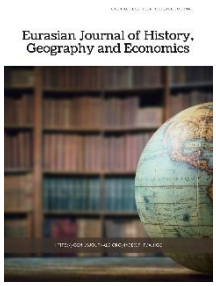

Balancing Economic Growth and Environmental Sustainability in Oil-Rich Countries

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ABSTRACT

Increasing the GDP of those countries associated with excessive use of energy and materials results in the development of an unsustainable environment. The study will address the potential problems of achieving sustainability in these countries. Through the research of various literature reviews, case studies, and data on this topic, an argument will be made about the development of environmental sustainability in those countries while sustaining economic growth. This study investigates the challenges associated with achieving sustainable development in these countries. Even though the extraction of oil can have a favorable impact on the economy, it can also create potential hazards for society and the environment, necessitating appropriate oversight to guarantee enduring sustainability. By examining applicable literature and case studies, this piece evaluates different methods that nations with significant oil resources can adopt to strike a harmonious equilibrium between their economic expansion and their goals for sustainable development. To conclude, the paper argues that, in addition to economic progress, achieving sustainable development in oil-rich nations necessitates a collaborative and comprehensive approach that prioritizes environmental and social responsibilities. The purpose of this research is to identify the problems connected with long-term development in oil-rich countries. Several aspects that can operate as a backdrop for the respected country were recognized during a conversation on environmental sustainability and economic progress. The majority of Middle Eastern countries are among the most oil-rich in the world. As a result, the countries in the Middle East are the topic of this thesis paper. Because the concept of sustainability implementation has recently become fashionable, the data for this thesis paper was gathered during the last 30 years.

The aims of this study This paper looks into how oil-rich nations may balance environmental sustainability and economic prosperity. It will look at the several tactics that may be used to lessen environmental effects while simultaneously fostering economic growth, such as making investments in renewable energy and encouraging efficiency and conservation. The research will examine how the administration can help balance environmental and financial objectives while also considering the personal sector and civil community. The report's foremost objective is to deliver advice to oil-rich countries on how to knock a balance between monetary elaboration and environmental stability.

The objectives of this thesis paper depend on the primary aim of the study and those are discussed below.

- To determine the impact of oil extraction on the environment.
- To identify the potential hazards for society and the environment due to oil extraction.
- To achieve a sustainable environment in oil-rich countries.

To find potential ways for maintaining environmental sustainability in oil-rich countries while accelerating economic growth.

Keywords:	Balancing Economic, Environmental Sustainability, oil-rich countries, Ethics, economy.

Introduction

In most oil-rich countries, the economy develops around exporting oil to international countries. Fluctuation in the price of crude oil, not only impacts the economic growth of the respected country but also the global economy. Sustainability is an important part of recent times. Oil-rich countries are one of the most carbon-emitted countries and this also impacts the green economic growth of a country. In oil-rich countries economic growth depends on exporting the oil to international regions; however, the procedure to refile the oil and mine them is not sustainable way. Increasing the GDP of those countries associated with the excessive use of energy and material leads to an unsustainable environment to be developed. Through this study, the potential challenges of achieving sustainability in these countries will be discussed. An argument over the development of environmental sustainability in those countries while maintaining economic growth will be performed through the analysis of different literature reviews, analysis of different case studies, and analyzing the data regarding this topic.

Oil-rich countries are those with extensive oil resources and are continually reliant on oil exhibitions for economic development. Large economic imbalances and the engagement of the prevalence of capital in a small numeral of hands are recurring features of these countries. Oil-rich countries must completely confident that their economic development is bearable in terms of the circumstances and financial markets despite their dependence on oil [1]. This entails inventing regulations that knock a balance between environmental preservation, long-term sustainability, and economic development. Oil-rich nations must enforce policies that sustain renewable energy conceptions and lower emissions from oil extraction to accomplish a balance between financial development and sustainability for the territory.

Oil-rich nations should concentrate on developing economic strategies that lessen poverty and inequality since these issues fuel environmental damage. This involves boosting access to healthcare and financial services, as well as financial services expansion and investments in education and employment training. Incorporating environmental factors into economic policy and decision-making can help oil-rich nations seeks a culture of sustainability [2]. This may be accomplished through funding R&D, raising public awareness, and working with regional stakeholders. Oil-rich nations may make sure that their economic expansion is sustained and that the environment is maintained for future generations by adopting a balanced strategy to balance financial development with environmental resilience.

