romania	105	100	99	94	90	89	83	86	84	83	**79**	-5.0%	-3.1%	0.1%
Russian Federation	9819	10044	9951	10140	10367	10519	10642	10780	10838	10981	**11227**	2.2%	1.4%	12.2%
Turkmenistan	187	199	211	214	220	220	229	240	249	261	**261**	✦	3.1%	0.3%
United Kingdom	1659	1651	1549	1469	1356	1112	946	864	852	963	**1013**	5.1%	-6.2%	1.1%
USSR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a
Uzbekistan	114	104	102	95	78	77	68	61	59	57	**55**	-3.1%	-6.7%	0.1%
Other Europe & Eurasia	445	442	420	409	394	394	390	397	388	379	**367**	-3.0%	-1.8%	0.4%
Total Europe & Eurasia	**17582**	**17795**	**17574**	**17754**	**17694**	**17387**	**17127**	**17174**	**17206**	**17479**	**17716**	**1.4%**	✦	**19.2%**
Iran	4293	4359	4421	4292	4417	4465	3819	3615	3725	3897	**4600**	18.0%	-0.8%	5.0%
Iraq	1999	2143	2428	2452	2490	2801	3116	3141	3285	4031	**4465**	10.8%	8.2%	4.8%
Kuwait	2735	2660	2784	2498	2560	2913	3169	3129	3101	3068	**3151**	2.7%	1.4%	3.4%
Oman	738	710	757	813	865	885	918	942	943	981	**1004**	2.4%	2.4%	1.1%
Qatar	1241	1267	1438	1421	1638	1834	1931	1906	1886	1890	**1899**	0.5%	5.1%	2.1%
Saudi Arabia	10671	10268	10663	9663	10075	11144	11635	11393	11505	11986	**12349**	3.0%	0.9%	13.4%
Syria	421	404	406	401	385	353	171	59	33	27	**25**	-7.4%	-24.5%	✦
United Arab Emirates	3098	3002	3027	2725	2895	3320	3401	3627	3674	3928	**4073**	3.7%	3.0%	4.4%
Yemen	387	341	315	307	306	219	174	193	147	44	**16**	-62.7%	-20.3%	✦
Other Middle East	182	194	193	192	192	201	184	209	214	213	**205**	-3.8%	1.4%	0.2%
Total Middle East	**25765**	**25348**	**26430**	**24765**	**25822**	**28136**	**28518**	**28213**	**28515**	**30065**	**31789**	**5.7%**	**1.6%**	**34.5%**
Algeria	1979	1992	1969	1775	1689	1642	1537	1485	1589	1558	**1579**	1.4%	-2.4%	1.7%
Angola	1432	1699	1916	1804	1863	1726	1784	1799	1712	1826	**1807**	-1.1%	3.6%	2.0%
Chad	153	144	127	118	122	114	101	83	82	73	**73**	0.6%	-8.3%	0.1%

