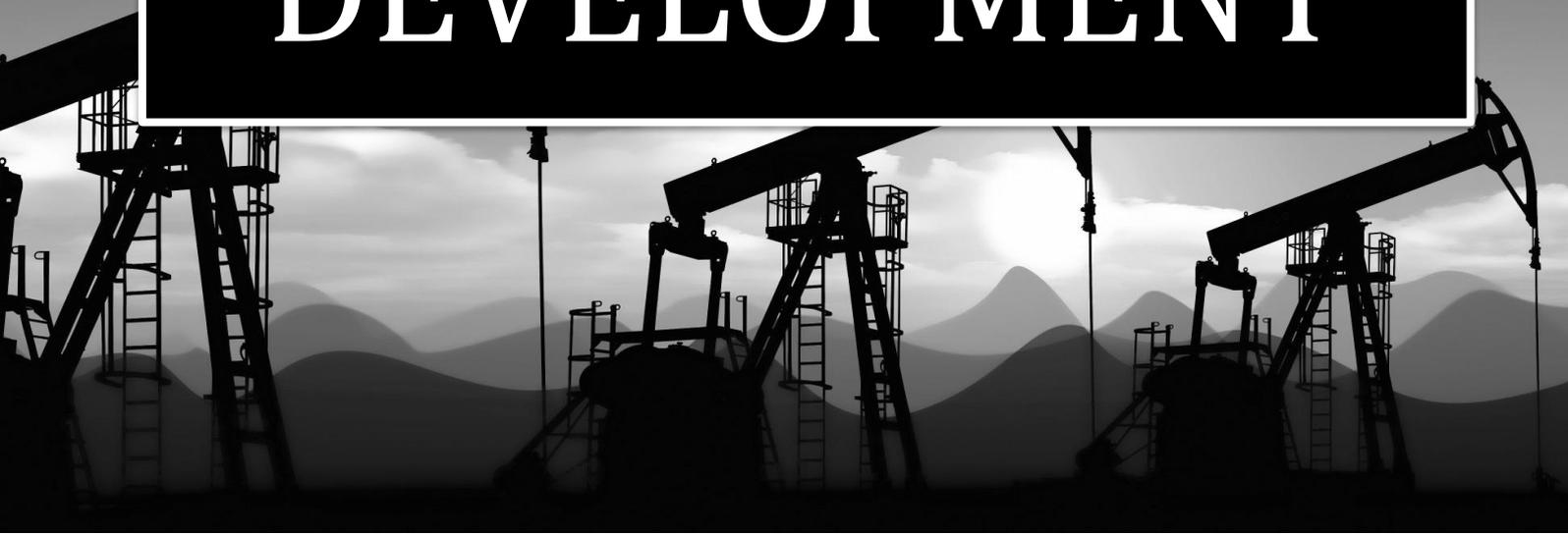




JMUNESCO'20



SPECIAL FOCUS 1:  
SUSTAINABLE  
DEVELOPMENT





**ISSUE:** Working to get petroleum based economies such as Iran, Saudi Arabia, and Kuwait to meet sustainable development goals.

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### Introduction:

Iran, Kuwait and Saudi Arabia are Middle Eastern countries. **Iran** is located in South West Asia. Its borders in the north are surrounded by Azerbaijan, Armenia, Turkmenistan and the Caspian Sea, in the west by Iraq, in the east by Afghanistan and Pakistan, in the northwest by Turkey and in the south by the Arabian Sea. **Kuwait** is located in the northeastern corner of the Arabian Peninsula as well as at the head of the Persian Gulf. Its borders are surrounded by Iraq to the north and west, the Persian Gulf to the east and Saudi Arabia to the south. **Saudi Arabia** is located on the Arabia Peninsula. Its borders in the west are surrounded by the Red Sea, in the north by Iraq



and Kuwait, in the northeast by Egypt and Jordan, in the east by the Persian Gulf, Qatar and the United Arab Emirates, in the southeast and south by Oman as well as in the south and southwest by Yemen. The **United Arab Emirates** is located on the southeastern end of the Arabian Peninsula and consists of seven emirates; Abu Dhabi, Ajman, Dubayy, Al Fujayrah, Ra's al Khaymah, Shariqah and Umm al Qaywayn. Sustainable development is a term, which refers to development that satisfies the needs of the present without limiting and jeopardizing the resources for future generations to use in order to satisfy their own needs. The fossil fuel petroleum is widely used as an energy source in the Middle East. It is also used as a raw material for many

