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The History (and the Future) of Oil: An Outlook for Middle East Producers[1]

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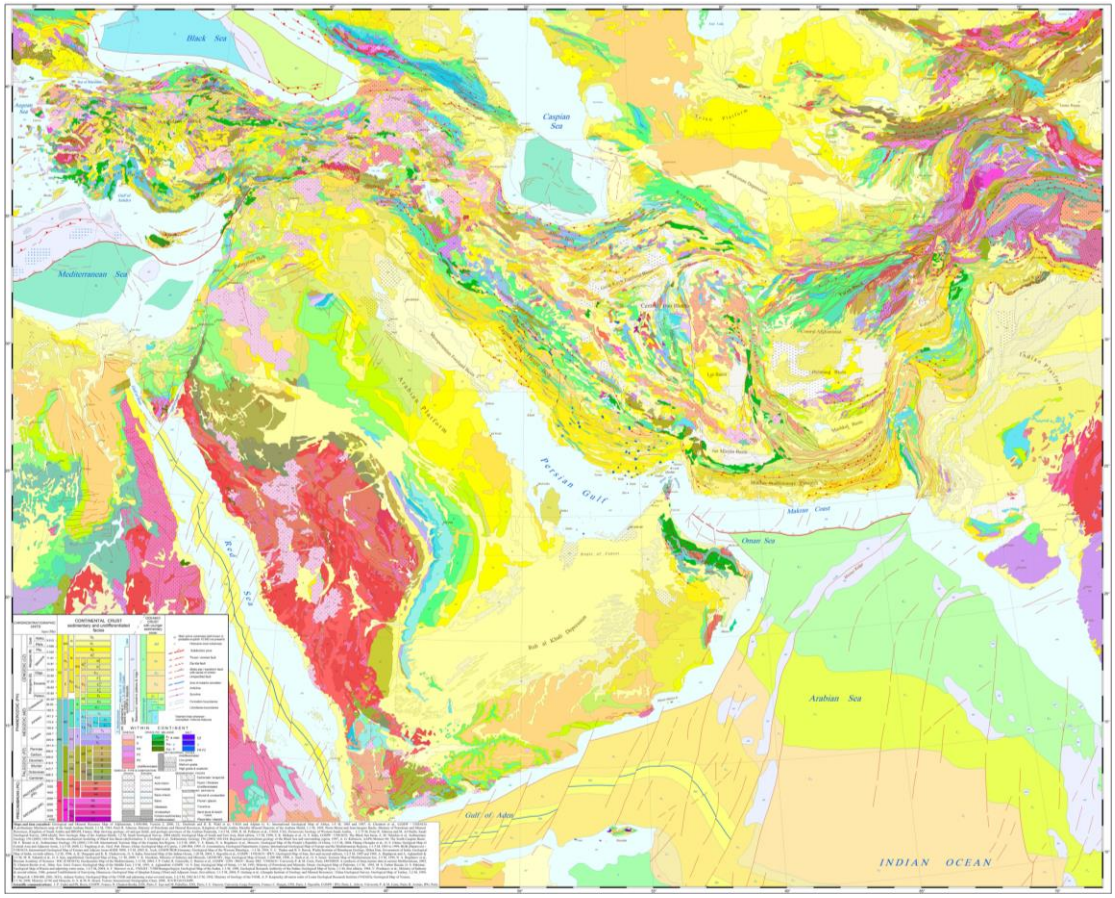

International Geological Map of the Middle East[2]

About the Author

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Introduction

The first oil discovery in the United States was in August 1859 in Titusville, Pennsylvania.[3] Entrepreneurs and innovators who took the risk of investing in the search for oil, were happy with their success. Later, however, the oil flow from the first well declined and caused disappointment and financial loss. With more investment and exploration efforts, another discovery was made but ultimately began declining. The oil price rose when the flow rate declined but fell with the large flow rate from a new well. The cycles of discovery success and disappointment, and high and low oil prices continued in the following years. The price of oil fluctuated between fifty Cents to ten Dollars per barrel in the early 1860s.

'Oil supply cycles' have been repeated throughout the history of oil. In addition to exploration success and disappointment, supply has been subjected to other factors that caused up and down movements, such as industrial accidents in major oil production facilities, extreme weather, wars, politics and international embargos.

'Oil demand cycles' have also impacted the price of oil. The use of oil in the early days was as illumination fuel (kerosene derived from crude oil) for lamps and it successfully expanded its market by substituting for animal fat and whale oil, but the introduction of electric lights began to replace oil. However, the innovation of the internal combustion engine and the mass production of cars provided a new realm for oil demand (gasoline/ petrol also derived from crude oil) that has continued to the present day. Other factors have also contributed to demand cycles, such as economic boom and recession, extreme weather, conflicts, wars and politics, e.g. a government banning the use of oil in some sectors of the economy.

The introductory briefing on oil supply and demand cycles given here is indeed a simplification. Still, it highlights some basic parameters that should be studied for an understanding of the oil market and its history. Price depends on the balance of supply and demand, and the cyclic nature of both supply and demand makes it less likely for the two to be in balance and oil price fluctuations often do occur.

Oil Supply, Demand and Trading

Supply - The 1859 discovery well was sixty-nine feet deep and rudimentary drilling methods had been used. Today, drilling is a most sophisticated industry reaching depths of nearly 50,000 feet on land and also in deep offshore and hostile environments. Looking for oil has also become most advanced and has moved away from drilling near an oil seepage or on a simple surface geological feature. Complicated scientific methods are employed today. Advanced geophysical techniques for data gathering and their interpretation have revolutionized exploration, as exemplified by penetrating subsurface salt layers at great depths below the Gulf of Mexico and offshore Brazil. Exploration successes around the world, especially in recent decades, have increased our estimates of world oil resources to the extent that we no longer worry about the world running out of oil.

Advanced scientific techniques have also revolutionised our understanding of oil production mechanisms within the subsurface, and the information gathered during the sophisticated exploration process makes the subsequent field development and oil production operations more successful and efficient.

Demand – The early technical breakthroughs in processing and 'refining' allowed us to derive useful products from the dirty bituminous crude oil from the subsurface: kerosene for lamps and, later, gasoline (petrol) for internal combustion engines. More and more specialised products have been derived from oil and gas by refineries and the petrochemical industry. These products have been critical to the global economy – industry, agriculture, transportation, residential and other sectors, and leisure and lifestyle. They have also been critical to warfare and the shaping of the history of many nation-states - both those with oil resources and those without.

Trading – Major changes have occurred since the 1970s in buying and selling crude oil and petroleum products, and the financial sector has played a greater role than traditional oil company marketers. Sales and purchases in the spot and the futures markets increased relative to term contracts and it has been argued that financial positioning, speculation, 'market sentiment' and psychology, have been distorting the oil market and have caused market instability and price volatility. One example of market psychology was the unprecedented rise in the US stock market in the mid-2000s – the "irrational exuberance" explanation by Alan Greenspan, former chair of the US Federal Reserve. That rise was followed by the stock market collapse in 2008. An unprecedented rise also occurred in the price of oil; it rose to a peak of $147 per barrel ($147/bbl) in July 2008 and then collapsed.