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-15	
Republic of Congo	278	224	237	276	314	301	281	250	266	257	**238**	-7.6%	0.4%	0.3%
Egypt	679	698	715	730	725	714	715	710	714	726	**691**	-4.8%	0.8%	0.8%
Equatorial Guinea	342	350	347	307	274	252	272	267	281	289	**280**	-3.1%	-2.1%	0.3%
Gabon	242	246	240	241	249	251	253	232	232	230	**227**	-1.1%	-1.6%	0.2%
Libya	1815	1820	1820	1651	1658	479	1510	988	498	432	**426**	-1.4%	-13.0%	0.5%
Nigeria	2433	2314	2109	2185	2471	2408	2370	2270	2347	2329	**2053**	-11.9%	-0.8%	2.2%
South Sudan	n/a	n/a	n/a	n/a	n/a	n/a	31	100	155	148	**118**	-20.0%	n/a	0.1%
Sudan	356	483	457	475	462	291	103	118	120	109	**104**	-5.0%	-9.4%	0.1%
Tunisia	77	106	98	93	85	78	84	78	73	65	**63**	-3.3%	-2.0%	0.1%
Other Africa	227	191	184	181	152	209	205	231	236	255	**233**	-8.7%	3.7%	0.3%
Total Africa	**10014**	**10268**	**10218**	**9838**	**10065**	**8464**	**9247**	**8612**	**8307**	**8297**	**7892**	**-4.9%**	**-1.7%**	**8.6%**
Australia	532	549	538	507	548	483	479	407	436	393	**359**	-8.7%	-3.6%	0.4%
Brunei	221	194	175	168	172	165	159	135	126	127	**121**	-4.6%	-4.7%	0.1%
China	3711	3742	3814	3805	4077	4074	4155	4216	4246	4309	**3999**	-7.2%	1.7%	4.3%
India	760	768	803	816	882	916	906	906	887	876	**856**	-2.3%	1.7%	0.9%
Indonesia	1018	972	1006	994	1003	952	918	882	852	841	**881**	4.8%	-2.6%	1.0%
Malaysia	713	742	741	701	717	650	654	621	645	699	**705**	0.9%	-0.8%	0.8%
Thailand	326	343	360	374	389	419	458	452	450	468	**479**	2.5%	4.5%	0.5%
Vietnam	354	334	309	341	322	326	357	361	373	362	**333**	-8.1%	-0.7%	0.4%
Other Asia Pacific	304	319	340	330	315	299	287	272	291	295	**278**	-5.9%	0.4%	0.3%
Total Asia Pacific	**7938**	**7962**	**8086**	**8038**	**8426**	**8285**	**8372**	**8252**	**8307**	**8369**	**8010**	**-4.3%**	**0.5%**	**8.7%**
Total World	**82519**	**82334**	**82894**	**81222**	**83251**	**84026**	**86183**	**86606**	**88826**	**91704**	**92150**	**0.5%**	**1.1%**	**100.0%**
of which: OECD	19447	19131	18425	18432	18527	18574	19482	20635	22588	23596	**23122**	-2.0%	1.7%	25.1%
Non-OECD	63072	63203	64469	62790	64724	65452	66701	65971	66238	68108	**69028**	1.4%	0.9%	74.9%
OPEC	35574	35269	36303	33997	35086	35988	37480	36561	36573	38133	**39358**	3.2%	0.8%	42.7%
Non-OPEC	46945	47065	46591	47225	48166	48038	48703	50045	52254	53572	**52792**	-1.5%	1.4%	57.3%
European Union #	2464	2418	2258	2119	1981	1720	1526	1434	1412	1506	**1488**	-1.2%	-5.7%	1.6%
CIS	12281	12761	12783	13215	13496	13544	13597	13810	13810	13932	**14141**	1.5%	1.7%	15.3%

* Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids - the liquid content of natural gas where this is recovered separately).
Excludes liquid fuels from other sources such as biomass and derivatives of coal and natural gas.
^ Less than 0.05.
✦ Less than 0.05%.
Excludes Estonia, Latvia and Lithuania prior to 1985 and Slovenia prior to 1990.
Notes: Annual changes and shares of total are calculated using thousand barrels daily figures.
Source: BP Statistical Review of World Energy 2017

Table 7: Counrty-wise Oil Consumption : Trends (in thousands of barrels per day)*