chemical products; from solvents to fertilizers and pesticides to plastics. While petroleum is key to facilitating these countries' economies, having such heavily petroleum based economies also possess critical adverse effects. These countries are challenged with high-energy consumption that has been increasing rapidly over the past 30 years. Iran, Saudi Arabia, Kuwait and the UAE contribute significantly to the primary energy demand in the Middle East. Therefore, it is vital to understand how the development of these countries' energy systems can have implications on the region's energy future.

## Key Terms:

*GDP- Gross Domestic Product; number of all goods and services made in a country during a time period.*

*GHG- Greenhouse Gas; gas which emits and absorbs radiant energy.*

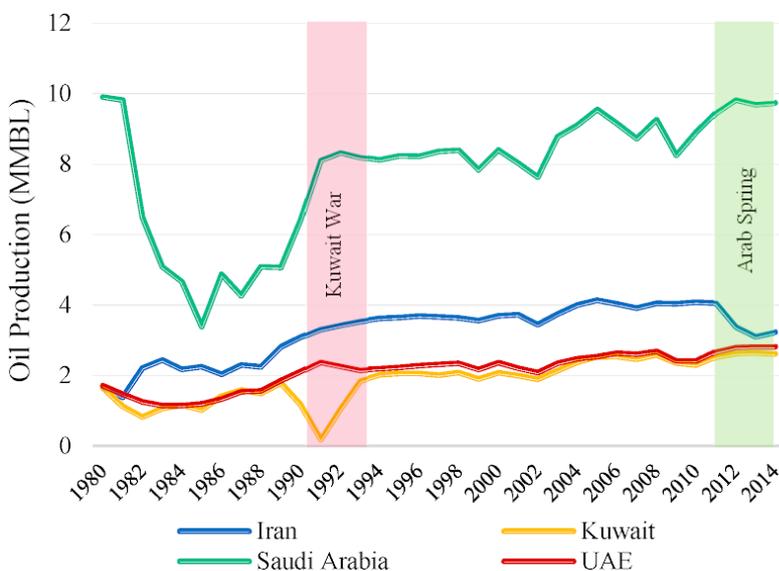
*Sustainable Development- term which refers to development that satisfies the needs of the present without limiting and jeopardizing the resources for future generations to use in order to satisfy their own needs.*

## Background Information:

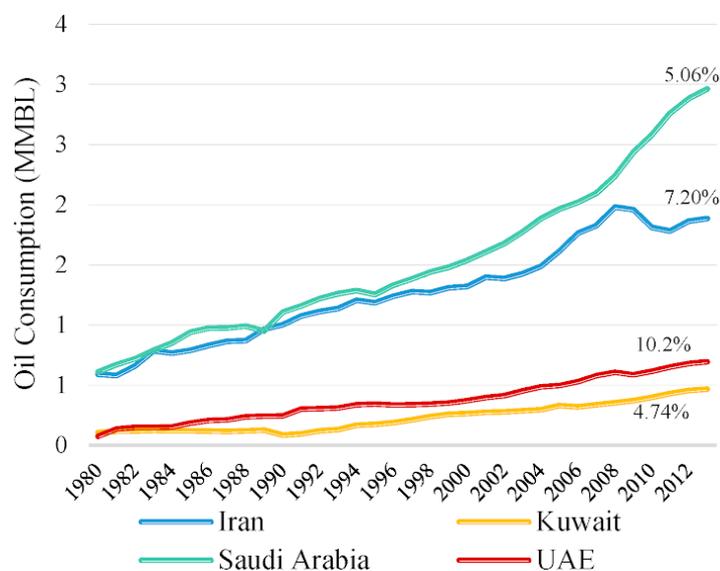
The Middle East has gained its momentous place in the global energy system during the 1960s. Oil and natural gas took the lead in supplying the majority of the region's energy needs since the 1950s. The highest proven oil reserves in the Middle East including oil deposits are located in Saudi Arabia with 18% of global reserves, which is closely followed by Iran with 10.6% of global reserves. The total primary energy demand in Iran and Saudi Arabia have faced an increase of more than 62.5% in 2014 compared to 1980 levels.