Oil countries are set to peak several growths in their economy by working on oil products. This thesis is to present the importance of economic growth with the sustainable performance of those oil countries. Venezuela, Saudi Arabia, and Iraq are the big sources of oil production and those countries have the best growth rate in the economical overview [3]. Sustainable development is also important in those countries to propose some growth strategies for wholesome development on a critical note. It is to select for a better understanding and the current position analysis of the oil countries in the whole world. The analysis will be best to detect which countries are in a good position and which countries are suffering from balancing economic growth to sustainability.

Oil shock refers to matter when the price of crude oil surges, the economic growth typically moves in the opposite direction. This entire incident impacts the influence of macroeconomic within a country. Through, a critical discussion on the factor of the macro economy of the oil-rich countries due to the influence of oil shock is discussed. Specifically, the GCC or Gulf Cooperation Council member countries are forced in this scenario to know about the oil shock to those countries [4]. Bahrain, Kuwait, KSA, Qatar, UAE, and Oman are members of the GCC; thus, the analysis of different factors practiced in these countries is evaluated from this matter. The data about the oil shock is derived from 1980 to 2016. In the inclusion of the SVAR (structural Vector auto-regression) model a critical analysis of these

data is performed. The findings of this study show different aspects regarding economical imbalance due to the following sustainability within those countries. The main segment shows that the economic growth of the country accelerates the environmental instability in the country. Oil price shocks the GDP, inflation, and trade balance of the countries [5]. While oil shocks accelerate the economic growth of the country, the country's stability in the environment declines. However, an adaptation of some policies to suppress the economical balance required to be performed. Additionally, the segment of environmental policies and required to be performed on implementing environmental laws for extracting and refining crude oil.

Challenges are associated with the source of renewable energy generation in most oil-rich countries. Most countries face contemporary issues related to their social and economic factors. There is the continuous study and real-world interest in combining multiple renewable resources. This paper aims to estimate the consequence of key financial and social motorists of renewable power and Sensor Network advancement. This study specifically focuses on the countries that are OECD members. The evidence-based model was estimated by involving several independent variables of the generalized least squares method [6]. In addition, a panel of 36 OECD countries is targeted to collect datasets. These datasets are collected from the World Bank, OECD, Heritage Basis, and World Energy Council and these are one of the most authorized sites. The last is also supported by the fact that gross fixed capital construction was treated as a rational value of GDP. The rational value of GDP is negatively associated with structural modifications in the output related to renewable energy. The finding of this study shows that during the study period, most of the OECD countries were primarily instructed on economic growth. However, this matter was achieved by depleting non-renewable energy resources, and limited attention was paid to sustainability as well as Millennium Development Goal. The paper provides policy recommendations for future research within OECD countries.

Qatar and UAE are some of the largest oil exporter countries and these countries are also claimed as the most carbon-eliminated countries across the globe. The UAE has some of the world's largest oil resources and it is considered one of the world's foremost oil exporters. Nevertheless, despite a recent economic growth rate of nearly 4% and a GDP per capita ranking, the country faces an immense issue to manage its internal growth balance. Among all the top ten countries of oil exporting, the UAE's energy production capacity wanes behind rising demand, which is driven primarily by its power industrial sector [7]. This accounts for merely 60% of the final quantity related to the energy consumed by internal forces. Water desalination, inefficient energy, and cooling service construct the UAE as one of the world's highest energy-consuming countries per capita, and renewable energies are considered as a substantial increase in their share of the total energy mix. The UAE's fossil fuel consumption is anticipated to rise with the growth of the economy and the sustainability of the related factors. Because of the geographical location of Qatar and UAE and its dominant role as a natural gas export industry, several factors related to environmental sustainability are aimed. With its long-standing associations with the UAE, Qatar seems to be an ideal energy provider as it became clear that the UAE's energy production would fall behind the increasing energy. Additionally, the requirements of a rapidly growing economy help to focus on the energy needs within the country. This analysis argues that the contribution of these conditions to the UAE's supply security is damaged by a volatile geopolitical environment. In addition to this, profit-driven calculations on Qatar's part mostly help to identify the underlying elements of economic decline [8]. When assessing Qatar's trade interests and the geo-economic potential of crude oil in repairing Qatar's economic aspects and relation with the neighboring countries, it has been observed that the trading of these countries has been overlooked and this impacts the economic factors present within the country.