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-18	
US	20687	20680	19490	18771	19180	18882	18490	18961	19106	19531	**19631**	0.5%	-0.6%	20.3%
Canada	2275	2342	2295	2173	2305	2380	2340	2383	2372	2299	**2343**	1.9%	0.1%	2.4%
Mexico	2019	2067	2054	1996	2014	2043	2063	2020	1943	1923	**1869**	-2.8%	-0.5%	1.9%
Total North America	**24982**	**25089**	**23840**	**22940**	**23499**	**23305**	**22894**	**23364**	**23421**	**23753**	**23843**	**0.4%**	**-0.6%**	**24.7%**
Argentina	474	528	540	532	594	609	636	683	674	692	**687**	-0.7%	4.4%	0.7%
Brazil	2155	2313	2485	2502	2721	2839	2901	3110	3239	3170	**3018**	-4.8%	4.1%	3.1%
Chile	293	377	390	383	343	371	376	362	371	376	**378**	0.6%	3.5%	0.4%
Colombia	237	234	251	232	258	277	297	298	316	333	**340**	2.3%	3.5%	0.4%
Ecuador	180	183	188	191	220	226	233	247	260	254	**239**	-5.9%	4.2%	0.2%
Peru	147	153	172	178	189	208	213	227	225	240	**256**	6.9%	4.7%	0.3%
Trinidad & Tobago	38	43	45	44	45	42	40	45	42	45	**44**	-3.9%	2.8%	✦
Venezuela	668	640	716	726	725	737	792	782	719	648	**611**	-5.7%	0.7%	0.6%
Other S. & Cent. America	1363	1361	1313	1306	1330	1357	1339	1319	1324	1381	**1402**	1.5%	0.3%	1.5%
Total S. & Cent. America	**5554**	**5831**	**6100**	**6094**	**6424**	**6666**	**6826**	**7073**	**7171**	**7139**	**6976**	**-2.3%**	**2.9%**	**7.2%**
Austria	291	276	274	264	276	262	259	264	259	259	**263**	1.5%	-1.0%	0.3%
Azerbaijan	96	91	74	73	71	89	92	101	99	99	**99**	-0.2%	-0.7%	0.1%
Belarus	176	162	159	182	150	175	211	145	165	156	**152**	-2.2%	0.3%	0.2%
Belgium	685	700	731	654	678	637	622	636	635	666	**675**	1.4%	-0.3%	0.7%
Bulgaria	105	103	102	91	81	79	82	76	82	92	**96**	4.0%	-1.1%	0.1%
Czech Republic	207	205	209	204	195	193	192	184	195	189	**178**	-6.0%	-1.0%	0.2%
Denmark	190	191	188	169	171	168	158	158	160	164	**164**	0.5%	-1.3%	0.2%
Finland	223	226	223	212	222	204	193	191	183	184	**189**	2.6%	-2.2%	0.2%
France	1942	1911	1889	1822	1763	1730	1676	1664	1616	1616	**1602**	-0.9%	-1.8%	1.7%
Germany	2609	2380	2502	2409	2445	2369	2356	2408	2348	2340	**2394**	2.3%	-1.0%	2.5%
Greece	434	435	414	398	369	348	312	295	294	306	**313**	2.5%	-2.9%	0.3%
Hungary	168	168	164	154	146	139	129	129	144	153	**154**	0.9%	-0.3%	0.2%
Ireland	191	195	187	166	158	143	135	137	136	142	**147**	2.9%	-2.9%	0.2%
Italy	1791	1740	1661	1563	1532	1475	1346	1260	1184	1222	**1232**	0.9%	-3.8%	1.3%
Kazakhstan	221	242	241	199	211	244	245	260	265	289	**287**	-0.6%	4.1%	0.3%
Lithuania	58	58	63	54	55	53	55	53	53	57	**61**	6.5%	✦	0.1%
Netherlands	1047	1065	991	971	977	971	926	898	866	835	**851**	1.9%	-2.2%	0.9%
Norway	229	237	228	237	235	239	235	243	232	238	**242**	1.7%	0.6%	0.3%
Poland	512	531	549	549	576	574	553	520	521	541	**589**	8.8%	1.1%	0.6%
Portugal	302	307	291	273	271	255	230	239	238	245	**236**	-3.5%	-3.1%	0.2%

