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Towards Good Governance of the Oil and Gas Sector in the MENA

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LIST OF ABBREVIATIONS

AAA	Addis Ababa Action Agenda
ADIA	Abu Dhabi Investment Authority
ADNOC	Abu Dhabi National Oil Company
ALNAFT	The National Agency for the Valorisation of Hydrocarbon Resources
AMF	Arab Monetary Fund
ARH	Hydrocarbon Regulation Authority
BAPCO	The Bahrain Petroleum Company
BBOE	Billion barrels of oil equivalent
BOC	Basra Oil Company
CDSI	Central Department of Statistics and Information
CIA	Central Intelligence Agency
CIT	Corporate Income Tax
CO2	Carbon Dioxide
DMO	Domestic Market Obligations
EIA	Energy Information Administration
EITI	Extractive Industries Transparency Initiative
FfD	Financing for Development
FGF	Future Generations Fund
FRR	Fund for the Regulation of Receipts
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GGFR	Global Gas Flaring Reduction Partnership
GNI	Gross National Income
GPFG	Government Pension Fund Global
GRF	General Reserve Fund
HDI	Human Development Index
IEA	International Energy Agency
ILO	International Labour Organization
IMF	International Monetary Fund

INOC	Iraq National Oil Company
IOCs	International Oil Companies
IPO	Initial Public Offering
IWG	International Working Group
KIA	Kuwait Investment Authority
KPC	Kuwait Petroleum Corporation
KRG	Kurdistan Regional Government
KSA	Kingdom of Saudi Arabia
MMBBL	Million Barrels
MMBBL/d	Million Barrels per day
MENA	Middle East and North Africa
MDGs	Millennium Development Goals
MJ	Megajoule
MPE	Norwegian Ministry of Petroleum and Energy
NATO	North Atlantic Treaty Organisation
NCS	Norwegian Continental Shelf
NDP	National Development Plan of Iraq
NOC	National Oil Corporation
NOCs	National Oil Companies
NOGA	National Oil & Gas Authority
NPD	Norwegian Petroleum Directorate
NRGI	Natural Resource Governance Institute
OOC	Oman Oil Company
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OPEC	Organization of the Petroleum Exporting Countries
PDO	Petroleum Development Oman
PIRLS	Poisson Iteratively Reweighted Least Squares
PPI	Policy Perception Index
PPP	Purchasing Power Parity
PSA	Production Sharing Agreement

PSC	Production Sharing Contract
QIA	Qatar Investment Authority
QP	Qatar Petroleum
RGI	Resource Governance Index
RRF	Revenue Regulation Fund
R&T	Royalty and Tax
SAMA	Saudi Arabian Monetary Agency
SDFI	State's Direct Financial Interest
SDGs	Sustainable Development Goals
SGRF	State General Reserve Fund
SPT	Special Petroleum Tax
SWF	Sovereign Wealth Fund
Tcf	Trillion cubic feet
Tcf/d	Trillion cubic feet per day
TIMSS	International Mathematics and Science Study
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNSC	UN Security Council
US	United States
VAT	Value added tax
WGI	Worldwide Governance Indicators
WITS	World Integrated Trade Solutions

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EXECUTIVE SUMMARY

The objective of this paper is to conduct a preliminary analysis of the governance of the oil and gas sector among Arab net oil exporters. Although a lot of research has been done on the resource curse, by comparison, little work has been carried out at the sectoral level and across various aspects of the oil and gas value chain, especially in the Arab region, despite it being the largest oil and gas producer in the world. A research such as this would reveal whether fundamental flaws can be identified at the sector level which may be prohibiting the oil exporters from translating their wealth into sustainable development.

Nine Arab net oil exporters were selected, namely: Algeria, Bahrain, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia and the UAE. Norway was used as the benchmark. Although international comparisons should be treated with caution given varying domestic conditions and history, a meaningful comparison is typically carried out using a good benchmark. In this respect, Norway was chosen because its management of the oil and gas sector is typically seen as exemplary and the country scores high on various governance indicators.

The comparison of the management strategies of each of the five pillars of the value chain – mainly: the award of contracts and licenses, regulations, fiscal regime, revenue management and sustainable development, reveals many commonalities between the Arab net oil exporters and significant divergences from Norway.

Using governance indicators such as the RGI, Norway clearly outperforms every single Arab net oil exporter, particularly on the completeness of the petroleum system, clarity around the division of roles and responsibilities of relevant institutions, transparency of the fiscal terms and effective management of the oil proceeds, among others. Even on the only indicator where Norway does not fare well as per the governance indicators, and which relates to the allocation of license given the country's use of administrative procedure, the difference remains notable with the other selected countries. The only exception where one Arab country outperforms Norway is Bahrain with respect to gas flaring simply because Bahrain is a much smaller oil and gas producer.

The findings of this paper can partly explain why the progress of the Arab net oil exporters towards achieving the SDGs agenda is not satisfactory. While some countries score better than others, they all still have a long way to go, which is not going to be easy or cheap and requires dedication and commitment of their leaders.

Probably the key finding that can encapsulate all the main observations of this study and that is the most recurring feature throughout the comparative analysis, is the limited transparency surrounding the management of the oil and gas sector in the Arab region particularly as compared to Norway. For the latter, all the information and data used to carry out the analysis was easily accessible from the government's dedicated websites. For the Arab region, however, collecting such information was very challenging, and, despite the effort, some data could not be collected thereby limiting the ability to conduct a comprehensive assessment.

For practical reasons, the paper did not capture all the factors that have affected the management of the oil and gas sector in the selected countries, particularly the political economy dimension, which can be

a valuable area to research at length. The paper provides an initial assessment of the management of the oil and gas sector in the Arab region, and hopes to support future work on an individual country basis as well as on the concept of good governance of oil and gas, which remains work in progress.

Those with more insights into the inner workings of the oil and gas sector in the Arab countries may dispute some of the findings of this paper. They may be right. However, since this study is based on what is publicly available, its conclusion will continue to hold until additional information is revealed.

1. INTRODUCTION

The relationship between economic performance and natural resources wealth is well documented. Extensive literature exists on this nexus; it typically falls under the umbrella of the resource curse – a concept which can be traced back to the 1970s before becoming a popular research area in the 80s and 90s especially following episodes of oil price collapses and the seminal works of Gelb and Associates (1988), Auty (1993) and Sach and Warner (1995), among others. The research extends across various disciplines – from economics and political science to anthropology and sociology, and is typically done at a macro level.

To date, no clear consensus has been reached on whether natural wealth such as hydrocarbon's is a blessing or a curse, and no comprehensive methodology has been established. However, as argued by Badeeb *et al* (2016), while the empirical critiques cast legitimate doubt on the causal resource curse, the theoretical mechanisms proposed by which resource dependence can hamper growth remain plausibly valid until proven otherwise. On balance, the literature seems to support that oil and gas resources have a major impact on local economies often hindering growth and social progress in many developing countries. The Arab region is no exception. One would expect that because they sit on much of the world's oil and gas, Arab countries across the Middle East and North Africa (MENA) should be among the wealthiest and most advanced. Yet, these countries are typically considered as 'richer than developed', an expression made popular by the United Nations' report of 2002 on the region's human development index (HDI). Like elsewhere, the research on the region has focused on oil revenues management to investigate whether oil has been a curse or a blessing for these countries[1].

In a sharp contrast, little work has been done at a sectoral level, whether globally or regionally, whereby the management and governance of the entire oil and gas value chain are assessed. It is unclear why this is the case. One justification could be the required technical knowledge of the sector to facilitate such an assessment. The other may relate to the opacity surrounding the management of the sector. Many governments do not reveal sufficient details to allow a comprehensive assessment – a difficulty experienced by this author. Also, the concept of what constitutes good universal sectoral governance is still work in progress and only a few objective yardsticks have been developed for this purpose. The Resource Governance Index (RGI), from the Natural Resource Governance Institute (NRGI), is, to date, the most comprehensive measure of governance quality in oil, gas and mining rich countries. According to the institute, the index is the only international index dedicated to resource governance[2]. Given the increasing belief that poor governance and resource curse are connected, with the former contributing to the manifestation of the latter, it is expected that sectoral governance will capture more attention in academic research.

The present paper offers a preliminary attempt to investigate the governance of the oil and gas sector among Arab net oil exporters, where hydrocarbons are the backbone of the economy. By taking a step

[1] See Appendix IV for a summary of selected relevant studies

[2] The index is computed based on three components: 1) Value realization, which covers the governance of allocating extraction rights, exploration, production, environmental protection, revenue collection and state-owned enterprises; 2) Revenue management, which covers national budgeting, subnational resource revenue sharing and sovereign wealth funds; and 3) Enabling environment, covering voice and accountability, government effectiveness, control of corruption, regulatory quality, rule of law, political stability and open data.

back and zooming on the management of the sector, a research such as this would reveal whether fundamental flaws can be identified at the sector level which may be prohibiting the oil exporters from translating their wealth into sustainable development. For reasons of practicality, the paper does not carry out a minute investigation on an individual country level, a task that would require a lengthy assessment of existing legislation, regulations and contracts as well as intensive primary surveys. It does, however, provide a valuable starting point for future research along these lines.

The paper relies on publicly available information and on indicators such as the RGI. Norway is used as the country benchmark for good governance against which the Arab net oil exporters are compared. Norway's management of the sector is characteristically seen as exemplary.

The remainder of this paper proceeds as follows. Section Two discusses the importance of governance particularly as it applies to the oil and gas sector, thereby delineating the analytical framework for the following sections. Section Three provides an overview of the oil and gas sector in the Arab region, explaining the selection process for the investigation. Section Four is divided into five major sub-sections, each dedicated to assessing a key dimension of oil and gas governance in the countries' surveyed. Section Five presents the recommendations and concluding remarks.

2. OIL AND GAS GOVERNANCE

The concept of 'governance' has become more prevalent in the literature related to sustainable development. Good governance has been advocated as a core remedy for avoiding the resource curse which has blighted many developing countries. Significant empirical evidence shows that hydrocarbons rich countries often grow more slowly than resource poor countries. This is what experts have labelled the curse of natural resources, or 'the paradox of plenty' – resources rich, economically poor. Authors like Deacon and Rode (2012) contend that the resource abundance tends to generate a curse in countries with weak pre-boom institutions, but not in countries where governance and the rule of law are strong initially.

In international development initiatives, good governance is embedded as a crucial target to aim for. It was accepted as one of the targets of the Millennium Development Goals (MDGs) then their successors the Sustainable Development Goals (SDGs)[3], and confirmed in the Addis Ababa Action Agenda (AAA). The concept has become synonymous with sound development management (UN, 2000). In the UN 2030 Agenda for Sustainable Development (2015, p.4), "good governance and the rule of law, as well as an enabling environment at the national and international levels" are described as "essential for sustainable development, including sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger."

In its report 'Governance and the Law', the World Bank (2017a) refers to the SDG16 on promoting "peace, justice and strong institutions," as explicitly related to governance. The Bank further adds that this SDG "has important instrumental value because the attainment of the goal will aid in the attainment of all the other SDGs" and that "the achievement of all the development goals will require a solid understanding of governance to enable more effective policies" (p.4).

[3] See Appendix 1

There is, therefore, little doubt about the importance of good governance and its impact on strong economic performance and sustainable development. Despite its importance, the concept tends to be taken for granted with limited work dedicated to what it specifically means and how it is measured. The UNESCO defines governance as referring "to structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation." The UNESCO adds, however, that governance can "be subtle and may not be easily observable." On a sectoral level, such as in oil and gas, this is equally challenging especially that many aspects are not easily observable, nor information is widely available.

In the oil and gas sector, sustainable development requires "a political system that embraces good governance and transparency" (Alba, 2009, p.20). The question is how to measure it and what are its key dimensions. A few organisations have developed governance indicators – such as the World Bank Worldwide Governance Indicators (WGI) which focus on six dimensions of governance, mainly: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law and control of corruption. For the extractive sector, the RGI is the most comprehensive dedicated measurement of governance quality. The index also embeds most of the WGI elements. Other indicators, such as the Ease of Doing Business (also by the World Bank), are available but they are not sector specific; they focus on the overall business climate in a country.

A World Bank study on the extractive industries' value chain identifies five inter-related pillars where each pillar needs to be managed properly to ensure good governance and, in turn, promote sustainability (Alba, 2009). The chain includes: 1) awarding contracts and licenses; 2) monitoring operations, enforcing environmental protection and social mitigation requirements; 3) collecting taxes; 4) distributing revenues in a sound manner; and 5) implementing sustainable development policies and projects (Figure 1).

Figure 1: Extractive Industry Value Chain

Source: Alba, 2009

Similarly, the Natural Resource Charter, set up by NRGI, specifies a set of principles for the good governance of the oil and gas (and mining) sector. The principles can be considered as a more detailed breakdown of Alba's value chain with 12 Precepts (Figure 2).

Figure 2: Natural Resource Charter

Source: NRGI, 2017b

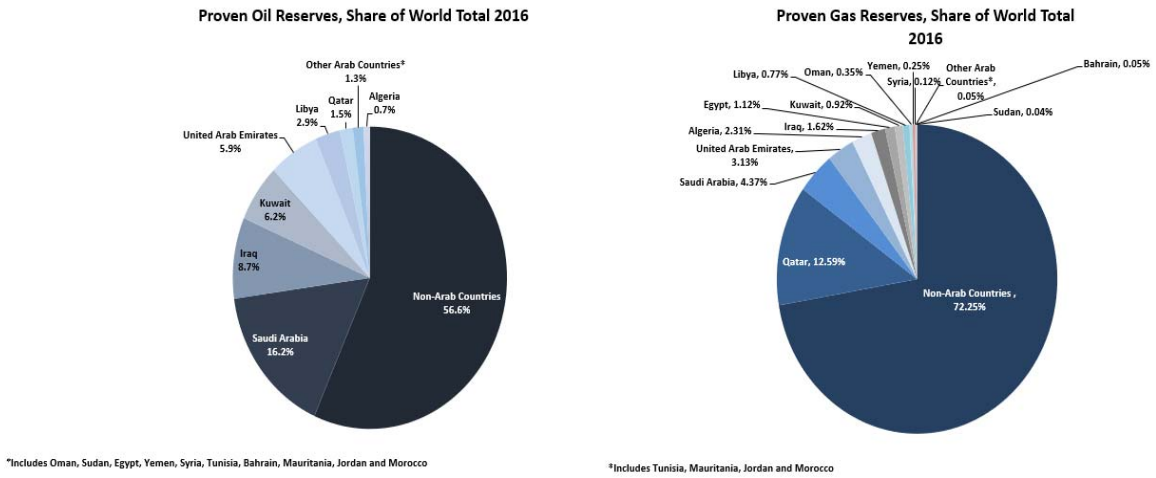
In the following sections, the paper adopts Alba's approach by analysing the management of each of the five dimensions of the oil and gas value chain to assess the sector's governance among the Arab net oil exporters and as compared to Norway. In terms of indicators, the study will rely largely on the RGI, and, where relevant, on data from the World Bank's indicators. In addition, the SGD Index and Dashboard is used to assess progress on achieving the 2030 sustainability agenda.

3. HYDROCARBONS WEALTH IN THE MENA

The Arab region is probably best known for its sizeable oil and gas resources. The region sits on 43% and 28% of world proven oil and gas reserves and produces around 32% and 16% of global oil and gas (BP, 2017). The hydrocarbon riches are not evenly distributed across the region (Figure 3). Saudi Arabia alone holds the bulk of oil reserves and Qatar of gas reserves. In fact, the Gulf Cooperation Council (GCC) countries sit on 69% and 77% of the Arab region's proven oil and gas reserves and produce 60% and 75% of its oil and gas respectively[4]. Bahrain and Oman are the exception among the GCC, given their minuscule reserves compared to their neighbours. Oman's proven oil reserves are only 2% of Saudi Arabia's and the Sultanate's proven gas reserves are 3% of those of Qatar.

[4] The Cooperation Council for the Arab States of the Gulf (مجلس التعاون لدول الخليج), known as theGulf Cooperation Council (GCC), is a regional intergovernmental political and economic union consisting of: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE).

Figure 3: Proven Oil and Gas Reserves



Data Sources: EIA, 2017a; BP, 2017

The Arab region's resource potential is not limited to conventional oil and gas. Preliminary research indicates a substantial resource base of unconventional hydrocarbons. For instance, according to the Energy Information Administration (EIA, 2013), Libya is the world's fourth largest holder of shale oil while Algeria is the world's third largest holder of shale gas resources. The exploitation of these resources will require the design and application of new policies and new regulatory and fiscal terms – something that goes beyond the scope of this paper but is of research value.