For the later discussions in this paper, it is worth noting that in these developments in the marketing of oil and the changes in trading mechanisms, the oil companies were able to adjust and utilise the new mechanisms. The oil-producing countries were slow to adapt, mostly because the marketing of oil had always been in the hands of the international oil companies and not the producing countries.

Oil Companies

Providing investment soon became critical after the early oil discoveries. Large capital was required for developing the discovered field, refining the oil, transporting crude and products, selling them to the final consumer, and continuing exploration work to sustain industry operations. Providing capital and managing the operations in the early days led to the establishment of oil companies. Companies were also formed after oil was discovered in other parts of the world, but the case of the United States is used in this brief as it is well documented, and details are easily available. The principles, however, are universal.

The Majors – Since the early days, successful oil companies gradually expanded. Some companies concentrated on drilling and production, while others on refining or transporting or marketing the oil. As is common in all new businesses, competition developed between the companies, encouraging improvements in their operations through technical innovation, efficient management, expansion to new areas and other means. Some expanded their operations to include production and refining and other sectors of the oil business and became 'integrated' oil companies. In the late nineteenth and early twentieth centuries, competition between companies became more severe and led to espionage and illegal practices, putting pressure on competitors, hostile takeovers, and monopolisation. The case of Rockefeller's Standard Oil Trust and its subsequent breakup by the US Congress's 1909 anti-trust legislation is well known.

Smaller independent oil companies entered the scene, but the larger oil companies were more successful and controlled the world oil business. In addition to the United States, oil was discovered in other parts of the world such as Indonesia and Eastern Asia (by Shell), Russia (by Nobel and Rothschild families), and Iran (by Anglo-Persian Oil Company, later renamed BP). These companies competed with each other and with Standard Oil which had also become active internationally. By the early 1920s, a limited number of 'Majors' were controlling almost the whole global oil scene. They had developed the fields and were producing oil in different parts of the world. They had built pipelines and refineries and established global shipping, trading and marketing networks. To avoid unnecessary competition among themselves, they even made confidential arrangements not to enter each other's 'turf', exemplified by the 'Pool Association' or 'As Is Agreement' reached in a secret meeting in Achnacarry Castle, Scotland in August 1928 - apparently for "grouse shooting and fishing"! The participants in the meeting were the top decision-makers from Shell, Standard Oil of New Jersey and Anglo-Persian Oil Company.

As a consequence, the major companies' power and control over the world oil business continued and expanded in the following decades. They avoided competition by coordinating their global production operations and also controlled the pricing mechanisms for oil. The latter was based on the 'US Gulf Plus' system used for oil everywhere in the world. They were an international cartel. The three companies, together with Chevron, Gulf, Mobil, and Texaco have been referred to as the Seven Sisters.[4] The Second World War demonstrated the role of the Majors in the provision of fuel to Allied forces.

Another important policy of the Majors since the end of World War II, has been to form 'consortia' when undertaking new exploration and production projects around the world. The argument for this has been that such projects are often too large, require heavy front-end capital and complicated technologies, and have a long lead time before they begin to reach production and generate cash flow and the Majors wish to share the high risks of such projects.

Another reason, however, is that a consortium of major oil companies will be in a stronger position than an individual oil company when negotiating with a government for an operating license. Moreover, the government is often new to oil, lacks oil business experience and is in a relatively weaker position, especially in the early stages of trying to develop its national resources, although it might engage international advisors and lawyers.

One example of forming a consortium was in Iran in 1954. Following the country's nationalisation of the Anglo-Iranian Oil Company (AIOC – later renamed BP) in 1951 and the *coup d'etat* in 1953, negotiations were undertaken between the Iranian government and AIOC together with a group of major international oil companies. They finally agreed on forming an Oil Consortium to operate the Iranian oil industry, conduct additional exploration and field development, and export and market Iran's oil. The Consortium included the Seven Sisters with the following shares: AIOC 40%, the five American companies (Chevron, Gulf, Mobil, Standard Oil of New Jersey and Texaco) each 7%, and Shell 14%. The French Company CFP had 6%, and nine American independent oil companies together had 5%. The so-called 'Consortium Agreement' was approved by the Iranian Parliament (the Majles) and the companies

began their operations and Iran's oil exports were later resumed.

However, at the same time, the Majors made a confidential deal between themselves – a 'Participants Agreement' that would restrict oil production from Iran under an 'Aggregate Programmed Quantity'. The Consortium's annual plans for investments, operations, and production had to be in line with the international marketing requirements of the major companies of the Consortium. The latter had operations and produced oil in Iraq, Kuwait, Saudi Arabia and other countries in the Middle East, as well as other parts of the world. As it later turned out, Iran's oil production was held down in the following twenty years and this was kept secret until it became public during an anti-trust investigation by the United States Congress in 1974[5] when the price of oil had jumped five-fold and public pressure led to a Congress investigation.

The Independents – Smaller oil companies, commonly referred to as 'Independents', entered the oil scene before World War II. Entrepreneurs and investors, particularly in the United States, continued to enter the oil business, formed companies, and gradually became more successful.

Most importantly, one should note that the Independents were more innovative in recognising and utilising the niche market positions and opportunities in the oil business and testing and applying new technologies - the opportunities the Majors ignored or were less interested in dedicating their resources. They preferred to concentrate on the larger and more profitable business opportunities. The Independent oil companies grew in size and number, mostly in the US. Some Independents began to compete with the Majors in the US and later, on the world oil scene. The Independents have played important roles in oil.

As examples, one could mention the more favourable terms they offered to oil-producing countries in their exploration/production agreements (e.g. in Libya, 1974) and emphasis on research and development and introducing new revolutionary techniques into exploration/production operations (e.g. 'fracking' that has opened a whole new realm for oil and gas production in the United States since the late 2000s).

Oil-Producing Countries

At around the same time or soon after the initial discoveries in the US, oil was also discovered in Russia, Latin America, Africa, Southeast Asia and the Middle East. Oil has been and still is an 'international' business.

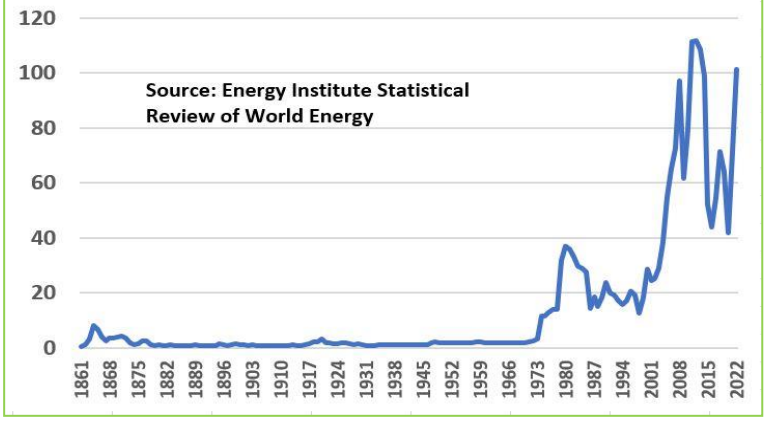
For a proper understanding of the history of oil, it is also important to appreciate the developments that have taken place in the relationship between the resource owners and the oil companies around the world.