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-18	
Romania	214	218	216	195	184	191	191	174	187	191	**197**	3.2%	-1.3%	0.2%
Russian Federation	2762	2780	2861	2775	2878	3074	3119	3135	3299	3137	**3203**	2.1%	1.7%	3.3%
Slovakia	72	76	82	79	82	81	74	75	71	77	**83**	8.5%	-0.4%	0.1%
Spain	1592	1613	1558	1473	1446	1378	1291	1195	1191	1237	**1268**	2.5%	-2.5%	1.3%
Sweden	358	357	350	323	336	312	309	306	308	300	**313**	4.3%	-1.7%	0.3%
Switzerland	266	241	256	260	242	235	238	249	224	228	**216**	-5.2%	-1.3%	0.2%
Turkey	681	695	686	709	694	673	680	718	741	839	**886**	5.7%	2.5%	0.9%
Turkmenistan	105	111	114	106	118	125	129	137	143	147	**148**	0.8%	3.0%	0.2%
Ukraine	308	308	299	282	267	278	267	257	222	198	**195**	-1.1%	-3.9%	0.2%
United Kingdom	1813	1752	1720	1646	1623	1590	1533	1518	1511	1565	**1597**	2.1%	-1.5%	1.7%
USSR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a
Uzbekistan	103	94	93	89	76	71	63	60	57	57	**58**	0.8%	-5.7%	0.1%
Other Europe & Eurasia	699	730	737	720	714	710	692	683	660	683	**705**	3.2%	-0.1%	0.7%
Total Europe & Eurasia	**20452**	**20202**	**20110**	**19300**	**19244**	**19064**	**18594**	**18370**	**18287**	**18450**	**18793**	**1.9%**	**-0.9%**	**19.5%**
Iran	1851	1879	1954	1950	1817	1844	1854	2014	1961	1850	**1848**	-0.1%	0.9%	1.9%
Israel	248	262	254	232	241	254	295	247	231	247	**251**	1.9%	-0.4%	0.3%
Kuwait	378	383	406	455	470	464	541	512	480	506	**499**	-1.3%	2.1%	0.5%
Qatar	137	148	177	173	191	246	257	287	293	316	**339**	7.5%	11.2%	0.4%
Saudi Arabia	2274	2407	2622	2914	3218	3295	3462	3470	3726	3868	**3906**	1.0%	5.8%	4.0%
United Arab Emirates	539	576	603	595	643	721	765	774	860	926	**987**	6.7%	6.3%	1.0%
Other Middle East	1299	1294	1402	1461	1522	1558	1586	1646	1631	1588	**1600**	0.7%	1.8%	1.7%
Total Middle East	**6726**	**6949**	**7418**	**7779**	**8102**	**8382**	**8760**	**8950**	**9180**	**9300**	**9431**	**1.4%**	**3.6%**	**9.8%**
Algeria	258	286	309	327	327	350	370	387	390	425	**412**	-3.1%	5.5%	0.4%
Egypt	601	642	686	725	766	720	747	756	806	830	**853**	2.8%	3.0%	0.9%
South Africa	528	539	511	507	539	542	554	569	564	583	**560**	-3.9%	1.2%	0.6%
Other Africa	1526	1575	1697	1758	1852	1781	1900	2007	2012	2028	**2111**	4.1%	2.9%	2.2%
Total Africa	**2912**	**3042**	**3203**	**3316**	**3483**	**3393**	**3571**	**3720**	**3771**	**3866**	**3937**	**1.8%**	**2.9%**	**4.1%**
Australia	936	935	944	950	957	1006	1036	1046	1045	1039	**1036**	-0.3%	1.8%	1.1%
Bangladesh	81	76	77	72	80	104	110	107	116	124	**131**	5.6%	4.5%	0.1%
China	7432	7808	7941	8278	9436	9796	10230	10734	11209	11986	**12381**	3.3%	5.7%	12.8%
China Hong Kong SAR	309	329	298	339	359	361	344	352	336	368	**380**	3.4%	2.5%	0.4%
India	2737	2941	3077	3237	3319	3488	3685	3727	3849	4164	**4489**	7.8%	4.8%	4.6%
Indonesia	1244	1318	1287	1317	1411	1589	1625	1639	1663	1592	**1615**	1.4%	2.0%	1.7%
Japan	5174	5013	4846	4387	4442	4442	4702	4516	4303	4139	**4037**	-2.5%	-2.5%	4.2%
Malaysia	660	701	672	679	690	726	760	803	802	814	**829**	1.9%	2.5%	0.9%