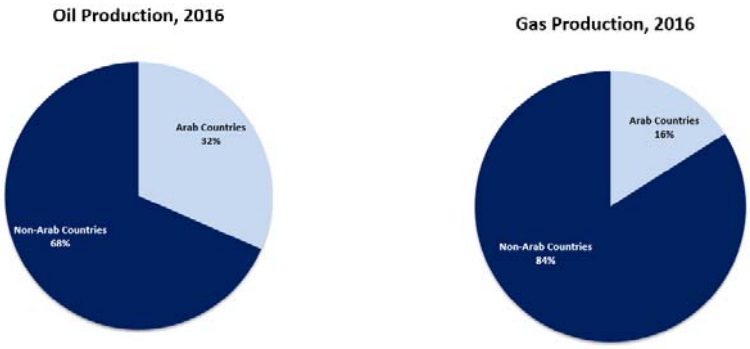
Seven out of the nine net oil exporters are members of the Organization of the Petroleum Exporting Countries (OPEC), making half of the organisation's membership[5], which in turn affects their oil production level (Table 1, Figure 4). Saudi Arabia is the largest oil producer and exporter in the region, a position occupied by Qatar in terms of gas[6].

Only three Arab countries (Djibouti, Lebanon, and the Palestinian Authorities) do not produce any oil or gas, though Lebanon may join the club of producers should any discoveries are made while gas fields exist offshore the Gaza strip but have not been developed because of the existing political stalemate.

[5] The other seven members are: Angola, Ecuador, Equatorial Guinea, Gabon, Iran, Nigeria and Venezuela.

[6] Algeria leads the region in terms of gas exports by pipelines.

Figure 4: Oil and Gas Production



Data Source: BP, 2017

The distribution of reserves across the region has impacted the industry structure. When oil and gas activity started in the MENA in the early decades of the last century, the industry was dominated by the then few large international oil companies (IOCs), which operated under very generous concessions, especially in comparison with what is offered today[7]. Early concessions granted in Kuwait were for up to 99 years, while in the UAE a single onshore concession, granted in the 1930s, covered the whole of Abu Dhabi. The financial benefits accruing to the host government under such arrangements were limited, consisting primarily of royalties imposed at a flat rate as a percentage of the oil produced. The concessionaire retained control over virtually all aspects of the operations, including the rate of exploration, the decision to develop new fields and the determination of production levels, among others, leaving the government with a relatively passive role. Those arrangements were bound to be called into question as the balance of power changed in favour of the ruling authorities and governments, especially following a series of changes of a political, economic, social and legal nature, including the nationalisations of the 1960s and '70s, the emergence of OPEC, assertion of national ownership of resources, accelerating oil demand, advances in technology and the increase in competition, to name but a few[8].

The picture has changed dramatically since. Today, in the MENA, the dominant industry players are the national oil companies (NOCs) usually operating in collaboration with the IOCs but under much 'tighter' contractual arrangements compared to the pre-1960 hay days of the industry. Countries like Saudi Arabia and Kuwait belong to the small group of producers that remain closed to private international investment in their upstream oil and gas sector[9].

The Middle East has been more exclusive to a few large oil companies while North Africa has a more colourful corporate landscape with international oil and gas investors – large and small alike. The discrepancy between the two regions can be partly explained by the smaller reserves and discovery size

[7] See Section 4.2

[8] In 1962, the UN passed Resolution 1803 (XVII) in 1962 that provides that states and international organisations shall strictly and conscientiously respect the sovereignty of peoples and nations over their natural wealth and resources.

[9] In the oil sector, private investment is limited to the neutral zone between Saudi Arabia and Kuwait and which was established in 1922 to settle a territorial dispute between the two countries.

in North Africa compared to the Middle East, and subsequently by the presence of wealthier NOCs such as Saudi Arabia's Aramco and the UAE's Abu Dhabi National Oil Company (ADNOC). Oman and Iraq are two exceptions. The closest Oman has to its neighbours fully-fledged NOC is Petroleum Development Oman (PDO), a joint venture majority-owned by the Government of Oman (60%), in addition to the Shell Group (34%), Total (4%), and Partex (2%). The small and technically challenging oil and gas reserves size of the Sultanate is one of the main reasons behind such a policy choice. Unlike Oman, in Iraq the reserves size is not an issue. Iraq National Oil Company (INOC) was founded in 1966 then broken up in 1987. Since, regional national entities have been responsible for oil and gas developments in their respective regions[10]. The situation in Iraq is primarily caused by politics and the absence of a hydrocarbons law[11].

Most of the Arab net oil exporters have managed to translate their hydrocarbons resources into financial wealth and are the richest in the region. All the six GCC are in the upper income category and they are the only Arab countries at that level. The other three net exporters - Algeria, Iraq and Libya, fall under the upper-middle income category (Table 1). These three countries have had their share of social unrests, sanctions and wars, which have had their toll on income classification compared to the more stable GCC countries.

Table 1: Arab Countries Classification

Country	Income Classification	Proven Oil Reserves (million barrels)	Proven Gas Reserves (trillion cubic feet)	Status***	OPEC
Oil & Gas Producers					
Bahrain	High Income	125	3	Net Oil Exporter	Non-member
Kuwait	High Income	101,500	64	Net Oil Exporter	Member
Oman	High Income	5,306	24	Net Oil Exporter	Non-member
Qatar	High Income	25,244	866	Net Oil Exporter	Member
Saudi Arabia	High Income	266,578	300	Net Oil Exporter	Member
UAE	High Income	97,800	215	Net Oil Exporter	Member
Algeria	Upper-Middle Income	12,200	159	Net Oil Exporter	Member
Iraq	Upper-Middle Income	143,069	112	Net Oil Exporter	Member
Libya	Upper-Middle Income	48,363	53	Net Oil Exporter	Member
Egypt	Lower-Middle Income	4,400	77	Net Oil Importer	Non-member
Jordan	Lower-Middle Income	1	0.213	Net Oil Importer	Non-member
Mauritania	Lower-Middle Income	20	1	Net Oil Importer	Non-member
Morocco	Lower-Middle Income	1	0.051	Net Oil Importer	Non-member
Sudan*	Lower-Middle Income	5,000	3	Net Oil Importer	Non-member
Syria	Lower-Middle Income	2,500	9	Net Oil Importer	Non-member
Tunisia	Lower-Middle Income	425	2	Net Oil Importer	Non-member
Yemen	Lower-Middle Income	3,000	17	Net Oil Importer	Non-member
Non-Oil & Gas Producers					
Lebanon	Upper-Middle Income			Net Oil Importer	-
Palestinian Territories**	Upper-Middle Income			Net Oil Importer	-
Djibouti	Lower-Middle Income			Net Oil Importer	-

*Data Sources: The World Bank, 2017d; BP, 2017; EIA, 2017a (Note: According to the World Bank, Income Groups are based on GNI per capita (U.S. $), classified as follows: High Income: $12,236 or more; Upper Middle Income: $3,956 to $12,235; Lower Middle Income: $1,006 to $3,955); * Sudan split into two countries – Sudan and South Sudan (non-Arab) - in July 2011; **West Bank and Gaza; *** The countries are classified as net oil (not gas) exporters/importers. As of 2017, the UAE and Kuwait are oil exporters but gas importers. Saudi Arabia, Oman, Iraq and Bahrain consume the same amount of gas that they produce. Bahrain exports a very small fraction of its oil production. Egypt and Yemen are net gas exporters but net oil importers.*

[10] For instance, Basra Oil Company (BOC) (formerly South Oil Company) is a national Iraqi company responsible for the oil in the south of Iraq.

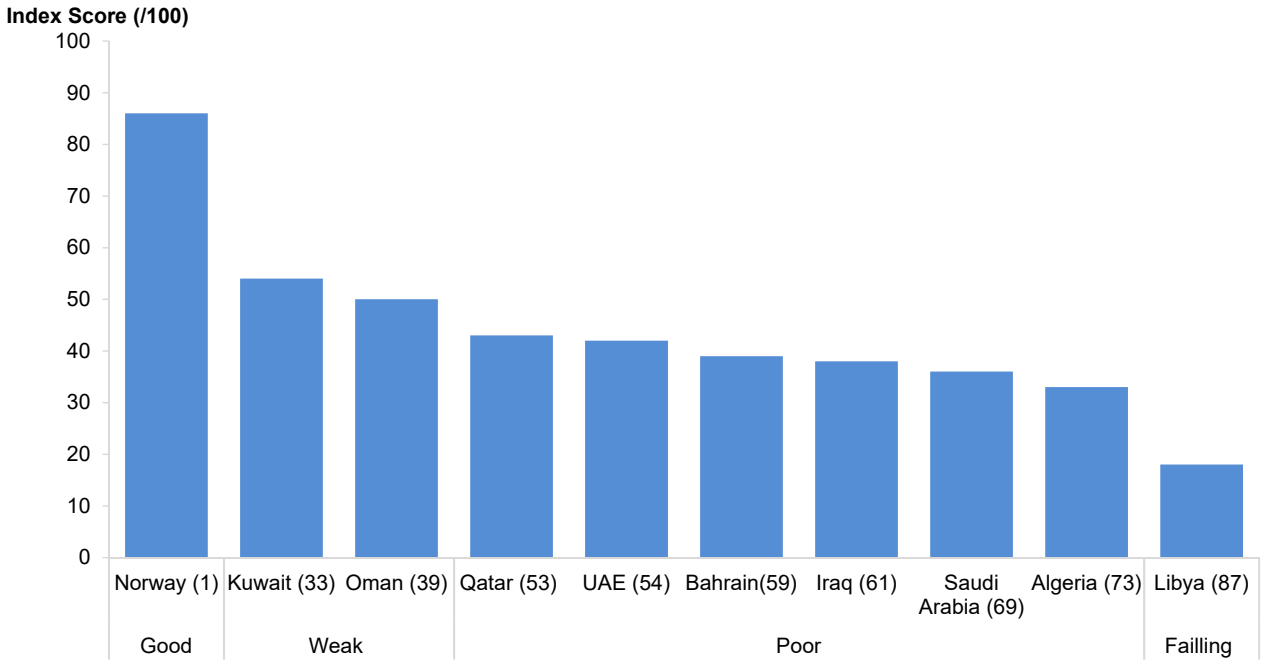
[11] The ongoing political debate between the Federal Government of Baghdad and the Kurdistan Regional Government (KRG) has prevented the parliament from passing the oil and gas law since 2007.

4. OIL AND GAD SECTOR MANAGEMENT

The objective of this section is to analyse the Arab net oil exporters' management of the five principal pillars of the value chain as explained in Section Two. Each pillar is covered in a separate sub-section. Such an analysis will highlight the strengths and weaknesses in the existing systems. It will also identify similarities and differences between the Arab net oil exporters and as they compare to Norway.

In the overall governance ranking of the oil and gas sector, the RGI index classifies all the Arab net oil exporters as: weak, poor or failing, unlike Norway which ranks the highest among the 89 cases studies surveyed (Figure 5)[12]. No Arab net oil exporter makes it to the 'good' or 'satisfactory' category. Kuwait is ahead of the other Arab net oil exporters, ranking 33rd given its low corruption and strong rule of law, according to NRGI, followed by Oman at 39th – these are the only two Arab net oil exporters, out of the nine countries studied, that fall into this category; the others are either poor or failing.

Figure 5: RGI (2017) Oil & Gas Governance Ranking



Data Source: NRGI, 2017a

100=best governance, rank out of (89)

[12] A total of 81 countries are included, but because some countries have both oil and gas, and mining sectors, the total case studies surveyed are 89.

One of the biggest difficulty in completing this section resided in the limited publicly available information on the institutional framework of the oil and gas sector in the Arab region. The results below are based on what was found in the public domain.

4.1. Award of Contracts and Licences

Governments can assign petroleum exploration and production rights in various ways. Irrespective of the choice, the objective in designing the award process is to find the best candidate, maximise potential revenues resulting from the award, and avoid any distortion of incentives to perform.

The allocation strategies are typically grouped under two categories:

- **Open door/informal process**, which is based on one-on-one negotiations and encompasses two subtypes: 'first-come, first-serve' and direct negotiations. Exploration and production rights are allocated following negotiations between the government and companies through solicited or unsolicited expression of interest.
- **Licensing**, which includes administrative procedures and auctions (or competitive bidding). The former is known as a discretionary system that is based primarily on the proposed work programme. Companies present plans for exploration and development according to a formal process. A government committee assesses various proposals against a defined number of criteria. The licence is awarded to the plan that has the best "mix" of those criteria. Under auctions, licenses are awarded based on competitive bids whereby rights go to the highest bidder (for instance, the highest government take[13]).

Governments can select a combination of procedures to meet different conditions and circumstances. Auctions, however, are becoming the most preferred and adopted process. Their superiority resides in the fact that they are the most transparent way of allocating rights. A central limitation of informal processes, such as negotiation on a first-come-first-serve basis, is that they lack transparency. The criteria for award are often not pre-defined and known to market participants and the government retains considerable discretionary power and flexibility in awarding exploration and production rights, hence the risk of favouritism and corruption. In contrast, auctions typically require rules to be clearly established before the start-up process, giving transparency benefits for both bidders and auctioneers, mitigating potential corruption and encouraging competition through a fair process (Rodriguez and Suslick, 2009).

Compared to auctions, administrative procedures are not as transparent, since it may be difficult for the bidders to know the reasons for government selection and as such the system becomes more vulnerable to favouritism and corruption (Tordo, 2009). It also requires a certain level of technical capacity and resources to evaluate the proposals.

The only feature of the Norwegian system that does not score favourably in terms of governance of the oil and gas sector is the use of the administrative procedure for the allocation of licenses. Because of this

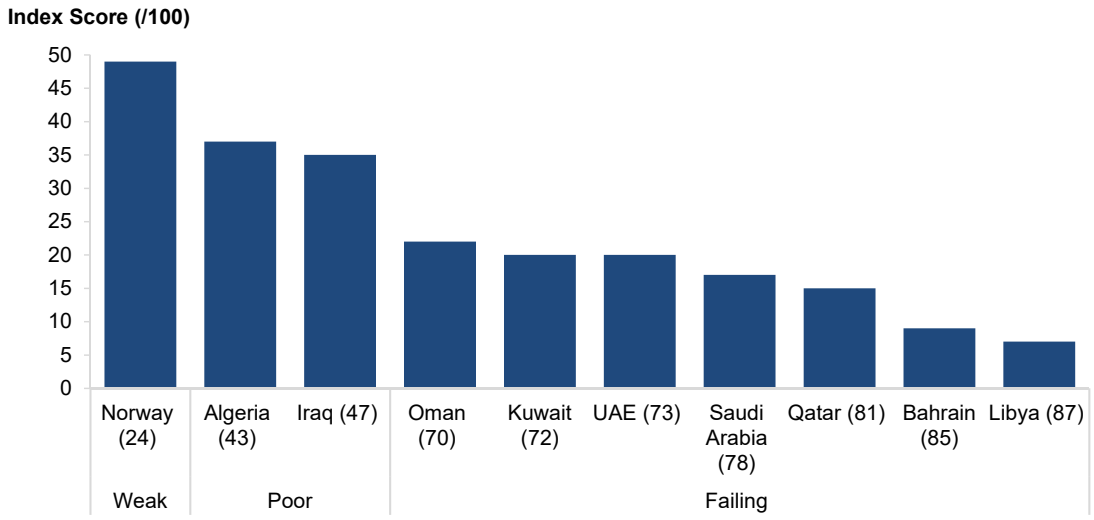
[13] The total share of government revenues from a project's net cash flows.

choice, the RGI classifies Norway as weak since the process is not as transparent as auctions. Still, compared to the Arab net oil exporters, Norway scores better.

Four Arab countries – Algeria, Iraq, Libya, and Oman use auctions or competitive bidding to allocate oil and gas licenses. The other countries rely predominantly on direct negotiations. As mentioned earlier, despite the superiority of competitive bidding, the process is questionable if the licensing round is poorly designed or administered and lacks transparency, which applies to the Arab countries surveyed. For instance, in most cases the biddable parameters are not clearly defined and not easily identified; Iraq and Libya can be considered as exceptions as the terms are known in advance. Iraq's first post-second Gulf war licensing round in 2009 was broadcasted on national television to promote its transparency.