In the US, the landowner, e.g. the farmer, owns the rights to the subsurface resources and the oil companies often deal with a private individual. The companies in the US deal with the government in parts of the country where the state or the federal government has ownership or control rights of the subsurface resources.

In almost all other countries the subsurface resources are publicly owned, and companies have to negotiate with a country's government to obtain operating licences. That is why the relationship between the two – company and government – has been and remains an important factor in the history of the oil business. As a broad-

brush generalisation, one could say that the companies have had the 'upper hand' in the relationship between the two. The companies' competitive advantage is having capital, as well as technical and management expertise required for the oil business and are ready to take risks when exploring for oil. The governments are in a weak position in negotiating with a company for granting an exploration licence, signing a contract, and also controlling and/or cross-checking the implementation of that contract, i.e. the operations of finding and then producing and marketing oil. This unbalanced relationship has been at the core of the tensions between the two sides throughout the history of oil. The terms of the early contractual agreements, especially the revenue split, were often unfair to the countries and made them demand corrections and improvements of the terms in the following years. These demands, and the re-negotiations that followed, became more and more influenced by international politics. The companies often benefited from the support of their home governments when dealing with the oil-producing countries. The legacies from the past imperial and colonial periods lingered on and kept influencing those governments' policies.[6] With the growing strategic importance of oil during the 20th century, the foreign policies of the governments became more and more aligned with those of the oil companies, as seen in resisting oil nationalisation attempts by Mexico in 1938 and Iran in 1951.

Figure one
PRICE OF OIL PER BARREL - $ money of the day



In the world oil market, the oil-producing countries have also been at the mercy of the oil companies without much control over the pricing of oil. The companies have decided and managed the price since the late 19th century – Rockefeller's Standard Oil Trust and then the Majors. The 1928 'As Is' 'Gulf Plus' Agreement set the pricing of oil anywhere in the world based on the price of oil in the US Gulf of Mexico plus a phantom shipping cost from the US Gulf to the location where oil was produced and sold. In this way, the Majors gained huge profits.

The producing countries were frustrated that they had no control over the price for exporting their main national resource. They believed the pricing system was unfair, unjust and exploitative. A historical profile of the price of oil illustrates that the price was kept around $2/bbl for about seventy years from the early 1900s to the mid-1970s as seen in **Figure 1**. This price profile could not have been a normal consequence of supply and demand. The global economy experienced several economic and business cycles over that long period. There were two world wars and the price of manufactured goods and almost everything else rose over those decades, especially the price of exports from industrialised countries to developing countries - including the oil-producing countries. Oil producers were powerless, but they tried to challenge the companies on several occasions.

As noted above for Iran, the oil-producing countries were also at the mercy of the oil companies for producing their oil. They struggled to exert control over the volume of oil produced by the companies. The governments were aware that the rate of oil production in their countries was not simply based on the size of the developed oil reserves, the characteristics of subsurface reservoir rocks, the properties of subsurface fluids and the industry-standard flow rates from a subsurface reservoir. In practice, the actual rate of oil production from each producing country was planned and implemented in coordination with the major oil companies, and to be compatible with the rates of production in other parts of the world, the geographic location of the produced oil, its crude quality, the location of the major refineries and the world's main oil-consuming areas. The aspirations of the producing countries, their budgetary and development requirements, and their resource extraction preferences were of the lowest concern for the Majors. The oil-producing countries were naturally unhappy and offended by their lack of control over their national resource which in most cases was the main or the only source of their foreign exchange earnings. Their sovereign rights were not acknowledged. That situation was no longer sustainable.

OPEC

The oil-producing countries had tried to negotiate with the companies on the pricing of their oil exports. They had done it individually or in regional groups but with limited success. The world oil market was actively managed by the companies and the producers were helpless. They had no control and, in practice, they were inevitably competing with each other. For example, the companies produced more oil in other Middle Eastern countries when Iran tried to nationalise its oil and oil exports almost ceased in the late 1940s and the early 1950s. The producers were also competing with each other regionally – Venezuelan and Latin American oil versus Middle Eastern oil. The oil producers were disparate and in a weak position when they tried to negotiate with the Majors over the price of oil.

The unfair situation made the oil-exporting countries try to get together - an almost impossible task considering the different public policies and the political preferences of each country's government and the fact that they were geographically spread around the world. Several meetings were held among them on an ad hoc basis and informally or by active diplomacy. Meetings were held at the level of medium government officials or national oil company management. These efforts gradually gained momentum in the late 1950s and have been documented, analysed, and published by different authors. The lowering of the price of oil by the companies in 1959-1960, is popularly believed to have been 'the final straw' and resulted in the establishment of the Organization of Oil Exporting Countries (OPEC) when five major oil-producing countries met in Baghdad in September 1960. The five Founding Member Countries were Iran, Iraq, Saudi Arabia, Kuwait, and Venezuela. A Secretariat was set up and OPEC Members started holding various meetings per year consulting each other, sharing views, and discussing technical and economic issues related to the oil market. On occasions, the meetings were held at the level of the heads of state discussing major policy and strategic issues related to OPEC. Other oil-exporting countries later joined the Organization.

It is important to note that for several years the oil companies did not acknowledge the role of OPEC and continued to negotiate

with the producing countries individually. Gradually, however, OPEC began to play a greater role. The details of those developments have been well documented, analysed and published by different authors.[7]

OPEC, now in the seventh decade of its history, has faced serious challenges but it has survived, and one could say has thrived. The Organization has experienced several global political and economic crises, and also crises in OPEC Member Countries themselves – domestic politics, changes of governments causing different public and oil policy preferences and varying responses to outside diplomatic pressures. There have also been tensions, clashes and even wars between the Member Countries.

The Organization has acted professionally during its history. Senior professionals from OPEC and countries outside the Organization work in the OPEC Secretariat. The results of OPEC's research and analyses are sent to the Members and then discussed by experts from all Member Countries during various meetings at the Secretariat – in workshops and technical groups on specialised topics or in medium and high-level meetings of the participants from OPEC governments and national oil companies. These interactions and discussions are at serious professional levels, enriching the knowledge and understanding of OPEC and its decision-makers.

There have also been major and significant developments and changes in the world – in the global economy and trade, changing political 'blocks', and especially in technology. OPEC has shown flexibility and has adapted to these changes. Despite intra-OPEC differences and even wars, the OPEC Ministerial Conference – the Organization's highest-level decision-making body – has acted professionally, and been business-oriented, concentrating on the oil market and the priorities for OPEC as a whole. The Organization has successfully modified itself, its procedures and its activities to remain up-to-date and in line with these changes.