Thousand barrels daily	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-18	
New Zealand	152	154	154	148	150	150	148	151	154	160	**164**	2.3%	0.6%	0.2%
Pakistan	354	384	389	415	411	414	402	442	458	505	**566**	12.0%	5.0%	0.6%
Philippines	283	295	283	300	313	298	309	322	347	398	**434**	9.0%	2.4%	0.4%
Singapore	848	921	973	1049	1157	1208	1202	1225	1268	1336	**1382**	3.4%	5.3%	1.4%
South Korea	2320	2399	2308	2339	2370	2394	2458	2455	2454	2577	**2763**	7.2%	1.1%	2.9%
Taiwan	1051	1110	1005	1020	1045	983	983	1010	1032	1040	**1046**	0.6%	-0.1%	1.1%
Thailand	996	1030	1018	1065	1122	1185	1250	1298	1311	1355	**1382**	2.0%	2.9%	1.4%
Vietnam	254	283	300	313	337	366	369	371	389	407	**431**	6.0%	4.7%	0.4%
Other Asia Pacific	322	350	333	355	369	409	416	435	458	491	**512**	4.3%	4.6%	0.5%
Total Asia Pacific	**25152**	**26047**	**25907**	**26262**	**27969**	**28920**	**30031**	**30636**	**31195**	**32494**	**33577**	**3.3%**	**2.8%**	**34.8%**
Total World	**85777**	**87161**	**86578**	**85691**	**88722**	**89729**	**90675**	**92114**	**93025**	**95003**	**96558**	**1.6%**	**1.2%**	**100.0%**
of which: OECD	49874	49697	48059	46068	46596	46054	45512	45583	45184	45785	**46217**	0.9%	-0.9%	47.9%
Non-OECD	35903	37464	38519	39623	42126	43676	45163	46531	47840	49218	**50341**	2.3%	3.6%	52.1%
European Union #	15165	14878	14737	14023	13942	13499	12955	12702	12500	12707	**12942**	1.8%	-1.7%	13.4%
CIS	3819	3845	3901	3770	3835	4120	4205	4177	4326	4161	**4223**	1.5%	1.3%	4.4%

* Inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol), biodiesel and derivatives of coal
✦ Less than 0.05%. n/a not available.
Excludes Estonia, Latvia and Lithuania prior to 1985 and Slovenia prior to 1990.
Annual changes and shares of total are calculated using thousand barrels daily figures.
Source: BP Statistical Review of World Energy 2017

Table 8: Spot Crude Prices : Historical Trend

		Brent	Nigerian Forcados	West Texas Intermdiate
US dollars per barrel	$/bbl *	$/bbl †	$/bbl	$/bbl ‡
1972	1.90	-	-	-
1973	2.83	-	-	-
1974	10.41	-	-	-
1975	10.70	-	-	-
1976	11.63	12.80	12.87	12.23
1977	12.38	13.92	14.21	14.22
1978	13.03	14.02	13.65	14.55
1979	29.75	31.61	29.25	25.08
1980	35.69	36.83	36.98	37.96
1981	34.32	35.93	36.18	36.08
1982	31.80	32.97	33.29	33.65
1983	28.78	29.55	29.54	30.30
1984	28.06	28.78	28.14	29.39

		Brent	Nigerian Forcados	West Texas Intermdiate
US dollars per barrel	$/bbl *	$/bbl †	$/bbl	$/bbl ‡
1985	27.53	27.56	27.75	27.98
1986	13.10	14.43	14.46	15.10
1987	16.95	18.44	18.39	19.18
1988	13.27	14.92	15.00	15.97
1989	15.62	18.23	18.30	19.68
1990	20.45	23.73	23.85	24.50
1991	16.63	20.00	20.11	21.54
1992	17.17	19.32	19.61	20.57
1993	14.93	16.97	17.41	18.45
1994	14.74	15.82	16.25	17.21
1995	16.10	17.02	17.26	18.42
1996	18.52	20.67	21.16	22.16
1997	18.23	19.09	19.33	20.61
1998	12.21	12.72	12.62	14.39
1999	17.25	17.97	18.00	19.31
2000	26.20	28.50	28.42	30.37
2001	22.81	24.44	24.23	25.93
2002	23.74	25.02	25.04	26.16
2003	26.78	28.83	28.66	31.07
2004	33.64	38.27	38.13	41.49
2005	49.35	54.52	55.69	56.59
2006	61.50	65.14	67.07	66.02
2007	68.19	72.39	74.48	72.20
2008	94.34	97.26	101.43	100.06
2009	61.39	61.67	63.35	61.92
2010	78.06	79.50	81.05	79.45
2011	106.18	111.26	113.65	95.04
2012	109.08	111.67	114.21	94.13
2013	105.47	108.66	111.95	97.99
2014	97.07	98.95	101.35	93.28
2015	51.20	52.39	54.41	48.71
2016	41.19	43.73	44.54	43.34