In a region where nepotism and the use of middlemen (*wasta*) to do business are particularly common, according to Gan Integrity (2016), having clearly defined prequalification and allocation parameters acquire a greater sense of urgency. Algeria's oil and gas industry has been hit by several scandals. In 2010, the head of the NOC - Sonatrach, three of its vice presidents and the then energy minister were dismissed in the wake of a corruption investigation related to license allocation. Then in 2013, another bribery scandal erupted around Sonatrach and Italian and Canadian companies. Algeria has been trying to restore its tarnished reputation by improving existing processes such as detailing the licensing rules in the hydrocarbon law. This explains why Algeria leads the Arab net oil exporters on licence allocation on the RGI, but, like Iraq, the country's performance still ranks as poor. All the other Arab countries are classified as 'failing', primarily because of the lack of transparency and clarity pre- and post- the license allocation process (Figure 6).

Figure 6: Licensing Index Score



Data Source: NRGI, 2017a
100=best governance

For countries that adopt competitive bidding, international good practice also recommends limiting the number of negotiable and biddable parameters to a maximum of two, preferably excluding key fiscal parameters. In the US, for instance, the legislation forbids the use of more than one bid variable while

Norway largely relies on the minimum work program that companies promise to undertake throughout the license duration. Such a prudent approach allows the government to achieve greater predictability of potential rewards, which in turn will help with budget planning more generally. It also minimizes discrimination among investors; and reduces the administrative burden of managing different fiscal and contractual structures. Furthermore, there is the danger that companies offer onerous fiscal terms just to win the bid in the knowledge that those terms could be renegotiated if subsequent discoveries prove uneconomic. In Libya, the two main biddable parameters relate to the fiscal regime[14]. Algeria also uses several fiscal elements as biddable.

None of the Arab countries surveyed publishes a register of licenses and it is not clear if such a register exists. The register would typically record all applications for petroleum licenses submitted or granted. In Norway, a detailed register exists and is publicly available.

Good practice requires that, to be able to apply for a license, potential investors should first meet specific minimum criteria - in other words pre-qualify. Such a condition safeguards the host government against participants not having the necessary financial and technological expertise to develop the capital-intensive oil and gas projects and deal with emergencies such as spills. In this case, the licensing authority discloses the minimum pre-defined criteria by which companies become qualified to participate in each licensing process in all known cases. Apart from Algeria, Iraq and Libya, the pre-qualifications criteria were not found in the other Arab countries.

The allocation of license method is usually governed by a country's law. In Norway, the procedure is governed in detail in Chapter 3 of the Petroleum Act and Chapter 3 of the Petroleum Regulations[15], which are two essential elements of a country's petroleum system. Interestingly, in the Arab countries surveyed, at least one aspect of the petroleum system is missing.

In addition to the constitution which typically reinforces the national ownership of natural resources, the main elements that define a petroleum system are:

- The petroleum policy, which provides the basis on how a government intends to manage the sector and the objectives it wants to achieve. Although there is no universally acceptable policy model, the petroleum policy should be in line with the country's wider policy objectives, namely economic, social, and environmental.
- The petroleum/hydrocarbons law, which is the cornerstone of an effective petroleum legislative framework.
- The petroleum/hydrocarbons regulations, which implement the objectives of the policy and the petroleum law.
- The petroleum contracts, which concretize the legal and commercial relationship between the host government and investors.

In Norway, each of these elements can be easily found with sufficient details and clarity that ensure effective management of the sector. The Norwegian petroleum sector is governed by a detailed, comprehensive and concise legislation - the Petroleum Act which is supported by the Petroleum Regulations,

[14] See Section 4.3

[15] Act No. 72 of 29 November 1996 relating to petroleum activities and Regulation No. 653 of 27 June 1997

which are also characterised by extensive details. This legal framework establishes the Norwegian licensing system and governs its exploration and production activities.

Norway also has a clearly defined petroleum policy, published as a White Paper, and which throughout the years continue to reaffirm the principles of the country's first oil and gas white paper which was submitted to the parliament, the Storting, in 1971, the year when oil production started. In its consideration of White Paper No. 76 (1970 – 1971), Exploration for and Exploitation of Subsea Natural Resources on the Norwegian Continental Shelf (NCS), the Storting endorsed what is known as "the Ten Oil Commandments", which have underpinned the Norwegian petroleum policy since, irrespective of oil market conditions (Box 1).

Box 1: Norway's Ten Oil Commandments

i.	That national supervision and control of all activity on the NCS must be ensured.
ii.	That the petroleum discoveries must be exploited in a manner designed to ensure maximum independence for Norway in terms of reliance on others for supply of crude oil.
iii.	That new business activity must be developed, based on petroleum.
iv.	That the development of an oil industry must take place with necessary consideration for existing commercial activity, as well as protection of nature and the environment.
v.	That flaring of exploitable gas on the NCS must only be allowed in limited test periods.
vi.	That petroleum from the NCS must, as a main rule, be landed in Norway, with the exception of special cases in which socio-political considerations warrant a different solution.
vii.	That the State involves itself at all reasonable levels, contributes to coordinating Norwegian interests within the Norwegian petroleum industry, and to developing an integrated Norwegian oil community with both national and international objectives.
viii.	That a state-owned oil company be established to safeguard the State's commercial interests, and to pursue expedient cooperation with domestic and foreign oil stakeholders.
ix.	That an activity plan must be adopted for the area north of the 62nd parallel which satisfies the unique socio-political factors associated with that part of the country.
x.	That Norwegian petroleum discoveries could present new tasks to Norway's foreign policy

In a sharp contrast, no Arab net oil exporter has a comprehensive system as in Norway. The type of government may justify some of the divergences, but on its own it is unlikely to be a sufficient reason (Table 2)[16]. Iraq, for instance, has not enacted a hydrocarbon law, even though the requirement is stipulated in the country's Constitution. The law is supposed to address four main issues simultaneously: the Ministry of Oil reform law, the NOC law, oil contracts and revenue sharing law. As such, it is difficult to describe the oil contracts signed in Iraq as legally secure.

In monarchies where the ruler usually has all legislative and executive authorities, no specific petroleum legislation exists; in this case each petroleum project is managed by the terms of the specific contract between the state or its NOC and the investor. However, when these contracts are not published, as is the case with the Arab monarchies, it is difficult to make a thorough assessment of the system in place.

[16] Appendix III provides a historical overview of the main events that have defined the existing political systems in the selected countries.

Table 2: Government Type

Country	Government Type
Bahrain	Constitutional Monarchy
Kuwait	Constitutional Monarchy
Oman	Absolute Monarchy
Qatar	Absolute Monarchy
Saudi Arabia	Absolute Monarchy
UAE	Federation of Monarchies
Algeria	Presidential Republic
Iraq	Federal Parliamentary Republic
Libya	In Transition
Norway	Parliamentary Constitutional Monarchy

Data Source: CIA, 2017

One common feature that further distinguishes the Arab net oil exporters from Norway is the absence of an official oil policy document that clearly highlights how a government intends to manage the sector and the objectives it wants to achieve, leaving plenty of room for guesswork on the government directions for the sector. For the OPEC members, production choices tend to be constrained by the organisation's quota allocation system; this, however, does not replace the need for a national oil policy.

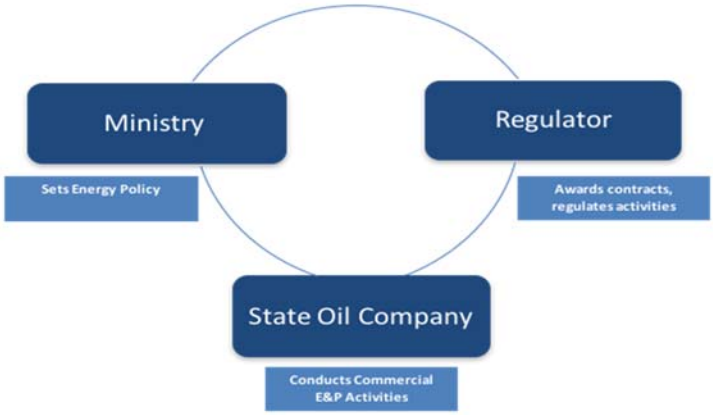
4.2. Regulations and Role of Key Institutions

The effective and efficient management of the oil and gas sector requires a clear definition of responsibilities and separation of roles between various government entities. A typical model which is increasingly advocated as the 'good practice' model is the one that properly delineates the duties of the designated ministry which oversees policy making and the regulatory agency which fulfils non-commercial responsibilities such as licensing and ensuring compliance with existing legislation. In some cases, the regulatory function is fulfilled by the NOC. However, if the government wants to exercise a commercial role, such as directly carrying out exploration and production activities, through its NOC, it is recommended that the NOC transfers its regulatory responsibilities to the sector's regulator to avoid a conflict of interest in line with the Natural Resource Charter recommendation in Percept 6. The management of the NOC is an important aspect of the sector's governance; as Heller *et al* (2014, p.3) argue, it has "a major impact on how well oil producing countries translate potential wealth into sustainable development that benefits citizens".

The 'trio' model of institutional sector setting is best fitted for resource rich countries with established administrative capacity and expertise (Figure 7). However, "when technical and regulatory talent is particularly lacking in a country, better outcomes may result from consolidating commercial, policy, and regulatory functions in a single body until institutional capacity has further developed" (Thurber *et al*,

2010, p.2). Given the long-established experience of the Arab net oil exporters and the size of their oil sector, one would expect to see the trio-model of institutional design, as is the case in Norway.

Figure 7: Division of Roles and Responsibilities



The Norwegian Ministry of Petroleum and Energy (MPE) is the policy making body in charge of the management of the oil and gas sector. It is also directly responsible for the state's ownership in Statoil and Petoro AS, which is the vehicle through which the State exercises its Direct Financial Interest (SDFI) scheme (established in 1985)[17]. The MPE works with, and guides, the country's political leadership in setting goals for the sector, plans for achieving these goals, oversees the crucial licensing process. The Norwegian Petroleum Directorate (NPD) is the regulatory and technical advisory agency and administrative authority which advises the MPE on technical matters relating to domestic oil and gas management system. It reports to the MPE. The NPD compiles data on all hydrocarbon activities on NCS, collects fees from oil operators, and sets hydrocarbon regulations within its areas of responsibility. The NPD also collects the Carbon Tax. Most of the NPD staff have petroleum industry experience and the NPD has a meticulous knowledge of the NCS. Statoil ASA is the state's commercial arm, investing in both domestic and international oil and gas sectors. As a majority owner of Statoil (67%), the State receives dividends which are part of the petroleum activity revenues.

By comparison, the division of roles and responsibilities among the Arab net oil exporters is rather ambiguous. Algeria's system is the closest to Norway's, given its three essential institutions with separate responsibilities. The Algerian Ministry of Energy and Mines is responsible for managing the sector, ensuring coordination, rationalisation of hydrocarbon production and optimal development of resources (EY, 2015). Its NOC, Sonatrach, fulfils a commercial role, while the National Agency for the Valorisation of Hydrocarbon Resources (ALNAFT) and the Hydrocarbon Regulation Authority (ARH) are the two regulatory agencies. Although the structure is clearly defined, the regulatory quality is questionable according to the RGI.

[17] Before 1985, the Norwegian State had ownership in production licenses through Statoil, where the State was the sole owner. In 1985, Statoil's participating interest was divided into the SDFI and Statoil's share. When Statoil was listed on the stock exchange in 2001, the management of the SDFI portfolio was transferred to the Petoro.

All the Arab net oil exporters have a sector ministry except for Bahrain where the Royal Decree (No. 63) of 2005 established the National Oil & Gas Authority (NOGA) to substitute the Ministry of Oil in handling all its functions. However, not all the sector ministries among the Arab countries surveyed are responsible for devising the country's oil policy, which remains ill-defined, as mentioned in Section 4.1. In countries like Kuwait, Saudi Arabia and the UAE[18], the supreme petroleum council oversees that aspect; it also appears to share the regulatory responsibility with the NOC. The Ministry of Industry and Commerce in Bahrain plays the role of regulator, as it supervises the industrial sector in the country, including those in the oil and gas industry.

The NOCs of the GCC are among the world's largest oil and gas companies, with Saudi Aramco being the largest in the world. According to the RGI, none of these NOCs makes it to the top 10 of the 52 NOCs surveyed. These results are primarily related to the limited transparency surrounding the inner workings of these NOCs (particularly those related to government transfers rules, financial and production reporting, and disclosure on non-commercial activities). As argued by The Organisation for Economic Co-operation and Development (OECD) (2013, p.89), for unlisted state-owned companies, as is the case with Arab NOCs, "gaps in disclosure and lack of independent audit implies that very little is known about the incidence of corruption beyond anecdotal evidence." Iraq's BOC and Kuwait Petroleum Corporation (KPC) outperform their Arab counterparts, ranking 13th and 14th respectively on the RGI. Although BOC does not publish annual reports on finances and operations, transfers to government are disclosed via the Extractive Industry Transparency Initiative (EITI) reports thereby enhancing the country's standing[19]. KPC scores well on transparency related to government transfers, joint ventures and subsidiaries, but not as favorably on commodity sales and non-operational activities. In contrast, Saudi Aramco and ADNOC are considered opaque especially when it comes to financial statements.

The RGI ranking also relates to the overlap between the regulatory and commercial functions of the NOC. The role of the Arab NOCs has been primarily commercial, which is commensurate with the established experience in the sector. However, in Libya, Qatar and the UAE, the NOC fulfils the additional regulatory role, thereby increasing the risk of conflict of interest (Table 3). Furthermore, the Arab region has been protective of its national champions, and which may be affecting their competitiveness. Authors like Radon and Logan (2016) would argue that to improve the NOC's competitiveness, the first step is to ensure that it is subject to the same regulations and standards that IOCs are, as is the case in Norway. In the Arab region, it is unclear whether this is case.

In the GCC, a notable trend is emerging – that is the privatisation of some of the NOC's assets. The move is expected to create a more competitive market structure and should, in principle, enhance transparency. In 2017, ADNOC announced it was privatising some of its downstream assets, a strategy also contemplated by KPC. However, it is Saudi Aramco's Initial Public Offering (IPO) that has captured international attention. The IPO is perhaps the most striking aspect of Saudi Arabia's major reform agenda, as postulated in the Vision 2030[20]. Saudi Aramco is the world's largest oil producer and most

[18] In this paper, the Emirate of Abu Dhabi is considered as representative of the UAE since it holds most of the country's oil and gas reserves.

[19] See Section 4.4

[20] See Section 4.5

influential oil company in the world, supplying more than 13% of global demand (BP, 2017). It is also the cornerstone of the Saudi economy.

The IPO of NOCs is not something new, what is new, however, is that it is the first time a country which remains closed to private investment in its upstream oil and gas sector undertakes such a step. When Statoil was partially privatised in 2000, 28 years after its creation, the NCS was an internationally competitive province[21]. The company is listed on the Oslo and New York Stock exchanges and adheres to strict reporting requirements, including those related to payments to government. The share sale of Saudi Aramco's would give investors a stake in the world's largest oil fields. It would also facilitate access to Aramco's financial accounts which have been shielded from public reach, thereby subjecting the company to greater scrutiny.

Table 3: Role and RGI's Ranking of NOCs

Net Oil Exporters	NOC	Regulator	Commercial	RGI Rank*
Norway	Statoil		X	3
Iraq	BOC		X	13
Kuwait	KPC		X	14
Qatar	Qatar Petroleum (QP)	X	X	26
Algeria	Sonatrach		X	31
Libya	National Oil Corporation (NOC)	X	X	40
Bahrain	Bahrain Petroleum Company (BAPCO)		X	42
Saudi Arabia	Saudi Aramco		X	44
UAE	ADNOC	X	X	45

Data Source: NRGI, 2017a
*Note: *Rank is out of 52 analysed NOCs. The lower the score is, the better the governance of the NOC*

4.3. Fiscal Arrangement

The third pillar in the value chain relates to the fiscal regime, which defines the relationship between the host government and investors including the sharing of hydrocarbon wealth between these two key players. The central objective in designing petroleum fiscal regimes is easily stated. It is to acquire for the state in whose legal territory the resources in question lie, a fair share of the wealth accruing from the extraction of that resource, whilst encouraging investors to ensure optimal economic recovery of the hydrocarbon resources. How to achieve this balance is a subject of enduring controversy.

This section addresses the issue of fiscal design, focusing on the type of the fiscal regime, government share and some fundamental attributes of the fiscal arrangement including transparency, simplicity, and stability. It also covers the equally important aspect of administration of the fiscal regime.