Some readers might think the discussions in this paper are favourable towards OPEC. This is understandable as the international press coverage of OPEC and comments by politicians and most analysts, have generally portrayed the Organization as a group of developing countries that by forming OPEC disrupted the established world oil order and 'rocked the boat'. It has been and is fashionable to criticise OPEC. As an example, on a few occasions, some United States institutions threatened to take OPEC to court. However, each time within a very short period, US politicians have come back to 'lobby' OPEC or even plead with the Organization to save the world oil market! These biased views are unfair to a group of countries that have been trying to defend their main national resource which has long been exploited and controlled by major international oil companies. The discussions in this paper are intended to be informative and provide a realistic account of OPEC and its activities.

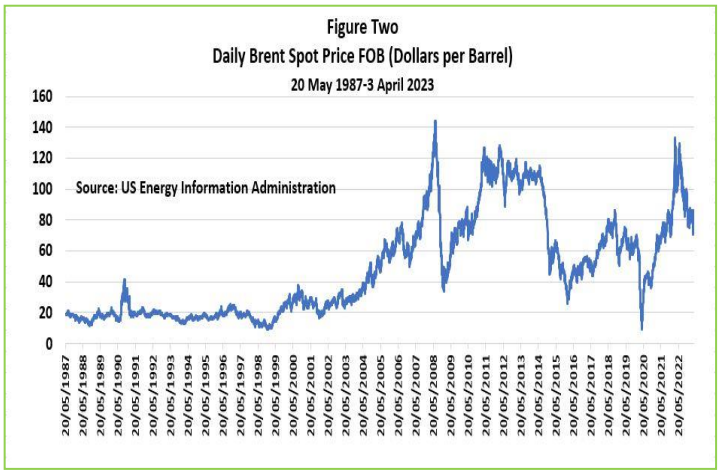
In continuing this essay on oil, more details of the history of oil and the Organization's role are given chronologically below.

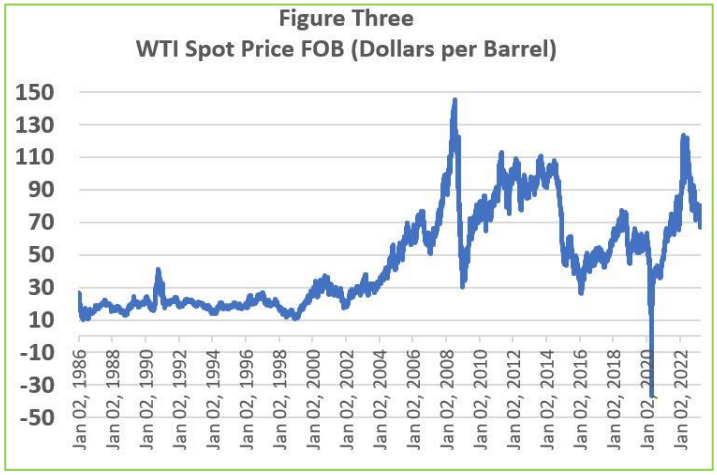
Landmarks In Oil Market History

Figures 2 and 3 are daily oil price profiles for Brent (the reference price in the UK) and WTI – West Texas Intermediate (the reference price in the US). They help the discussions on the history of the price of oil and its major developments. Some landmarks in this history have already been

discussed, such as the oil price fluctuations in the late 19th and early 20th centuries and the Major oil companies' 'As Is Agreement' in 1928 to control the world market and price.

Government responses have also been noted, such as the US Congress Act in 1909 breaking the Standard Oil Trust, and oil nationalisation by Mexico in 1938 and by Iran in 1951. The oil producers continued their efforts to gain a fair share of the oil revenues and have greater control over their country's oil, they finally established OPEC in 1960.





1973: Arab-Israeli October War

The Arab-Israeli war of 6th October and the ensuing Arab Oil Embargo allowed the price of oil to rise. In the previous months, OPEC had been negotiating with the companies about raising the price of oil. However, with oil spot prices already at very high levels, OPEC Ministers, in a major policy decision, decided to act unilaterally and set the price of oil themselves starting in January 1974. Consequently, the price of oil which, for more than seventy years, had been kept at about $2/bbl, rose to about $11/bbl.

This decision was a strategic change of policy. The Organization undertook the huge responsibility of setting the price of oil which required extensive research and analysis of the world economy, oil supply-demand balance and an estimate of the need for OPEC oil, as well as many other technical issues such as the differences in crude oil characteristics, refinery configurations, and final product demand patterns in the consumption centres around the world.

More importantly, they had to forecast the above parameters and foresee the status of the oil market for the following months and years. OPEC Ministerial Conferences were held regularly - usually every six months or more frequently if required. The comprehensive research and analysis carried out by the OPEC Secretariat and by various consultants and advisors were discussed in the meetings of Member Country representatives – specialists, technical experts, middle- and high-level government and/or national oil company staff, ministerial advisors – and were finally reported to Ministers who made the final decision on price and other important issue at the OPEC Ministerial

Conference. The process continued into the next decade.

1979-1980: Iran's Islamic Revolution and Saddam's military attack on Iran

Political turmoil and oil workers' strike in Iran in 1978 reduced Iran's oil production and helped the 1979 Islamic Revolution. Production was resumed after February 1979, but the oil market crisis became exacerbated when Iraqi armed forces entered Iran in September 1980. The oilfields in southwestern Iran were almost at the battlefront, suffered damages, and operations were severely disrupted. Iraq's oil facilities were also damaged. The drastic fall in Iranian and Iraqi production made the spot price of oil jump to $40/bbl and higher. The contract price, though, gradually came down to about $30/bbl. Research and analyses in the following years found that the panic in the oil market, a rush to purchase and store more oil and build stocks, and taking speculative positions had been the main reasons for the oil price jump. The volume of world oil stocks rose to very high levels and became a further cause of market instability in the following months and years.

It is important to emphasise that OPEC was continuing its professional work before and during those disruptive events. As noted before, they conducted research and analysis of the oil market, held experts' meetings, and OPEC Ministerial Conferences set the price for OPEC's reference crude oil export stream and the 'differentials' – price differences for OPEC's other export streams.

1981-1986: Downward pressure on the price of oil

In 1981 oil market conditions began to change and there was a downward pressure on the price of oil. These developments appeared unexpected, especially so soon after those fears of world oil shortage and crises, and very high spot prices. Gradually, however, it became clear that economic principles of supply and demand had been at play, as well as the public policies of major consuming countries. It was inevitable that the five-fold increase in the price of oil in 1974 and its trebling in 1979-80 had a major impact on the oil market. Consumers had responded by using less oil and looking for alternatives.

Governments had also responded by encouraging oil conservation and its substitution with other energies. Some even banned the use of oil for power generation. At the same time, they encouraged the development of other energies, as well as searching for oil, and increasing production outside OPEC countries. These measures were most successful. The high price of oil allowed the oil companies to explore all over the world, even in the areas that were previously considered too costly to operate and where any discovered oil would not have been commercially justifiable to develop. The high price of oil had made these operations commercially viable. The global operations of the companies soon resulted in a rapid increase in oil output from outside OPEC and numerous new producers entered the world oil scene. There was also an increase in oil production from the older oil-producing countries. Non-OPEC production rose by 15 million barrels per day (mbpd) from about 25 mbpd in 1975 to about 40 mbpd in 1985 – no wonder that there was downward pressure on the price of oil!