The Middle East is in a high position in the global oil market as it holds about 78% of the global proven crude oil reserves. The large oil reserves are spread out differently across Saudi Arabia, UAE, Kuwait and Iran. Saudi Arabia is by far the largest oil producer and exporter in the Middle East with oil reserves making up 16% of the world's total reserves. This puts the country on the top of the list compared to UAE, Iran and Kuwait. Consequently, it's economy is largely based on oil, as oil revenues account for around 90% of the total national income and about 50% of its GDP. On the consumption side, Saudi Arabia is ranked as the world's sixth largest oil consumer with total energy consumption higher than the global average.

Iran accounts for more than 10% of the global oil reserve. It is also considered the third largest oil reserve holder in the world after Saudi Arabia. However, the expected life span of the country's total reserves is estimated to be approximately 94 years. Over the past ten years, Iran's final energy consumption has increased at an annual rate of 5.50%. Since 2004, there has been a growth of 50% in Iran's primary energy consumption. Over the past two decades, the country's energy consumption has been rising, reaching four times higher than the world average in 2014.



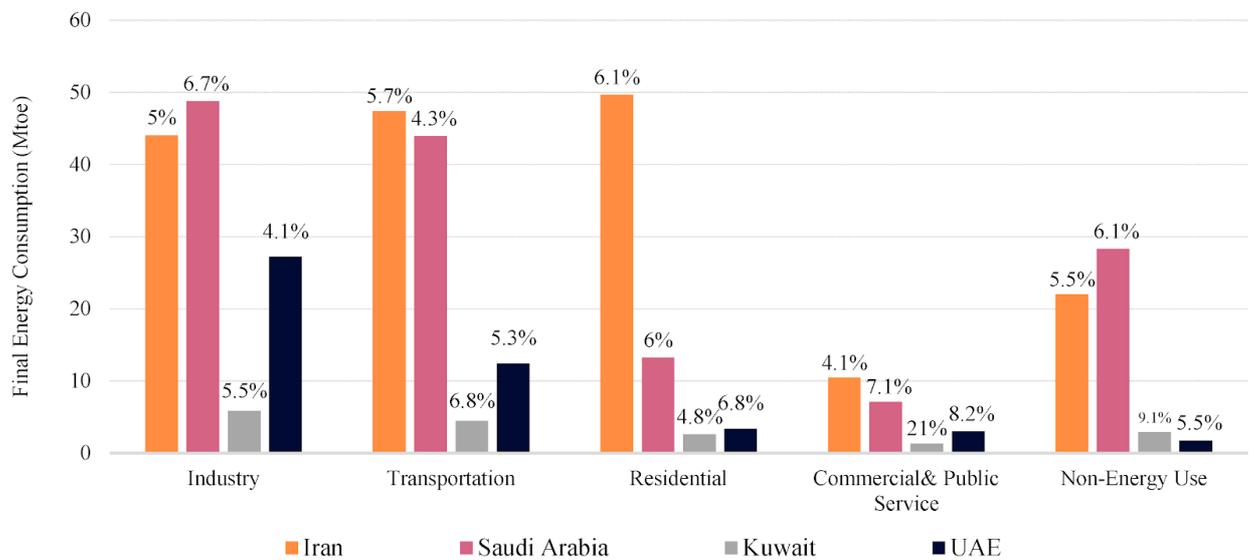
(a) Oil Production



(b) Oil Consumption

For Kuwait, oil is considered a significant component in its energy supply system. By the end of 2012, Kuwait's total proven crude oil reserves represented 8% of the global oil reserves. Yet, most oil fields in Kuwait are over 60 years old, which can possibly limit its expansion of production capacity in the future. Although the UAE has a smaller reserve than Kuwait, its total oil production and consumption are much higher than Kuwait's. UAE's oil demand is the fastest, growing at an average annual of 10.2% since 1980 followed by Iran, which is 7.20%.

Saudi Arabia and Kuwait's oil production has been growing with an average annual rate of 1.5%, while Iran and UAE's growth rate reached 2% annually. Moreover, during the past thirty years, oil demand has been growing faster than production across the four countries, which will be a major challenge for the region's energy future.