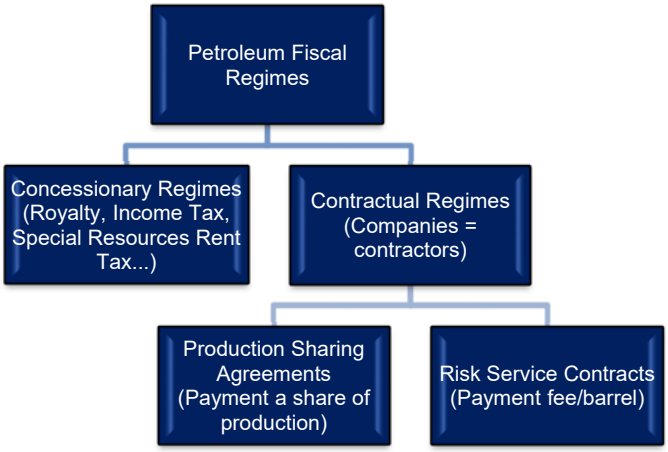
[21] Statoil was first established in 1972 with the State as sole owner, more than seven years after exploration began and one year after the production from Ekofisk oil field started. In 2000, the Storting approved its partial privatization with the sale of 19.2% of Statoil shares on the Oslo and New York Stock Exchanges. In 2004/5, the government sold more of its shares, reducing its level of ownership to 70.1% by end of 2005. In 2007, the company merged with oil and gas part of Norsk Hydro ("Statoil-Hydro" referred to as "Statoil"). The parliament allowed a further reduction in state ownership down to 67%. Statoil controls around 70% of Norway's oil and gas production.

It is worth clarifying that the petroleum fiscal regime encompasses much more than general taxation. Practitioners in the field of upstream taxation are more familiar with the typical fiscal ingredients that make up the structure of most of the world's tax regimes, which include, royalties, resource rent tax, corporate tax, profit oil/gas, and cost oil/gas. Additionally, there is a wide range of commercial and regulatory obligations placed on investors, which, although in most circumstances are not labelled as taxes, are in effect just that in terms of their economic consequences. They include: State participation, bonus, ring fencing, depreciation, Domestic Market Obligations (DMO), and capital gains tax—all of which affect a project's profitability directly. A detailed analysis of these instruments on a country by country basis goes beyond the scope of this paper[22].

4.3.1. Fiscal Design

In the spread of varying relationships between host governments and the oil industry, one can identify two basic and broad categories of agreements that have developed over the years – the concessionary systems and contractual agreements (Figure 8).

Figure 8: Petroleum Fiscal Arrangements



The concessionary system originated at the very beginning of the petroleum industry (mid-1800s) and still predominates in OECD countries. The contractual system emerged a century later (mid-1950s), and has been typically favoured by developing countries. Australia, Canada, Norway, the UK and US, for example, operate a concessionary regime, companies being entitled to the ownership of the oil extracted. By contrast, countries like Angola, Azerbaijan, Iraq and Nigeria apply a contractual regime, whereby the government retains the ownership of the petroleum produced.

A concession provides an oil company with the exclusive right to explore, develop and export oil. It also gives the company title to the oil produced, along with the requirement to pay the appropriate royalties and taxes. Because modern concessionary regimes include various combinations of a royalty, an income tax and a resource rent tax, they are also known as 'Royalty and Tax Systems (R&T)'. It has also become

[22] For a detailed analysis see Nakhle (2010, 2008)

common for the state or its NOC to participate in an oil and gas concessionary venture. The basic features of the oil and gas concessions are similar, but the fiscal terms or ingredients vary considerably and are likely to evolve over time as the fields and basins mature.

According to typical contractual systems, the oil company is appointed by the government as a contractor for operations in a certain licence area. The title to the hydrocarbons remains with the state and all production belongs to the government unless it is explicitly shared. The IOC carries out petroleum operations in accordance with the terms of the contract and operates at its own risk and expense, providing all the financing and technology required for the operation. The parties agree that the contractor will meet the exploration and development costs in return for a share of production, or a cash fee for this service, if production is successful. If the company receives a share of production (after deduction of the government's share), the system is known as Production Sharing Contract (PSC) – also called a production sharing agreement (PSA) – which is a binding commercial contract between the IOC and a state (or NOC), defining the conditions for the exploration and development of hydrocarbon resources in a specific area over a specific period. Under a PSC, since the company is rewarded in physical barrels, it takes title to that share of petroleum extracted at the delivery point (export point from the contract area).

Under Service Contracts, the host government hires the services of an IOC and, in the case of commercial production, the company is paid a fee (often subject to taxes) for its services without taking title to any petroleum extracted. A distinction is sometimes made between a service contract and risk service contract. The former is based on a defined compensation for a specific task, while the latter may involve additional risk being taken by the contractor for which a variable fee may be applicable.

In the Arab region, more fiscal arrangements can be found than there are countries. Libya, for instance, applies concessionary system, PSC and service contracts. The contractual model, however, is the dominant system in the region, in line with the other developing countries. The ownership of oil production and the involvement of IOCs have been emotional subjects in the region, and since the nationalization wave of the 1970s, the concessionary system has been considered as incompatible with a state sovereignty. Such a perception, however, goes back to the early concessions granted in the region (and elsewhere) and which were biased towards the IOCs and gave the host government a meagre share of the hydrocarbons wealth and limited involvement in operational decisions[23]. But conditions have drastically changed since and modern concessionary systems can be designed to produce the same economic outcome to the government as contractual regimes. In other words, fiscal regimes can be made equivalent in terms of both control and overall economic impact. Besides, the sovereignty of a nation of its natural resources is secured by strong policies and regulations. The question of ownership is mainly of legal and political significance. In economic terms, the key issue is how the underlying value from the barrel is shared between the state and investor. If the level of taxation on a barrel is, say 80%, then the state receives the bulk of the value. Ownership of the physical barrels should not be equated with control of the barrel. The latter can be devolved and policed through regulations, whilst value is controlled through the all-important fiscal system.

[23] Early concessions granted in Kuwait were for up to 99 years, while in the UAE a single onshore concession, granted in the 1930s, covered the whole of Abu Dhabi. The financial benefits accruing to the host government under such arrangements were limited, consisting primarily of royalties imposed at a flat rate as a percentage of the oil produced. The concessionaire retained control over virtually all aspects of the operations, including the rate of exploration, the decision to develop new fields and the determination of production levels, among others, leaving the government with a relatively passive role.

Interestingly, in Saudi Arabia that national sentiment of ownership is very strong; foreign investment in upstream oil is forbidden. For the exploration and production of natural gas, however, concessionary terms are offered. The only non-Saudi Aramco operated assets are the gas exploration contracts (held by Shell, Lukoil, Sinopec, Eni and Repsol YPF) in the Rub' al-Khali region. The concession was granted following the Strategic Gas Initiative in 1998, when Saudi Arabia turned to foreign investment to explore its gas potential – the first involvement of foreign investment in the Kingdom's upstream sector since the nationalisation of the industry in 1976. The other exception is the onshore Partitioned Zone (the divided zone between Saudi Arabia and Kuwait), where a concession is held by Chevron.

In terms of total government share of the oil wealth, given the large resource endowment of the net oil exporters and the relatively low exploration and production costs, it is not surprising to see the Arab host governments commanding some of the highest take in the world. Table 4 shows that the minimum government take is 75% in the region.

Table 4: Contractual Arrangements & Government Take in selected Arab Net Oil Exporters & Norway

Country	Contractual Arrangement	Average Government Take
Iraq	Service agreement	>90%
Qatar	Concessionary & PSA	80%-90%
Oman	PSA	80%-90%
Algeria	Concessionary	75-80%
Libya	Concessionary, PSA & Service agreements	80%-90%
Norway	Concessionary	78%

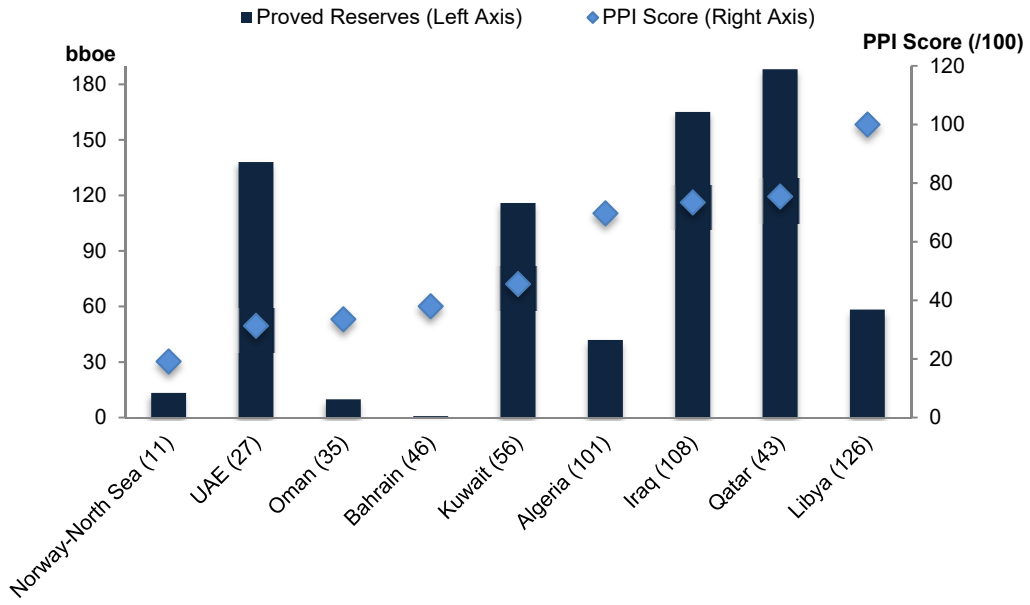
A word of caution about the use of this metric to assess the performance of a fiscal regime: The government take varies with several variables and does not reveal the prominent features of the timing of revenues (e.g. are they generated right up front or when profitability is made) and risk sharing. For instance, although Norway's government take is 78%, which may be considered as high given the elevated exploration and production costs and the smaller reserves compared to the Arab region, the system is rather unique. In a successful attempt to encourage exploration, Norway introduced a new treatment of exploration costs in 2005 whereby the tax value of exploration costs for each tax year loss is refunded in the following tax year – approximately 78% of the value - for those companies that are not in a tax paying position. The regime is purely profit-based, with a simple structure relying on two instruments: a corporate income tax (CIT) rate of 25% and a Special Petroleum Tax (SPT) of 53%, resulting in a marginal tax rate of 78%[24]. The CIT is the general Income tax that applies to all companies operating in Norway. Also, the Norwegian system is one of the most stable regimes in the world. For instance, in its 2016 budget, the Norwegian government proposed a reduction in the CIT rate by 2% to 25%. However, to safeguard the stability of the fiscal regime, which is of paramount importance to Norway, the government announced a corresponding increase of the SPT by 2% to 53%.

By comparison, in the Arab region, more complex and tougher systems are found, with a combination of fiscal and non-fiscal instruments imposed, often upfront and on revenues, irrespective of profitability. The resource endowment is one justification behind this policy choice, however, investors seldom look at such a factor on its own. The overall cost of doing business in the country, including the political and

[24] http://www.norskpetroleum.no/en/economy/petroleum-tax/

security risk as well as the fiscal regime, transparency of regulations and red tape, can more than compensate for the gross value of potential production that an investor can get. Despite its more naturally challenging operational conditions, Norway scores high from an investment perspective and well ahead of the more endowed Arab net oil exporters, according to the Fraser Institute[25] (2015) (Figure 9).

Figure 9: Petroleum Investment Attractiveness



Data Source: Fraser Institute, 2015
PPI = Policy Perception Index
Note: jurisdictions with the lowest PPI are the most attractive; rank out of (126)

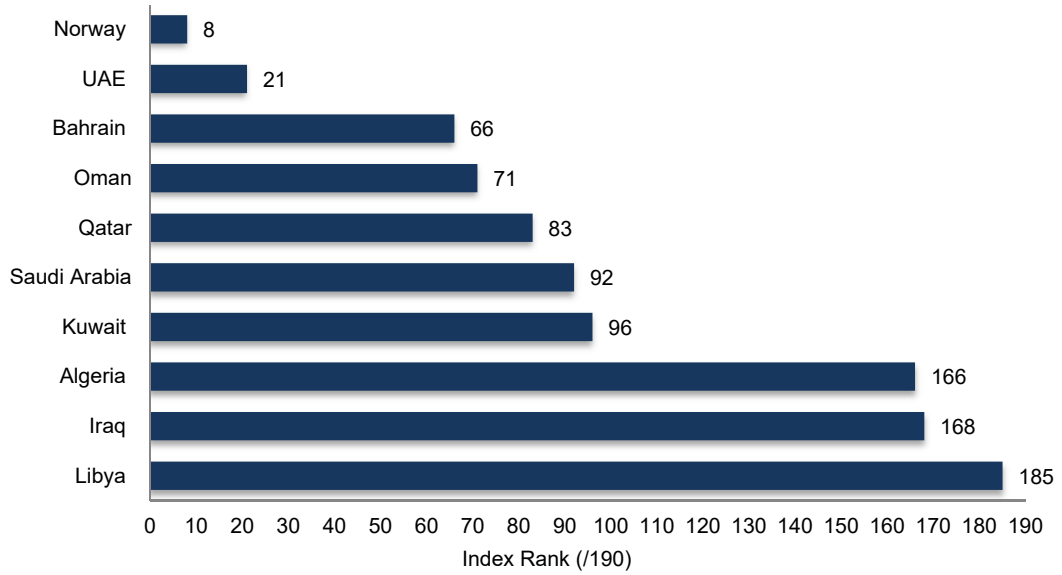
The Fraser Institute's results are consistent with the more general ranking of the countries on the overall World Bank's Ease of Doing business, where Norway is also well ahead of its Arab peers, ranking 6th out of 190 countries in 2016. Iraq, which ranks in the bottom five on the Fraser Institute's survey for the large reserve holders, for instance, also scores very low on the World Bank's indicator, at 165th out of 190 countries, close to countries with much smaller oil and gas reserves such as Mauritania (150) and Sudan (170). Such scorings reflect the tougher 'above-ground' conditions of investing in Iraq. This can explain why in 2012, almost three years after entering the country, Statoil announced it transferred its stake in an oil field in southern Iraq to Russian Lukoil. Similarly, in 2017, Shell decided to relinquish its interests in the giant Majnoon field, eight years after being awarded the contract.

Algeria has also struggled to maintain international investors interested. The country ranks 156th on the Ease of Doing Business. Algeria has a history of instability when it comes to the fiscal regime, in addition to issues related to security and red tape, among others. In 2006, Algeria introduced a new hydrocarbons

[25] The Fraser Institute publishes annual survey of petroleum industry executives and managers regarding barriers to investment in oil and gas exploration and production facilities – grouped under Policy Perception Index (PPI) in various jurisdictions around the globe. The barriers include high tax rates, costly regulatory obligations, uncertainty over environmental regulations and the interpretation and administration of regulations governing the "upstream" petroleum industry, and concerns about political stability and security of personnel and equipment (Fraser Institute, 2015).

law that imposed a new windfall tax of up to 50% on profits when oil prices top $30 a barrel and fixed the rate of participation of Sonatrach to a minimum rate of 51%. Algeria also enacted additional foreign investment rules in 2009 and 2010, further restricting imports and foreign investment. The result: falling investment and production despite the high oil price that prevailed in the following years. To reverse the trend, Algeria had no other choice but to revise its hydrocarbon law in 2013 and provide additional tax incentives to encourage activities related to unconventional oil and gas, as well as to those involving small fields; deposits in underexplored areas, including offshore fields; and fields with complex geology and/or those lacking infrastructure.