* 1972 - 1985 Arabian Light, 1986 - 2016 Dubai dated.
† 1976 -1983 Forties, 1984 -2016 Brent dated.
‡ 1976 -1983 Posted WTI prices, 1984 -2016 Spot WTI (Cushing) prices.
Source: Platts, BP Statistical Review of World Energy 2017

Table 9: Spot Crude Prices : Counrty-wise

Thousand b/doe	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum		Share 2016
												2016	2005-15	
US	200	276	391	445	526	585	557	582	617	634	**669**	5.4%	15.2%	43.5%
Canada	3	9	10	15	15	18	19	20	22	21	**22**	1.2%	22.8%	1.4%
Mexico	-	0	0	0	0	0	0	1	1	1	**1**	✦	✦	0.1%
Total North America	**203**	**285**	**402**	**460**	**541**	**603**	**577**	**603**	**640**	**657**	**692**	**5.3%**	**15.4%**	**45.0%**
Argentina	1	3	12	20	31	42	43	38	50	38	**53**	38.4%	71.7%	3.4%
Brazil	180	233	290	286	316	270	276	321	337	362	**347**	-4.3%	8.4%	22.5%
Colombia	3	3	3	6	9	11	12	12	13	13	**12**	-10.0%	46.2%	0.8%
Other S. & Cent. America	10	11	15	12	4	6	6	7	7	7	**7**	-1.9%	6.5%	0.5%
Total S. & Cent. America	**193**	**250**	**319**	**324**	**360**	**328**	**336**	**377**	**407**	**421**	**418**	**-0.6%**	**9.8%**	**27.2%**
Austria	2	4	5	7	7	7	7	7	6	7	**8**	9.8%	18.0%	0.5%
Belgium	0	3	5	9	11	12	11	10	11	10	**10**	✦	89.9%	0.7%
Finland	0	1	2	4	6	4	5	6	7	8	**8**	✦	51.8%	0.5%
France	13	22	39	45	44	36	40	43	48	47	**42**	-11.9%	18.5%	2.7%
Germany	49	61	52	53	57	56	57	52	65	60	**60**	-0.1%	7.2%	3.9%
Italy	11	8	12	14	13	9	6	9	11	11	**11**	✦	5.1%	0.7%
Netherlands	0	2	1	5	7	13	24	28	33	31	**31**	✦	87.5%	2.0%
Poland	3	2	5	8	8	8	12	13	14	18	**17**	-4.6%	23.2%	1.1%
Portugal	1	3	3	4	5	6	5	5	6	6	**6**	-7.5%	79.7%	0.4%
Spain	5	7	7	19	25	16	12	14	19	21	**21**	2.0%	14.0%	1.4%
Sweden	2	3	3	5	6	8	9	12	15	4	**4**	-5.1%	15.7%	0.3%
United Kingdom	4	7	5	4	6	6	6	10	8	6	**7**	12.8%	22.4%	0.4%
Other Europe & Eurasia	**8**	**9**	**18**	**22**	**22**	**23**	**27**	**25**	**29**	**33**	**33**	**0.4%**	**19.2%**	**2.1%**
Total Europe & Eurasia	**99**	**132**	**159**	**200**	**218**	**204**	**219**	**234**	**271**	**263**	**258**	**-1.9%**	**15.5%**	**16.7%**
Total Middle East	**-**	**-**	**-**	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	✦	✦	✦
Total Africa	0	0	0	0	0	0	0	1	1	1	**1**		20.5%	✦
Australia	1	1	2	3	4	4	4	4	3	3	**3**	-8.5%	21.9%	0.2%
China	17	18	22	23	30	37	39	44	49	50	**38**	-22.8%	14.6%	2.5%
India	3	3	3	1	2	4	4	5	7	8	**9**	23.0%	12.7%	0.6%
Indonesia	1	4	10	9	14	21	26	33	48	25	**47**	84.3%	65.4%	3.0%
South Korea	1	1	3	7	10	6	5	6	6	7	**8**	4.7%	45.4%	0.5%
Thailand	2	3	10	12	13	14	20	25	28	30	**30**	0.2%	39.9%	2.0%
Other Asia Pacific	3	4	7	9	8	13	19	23	35	36	**35**	-1.5%	69.1%	2.3%
Total Asia Pacific	**27**	**35**	**57**	**64**	**81**	**99**	**118**	**140**	**176**	**159**	**170**	**7.2%**	**25.0%**	**11.1%**
Total World	**522**	**702**	**937**	**1049**	**1200**	**1234**	**1250**	**1355**	**1494**	**1500**	**1539**	**2.6%**	**14.1%**	**100.0%**
of which: OECD	303	418	561	663	766	810	799	840	913	922	**952**	3.2%	15.5%	61.8%
Non-OECD	219	285	377	385	433	424	451	515	581	578	**587**	1.6%	12.2%	38.2%
European Union	98	130	156	196	215	201	217	232	268	259	**254**	-2.0%	15.5%	16.5%
CIS	-	^	0	1	1	1	1	0	0	0	**0**	✦	✦	✦