In recent times, the UAE is trying to manage its carbon footprint and minimize the pollutants

related to its oil extraction and refining plants. As a reaction to global climate change responsibilities, Gulf Arab states have enforced laws and regulations related to sustainable growth to incorporate climate policies into economic expansion as well as planning. With the purpose of maximizing the clean expansion possibilities while minimizing the threats associated with its economy [9]. Within this, the threats posed by shifts away from fossil fuels. This paper investigates the interaction between the climate approach and political-economic regimes in the Gulf States of the United Arab Emirates (UAE) and Oman. It uses a novel analytical framework that incorporates discernment from climate change guidelines. Based on quasi-interviews with the matter of key stakeholders and relevant policy papers this study reveals several factors. The matters that is uncovered with a small proportion of incorporating climate policy into projects for economic growth in the oil-rich countries especially, in UAE but major restrictions in Oman. Within these countries, several challenges emerge. These countries face significant human and economic aid capacity gaps related to climate change. Rather than reaching a low-carbon modification of its economies, climate change guideline integration measures have concentrated just on the energy sector with the goal of rescuing expenses from oil exports. This has created structural obscurity in the policies related to climate change, especially in UAE and Oman [10]. Oil-rich nations frequently struggle to strike a balance between growth in the economy and sustainability in the environment. These nations must discover ways to preserve the environment while maintaining their economic development because a great deal of their revenue comes from the mining and manufacturing of oil and gas. Oil-rich nations may tackle this issue by funding sources of clean energy while employing them to produce power. This would assist them fulfil their expanding energy demands in a more sustainable way and lessen their dependency on oil and gas, which is a significant cause of air pollution. Further, spending on sources of renewable energy would assist the economy by boosting investments in the energy industry and creating jobs.

Oil-rich nations frequently struggle to strike a balance between growth in the economy and sustainability in the environment. These nations must discover ways to preserve the environment while maintaining their economic development because a great deal of their revenue comes from the mining and manufacturing of oil and gas [11]. Oil-rich nations may tackle this issue by funding sources of clean energy while employing them to produce power. This would aid them to complete their expanding power needs in a more sustainable manner and reduce their dependence on oil and gas, which is a substantial cause of air corruption. Further, spending on the origins of renewable power would aid the economy by increasing acquisitions in the power industry and building jobs. Oil-rich countries may also knock a balance between sustainable growth and financial growth by selecting tax credits and other rules that motivate companies to cut emissions of carbon dioxide. For example, they may adopt emissions trading programs or levy carbon levies on businesses that emit massive amounts of contaminants. This could motivate businesses to cut their emissions and turn their awareness to more environmentally friendly techniques [12]. Finally, oil-rich nations can spend money on facilities and green technology. This would assist the economy as well as lessen their dependency on oil and gas. For instance, putting money into environmentally friendly structures, fuel-efficient vehicles, and alternative sources of energy would lead to employment growth and lessen the negative effects of the extraction of oil and gas as well as production on the atmosphere. Oil-rich nations must achieve a balance between economic expansion and sustainability in the environment. They can secure their growth in the marketplace while safeguarding the environment by promoting energy from sustainable sources, putting in place regulations that incentivize businesses to cut emissions of carbon dioxide, and engaging in green technology and facilities.

Methods

Research Approach and Philosophy

Performing a research paper requires following some ethical factors including research approach and philosophies. The inclusion of proper approaches and philosophies depends on how the research is required to perform. Three types of approaches can be included in a study; for this one, inductive and abductive approaches are adopted. Both of these approaches help this research in several ways [13]. The general assumption of balancing economic growth and environmental sustainability in most oil-rich countries can be performed through this. In addition, general assumptions regarding the specific topic can be performed through this approach. This is a crucial benefit derived from using an inductive approach in this thesis paper. A causal relationship between economic growth, environmental sustainability, and oil-rich countries can be established through this. This is an advantage that this study gained from using the deductive approach. Similarly, there are mainly four different types of research philosophies that can be used in research individually. Interpretivism is the most suitable approach in this research [14]. This philosophy helps to understand the confirmation of this study and the result emanating from the analysis. Each of these approaches and philosophy develops a strong presence over the entire study and support in determining the actual outcomes.