Figure 10: Ease of Doing Business (2016)



Data Source: The World Bank, 2016
1=most business-friendly regulations

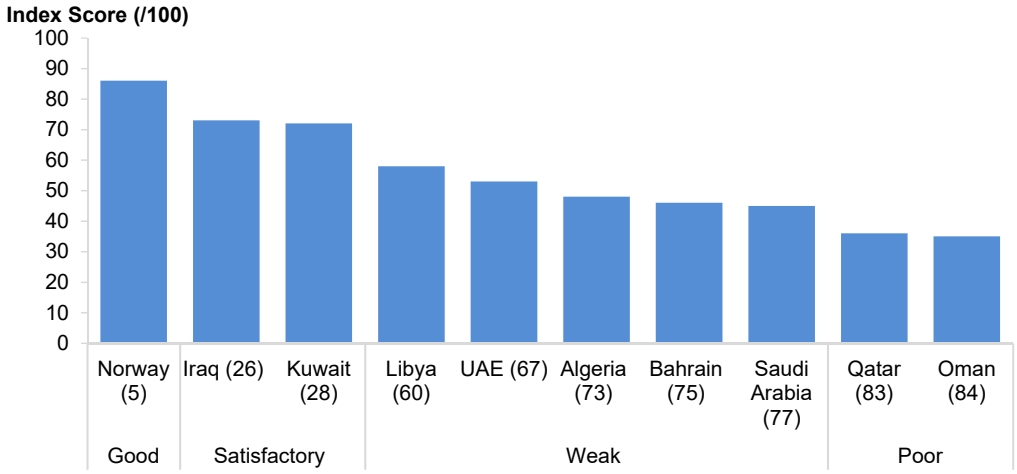
4.3.2. Fiscal Regime Administration

Designing the fiscal regime is one thing; administering it is another. The administration raises similar issues to the ones covered in the previous sections: first, the need for a clear division of roles and responsibilities, in this case between the sector ministry, the Ministry of Finance, NOC and regulator with respect to the collection of various fiscal instruments. Second, the transparency aspect, whereby as argued by the NRGI (2017a), a well administered fiscal regime has the following features: All transactions are clearly traceable and accounted for in the state budget; all payments to the governments whether by the IOCs or NOC should be made to a treasury account at the central bank; and audits and reconciliations of the treasury's accounts and of the companies' accounts should be performed regularly. One can add to the transparency of the fiscal regime itself.

In Norway, the administration of the petroleum fiscal regime is straightforward and clear, explaining its high score on the RGI. The Norwegian Ministry of Finance holds the overall responsibility for ensuring that the state collects taxes, fees and other revenues from the petroleum sector. Additionally, the NPD

collects Carbon/environmental Tax. Among the Arab net oil exporters, both Iraq and Kuwait achieve a 'satisfactory' score on the RGI; the others are either weak or poor because they do not meet all or most of the requirements listed above for the good administration of the fiscal regime (Figure 10).

Figure 11: RGI Taxation Index Score and Ranking



Data Source: NRGI, 2017a
100=best governance, rank out of (89)

In 2012, Iraq became the only Arab net oil exporter which joined the EITI - a move that positively contributed to improving the country's data disclosure and reporting. Iraq published two EITI reports in 2016 for years 2014 and 2015 complying with the EITI requirements to release annual reports. However, following the EITI validation process in 2017, the country's progress in implementing the EITI standards was found inadequate. Iraq's submission was described as "messy, repetitive, badly written, inaccurate with shocking errors and without a clear methodology" (Jiyad, 2017). Iraq was subsequently suspended until it demonstrates meaningful progress in a new validation. In Kuwait, by law, an external body is required to periodically audit the national tax authority. According to the NRGI (2017a), the results of the most recently completed audit were publicly disclosed, unlike the UAE where such audits were conducted but the results were not published.

When it comes to the details of the fiscal regime itself, notable variations exist not only between the selected countries but also within the same country. The fiscal terms in the Arab net oil exporters are not fixed in the legislation and consequently tend to be heavily negotiated on a contract by contract basis. The outcome is the creation of different fiscal structures between one contract and the other, discriminating between investors and increasing the administrative burden. On the contrary, "standardization simplifies contract administration and revenue assessment and reduces the possibility of misinterpretation" (Alba, 2009, p. 11). Because the oil contracts are not published, this also prohibits a complete assessment of the fiscal regime.

In a sharp contract, the Norwegian petroleum taxation system is clearly defined in the Petroleum Taxation Act (of 13 June 1975 No. 35), therefore publicly accessible and applies to all investors in the same manner. No single Arab net oil exporter comes close to Norway's fiscal transparency. Libya and Algeria attempted to publish some of the signed oil contracts on an online portal entitled 'Resource Contracts' but the contracts published are either old - Algeria's only published contract goes back to 1989 - or the financial and fiscal details are not exposed - Libya's published contracts from 2005 to 2012 but the key rates are redacted. In Iraq, only the KRG fully published its oil contracts signed between 2009 and 2011.

4.4. Revenue Management

Managing oil and gas wealth has been a daunting challenge for resource rich countries. When these riches first flow in, they can have an empowering effect, but the question is what follows. In many developing countries, such a wealth has failed to translate into sustainable economic growth which is much needed to create jobs, reduce poverty and provide basic services such as health and education, let alone preserving and securing the needs of future generations.

This section starts by studying the distinctive features of petroleum revenues and which in turn raises fundamental question about their management strategy. The section also analyses the related policy choices in the selected countries and investigates how they score on the good governance of this pillar, with a special focus on petroleum funds.

4.4.1. Distinctive Features

While most of the principles for the sustainable management of petroleum revenues are the same as those for good budget management in general, some issues are particularly important for oil and gas exporters, because of the distinctive features of these revenues.

Firstly, they are generated from the sale of an exhaustible resource. They are assets not a source of income: any consumption of revenues from sales are viewed as a consumption of capital rather than a consumption of income (Humphreys *et al*, 2007). According to Heal (2007, p.170), "it is like augmenting the family income by selling the family silver: it cannot last and is really a form of asset disposal". The wealth is extracted, not produced, and can therefore occur independently of other economic processes in a country. Resource exhaustibility gives rise to intertemporal decisions about how much of the resource wealth to consume and how much to save (IMF, 2012). The asset depletion therefore raises the issue of inter-generational equity and calls for the need to convert the extracted resource into a portfolio of other assets that yield a sustainable flow of income for current and future generations.

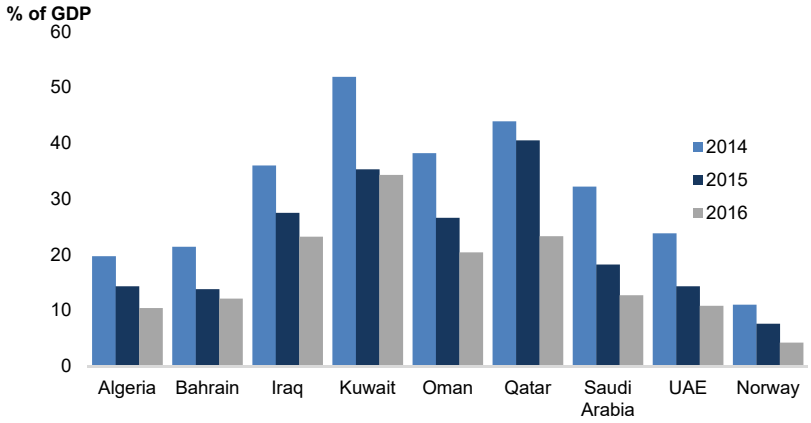
Secondly, the scale and timing of petroleum revenues do not follow a known path. Oil and gas, have the potential to generate significant windfalls in terms of export earnings, which if not well managed, can

put upwards pressure on local price levels and trigger the Dutch Disease[26]. These revenues are also volatile and uncertain given the high volatility in oil and gas prices, and the uncertain production pattern which in turn complicate fiscal planning, with potentially destabilizing budgetary and liquidity effects. Price volatility leads to volatility in government revenues making it difficult for governments to impose fiscal discipline and encourage short-sighted policies.

Both exhaustibility and volatility of petroleum revenues potentially give rise to unsustainable increases in consumption (Collier *et al*, 2009). Van der Ploeg and Poelhekke (2009) argue that it is not the level of natural resource dependence or abundance but the notorious volatility of commodity prices that is the quintessence of the resource curse. Commodity price swings can be large, long-lasting, and asymmetric, making it hard to forecast prices and complicate the task for policy makers to assess whether a shock is permanent or temporary (IMF, 2012). The result can be high levels of expenditure in good years followed by deep cuts in bad years, instead of sustained higher growth. Humphreys *et al* (2007) argue that the magnitude of price fluctuations can be amplified by international lending. When oily prices are high, oil rich countries resort to international borrowing, further exacerbating the boom. When prices fall, international lenders demand repayment and force expenditure reductions, thus increasing the magnitude of downturns (Badeeb *et al*, 2016). The outcome is debt crises (Van der Ploeg, 2011).

Thirdly, oil and gas revenues tend to be sizeable relative to the size of the economy especially in developing countries, risking disorienting the country into a single commodity economy and increasing its vulnerability to external shocks. The share of oil revenues out of the Gross Domestic Product (GDP) in the Arab net oil exporters varies from double to more than eight times that of Norway's, which enjoys a more diversified economy (Figure 12).

Figure 12: Hydrocarbon Revenues out of GDP

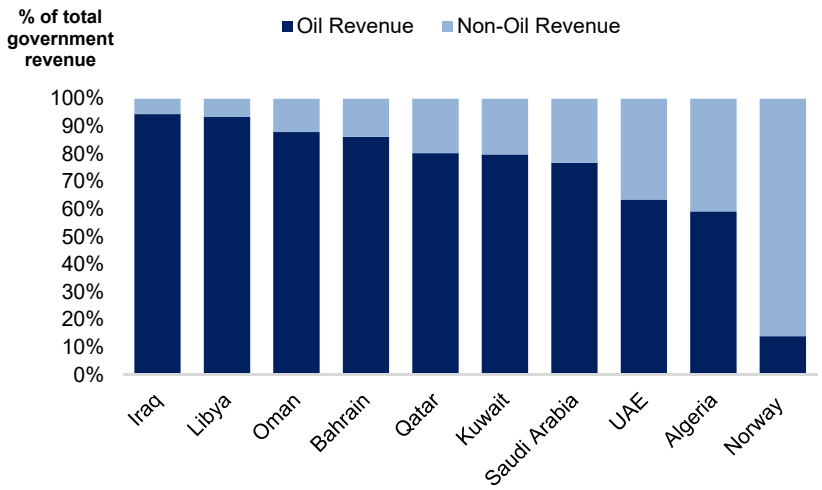


Data Sources: IMF Articles IV, 2016b; Central Bank of Oman, 2016; Norsk Petroleum, 2017

[26] The phenomenon typically arises when a strong upward swing in the world price of the export commodity triggers a significant appreciation of the local currency and increased government spending, both of which expand non-traded goods and service sectors such as housing, and reduce the competitiveness of non-commodity export sectors such as agriculture and manufacturing. The result is a replacement of domestic production by imports.

Finally, the government is the main recipient of petroleum revenues which are included in fiscal revenues. Consequently, the impact of such revenues depends directly on the fiscal policy response which becomes an important transmission mechanism. The most obvious impact of lower oil prices on net oil exporters is the deterioration in external accounts, the repercussions of which depend on the extent an economy depends on oil revenues: the higher the dependence is, the more painful and extensive the outcome will be. Figure 13 shows the heavy reliance of fiscal revenues on oil especially in Iraq where it is more than 90%, whereas in Norway it is much soberer, at 14%.

Figure 13: Oil and non-Oil Fiscal Revenues



Data Source: IMF, 2016a

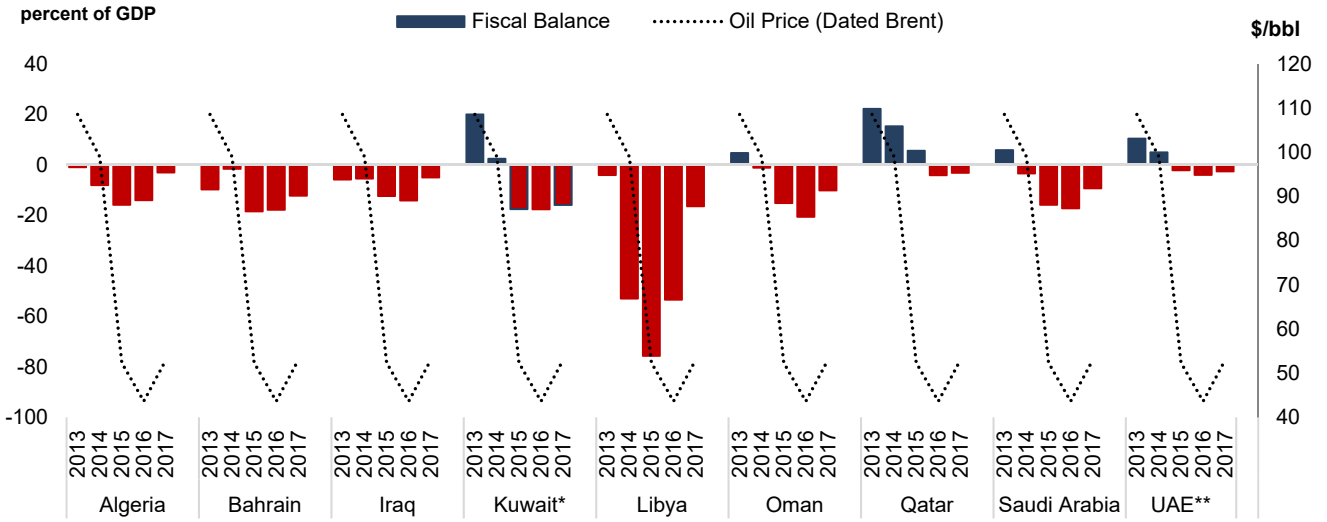
In these high-dependence cases, losses in petroleum export revenues will translate into shrinking fiscal revenues, because oil export earnings are captured almost entirely by the government, resulting in a large budget deficit. All Arab net oil exporters run significant fiscal deficit following the collapse in the oil price in summer 2014[27](Figure 14).

The distinctive features of oil revenues raise the fundamental question of how to maintain a sustainable consumption pattern for present and future generations without causing macroeconomic disruptions and how to safeguard the economy from volatility in commodity prices. Resource rich countries are increasingly attracted to the notion of having a Sovereign Wealth Fund (SWF), to manage resource revenue volatility, meet development needs and transfer part of the wealth for future generations.

It is worth noting, however, that while such funds have their own attractiveness, by themselves they are not sufficient to build and support sustainable economic development. A sound fiscal management is a satisfactory and primary condition for an effective revenue management even without a fund, but the opposite does not hold for the fund. The countries in the best position have economies that can weather the storm, with or without their SWFs. These are countries that have strong fiscal systems that allow flexible spending and provide alternative sources of revenue.

[27] Between 2011 and summer 2014, the oil price was hovering between US $100 and 110 a barrel, then fell by more than 60% after that.

Figure 14: Fiscal Balance and Oil Price



*Note: 2017 projection; *Balance (after transfer to FGF and excl. inv. income); **Consolidated accounts of the federal government and the emirates Abu Dhabi, Dubai, and Sharjah. From 2010, includes extra-budgetary funds*

Data Sources: IMF, 2017b & 2016c; IMF, 2017c; EIA, 2017b

4.4.2. Petroleum Funds

SWFs have become increasingly fashionable since the beginning of the 21st Century, following the sharp increase in commodity prices and the subsequent rise in foreign exchange reserves. However, interestingly, it was in the Arab region that the world's first SWF was established in 1953 with what is today known as the Kuwait Investment Authority (KIA).

SWFs are predominantly financed by excess accumulation of foreign exchange, often derived directly or indirectly from revenues from the export of natural resources. Although the term SWF was made popular by Andrew Rozanov of State Street Corporation in 2005[28], the literature is still missing a common definition for SWFs, which come with such a diversity of objectives, investment philosophies, and political as well as economic ambitions that no single definition fits all of them. This has resulted in different classifications of SWFs. For instance, some treat the foreign assets of the Saudi Arabian Monetary Agency (SAMA) as a SWF, others disagree since SAMA acts as Saudi Arabia's Central Bank and its holdings are mostly in traditional reserve assets. In agreement with Sauvant *et al* (2012), this paper considers SWFs as government-funded investment vehicles which are distinct from the official reserves of a country, and manage foreign denominated assets.

The asset management strategies of SWFs are tailored to meet one or more of the following macroeconomic objectives: stabilisation and saving, which, according to AlSweilem *et al* (2015) are the most prominent functions, and are typically stated in the fund's formal mandate. Accordingly, the main types of petroleum funds are:

[28] As quoted in Truman (2010)

- **Stabilisation Funds** aim to stabilize key macroeconomic variables and public finances and shield the economy from the negative effects of unexpected deviations in government revenues because of fluctuations in commodity prices. Withdrawals from these funds during periods of low prices are only to be expected and do not necessarily convey signs of serious fragility. The inflows and outflows from stabilisation funds depend on whether revenues exceed or fall below a certain threshold. Such thresholds – say, a reference oil price – can be fixed or changed at the sovereign's discretion. Thus, when oil prices exceed the threshold, SWFs accumulate a portion of petroleum revenue and invest them in foreign assets. When prices fall below the threshold, assets are sold to finance government expenditures. This requires stabilisation funds to maintain a certain degree of flexibility, since they can be called upon over short cycles and at short notice, when unanticipated price shocks hit the economy. Algeria's Fund for the Regulation of Receipts (FRR) (also known as Fond de Regulation des Recettes) falls into this category. The fund's resources can be used to finance the budget if actual hydrocarbon revenue is less than budgeted or to reduce national debt. However, no withdrawals are allowed if the balance falls below US$10 billion.