In reaction to the situation and to defend the price of oil, OPEC Ministers decided on a policy to cut their production. This was implemented in successive steps during the first half of the 1980s and in each step, the decision was taken after extensive studies and analyses and intensive debates and negotiations at all levels. The final decision was taken at the Ministerial Conference on how much to cut the OPEC output and on allocating reduced production quotas to individual Member Countries – a complicated process of digesting and discussing the basic technical and economic parameters and the analyses, and then hard bargaining among the Ministers, 'horse-trading', political manoeuvring and high-level diplomacy.

In the world oil market, consumers and traders purchased oil first from the oil producers outside OPEC and the rest from OPEC countries. In effect, OPEC became a 'residual supplier'. With weakening demand and growing non-OPC supplies, OPEC exports fell. OPEC oil production fell by fifty per cent (to about 15 mbpd), while non-OPEC producers gained. This policy was not sustainable. OPEC could not continue to cut its production any further. Following the unexpected announcement by Saudi Arabia in September 1985, OPEC countries decided to end their policy of cutting production in defence of the price of oil. By early 1986, the price of oil fell from about $30/bbl to less than $10/bbl.

The price collapse caused a global crisis in the world oil industry, forcing companies to cut their operations and reduce staff. There were redundancies on a grand scale, company bankruptcies in all oil regions of the world, general economic disruptions and shocks, and also a global crisis in banking cash flow and finance. The oil market situation was not sustainable, in the same way that the OPEC policy of cutting its production was not sustainable.

Numerous meetings were held at all levels – intra-OPEC, OPEC and non-OPEC, independent oil companies, academia, as well as politicians. Interestingly, the state and provincial governments of oil-producing areas as well as the national governments of non-OPEC countries also became very active diplomatically and held consultative meetings with each other and with OPEC.

There were unprecedented scenes when representatives from the State of Texas, the Province of Alberta, and governments of Oman and other non-OPEC countries met OPEC officials in Vienna. Soon world leaders also became actively involved and there was an explosion of diplomatic activity and holding bilateral and multilateral meetings. Their debates included remembering and discussing the earlier similar crises in the United States and policy actions by the Texas Railroad Commission of 'prorationing' and the allocation of production quotas to oil producers.

The United States was instrumental in these developments as the US was a major oil producer and its domestic economy was in crisis, especially in its oil-producing states. Among the many high-level meetings, one could mention the audience that the then US Vice President - George Bush - had with Saudi Arabia's King. In his press conference following the meeting, Bush stated that the price of oil had not been discussed as America believed in the free market! Curiously, soon afterwards the researchers at the OPEC Secretariat were asked to conduct detailed studies and analyses and estimate world oil supply and demand and the need for oil from OPEC, assuming an oil price of $18/bbl! This appeared to have been the compromise price agreed upon during the

high-level meetings, though it was not acknowledged – another example of how politics had influenced oil.

1987: Major new OPEC policy

Finally, OPEC Ministers decided that from 1987, to discontinue their policy of setting the price of oil, and leave the price to the market. OPEC, however, would continue actively and professionally, to study and analyse the market and adjust its oil production accordingly, to ensure oil market stability and reasonable prices.

While reviewing the processes leading to this change in OPEC policy, one could theorise OPEC's efforts between 1974 and 1987 as trying to act as a cartel, although this could appear as a controversial statement. A cartel is a group of commercial companies that join together to control prices and limit competition, while OPEC is a group of sovereign states joining together to defend their common national resource that had long been exploited unfairly by international oil companies. However, now looking back, we could say that OPEC was acting as a cartel by controlling its production during that period.

OPEC's policy change in 1987 was a major shift in strategy and was the beginning of a new OPEC policy that has been followed until today. As we will see below, one could say that OPEC's new policy has been quite successful despite facing major challenges. This followed the Organization's successful performance during the previous three decades despite having faced major challenges noted above.

Nevertheless, one should acknowledge that OPEC's performance over the last six decades has not been ideal and without shortcomings. With the wisdom of hindsight, one could now evaluate the pros and cons of some of OPEC's past decisions and say that an alternative decision would have been preferable. Despite trying to be purely professional, the Organization's decision-making has, on occasion, been influenced by politics – intra-OPEC and global - that have influenced and/or delayed reaching policy decisions.

However, these are inevitable in an inter-governmental institution. Nevertheless, business principles have always prevailed in OPEC. One should also acknowledge that in the real world when facing serious economic and social issues, the choices for the decision-makers (governments and politicians and company chief executives everywhere, as well as the leaders of OPEC) are limited and often complicated, and more importantly, the decision-makers do not have the luxury of time.

1990-1991: Saddam Hossein's attack on Kuwait

Iraqi forces entered Kuwait in August 1990 and the world imposed sanctions on the oil exports from Iraq and Kuwait. About 5 mbpd was cut from world oil supplies and the price of oil jumped to about $40/bbl. In response, OPEC Member Countries and other oil exporters soon increased their oil exports. Saudi Arabia, for example, increased its maximum sustainable oil production capacity from 5.5 mbpd in August to 8.5 mbpd in December. That was an unprecedented engineering achievement to repair and re-activate all the mothballed gas-oil separation plants, as well as pipelines, pumps, storage and loading facilities and other installations.

Saddam's forces were expelled from Kuwait in early 1991 and the price of oil went back to its previous levels. However, it is worth

remembering that it took several months and into the following years, to extinguish Kuwait's many oil wells that had been put on fire by Iraqi forces, and to carry out repairs and reconstruction of the country's oil facilities.

2008: Global financial crisis

The 2008 financial crisis followed a period of unusual rise in the stock market that observers at the time could not explain. As noted above, the famous quote by Alan Greenspan (The Chair of the US Federal Reserve) described it as "irrational exuberance". The price of oil also rose and reached $147/bbl in July of that year. The stock market collapse caused a global financial and banking crisis and resulted in unprecedented public policy decisions such as quantitative easing and saving some of the big banks – 'they were too big to fail'! The financial crisis soon became an economic crisis and spread from "Wall Street to High Street"! The impact of the 2008 financial crisis was to start a global recessionary cycle that lasted several years. These events and policy decisions have since been scrutinized and vigorously debated and the subject has been studied comprehensively by many authors.

The oil market also suffered, and the price of oil collapsed – the WTI US reference price fell from $147/bbl to about $30/bbl in 2009. As in the previous cases of oil price collapse, there was panic in the world oil industry and the market, and again there were requests and even pleading by world politicians with OPEC, to do something. The Organization held meetings, reduced its production, and oil prices rose to more than $70/bbl.