Research Strategy and Method

Similar to the research approaches and philosophies, a study is required to adapt to the proper research strategies and methods for this research. Adapting to the most suitable research methods and strategies helps to perform the entire data analysis. Selecting the most suitable method and strategy is one of the most crucial factors and for this study case study analysis is opted. This paper focuses on the specific incident of economic growth and environmental sustainability in oil-rich countries [15]. Therefore, including the case study analysis helps to focus only on the oil research countries and collect the data associated with it. Apart from this, a study can use three distinct types of research methods qualitative, quantitative, and mixed methods. The mixed method refers to the procedure where qualitative and quantitative, both data are used. Each of these methods possesses significance; thus, this study includes both methods to gain benefits from each of the methods. Qualitative methods are cost-benefit as they allow the research to perform at a lesser cost [16]. While the quantitative method helps the research to measure the outcome accurately. In addition, the mixed method helps to get deeper and better knowledge regarding economic growth and environmental sustainability in most of the oil enrich countries.

Method of data collection and Analysis

Another crucial chapter of methodology is the method of data collection and analysis. This thesis paper is targeted at knowing about economic growth and environmental sustainability in oil-rich countries. In most oil-rich countries, economic growth can be observed, but maintaining environmental sustainability while accelerating economic growth is quite tough [17]. This study focuses on identifying the potential decline of environmental sustainability in those oil-rich countries due to the acceleration of economic growth. For performing this task primary method of collective data will be more effective, but gathering the data through interviewing or surveying is near to impossible. Thus, a secondary method is obtained for collecting data regarding this topic. Through reviewing different authorized databases the data regarding the topic is collected [18]. Another important element of this thesis is the method of analysis. The collected data from the different articles and databases will be analyzed in MS Excel. A descriptive analysis will be performed on the collected data to know about the competencies. The descriptive analysis will be performed due to the requirement of quantitative analysis. On the other hand, some graphs will also be generated in MS Excel as a representation of qualitative analysis.

Limitations and Ethics

Limitations and ethics are an important part of any study as without these, the research cannot get approval from the superiors. Within this study, limitations emerged due to the lack of resources available in this specific segment.

Secondary data inclusion causes a significant impact on this research as direct data about these topics cannot be collected [19]. The chances of error in these collected data are high. As the publication sites might include any biased variables in these databases. On the other hand, ethical matters are crucially followed in this study. A secondary method of data collection is not included in the study, eliminating the chances of confidentiality, biasedness, or maintenance of privacy. This shows that the ethical factors related to the study are followed.

Analysis

Table 1: Descriptive Statistics on the GDP of UAE

Descriptive Statistics on UAE	
Mean	3.681013683
Standard Error	0.901386181
Median	4.040993961
Mode	#N/A
Standard Deviation	4.031121547
Sample Variance	16.24994093
Kurtosis	0.736207417
Skewness	-0.691291714
Range	15.08024168
Minimum	-5.242921907
Maximum	9.837319773
Sum	73.62027366
Count	20

The Table 1 is developed in MS Excel for generating descriptive statistics. This table is generated based on the GDP rate of the UAE. The mean rate of GDP growth in the UAE is around 3.681013683, while the standard error in the data about GDP is around 4.031121547. The Kurtosis and Skewness of the UAE's GDP are around 0.736207417 and -0.691291714. On the other hand, UAE's highest rate is around 9.837319773 [20]. The standard deviation, sample variance, and median of the GDP rate of the UAE are approximately 4.031121547, 16.24994093, and 4.040993961 respectively. The total sum of the UAE's GDP is around 73.6, while the sample variance of the standard error of the data is 0.901386181.