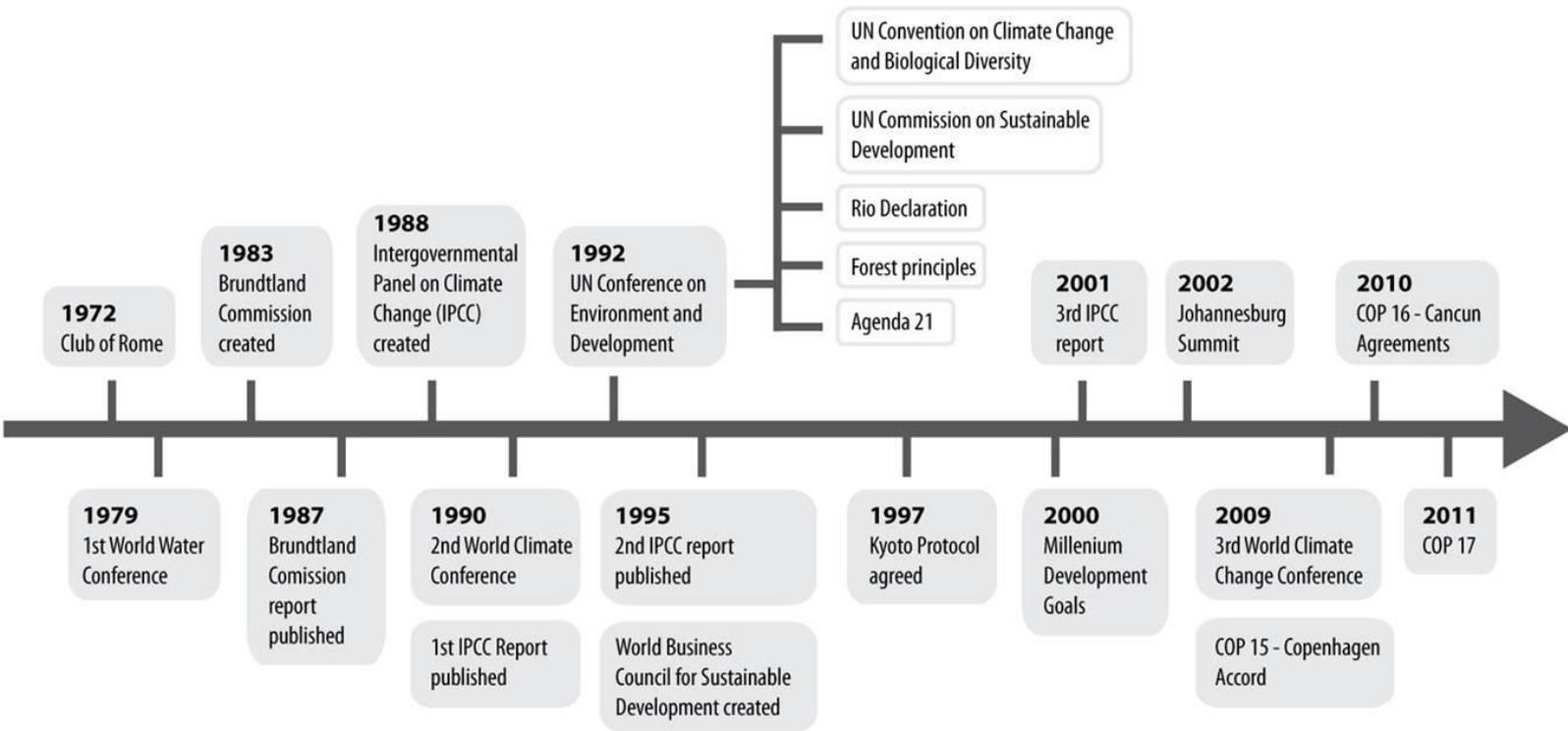


Graph above indicates final energy consumption by sector in 2014. Percentage refers to annual growth rate since 1990.