2014-2016: Oil price collapse and the establishment of 'OPEC Plus'

The price of oil was about $115/bbl in June 2014 but began to fall in the following months. An imbalance had developed between supply and demand. Too much oil was entering the market and oil inventories were rising. Price fell to about $80/bbl by the end of that year and to about $45/bbl in early 2015. As before, there were calls on OPEC to do something. The analyses by the Organization and the deliberations among ministers confirmed the excess supply, but also concluded that the magnitude of the oversupply was greater than in the previous cases and it was not fair that OPEC alone should cut its production to balance the world oil market. Other oil-exporting countries should join this effort. Following exchanges of views with those countries at expert levels and with diplomatic efforts, the oil ministers of Saudi Arabia and Venezuela met the Russian oil minister late in 2014. No agreement was reached, and the reported Russian ministers' remarks were not friendly towards such an idea. Nevertheless, the exchanges of view and diplomatic efforts continued with Russia and other non-OPEC oil exporters. At some stage, the heads of state became involved, until finally a 'Declaration for Cooperation' was announced between OPEC and ten non-OPEC countries and the so-called 'OPEC Plus' was formed in December 2016. They decided to cut production by a total of 1.8 mbpd – 1.2 mbpd by OPEC and 0.6 mbpd by non-OPEC – and the price of oil recovered.

The year of 2020: Covid 19 Pandemic and OPEC Plus

World oil demand was about 100 mbpd in December 2019. Following the appearance of the Pandemic early in 2020, quarantines were imposed around the world and there was a drastic slowdown in global economic activity. This caused world oil demand to fall to about 70 mbpd by April 2020 – a 30% collapse! Consequently, the price of oil fell. Brent (the UK reference price) fell from about $70/bbl to $15/bbl and WTI (West Texas Intermediate, the US reference price) became negative (!) on 20th April – see **Figure 3**. It was another world oil crisis and this time it was on a larger scale. Again, the oil industry leaders became active, consulted each other, held various meetings, and put pressure on their governments to act. As had happened in 1986, local and state governments of oil-producing areas, as well as major and independent oil companies took part in the debates and held meetings with each other and with other oil producers around the world. They put pressure on their national governments to 'do something' – negotiating and cooperating with and/or exerting diplomatic pressure on the producing countries and taking some policy actions themselves.

This time the diplomatic pressures were on OPEC Plus. It finally involved the heads of state, including Presidents Putin and Trump. The OPEC Plus group decided to cut its production by 10 mbpd and the price of oil improved. Since then the group has kept monitoring the oil market and adjusting its production up or down accordingly. The details need not be discussed here.

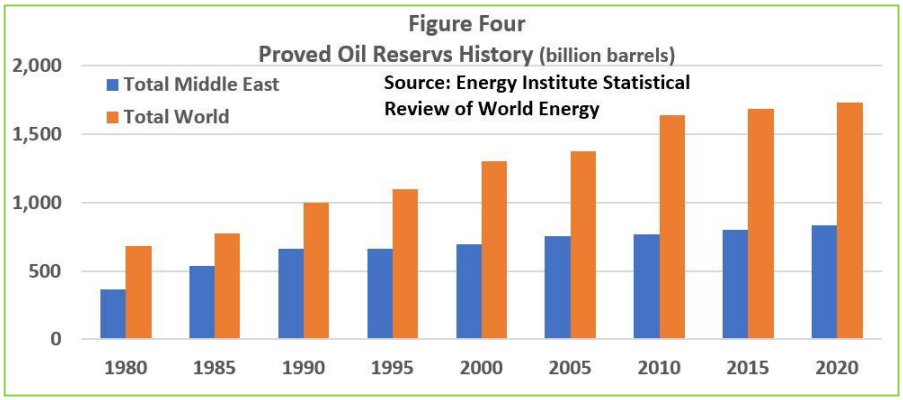
Here it is appropriate to note an irony within the US energy policy. Despite the US government at the time lobbying for OPEC Plus to act, four years later the Federal Tade Commission reprimanded Scott Sheffield, the former chief executive of Pioneer Natural Resources (a front-runner in innovation and success in 'Fracking' over the previous twenty years) for "collusion". He had requested the Texas Railroad Commission to consider implementing 'prorationing' of oil production during the Covid-19 crisis. He also attended a dinner in 2020 during an international oil conference in Houston where the OPEC Secretary General gave a talk. FTC did not allow Sheffield to join the board of Exxon, although this was part of the $60 bn deal in the Exxon-Pioneer merger. [8] These developments bring out the long-lasting debate on whether the oil market should be 'regulated' or not. In the first half of the 20th century when the United States was dominant in the world oil market, the public sector did 'regulate' the oil market. Texas Rail Road Commission influenced the market price of oil by 'prorationing' oil production by different companies. The volume of the overall production and that of the individual companies were curtailed to avoid further oil price collapse. In more recent decades, the US government released oil from its Strategic Petroleum Reserves to lower the price of oil in the wake of hurricanes, major technical accidents, and other events that had made the price go up.

The policy contradiction continues as legal actions are taken against the US shale companies because they did not increase drilling and production in the wake of the US invasion of Ukraine in February 2022.[9] This is strange! As noted above, the rise in US shale gas production and LNG (liquefied natural gas) exports was a saviour that helped Europeans after Russian gas was sanctioned and cut off causing a jump in the price of gas. The crisis was thwarted and gas prices came down.

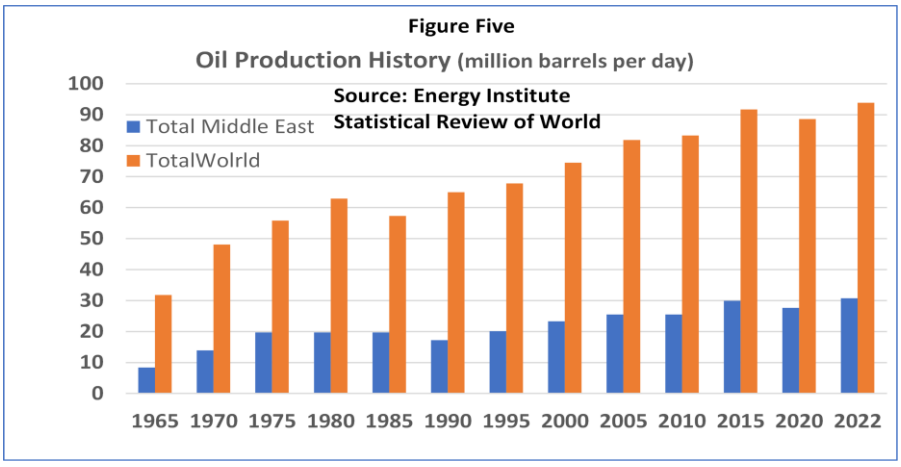
THE MIDDLE EAST

Its competitive advantage

Oil was first discovered in Iran in 1908 and was a major factor in the UK's decision to switch the British Navy's fuel from coal to oil just before the First World War. Major oil discoveries were made in other Middle Eastern countries in the following decades and confirmed the region's uniqueness because of its vast oil resources. The Middle East has since been a significant source of supply to the world oil market. It is no exaggeration to say that Middle Eastern oil has been a main parameter behind the world economy and political events for one hundred years. It was an important point for strategic considerations during World War II and for the relationship between the political blocks during the Cold War. It has already been mentioned that Middle Eastern countries and their governments have been subjected to pressure and political interference, and even the changing of the countries' governments, and the instigation of *coup d'etats*. The unfair company and government contractual relationships, controlling price and production of oil and companies acting as a state-within-a-state, have already been discussed.