Table 2: Descriptive Statistics on the GDP of Oman

Descriptive Statistics on Oman	
Mean	2.719007248

Standard Error	0.752444861
Median	2.692415439
Mode	#N/A
Standard Deviation	3.365035715
Sample Variance	11.32346537
Kurtosis	-0.541258761
Skewness	-0.030127044
Range	12.24283666
Minimum	-3.3797144
Maximum	8.863122256
Sum	54.38014495
Count	20

The Table 2 is generated using Oman's GDP rate. Oman's mean GDP growth rate is around 2.719007248, while the standard error is around 0.752444861. The Kurtosis and Skewness of Oman's GDP are approximately -0.541258761 and -0.030127044, respectively [21]. On the other hand, Oman's maximum GDP is around 8.863122256, and its minimum GDP range is about -3.3797144. The UAE GDP rate's standard deviation, sample variance, and median are approximately 3.365035715, 11.32346537, and 2.692415439, accordingly. The total GDP of Oman is approximately 54.4.

Table 3: Descriptive Statistics on Energy Production in 2020

Descriptive Statistics on Energy production	
Mean	3477.29865
Standard Error	3110.117863
Median	0.13176
Mode	#N/A
Standard Deviation	7618.201804
Sample Variance	58036998.73
Kurtosis	5.476999049
Skewness	2.325088322
Range	19498.13027

Minimum	-658.8736
Maximum	18839.25667
Sum	20863.7919
Count	6

The Table 3 is generated using energy production in 2020. The mean energy production rate in the oil-rich countries is around 3477.29865, while the standard error is around 3110.117863. The Kurtosis and Skewness of energy production are approximately 5.476999049 and 2.325088322 respectively. Apart from this, the maximum energy production in 2020 is around 18839.25667, and its minimum energy production is about 18839.25667 [22]. The standard deviation, sample variance, and median are approximately 3.365035715, 11.32346537, and 2.692415439. The total Energy production in 2020 among all the respective energy production fields is 20863.7919.

Table 4: Descriptive Statistics on Energy Production in 2019

Descriptive Statistics on Energy production	
Mean	3813.913876
Standard Error	3055.431562
Median	1236.35376
Mode	#N/A
Standard Deviation	6110.863125
Sample Variance	37342648.13
Kurtosis	3.181431432
Skewness	1.790267771
Range	12833.56598
Minimum	-25.30899663
Maximum	12808.25698
Sum	15255.6555
Count	4

The Table 4 is generated using energy production in 2019 in the oil-rich countries or especially in UAE. The mean energy production rate in the UAE is around 3813.913876, while the standard error is around 3055.431562. The Kurtosis and Skewness of energy production in 2019 are approximately 3.181431432 and 1.790267771 [23]. Apart from this, the maximum energy production in 2019 in the UAE is around 12808.25698, and the minimum energy production is almost -25.30899663. The standard deviation, sample variance, and

median are approximately 6110.863125, 37342648.13, and 1236.35376. The total Energy production in 2019 in UAE energy production fields is 15255.6555.