- **Savings Funds** attempt to achieve inter-generational equity. Their aim is to convert the non-renewable resource into a diversified portfolio of financial assets, that will generate income flows from interest payments, dividends and appreciating asset values for future generations. Savings funds therefore have longer-term wealth creation and policy objectives than stabilisation funds. In practice, the operational rules of accumulation and withdrawal often depend on the government's willingness to respect the fund's original purpose. Usually, savings and spending are not so closely linked to oil prices. Qatar Investment Authority (QIA) aims to "create long-term value for generations to come. It is therefore not subject to conventional short-term performance measures or tactical portfolio optimisation" (QIA, 2017).

Most Arab net oil exporters have established SWF that meet both of those two objectives (Table 5). Abu Dhabi's SWF – Abu Dhabi Investment Authority (ADIA) is primarily a savings fund, "with a focus on long-term value creation" (ADIA, 2016). The Fund receives surpluses after the Government of the Emirate of Abu Dhabi's budget and commitment to other investment vehicles like Mubadala are covered. ADIA is also required "to make available to the Government of the Emirate of Abu Dhabi, as needed, the financial resources to secure and maintain the future welfare of the Emirate. In practice, such withdrawals have occurred infrequently and usually during periods of extreme or prolonged weakness in commodity prices" (ADIA, 2016). Among the Arab net oil exporters, one country stands out: Saudi Arabia, the largest and one of the oldest oil producers in the region, does not have a SWF. However, in its landmark economic reforms 'Vision 2030' published in May 2016, the Kingdom announced the ambitious plan of establishing the world's largest SWF, twice the size of Norway's SWF.

The value of these SWFs is not publicly known as they don't publish their financial accounts. It is, however, estimated that they represent more than 42% of the world's total petroleum funds. ADIA is the world's second largest petroleum SWF; its value is more than twice the size of the UAE's entire economy. Both Kuwait and the UAE have accumulated such a large financial cushion that the prospect of their mutual funds' depletion is distant.

Table 5: Arab & Norway SWFs

Country	Fund Name	US$bn	Type	Inception	RGI Score/100
Norway	GPFG	998.9	Stabilisation/Savings	1990	90
UAE	ADIA	828	Stabilisation/Savings	1976	31
Kuwait	KIA*	524	Stabilisation/Savings	1953	61
Qatar	Qatar Investment Authority (QIA)	320	Savings	2005	4
Libya	Libyan Investment Authority	66	Stabilisation/Savings/Development	2006	32
Algeria	FRR	7.6	Stabilisation	2000	21
Oman	State General Reserve Fund (SGRF)	18	Savings	1980	47
Bahrain	Future Generations Reserve Fund	0.4	Stabilisation/Savings	2006	32

** KIA is responsible for the management and administration of Kuwait's General Reserve Fund (GRF) and its Future Generations Fund (FGF), as well as all other funds entrusted to it by the Minister of Finance for and on behalf of the State of Kuwait*

Sources: Sovereign Wealth Fund Institute; Natural Resource Governance Institute (2017a)

Norway's Government Pension Fund Global (GPFG) is the world's largest, even though it is several decades younger than ADIA and KIA, and Norway is a smaller oil producer than several Arab countries. This relates to the fact that the Norwegian economy is more diversified, and the government is less reliant on oil revenues for its spending, which in turn affects the accumulation in the fund as well as withdrawals from it. Furthermore, Norway follows strict operational (accumulation and withdrawal) rules whereby all oil revenues are transferred to the GPFG and the government can use only the expected return on the fund (estimated at 4%) for general spending purposes. This keeps the fund's capital base intact. Withdrawals require parliamentary approval.

Over the last decade, a set of principles have been developed for the good governance of the SWF. The commonly referred ones are the Generally Accepted Principles and Practices of SWFs also known as the Santiago Principles, which are voluntary standards set up by the International Working Group (IWG) of SWFs under the aegis of the IMF in 2008. The IMF's Guide on Resource Revenue Transparency (2007) provides a comprehensive list of rules for the establishment of an effective fund, so does the NRGI on governance[29]. The principles can be considered as benchmarks to assess the governance of a SWF; they include: structure and governance, clarity of objectives, transparency and accountability, asset allocation strategy, integration with budget, and operational rules as the fundamental issues (See Box 2).

Norway's management of the GPFG is exemplary; the country's meet all the principles set out in Box 2 and information about the fund's investment and operations are easily accessible. It is difficult to judge on the performance of the Arab SWFs against these principles because of the high degree of secrecy that surrounds them. The lack of transparency is not unique to the Arab region; Bauer *et al* (2014) identify 54 natural resource funds globally but concluded that half of these funds were too opaque to study comprehensively.

[29] Check: http://www.resourcegovernance.org/topics/sovereign-wealth-funds

Box 2: Principles of SWF Governance

- **Strong Structure:** This principle relates to the division of roles and responsibilities, oversight and accountability of the SWF. Petroleum funds work best when they are less susceptible to capture by politicians. The governance structure also extends to the appointment and selection of members of the board of directors, trustees, auditors, asset managers, and individuals working in the funds which need to meet minimum requirements of expertise, professional background, and experience (Le Borgne and Medas, 2007). There is also a need to coordinate between various government institutions including ministries, the central bank, independent investment authorities, parliament, and public auditors, for the successful implementation of the fund's policies.
- **Clearly defined goals and transparency regarding status and operation:** Petroleum funds typically have two sets of objectives: the broad policy objectives which provide the rationale for setting the fund and often appears under its mission; and the operational objectives which shape the policy and asset allocation strategy.
- **Integration with the state budget system:** A unified budgetary process is typically recommended, whereby funds are not to be used as a second budget for extra-budgetary spending, irrespective of whether it is for priority areas.
- **Sound assets management strategy:** The allocation strategy depends on the fund's core mandate – whether stabilisation, savings or both.
- **Clear operational rules:**
  - The saving/accumulation rule: The revenues to be deposited in the fund need to be specified. Different mechanisms exist for transferring those revenues into the fund; they can be discretionary or rule-based.
  - The withdrawal rule: In the absence of clear rules on how savings are used, when they can be accessed and how they are invested a fund's assets are vulnerable to rapid depletion when oil revenues fall or cease.

KIA leads the Arab net oil exporters on the RGI, primarily because of the transparency around its operational rules. Created in 1976, the FGF receives a minimum of 10% of state revenues and 10% of the GRF annually. All proceeds from the FGF's investments are reinvested and any transfer from the FGF requires a specific legislation authorizing any withdrawal. Oman's SGRF ranks second. On its website, the fund emphasizes the importance of transparency and governance, although the withdrawal rules are not clearly specified. In terms of accumulation, the fund refers to "emerging resources resulting from exceeding the ceiling of the proposed oil prices during the approved five-year development plan" and "any surplus results by the end of the financial year".

All the other funds are classified as either 'poor' (Bahrain, Libya and the UAE's) or failing (Algeria and Qatar's) on the RGI. According to NRGI (2017a), these funds "are so opaque that there is no way to know how much may be lost to mismanagement—or who benefits from these funds' investments", even though most of their owners have voluntarily agreed to uphold the Santiago Principles 'in all material respects' (International Forum of SWF, 2017). For instance, according to the IMF (2013), the accumulation of deposits at Algeria's Revenue Regulation Fund (RRF) was not transparent during the boom in oil prices; the government bypassed the provision to deposit revenues above the ones implied by conservative oil prices by issuing debt that was subsequently repaid by the fund.

It is worth noting that the success of Norway's GPFG and the government's self-discipline go well beyond the operational rules; they are grounded in a well-established institutional framework, a broad revenue base and a long tradition of fiscal and monetary transparency. Such clear, enforceable rules tend to be lacking in many developing countries, including the Arab net oil exporters.

Even when such SWFs have operational rules, they are often not respected, as governments freely tap into their capital when socioeconomic and political conditions turn bad. The future of these SWFs is almost entirely dependent on the outlook, priorities and commitment of their state owners. Short-sighted governments are likely to deplete their capital. Wiser states will take a long-term perspective, reinvesting oil revenue so that future income from financial investments will exceed that from oil exports. But even the most prudent savings and investment policies mean little without policies to tame public spending and bolster non-oil sources of revenue. In two years alone, from 2015 to 2017, Algeria and Saudi Arabia experienced a reduction in their foreign reserves by US $60 billion (more than 31%) and more than US $190 billion (around 27%) respectively (IMF, 2017b). This is clearly not a sustainable pattern.

4.5. Sustainable Development Policies

"Once the extractive industry contracts and licenses have been awarded, exploration has been completed, construction of production facilities has taken place, operations have been well monitored and regulated, the Extractive Industry income has been collected, and the revenue has been soundly distributed and managed, governments can expect to have excess capital at their disposal to pursue and implement sustainable development investments" (Alba, 2009, p.18). This last pillar of the value chain encompasses broader socio-economic and environmental goals in line with the concept of sustainability – though the separation between these three dimensions is not always clear cut. It will be difficult to capture them all in this paper, but the section will highlight general sustainability related policies as adopted in the selected countries. Like the findings of the previous sections, the analysis indicates commonalities between the Arab net oil exporters and significant divergence with Norway.

4.5.1. Economic Sustainability

Most Arab countries have announced agendas to improve sustainability, some are rather like five-year plans and others are more for the long term. One common aspect among these plans is the emphasis on economic diversification and the reduction in the dependence on oil revenues (Table 6).

Apart from Oman which announced such a plan in 1996, all the other plans in the Arab net oil exporters were declared a decade later. The trigger behind such plans has often been directly or indirectly oil related. For instance, the slowdown in oil production growth contributed to Oman's agenda. In other countries, the decline in oil price has been a more obvious trigger (e.g. Saudi Arabia Vision 2030). Norway published its detailed National Strategy for Sustainable Development in 2002, with neither the oil price or production performance being the trigger nor is economic diversification the focus. Norway's plan was announced following The UN's Millennium Declaration, in September 2000, which commits world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women.

Authors like Cullinan and Bernu (2017, p.8), believe that most of the Arab net oil exporters plans, particularly in the GCC, are "aspirational". Perhaps the most ambitious plan is that of Saudi Arabia's Vision 2030, which was described in the media as the biggest economic shake-up since the establishment of the Kingdom and the most sweeping of any attempted previously in the Middle East or by an oil-producing developing country. The reform agenda includes the introduction of basic taxes, such as income tax and

a value-added tax (VAT), a reduction in energy subsidies, promotion of the private sector, and support for the role of women in the economy, among others. The most prominent changes announced, however, are the sale of a 5% share of Saudi Aramco and the creation of the world's largest SWF.

Table 6: Arab Countries Sustainability Plans

Country	Year Announced	Visions/Plans
Algeria	Work in progress	**Action Plan 2018-2035** to improve the social security system, increase economic growth rates and promote investment in Algeria
Libya	Work in progress	**Vision 2020** reflects the nation's aspirations, determination, and commitment for immediate socioeconomic and democratic transformation
Saudi Arabia	2016	**Saudi Vision 2030** builds around three themes: a vibrant society, a thriving economy and an ambitious nation that is effectively governed
Iraq	2013	**National Development Plan of Iraq (NDP)** 2013-2017 which primarily aims to change the nature of Iraq's economy from a rentier state to a production economy in the long term; promote transparent, good governance; develop the competitiveness of the economy; create jobs and reduce poverty; enhance the role for women
Kuwait	2011	**Kuwait Vision 2035**: Develop Kuwait into a financial and trade center and privatisation of the national economy
UAE	2010	**Dubai Plan 2021** and **Abu Dhabi Economic Vision 2030** policy: Achieve economic development through channeling oil revenues to nurture well-diversified economic development and maintain disciplined fiscal policies
Qatar	2008	**Qatar National Vision 2030**: Achieve economic, social, human and environmental development
Oman	1996	**Vision 20-20 plan** aimed at reducing the country's reliance on oil and gas production by diversifying the economy in the services, industrial and financial sectors
Bahrain	2008	**Economic Vision 2030**: Shaping the vision of the government, society and the economy, based around sustainability, fairness and competitiveness
Norway	2002	**National Strategy for Sustainable Development** key priorities: human rights; women's rights and gender equality; climate change and environment; and anti-corruption.
	2002	**Meld. St 24 (2016-2017) White Paper–** focusing on health, education, and climate, including doubling funding for renewable energy

Achieving greater economic diversification, reducing dependence on oil revenues and establishing a more sustainable growth model have long been advocated as the recipe for a healthy long term economic growth. To date, they remain limited in the region; economic growth continues to be at the mercy of the unpredictable changes in international oil prices. Although some net oil exporters refer to the growing share of the non-oil GDP as evidence for greater economic diversification, the share of oil and gas exports out of GDP has increased on average from 8% in 1995 to 51% in 2013.

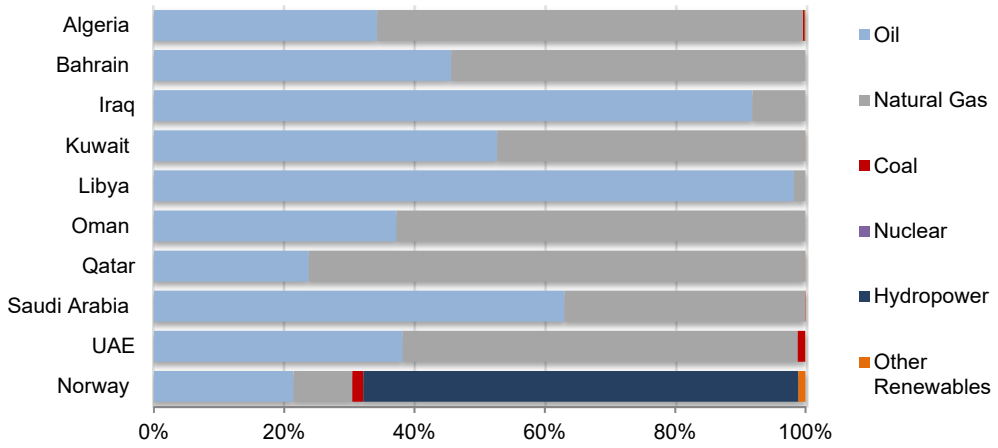
Furthermore, the performance of the non-oil GDP has replicated that of the oil price. In the GCC for instance, non-oil GDP growth rate reached 5.5% in 2012 and 5.7% in 2013 – a period of high oil prices. In 2015 and 2016, as oil prices reached half the levels they were in the previous years, the non-oil GDP growth rate was at 3.8% and 1.9% respectively. Such findings support Titulaer's (2010) work which shows that for most of these countries economic diversification has not improved over time. As argued by Ahmed (2016), the economic transformation of these oil-exporting economies is no easy task and will be a long-term project that requires a sustained push for reforms.

4.5.2. Environmental Sustainability

Although economic diversification is prominent in the Arab net oil exporters reform agenda, other goals have been set and are being pursued on the environmental sustainability front, particularly in terms of diversifying the energy mix and boosting energy efficiency to reduce wasteful consumption and carbon footprint. In 2013, carbon dioxide (CO_2) emissions in Qatar were more than three times those of Norway's on a per capita basis, and in Kuwait and Bahrain they were more than double.

Unlike Norway which gets its energy from a well-diversified mix, giving the country the dual benefits of ensuring security of supply and reducing carbon emissions, all the Arab net oil exporters heavily rely on oil and gas to meet their domestic energy needs (Figure 15).