### **Involved Countries and Organizations:**

Main Countries Which Have Petroleum Based Economies	Share of Global oil Reserves	Total Oil Reserves-2013 Estimates (Billion Barrels of Oil)
Saudi Arabia	16%	267
Iran	10%	155
Kuwait	8%	104
UAE	5.8%	97.8

## Timeline of Events:



2015	Paris Climate Agreement
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## Previous Attempts to Solve the Issue:

For Iran, Saudi Arabia, and Kuwait, the development of the energy sector and sustainability policies was largely ineffective during the past twenty years. However, the UAE has started to take serious steps towards integrating nation-wide energy efficiency strategies that are reflected in the decrease in energy consumption since 1990.

The Middle East region has a significant potential for renewable energy development, given its geographic and environmental characteristics, particularly for solar and wind energy. Although the region holds the largest potential for renewable energy, renewable energy is still underdeveloped, contributing only around 5% of the total Middle East primary energy supply. The share of renewable energy in the total primary energy mix is relatively modest in Iran, the UAE, and is nearly less than 1% in Kuwait and Saudi Arabia. Yet, the four countries have committed to increase the share of renewable deployment as part of their national commitment after the Paris Climate Agreement in 2015.

During the Paris Climate Agreement in 2015, Iran has officially committed to a 4% cut in its total GHG emissions by 2030. The climate plan was linked to a renewable energy target of 5 GW by 2020 and an additional 7.5 GW in 2030; however, the country has the ability for an even larger deployment. According to the study of Iran-German cooperation, Iran has the potential of increasing renewable penetration from 3% to over 38% by 2030 and over 100 GW of renewable capacity.

Saudi Arabia has set a target 54 GW of renewables by 2032. The target was projected to support the country's plan to increase generation capacity to 120 GW. However, recently the plan has been relaunched under 10% of renewable generation and more focus on natural gas usage. The new target includes a target capacity of 9500 MW of renewable by 2023.

Kuwait has an expected increase in power demand, which will significantly challenge the power supply in the future. Therefore, Kuwait has adopted a diversification plan with a goal to increase the share of renewable generation to 15% by 2030, focusing mainly on solar and wind technologies.

In the UAE, electricity consumption has increased exponentially in the last three decades. With large reliance on hydrocarbon resources for energy supply, the country has set three targets; 27% of Renewable Energy Technologies (RETs) by 2020, 30% by 2030 and recently 50% from renewables by 2050. A study conducted by Masdar Institute indicated that under this level of deployment a reduction of 8.5% in oil consumption and 15.6% in natural gas can be attained by 2030.

### **Possible Solutions:**

- Informing people and petroleum engineers about sustainable development, overproduction of petroleum products and the implications it will have on the region's energy future.
- Carrying out projects and starting organizations against the ineffective use of crude oil in the Middle Eastern countries.
- Encouraging the use of renewable resources as a source of energy such as solar and wind.

### **Useful Links:**

1. <https://www.forbes.com/sites/dominicdudley/2018/02/14/can-the-middle-east-make-a-success-of-renewable-energy-it-may-not-have-a-choice/#5b19c8b51da2>
2. <https://www.weforum.org/agenda/2019/03/solar-is-powering-the-middle-east-towards-renewables/>
3. <https://mepc.org/journal/irans-transition-renewable-energy-challenges-and-opportunities>

### **Bibliography:**

1. "Sustainable Development." IISD, 20 June 2019, [www.iisd.org/topic/sustainable-development](http://www.iisd.org/topic/sustainable-development).
2. Bayomi, et al. "Towards Sustainable Energy Trends in the Middle East: A Study of Four Major Emitters." MDPI, Multidisciplinary Digital Publishing Institute, 28 Apr. 2019, [www.mdpi.com/1996-1073/12/9/1615/htm](http://www.mdpi.com/1996-1073/12/9/1615/htm).

3. *"Sustainability." PetroWiki, petrowiki.org/Sustainability.*
4. *Latimer Clarke Corporation Pty Ltd. Political Map of Saudi Arabia, Israel, Jordan, Lebanon, Syria, Iraq, Iran, Kuwait, Bahrain, Qatar, United Arab Emirates, Oman, Yemen - Atlapedia® Online, [www.atlapedia.com/online/maps/political/Saudi\\_etc.htm](http://www.atlapedia.com/online/maps/political/Saudi_etc.htm).*