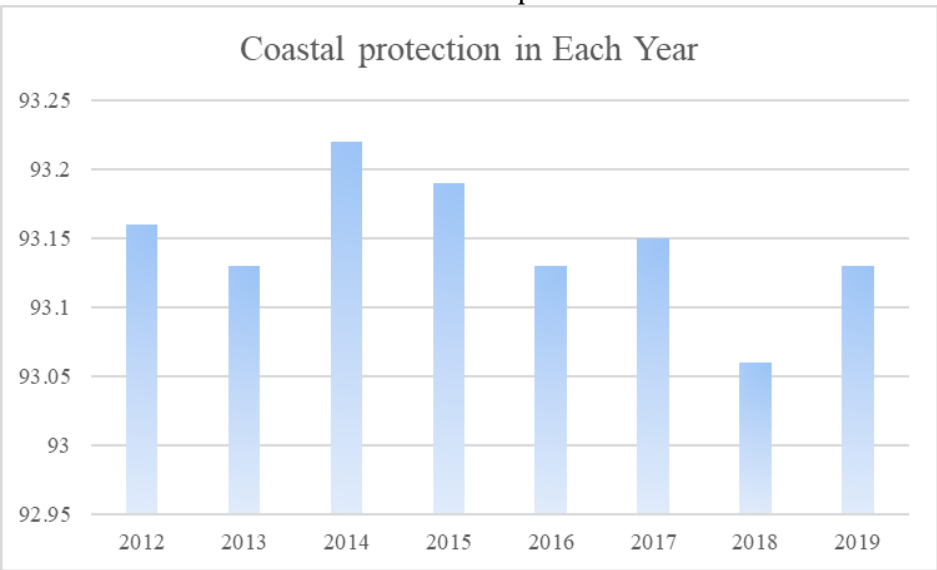

Figure 1: Coastal protection in UAE

The Figure 1 is derived from the data based on coastal protection in oil-rich countries, especially in UAE. Extraction of oil is mainly performed in the coastal area and due to this a huge amount of marine life is harmed. Environmental sustainability involves maintaining the hazardous release in nature. In this scenario, marine lives are mostly harmed and marine pollution is increasing [24]. Using some advanced technologies and the inclusion of different refining methods helps to decrease the marine pollution resulting from the oil extraction plant. The above graph is a representation of coastal protection actions adopted by the UAE and due to this the reduction of pollutants. Protection of coastal areas is heightened in 2014, while it decreased in 2018.

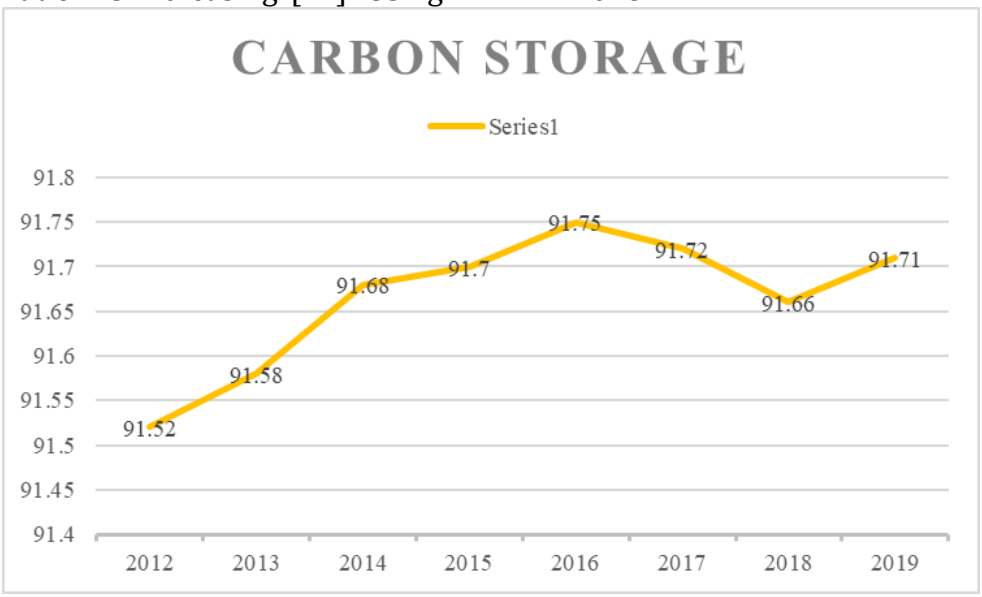

Figure 2: Carbon Storage

The main unsustainability of the environment in oil-rich countries is performed due to the emission of excessive amounts of carbon particles. Therefore, oil-rich countries are required to maintain sustainability by increasing the carbon storage in the oil extraction plants. The above graph is a representation of the UAE to increase the carbon storage in the last few years [25]. Through the generated graph (Figure 2), it is observed that carbon storage fluctuates in the UAE the least value of carbon storage was performed in 2012 and the highest storage was performed in 2016.