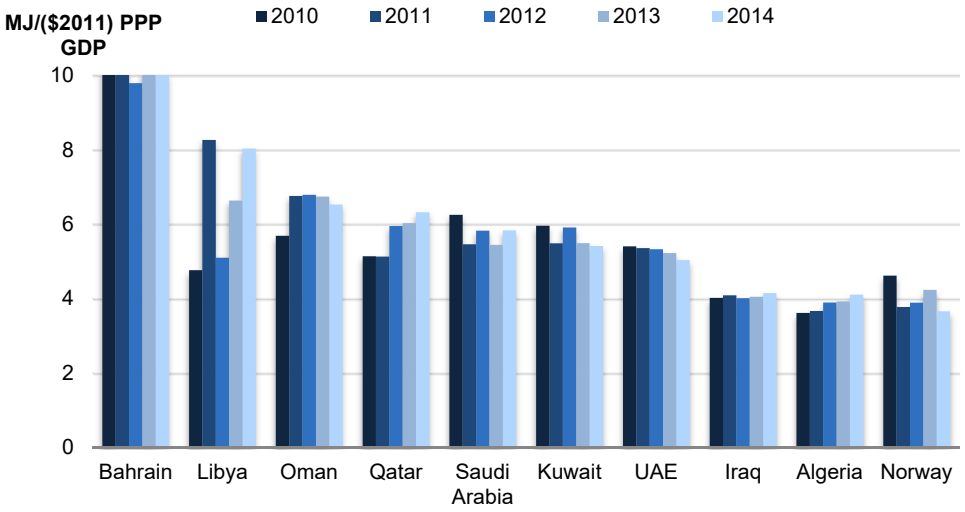
Figure 15: Primary Energy Consumption by Fuel, 2015/2016



Data Sources: BP, IEA, 2017
Note: Bahrain, Oman and Libya data only available for 2015

Furthermore, the energy intensity of most of the Arab net oil exporters has not matched the global trend of a gradual decrease and is high. The UAE is an exception since there was a constant decline between 2010 and 2014; it remains, however, almost 1.5 times that of Norway's. In countries like Bahrain and Oman, energy intensity is double that of Norway's (Figure 16).

Figure 16: Energy Intensity



Data Source: The World Bank, 2017a
MJ=Megajoule; PPP= Purchasing Power Parity

One of the main culprits behind such a trend is subsidies, which typically encourage wasteful consumption[30]. The Arab net-oil exporters have the largest energy subsidy bill in the world, accounting for more than one-fifth of global energy subsidies in 2015[31] (IMF, 2017b). According to Selim and Zeki (2014), between 1997 and 2012, Algeria and Kuwait spent more on energy subsidies and social benefits than on education and health combined. In a sharp contrast, Norway has a tradition of imposing high fuel taxes which makes it stand out from most oil producers around the world. The price of gasoline in Norway is more than eight times that in Saudi Arabia (Global Petrol Prices, 2017). The outcome is improved efficiency as well as the generation of an additional source of income to the government. Furthermore, Norway has imposed a carbon tax since 1991, one of the first countries to do so; the tax is also among the highest in the world (The World Bank and Ecofys, 2016).

In their visions and reform plans, the Arab net oil exporters recognise the above problems and commit to tackle them. The road, however, will not be easy or cheap; it can be significantly supported by creating an enabling business environment to encourage private investment, which is anemic compared to other regions.

The UAE, for instance, was the first country in the Middle East to ratify the Paris climate change agreement – it pledged to increase the share of clean energy to a staggering 24% of its total energy mix by 2021, from a tiny share of less than 0.1% today. In its Energy Plan 2050, announced in January 2017, the UAE also committed to generate 50% of its electricity from clean energy (including nuclear) by 2050. Some 44% is due to come from solar energy and 6% from nuclear plants. The remaining 50% will come from gas (38%) and clean coal (12%). Today, 100% of its electricity is generated using gas. It is argued that such a mix will allow the UAE to reduce carbon emissions by 70%. However, to achieve these targets, the UAE will need to invest more than $163 billion. This funding has to come from either the private or the public sector; if the latter, under current economic conditions, it is likely to be funded by oil money. So long as government revenues are dominated by hydrocarbon exports, a vicious cycle results: to sustain a clean energy transition requires more – not less – oil investment and production, to sustain public finances – for as long as clean energy is not cost competitive.

Although all Arab oil exporters have raised domestic prices, more work still needs to be done as the price gaps remain considerable for many, according to the IMF (2017a). Removing subsidies, however, is not straightforward; it is politically difficult to remove entitlements, once people have become used to them – no matter how economically efficient this may be.

One additional step that the Arab net oil exporters can take to improve their environmental sustainability is the reduction in gas flaring, which is not only a waste of a valuable resource but also an important contribution to carbon emissions. Iraq and Algeria are in the top five gas flaring nations in the world. As members of The World Bank's Global Gas Flaring Reduction Partnership (GGFR), their performance on this front should improve although they have a long way to go (Figure 17)[32]. The natural gas that Iraq burns every day is more than double the gas needs of countries like Lebanon.

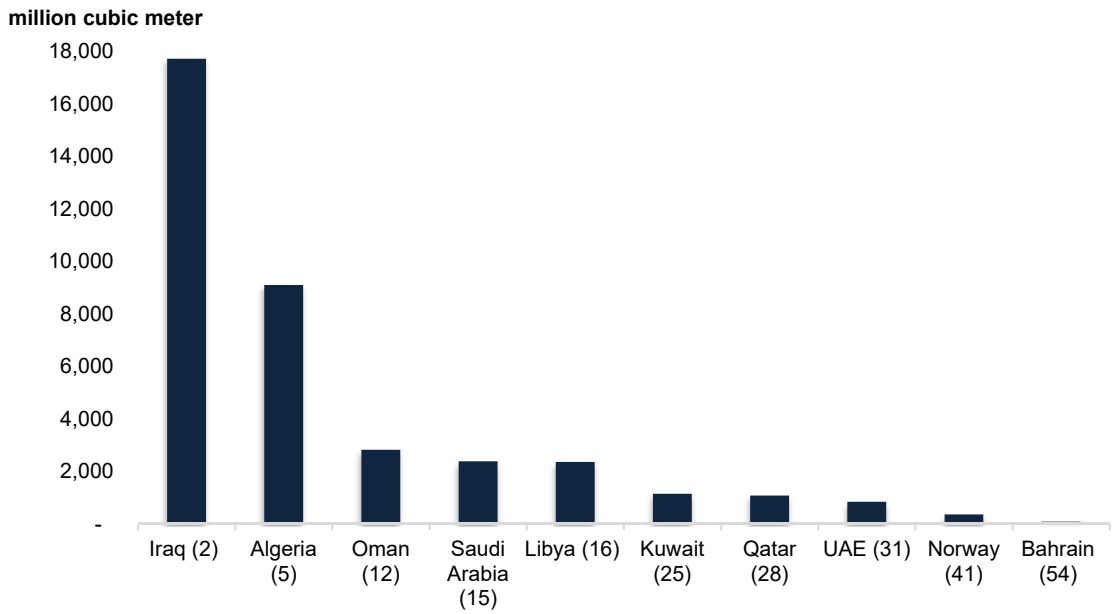
[30] For more information on oil and gas consumption trends in the region, see Appendix II

[31] Excluding Libya

[32] Although only Bahrain, Oman and Saudi Arabia have not joined. Qatar was the first GCC country to join.

Among all the indicators considered in this paper, one Arab net exporter outperforms Norway: that is Bahrain. This is partly due to the fact that Bahrain is a much smaller oil and gas producer than either Norway or the other Arab net oil exporters.

Figure 17: Gas Flaring



Data Source: The World Bank, 2017e
Note: Rank out of (60) countries

4.5.3. Social Sustainability

Social sustainability is a broad concept, with many facets. This section will address one of its important dimensions that is the HDI, which integrates three basic aspects of human development: life expectancy, years of schooling and gross national income per capita which reflects the ability to achieve a decent standard of living[33].

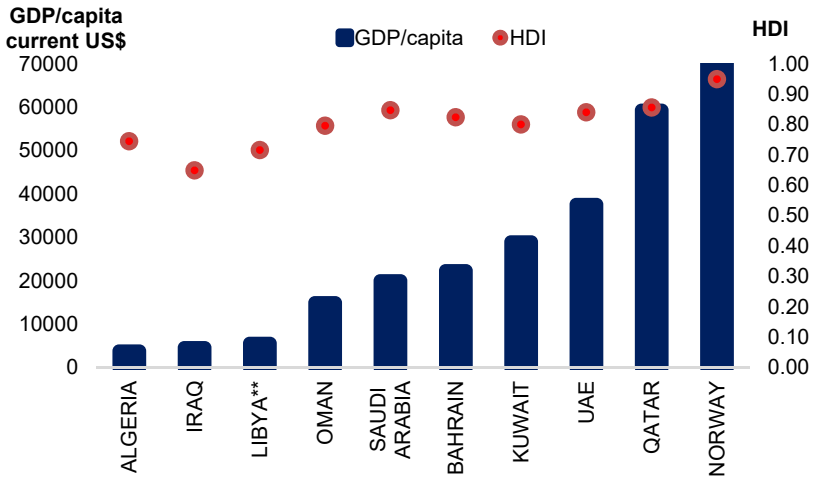
All Arab net oil exporters achieve a 'very high' HDI, except for Algeria, Libya and Oman with a 'high' ranking, and less impressively Iraq with a 'medium' level. Although Qatar scores the highest at 0.86, it still lags Norway's 0.95 (UNDP, 2016). The income per capita in Norway is higher than the Arab net oil exporters which partly explains the difference, but Norway also scores better on the other two indicators.

Additionally, Qatar's high income per capita is the highest among the Arab net oil exporters, ranking fourth in the world behind Luxembourg, Switzerland and Norway, given its vast gas wealth and small population. However, although Saudi Arabia and the UAE have a lower income per capita than Qatar, their HDI is almost similar (Figure 18). Such a finding probably resonates with the UN's 2002 often

[33] A HDI above 0.7999 indicates very high human development; high development if HDI is between 0.799 and 0.7; medium development if HDI between 0.55 and 0.699; and low development if below 0.55.

quoted expression that some countries in the Arab world are 'richer than developed'. No Arab net oil exporter ranks in the top 30 in the world on HDI.

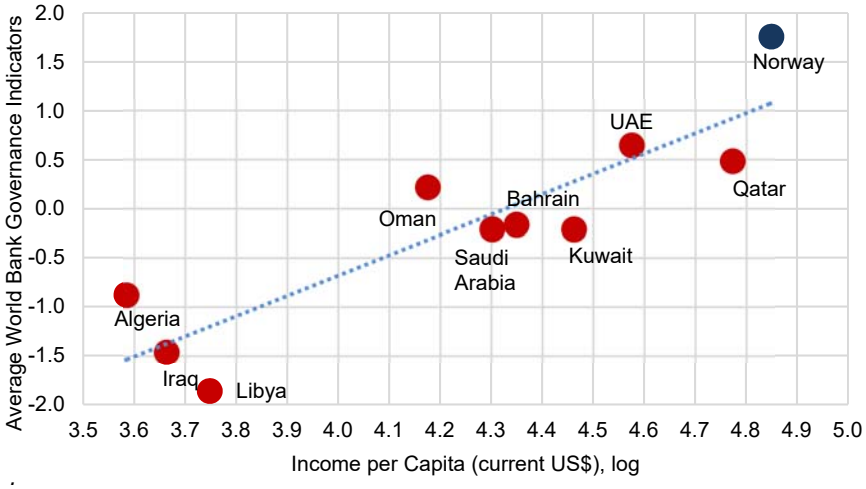
Figure 18: Income Per Capita & HDI



Data Sources: The World Bank, 2017a & 2017e
***The latest available data for Libya is 2011*

When the oil and gas wealth is combined with the general governance indicator, like the WGI, a positive relationship appears between income and governance. That said, for some oil and gas rich countries, the governance ranking is not commensurate with their income level. When governance performance is taken into consideration, Norway's ranking receives a boost and the gap with the Arab net oil exporters increases. Qatar gets closer to the UAE, which, despite its lower GDP per capita (ranking 20th globally), fares better than its neighbour when the governance dimension is included (Figure 19).

Figure 19: Income Level vs. Governance

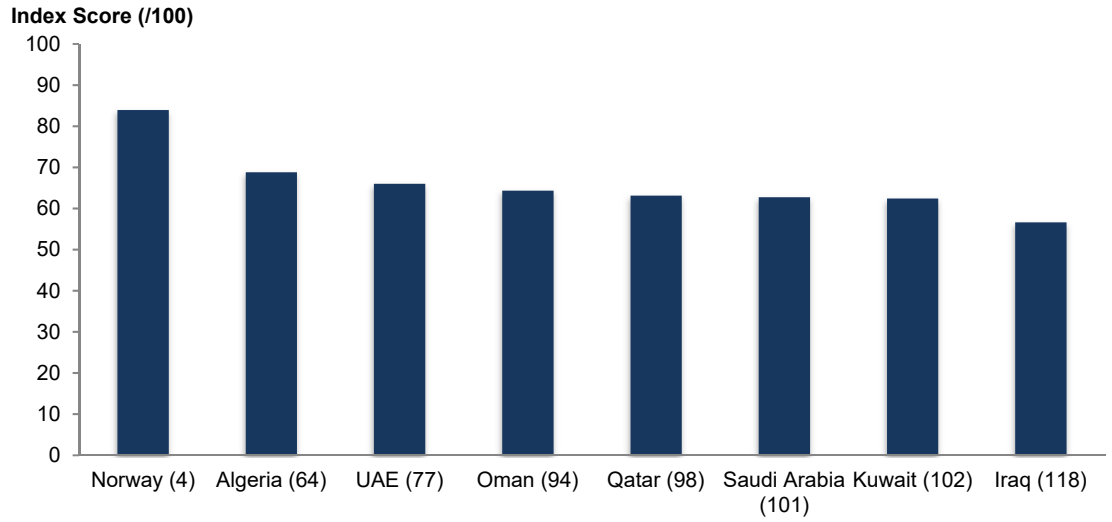


Data Sources: The World Bank, 2017a; The World Bank, 2017c
Notes: The latest available data for Libya is 2011, and for Kuwait is 2015

All the above challenges, as well as others that were not covered in this paper (such as women employment) explain why progress towards achieving the SDGs agenda is not satisfactory across the Arab net oil exporters. Figure 20 illustrates the score of the studied countries on the SDG Index which measures the progress of 149 countries (in this case, as of 2017), compared to a baseline measurement taken in 2015.

Norway is in the top three. In a sharp contrast, none of the Arab oil exporters makes it to the top 50. Most of them are in the bottom of the list, clearly highlighting the scale of the challenge these countries still need to address on the sustainability dimension irrespective whether it is economic, social or environmental.

Figure 20: SDG Index (2017)



Data Source: Bertelsmann Stiftung and Sustainable Development Solutions Network, 2017
Note: The higher the score the better; Rank out of (157)

5. CONCLUSION

The objective of this paper is to conduct a preliminary analysis of the governance of the oil and gas sector among Arab net oil exporters. Although a lot of research has been done on the resource curse, little work has been carried out at the sectoral level and across various aspects of the oil and gas value chain, especially in the Arab region, despite it being the largest oil and gas producer in the world. A research such as this would reveal whether fundamental flaws can be identified at the sector level which may be prohibiting the oil exporters from translating their wealth into sustainable development.

Nine Arab net oil exporters were selected, namely: Algeria, Bahrain, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia and the UAE. Norway was used as the benchmark for good governance since its management of the oil and gas sector is typically seen as exemplary and the country scores high on most governance indicators.

The comparison of the management strategies of each of the five pillars of the value chain – mainly: the award of contracts and licenses, regulations, fiscal regime, revenue management and sustainable development, reveals many commonalities between the Arab net oil exporters and significant divergences from Norway.

Using governance indicators such as the RGI, Norway clearly outperforms every single Arab net oil exporter, particularly on the completeness of the petroleum system, clarity around the division of roles and responsibilities of relevant institutions, transparency of the fiscal terms and effective management of the oil proceeds, among others. Even on the only indicator where Norway does not fare well - and which relates to the allocation of license given the country's use of administrative procedure, the difference remains notable with the other selected countries. The only exception where one Arab country outperforms Norway is Bahrain with respect to gas flaring simply because Bahrain is a much smaller oil and gas producer.

The findings of this paper can partly explain why the progress of the Arab net oil exporters on achieving their SDGs agenda is not satisfactory. While some countries score better than others, they all still have a long way to go.

Probably the key finding that can encapsulate all the main observations of this study and that is the most recurring feature throughout the comparative analysis, is the limited transparency surrounding the management of the oil and gas sector in the Arab region particularly as compared to Norway. For the latter, all the information and data used to carry out the analysis was easily accessible from the government's dedicated websites. For the Arab region, however, collecting such information was very challenging, and, despite the effort, some data could not be collected thereby limiting the ability to conduct a comprehensive assessment.