^ Less than 0.05
✦ Less than 0.05%.
Notes: Consumption of fuel ethanol and biodiesel is included in oil consumption tables.
Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.
Source: Includes data from F.O. Lichts, US Energy Information Administration, BP Statistical Review of World Energy 2017

Table 10: Oil trade-Inter Area Movements 2016

Million tonnes	Crude imports	Product imports	Crude exports	Product exports
US	393.3	104.5	24.4	203.1
Canada	29.2	31.6	164.4	29.4
Mexico	†	38.2	60.8	8.8
S. & Cent. America	24.6	90.5	177.4	29.6
Europe	499.4	200.8	17.6	132.2
Russia	0.8	1.7	274.0	151.0
Other CIS	18.3	12.2	81.7	8.7
Iraq	†	1.2	177.5	1.5
Kuwait	†	0.8	103.3	25.0
Saudi Arabia	†	7.3	375.3	48.4
UAE	1.2	24.4	123.2	60.8
Other Middle East	23.9	21.4	203.2	48.6
North Africa	4.4	34.4	58.2	24.8
West Africa	0.7	32.9	216.5	7.3
East & S. Africa	21.2	25.1	6.9	2.3
Australasia	20.4	27.6	9.4	3.9
China	382.6	74.5	2.9	46.0
India	212.3	30.0	†	61.9
Japan	168.0	39.1	†	14.7
Singapore	48.1	121.4	0.1	93.7
Other Asia Pacific	269.5	185.8	41.0	103.5
Total World	**2117.8**	**1105.2**	**2117.8**	**1105.2**

† Less than 0.05.
Notes: Bunkers are not included as exports. Intra-area movements (for example, between countries in Europe) are excluded.
Crude imports and exports include condensates.
Source: BP Statistical Review of World Energy 2017

Table 11: Biofuels production

Thousand b/doe	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum 2005-15		Share 2016
US	200	276	391	445	526	585	557	582	617	634	669	5.4%	15.2%	43.5%
Canada	3	9	10	15	15	18	19	20	22	21	22	1.2%	22.8%	1.4%
Mexico	-	0	0	0	0	0	0	1	1	1	1	✦	✦	0.1%
Total North America	**203**	**285**	**402**	**460**	**541**	**603**	**577**	**603**	**640**	**657**	**692**	**5.3%**	**15.4%**	**45.0%**
Argentina	1	3	12	20	31	42	43	38	50	38	53	38.4%	71.7%	3.4%
Brazil	180	233	290	286	316	270	276	321	337	362	347	-4.3%	8.4%	22.5%
Colombia	3	3	3	6	9	11	12	12	13	13	12	-10.0%	46.2%	0.8%