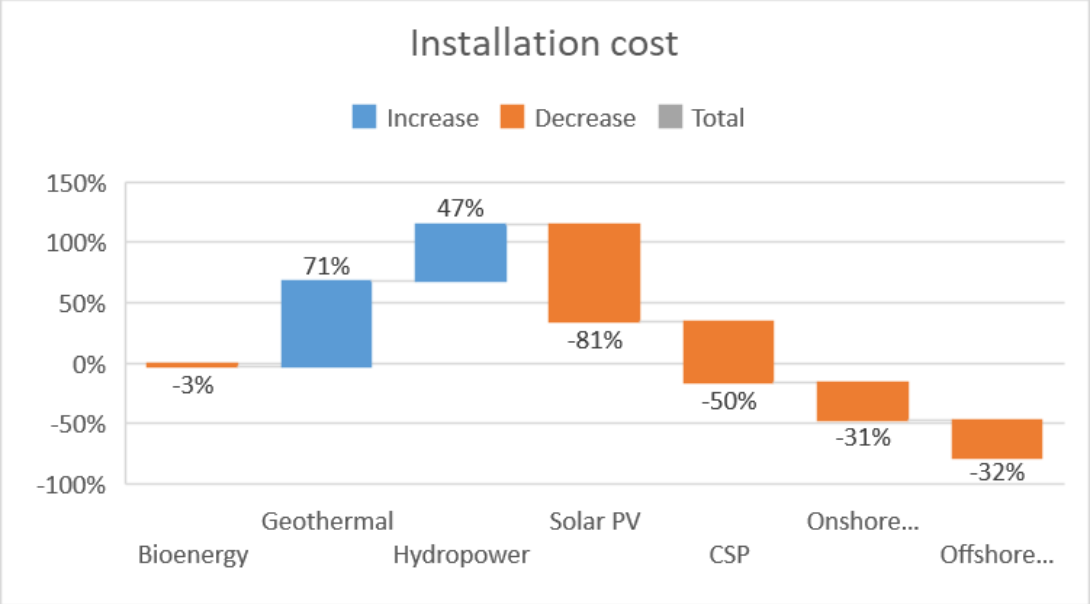

Figure 3: Sustainable energy installation cost

Within this, switching to sustainable empower generation is a crucial thing for most of the oil-rich countries. The Figure 2 is generated on the installation of different renewable power generation plants [26]. A comparison of the installation cost is performed on the data of 2010 and 2020. Through the analysis, it can be observed that most of the installation cost decreases including Bioenergy, Solar PV, CSP, and Onshore and offshore wind energy. While the Geothermal energy and Hydropower energy cost increases.

Conclusion

This study focuses on deriving the challenges associated with sustainable development in oil-rich countries. Through a discussion on environmental sustainability and economic growth, several factors were identified that can act as a backdrop for the respected country. Most Middle Eastern countries are considered the highest oil-rich countries. As a result, this thesis paper focuses on Middle Eastern countries. The concept of sustainability implementation becomes a trendy matter in recent times; therefore the data required for this thesis paper is collected based on the last 30 years. Through the critical analysis of the specific segment, the matter of sustainable development is a crucial and complex thing for most of the oil-rich countries as the procedure of oil extraction is a highly unsustainable area. However, through some strategic adaptation by the countries, these procedures can be improved and matters of sustainability will be emphasized.

While reviewing the entire matter of sustainability and economic growth in most oil-rich countries, I noticed that some of the segments in this thesis faced a limitation and this required to improve throughout the study.

Firstly, including more data regarding this segment will be crucial for performing the entire analysis. The inclusion of a secondary data collection method causes significant limitations in the study. Primary data will help to know more about this phenomenon accurately. However, gathering data related to specific segments is quite tough. Including more secondary data related to the topic will be helpful.

Secondly, time and funds cause a limitation to collect data related to this specific topic. Within this, if more time and funds were provided, the thesis paper will access a vast amount of data and the result would be more accurate.

In addition, through the apart of analysis and literature review most of the objectives are achieved. Below are the objectives of this thesis discussed based on the data derived from the entire analysis.

Firstly, the procedure of oil extraction is highly unsustainable procedure. During extraction and refining a huge amount of pollutants are

released in nature. This implies those oil-rich countries increase their carbon footprint in nature.

Secondly, through the discussion of articles potential hazards are identified that impacts the society and environment. Pollutants released from the active oil plants release some dangerous pollutants that risk human health mostly mine workers. In addition, climate change is accelerating due to using some unstable chemicals at the refinery plants.

Thirdly, streamlining the entire procedure, reducing methane leaks, using more renewable energy in the plants, and decrease using freshwater in the plants are some strategic adaptations to reduce the unsustainability factor in oil-rich countries.

Lastly, it is a crucial factor to maintain environmental sustainability in the oil-rich countries while accelerating their economic growth. Using some advanced technologies in the plants for refining crude oil and extracting them.

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