It is generally believed the US foreign policy in the Middle East was set following the meeting between President F D Roosevelt and King Abdulaziz Ibn Saud on board a US ship in the northern Red Sea in 1945. Its core point was Saudi Arabia giving priority to American companies who had discovered oil in the country. It is popularly believed that it was also agreed that the US would provide security and arms to the Kingdom, though this was not confirmed by Scott Montgomery.[10] The critical importance of oil and the Middle East became more noticeable after World War II when world oil consumption began to rise rapidly causing concerns about the size of world oil reserves and the future of the world. In the 1960s and 1970s, academia, think tanks and research organisations became seriously concerned that world natural resources – and especially oil – were



finite and that world economic growth could not be sustained. One could mention Harvard University, the Club of Rome, the International Institute of Applied System Analysis and others; and publication titles such as "Energy in a Finite World" and "Limit to Growth".[11]

In those years, the 'Peak Oil' debate became popular again. This debate had existed since the early 20th century when oil production from the early discoveries began to decline and entrepreneurs were not certain if more oil could be discovered. Later, however, another oil field was discovered by conducting more exploration and applying improved technology. A newly discovered 'gusher oil well' had a higher production rate, but ultimately it also began declining. Similar excitement occurred with the discovery of oil in new provinces and new countries but they also later began experiencing production declines until other discoveries were made. The up-and-down cycle of despair and hope for the future of world oil production has continued ever since. On several occasions during the history of oil, geologists, engineers and others in the industry evaluated the industry knowledge at the time, conducted scientific evaluations of world sedimentary basins, and estimated the quantity of oil that could ultimately be discovered in the world. On each occasion, the conclusion was that the world oil resource base was a finite quantity, and considering the growth rate of world oil consumption, the experts estimated that world oil production would reach a peak rate and then would inevitably begin to decline. This idea has become known as the 'Peak Oil' theory.

The studies of Peak Oil have been repeated several times in the history of the oil industry and each time, with new information, the experts have come up with a later date for the world to reach the peak. In other words, the time for 'Peak Oil' has been repeatedly 'pushed back into the future'! However, Peak Oil is a truism, world oil resources are finite, and in theory, the world will one day run out of oil.

The Peak Oil studies and the evaluations of world oil resources have also confirmed the vast oil resources and the strategic importance of the Middle East and its oil – the main theme in the world's oil scene dating back to just before the First World War. As a reminder and for easy reference, some oil reserves and production numbers for a selected number of years are graphically presented here. They show that more oil was discovered and oil production rose more rapidly outside the Middle East over those years.

The region's importance may not last forever!

Although it was instructive to examine past developments in the oil industry and various political events, one should note that those parameters are becoming less relevant today. The world oil business and the world itself have changed. The industry and the oil companies have changed. Everything is now different, including politics, economics and trade patterns. And, the role of the Middle East is also changing. Looking only at technology, it has revolutionised all aspects of our lives – communication and access to information, medicine, manufacturing and even warfare, to name just a few. Technology has also had major impacts on energy, the oil industry itself, and the demand and supply of oil, including the demand for and dependence on oil from the Middle East.

World Peak Oil Demand:

The story of Peak Oil Theory – the declining rate of oil discovery and concerns about the limitations of world oil resources - were noted above. With the successes in oil discovery, those concerns about supply are fading away. Strategic thinkers are now becoming more concerned about a new peak oil: a peak in world oil demand.

There is a growing public awareness about the world's environmental problems, and these are blamed on fossil fuels. Alternatives to oil have been and are being developed. There has been tremendous technical progress in renewable sources of energy. With massive investment and huge public policy support, they are being developed on a large scale. The remarkable achievements are well known in solar, wind, nuclear, hydrogen, and other related technologies. With the impressive progress in photovoltaics, battery technology and energy storage, solar electricity is now becoming commercially competitive with electricity from fossil fuels. Oil demand has also been impacted by massive efficiency gains in the use of oil in all sectors of the economy including transportation, residential, commercial and others. Transportation (road, sea and air) is most dependent on oil. Yet this has been and will be affected by greater use of gas (compressed natural gas and liquified natural gas), biofuels, ammonia, hydrogen, and others, and by continued improvements in fuel use efficiency, and of course, the increasing number of electric vehicles.

Think tanks, research institutions, and public and private industry leaders today are planning for an '*energy transition*' away from oil and hydrocarbons and are discussing the *'trilemma' of energy security, sustainability and affordability*. Governments are basing their policies on encouraging major investments in alternative energies and innovative technologies that compete with oil.

These developments suggest that world oil demand will not continue growing forever. Sooner or later, demand will reach a 'peak', stay at a plateau level for a few years and then start to decline. A widely quoted 2023 study by the IEA (International Energy Agency)[12] estimates that world oil use in transport will reach a peak in 2026, and total world oil demand will reach a peak of nearly 106 mbpd in 2028.

Supply from outside the region:

Oil has been discovered and brought on stream in countries outside the Middle East, such as Azerbaijan, Brazil, Guyana, Kazakhstan, and Namibia in recent decades. Oil production has also increased in the older oil-producing areas of the world where the conventional wisdom had long been that their oil resources were being depleted. A striking example is the United States. After more than a century of active and efficient exploration, with the availability of capital, open access and ease of licencing, and availability of the best technology, the country's oil production reached a peak of about 10 mbpd in 1970. US oil production then started to decline, was about 5 mbpd in 2005, and it was generally believed that it would continue declining. Unexpectedly, however, the use of innovative technology, especially by entrepreneurs and 'independents' who took risks with 'shale fracking', opened a whole new realm of hydrocarbon supplies for the United States. Fresh ideas led to the re-examination and evaluation of the 'source rocks' in the subsurface - the sedimentary layers from which oil and gas had been generated, then migrated upwards and were trapped in the

overlying reservoir rocks during the earth's geological history. The clever geologists and engineers found that notable quantities of hydrocarbons remained within the source rocks and might be extracted. New ideas and novel 'fracking' techniques were applied, and trial and error continued painstakingly until success was achieved.[13] More and more gas and then oil have been extracted from the shale.

United States oil production began to rise from 5 mbpd in 2005 and reached about 13 mbpd in 2020. Similarly, US natural gas production rose. The country had previously been expected to become a major importer of gas and regasification terminals began to be built and more were planned on US coasts intended for importing LNG. Yet soon everything changed. The regasification terminal was converted to a liquefaction terminal and others began to be built for exporting US LNG.