Thousand b/doe	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Growth rate per annum 2005-15		Share 2016
Other S. & Cent. America	10	11	15	12	4	6	6	7	7	7	7	-1.9%	6.5%	0.5%
Total S. & Cent. America	**193**	**250**	**319**	**324**	**360**	**328**	**336**	**377**	**407**	**421**	**418**	**-0.6%**	**9.8%**	**27.2%**
Austria	2	4	5	7	7	7	7	7	6	7	8	9.8%	18.0%	0.5%
Belgium	0	3	5	9	11	12	11	10	11	10	10	✦	89.9%	0.7%
Finland	0	1	2	4	6	4	5	6	7	8	8	✦	51.8%	0.5%
France	13	22	39	45	44	36	40	43	48	47	42	-11.9%	18.5%	2.7%
Germany	49	61	52	53	57	56	57	52	65	60	60	-0.1%	7.2%	3.9%
Italy	11	8	12	14	13	9	6	9	11	11	11	✦	5.1%	0.7%
Netherlands	0	2	1	5	7	13	24	28	33	31	31	✦	87.5%	2.0%
Poland	3	2	5	8	8	8	12	13	14	18	17	-4.6%	23.2%	1.1%
Portugal	1	3	3	4	5	6	5	5	6	6	6	-7.5%	79.7%	0.4%
Spain	5	7	7	19	25	16	12	14	19	21	21	2.0%	14.0%	1.4%
Sweden	2	3	3	5	6	8	9	12	15	4	4	-5.1%	15.7%	0.3%
United Kingdom	4	7	5	4	6	6	6	10	8	6	7	12.8%	22.4%	0.4%
Other Europe & Eurasia	8	9	18	22	22	23	27	25	29	33	33	0.4%	19.2%	2.1%
Total Europe & Eurasia	99	132	159	200	218	204	219	234	271	263	258	-1.9%	15.5%	16.7%
Total Middle East	-	-	-	-	0	0	0	0	0	0	0	✦	✦	✦
Total Africa	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	✦	**20.5%**	✦
Australia	1	1	2	3	4	4	4	4	3	3	3	-8.5%	21.9%	0.2%
China	17	18	22	23	30	37	39	44	49	50	38	-22.8%	14.6%	2.5%
India	3	3	3	1	2	4	4	5	7	8	9	23.0%	12.7%	0.6%
Indonesia	1	4	10	9	14	21	26	33	48	25	47	84.3%	65.4%	3.0%
South Korea	1	1	3	7	10	6	5	6	6	7	8	4.7%	45.4%	0.5%
Thailand	2	3	10	12	13	14	20	25	28	30	30	0.2%	39.9%	2.0%
Other Asia Pacific	3	4	7	9	8	13	19	23	35	36	35	-1.5%	69.1%	2.3%
Total Asia Pacific	27	35	57	64	81	99	118	140	176	159	170	7.2%	25.0%	11.1%
Total World	**522**	**702**	**937**	**1049**	**1200**	**1234**	**1250**	**1355**	**1494**	**1500**	**1539**	**2.6%**	**14.1%**	**100.0%**
of which: OECD	303	418	561	663	766	810	799	840	913	922	952	3.2%	15.5%	61.8%
Non-OECD	219	285	377	385	433	424	451	515	581	578	587	1.6%	12.2%	38.2%
European Union	98	130	156	196	215	201	217	232	268	259	254	-2.0%	15.5%	16.5%
CIS	-	^	0	1	1	1	1	0	0	0	0	✦	✦	✦

^ Less than 0.05.
✦ Less than 0.05%.
Notes: Consumption of fuel ethanol and biodiesel is included in oil consumption tables.
Annual changes and shares of total are calculated using thousand barrels a day oil equivalent figures.
Source: BP Statistical Review of World Energy 2017

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