These observations show that the international oil industry's exploration and field development activities have been concentrated more outside the Middle East and as a result, the role of the Middle East has been reduced over the past decades. The region, though, still holds more than 48% of the world's proven oil reserves and contributes nearly 33% of the world's oil production. These are huge quantities and indicate that the world still depends on the Middle East for about one-third of its daily oil requirements - this is a very significant quantity. Nevertheless, one should note that the Middle East's competitive advantage will not remain forever.

The Middle East's future

The above discussions suggest that the leaders, planners and thinkers in the Middle East should not remain complacent and assume that the world will always depend on this region's oil. They should be open to the possibility that world demand for oil and Middle Eastern oil will not last forever and the competitive advantage of the region will be eroded someday. This is a warning, not sounding an alarm. The Middle Eastern countries that are dependent on oil should be aware of that possibility and concerned about their future, though in practice, the *'end of Middle Eastern oil' will not be immediate*.

Firstly, despite the enthusiasm of environmentalists and the media, in practice, the supply of renewable sources of energy and the rate at which they can replace oil will be lower than some optimists forecast today. The investments required to produce a sufficient amount of green energy to replace hydrocarbons are huge and there is no plausible source for financing all the green energy projects in the poor developing countries. The latter are more concerned with providing the basic needs of their population than green energy!

There are also different opinions on the expected date for the world's peak oil demand. For example, although IEA estimates the year 2028, OPEC does not give a date but expects that the rate of growth of world oil demand will slow down. In their 2023 study, the Organization estimates that world oil demand will increase by 10 mbpd over six years (from 100 mbpd in 2022 to 110 mbpd in 2028), but will increase by only 6 mbpd over the following seventeen years (from 110 mbpd in 2028 to 116 mbpd in 2045).[14] Thus, the

peak in world oil demand will most probably be later than sooner.

Secondly, on the supply side, in practice, future oil production from outside the region will be less than previously expected. Oil industry investments have fallen compared with 2014. These were due to the fall in the price of oil and pressure from oil company shareholders who are seriously concerned about the environment. As an order of magnitude, the global oil industry investments were more than $800 bn in 2014. They fell to nearly $500 bn in 2016, $400 bn in 2020, and rose to above $500 bn in 2023.[15] This drop in investments will cause the future world oil output to be less than had been expected before. Moreover, these drops in investment are for the world total. The drop in investments has been greater outside the Middle East since the region's field operations have not decreased.

With the drop in investments, future oil production outside the Middle East will be less than had been expected before, and the world will rely on the Middle East for longer than had been expected previously. The region will not become redundant that soon, but its critical role in providing world oil needs will gradually diminish. *The trend is there*, but the actual number of years cannot be pinpointed accurately, as many other parameters will affect future developments. Nevertheless, Middle Easterners should not remain complacent. They should be aware that in the coming decades, they will witness an inevitable reduction in the world's critical dependence on the region.

As observers, analysts, academics, or advisors to decision-makers in the Middle East, we have to be realistic, continue studying this subject, and remain vigilant and up-to-date in our views on the future of oil and the position of the Middle East. We should take these warnings seriously and impress upon our governments that public policies in the oil-exporting countries must be aimed at reducing and ultimately ending their dependence on oil. After nearly a century of relying on oil, it is wrong that the economies of most of these countries continue to be based on selling oil which is an asset, and it will be suicidal if these countries continue planning their future by relying mostly on oil.

Diversifying a country's economy and reducing its reliance on oil exports require short- and long-term public policy choices that will be different for each country. Discussing them is beyond the scope of this paper. Detailed studies have to be carried out on each country's other natural resources and exports, population, the status of the different sectors of its economy (such as agriculture, manufacturing and other industries, and services) and estimates of the country's import requirements. An important factor will be the government that is in power and its political preferences for managing its domestic and foreign affairs. Public policy decision-makers must be open to expert advice from development economists and prepared to benefit from the economic development experiences gained in many countries since World War II in Asia, Africa, Latin America, and also in Europe. Policy options cannot be simplified to a choice between capitalist and socialist thinking, free market vs government control, private vs public ownership, short-term vs long-term preferences, or prioritising infrastructure, education, health, housing, communications, or defence. In the last seventy years, the actual experiences and the economic development paths of countries have varied. These successes and failures have been extensively evaluated and debated. They provide a rich resource for policymakers to draw upon.

However, even with this vast knowledge and experience freely available, there are obstacles both at national and international levels. International and inter-governmental institutions have been involved in this process, with mixed results – though they have not always been ready to accept criticism. The obstacles within nations are no less significant. Experience shows that personality clashes, power struggles, short-termism and corruption often detract policymakers in all countries from a recommended development path and lead them to distort or even ignore it. Politicians have to be open to suggestions and should not react emotionally, be dogmatic, or remain closed to others' thoughts and ideas. Lessons have to be learnt from the successes and failures in economic development. Only by ensuring a smooth transition away from oil will these countries sustain their hard-won prosperity and secure their future.

Notes

[1] An early version of this study – in the style of a personal career biography – was presented at the Gulf Research Meeting in Cambridge, 11-13 July 2023, under the title "The Middle East and its Oil – Personal Reflections". It has been completely rewritten and updated with new information.

[2] Compiled by: Abdolazim Haghipour, A. Saidi and A. Aganabati; with collaboration of A/ Moosavi, A. Mohebi, M. Sadeghi, T. Delavar, Sh. Eskandari, F. Bagheri and M. Zarei Nejad (Geological Survey of Iran), scale 1:5,000,000, 2nd edition-2009, https://ccgm.org/en/product/international-geological-map-of-the-middle-east/

[3] Daniel Yergin, *The Prize – The Epic Quest for Oil, Money & Power* (New York: Simon & Schuster, 1991).

[4] Anthony Sampson, *The Seven Sisters – The Great Oil Companies and the World They Shaped* (New York: The Viking Press, 1975)

[5] *Ibid*, p.131

[6] See for example Mostafa Elm, *Oil, Power, and Principle – Iran's Oil Nationalisation and Its Aftermath* (Syracuse: Syracuse University Press, 1992).

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[8] Myles McCormick and Jamie Smyth "Opec collusion claim sends tremor through US shale oil patch CEOs weighing mergers may think twice after US regulator bars industry veteran from Exxon's board", *Financial Times*, 3 May 2024. Available online at https://www.ft.com/content/6a22b7e8-f917-43c8-a046-a99da2377817; Sabrina Valle and Liz Hampton, "US greenlights Exxon-Pioneer deal, alleges shale founder colluded with OPEC", *Reuters*, May 3, 2024. Available online at https://www.reuters.com/markets/deals/us-ftc-order-bans-exxon-mobil-pioneer-natural-resources-deal-2024-05-02/; Editorial, "Democratic senators seek probe of allegations of collusion between OPEC and oil industry", *Reuters*, 31 May 2024. Available online at https://www.reuters.com/markets/commodities/schumer-asks-doj-investigate-ftc-claim-oil-exec-colluded-with-opec-2024-05-30/

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[14] OPEC World Oil Outlook, October 2023. Available online at https://www.opec.org/opec_web/en/publications/340.htm

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