For practical reasons, the paper did not capture all the factors that have affected the management of the oil and gas sector in the selected countries, particularly the political economy dimension, which can be a valuable area to research at length. The paper provides an initial assessment of the management of the oil and gas sector in the Arab region, and hopes to support future work on an individual country basis as well as on the concept of good governance of oil and gas and which remains work in progress. In fact, to date, only a few governance indicators have been developed with the RGI probably being the only indicator that covers the extractive industry. Given the increasing belief that poor governance contributes to the resource curse and other dire consequences, it is expected that sectoral governance will capture more research attention.

Some with more insights into the inner workings of the oil and gas sector in the Arab countries may dispute the findings of this paper. They may be right. However, since this study is based on what is publicly available, its conclusion will continue to hold until more information is revealed.

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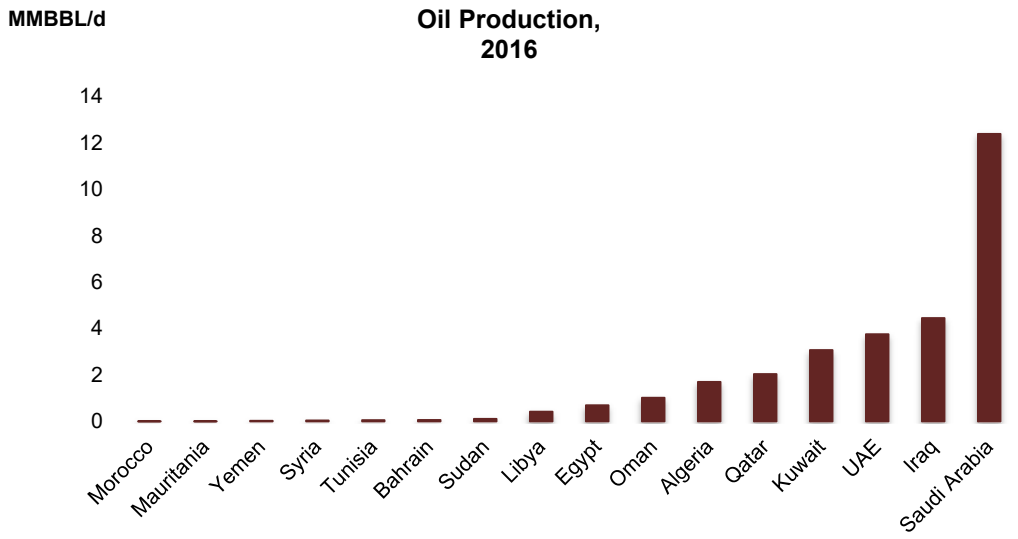
APPENDIX I: UN Sustainable Development Goals

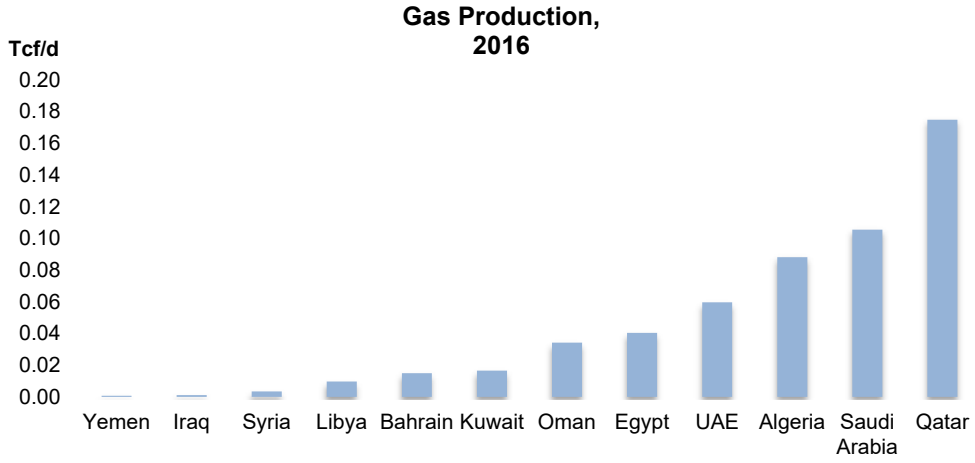
- Goal 1. End poverty in all its forms everywhere
- Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3. Ensure healthy lives and promote well-being for all at all ages
- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls
- Goal 6. Ensure availability and sustainable management of water and sanitation for all
- Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10. Reduce inequality within and among countries
- Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12. Ensure sustainable consumption and production patterns
- Goal 13. Take urgent action to combat climate change and its impacts*
- Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

* Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

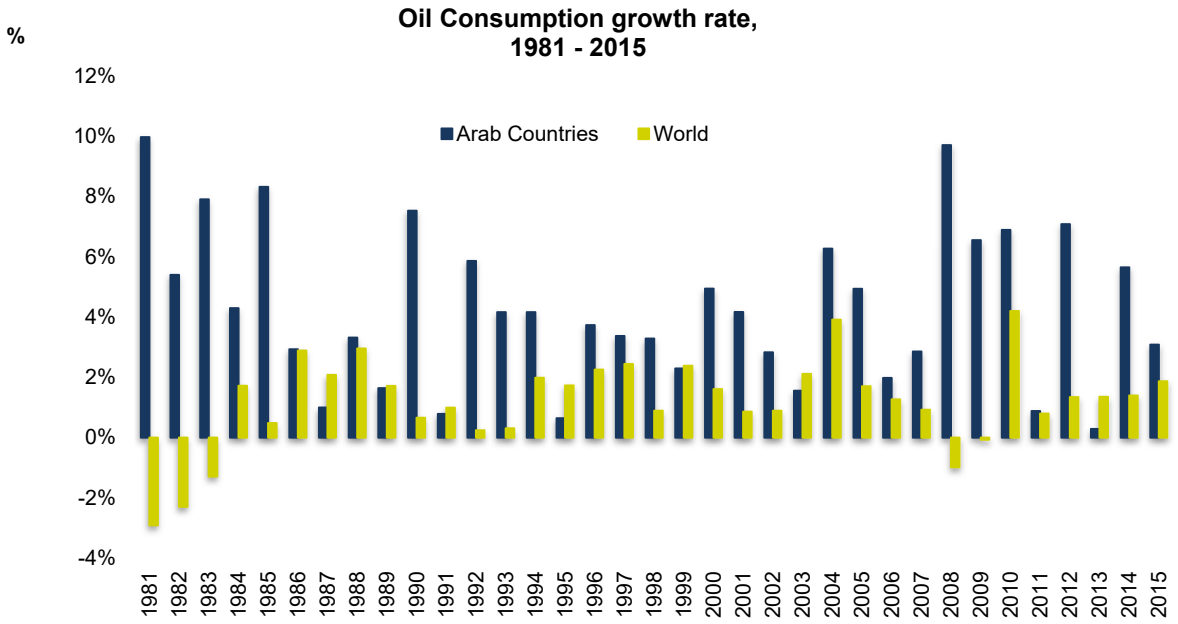
Appendix II: Selected Indicators by Arab country



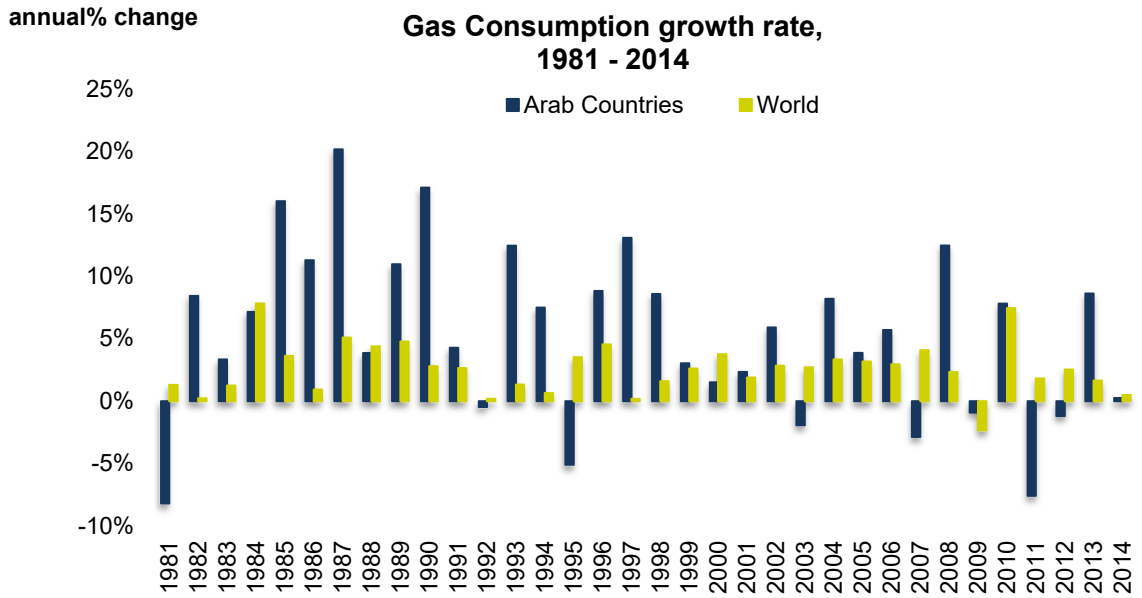
Data Source: BP, 2017



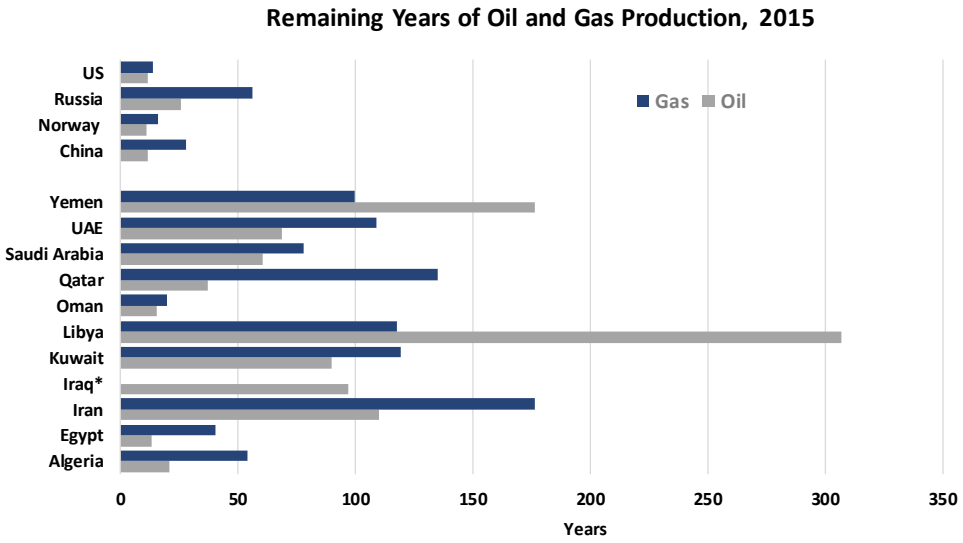
Data Source: EIA, 2017a



Data Source: EIA, 2017a



Data Source: EIA, 2017a
Note: 2015 and 2016 not included due to lack of data: Bahrain, Iraq, Jordan, Libya, Morocco, Oman, Syria, Tunisia, and Yemen data available until 2014



Data Source: EIA, 2017a

APPENDIX III: Landmark Geopolitical Developments in the Arab Countries & Norway

	1943	1945	1949	1954	1958	1960	1960s-1970s	1961
Libya	Libya gained independence							
Norway		German forces, that invaded Norway in 1940, surrendered. Norway became a charter member of the UN	Norway became a member of the North Atlantic Treaty Organisation (NATO)					
Algeria				Algerian War of Independence		Iraq along with Iran, Kuwait, Saudi Arabia and Venezuela founded OPEC	Iraqi-Kurdish Revolt	
Iraq					Iraqi Army Revolt/Coup: General Abdul Karim el Qassim overthrew the government of King Faisal II	Saudi Arabia along with Iran, Iraq, Kuwait and Venezuela founded OPEC		
Kuwait						Kuwait along with Iran, Iraq, Saudi Arabia and Venezuela founded OPEC		Kuwait gained independence
Oman							Dhofar Rebellion in Oman: Marxist rebels fought against the conservative pro-western Omani government.	
Qatar								Qatar Joined OPEC

	1962	1967	1969	1971	1972	1973	1974
Bahrain				Bahrain declared independence			
Iraq					Nationalisation of the Oil & Gas Industry- Creation of INOC		Iraqi-Kurdish Revolt
Saudi Arabia						Oil boycott against countries supporting Israel War against Egypt and Syria. Oil prices quadrupled	
Kuwait							
Oman							
Qatar				Qatar gained independence	Coup led by Khalifa bin Hamad Al Thani, who overruled his father		Nationalisation of Qatar Petroleum
Libya	Libya Joined OPEC				Nationalisation of the Oil & Gas industry		
Algeria	Algeria gained independence		Algeria Joined OPEC				
UAE		UAE joined OPEC		Nationalisation of ADNOC			

	1975	1976	1977	1979	1980	1981	1986
Saudi Arabia				KSA Border War with Yemen	Complete Nationalisation of Saudi Aramco		
Iraq				Iraqi Shia unrest in Karbala: suppression by Saddam	First Persian Gulf War: Iran vs Iraq- ended in 1988	Israeli bombed a nuclear reactor under construction	
Qatar							
Kuwait	Nationalisation of Kuwait Petroleum Corporation						
Algeria		Algerian, Moroccan armies clashed over Western Sahara.					
Libya			Egyptian-Libyan Border War				
Bahrain					Complete nationalisation of BAPCO		

	1987	1988	1989	1990	1991	1992	1994
Iraq	INOC dissolved by Saddam Hussein			Iraq Invasion of Kuwait; Saudi attacks Iraq; UNSC sanctions on Iraq: 1990-2003	Persian Gulf war Iraqi Kurdish Revolt /Iraqi Shiite Revolt		
Saudi Arabia	Saudi Arabia resumed diplomatic relations with Egypt				Saudi attacked Iraq during Kuwait invasion		
Libya		Lockerbie terrorist bombing by Libyans				UN sanctions imposed after Lockerbie bombing	
Algeria			New constitution moving from socialism to capitalism			Algerian Civil War-up to 2002	
Kuwait				Gulf War: Iraq Invasion of Kuwait			
Qatar							

	1995	1996	1998	1999	2001	2003	2004
Saudi Arabia		A bomb exploded at the US military complex in Saudi	Border Conflict between Saudi Arabia and Yemen		15 of the 19 hijackers involved in the 9/11 attacks are Saudi nationals		
Oman		Nationalisation of OOC					
Qatar	Sheikh Khalifa deposed by his son, Hamad, in a bloodless coup	Failed coup by cousin of the emir and 32 other people					
Iraq	UN allowed partial resumption of Iraq's oil exports to buy food and medicine in an oil-for-food programme		US and British Operation Desert Fox bombing campaign to destroy Iraq's nuclear, chemical and biological weapons programmes			US invasion	
Algeria				Abdelaziz Bouteflika became president, introduced national reconciliation policy			
Bahrain					Referendum on political reform		
Kuwait						Emir issued a landmark decree separating the post of prime minister from crown prince	
Norway							The government intervened to end a one week strike by oil workers that were seeking better pension rights and job security

	2011	2012	2014	2015	2016	2017
Saudi Arabia	Public protests banned, after small demonstrations in mainly Shia areas of the east					Diplomatic crisis Sanctions on Qatar
Oman	Protesters demanded jobs and political reform					
Libya	Arab Uprising (2011 revolution); NATO vs Gaddhafi War in Libya		Ongoing civil war		UN-backed "unity" government installed in a naval base in Tripoli. It faced opposition from two rival governments and militias.	
Bahrain	Protesters gather in Manama: Uprising of Shiite in Bahrain					
Norway	A bomb attack and mass shooting carried out by Anders Behring Breivik, an extreme right-winger, leaving 70 people dead in the worst massacre that ever happened in Norway	The government uses emergency powers to end 16-day strive over pensions, and force offshore oil and gas workers to go back to work				
Kuwait		Unprecedented protests call for government reforms				
Iraq		ISIS war in Iraq				Mosul retaken from ISIS
Qatar				Qatar and four other GCC states took part in Saudi-led air strikes on Houthi rebels in Yemen		Diplomatic crisis with other GCC countries

Appendix IV: Literature Review Appendix

I-Resource Curse

Title	Author (Last, First Name)	Year Published	Hypothesis/Research Questions	Methodology	Main Findings
The National Resource Curse in the Arab Gulf: Rapid Change and Local Culture	Andersson, Thomas	2015	1-Whether a wealth of natural resources counts as a "curse" or "blessing" for development? 2- In some regions, including the Middle East, both aspects are strongly present. The undecided influence of natural resource richness on economic performance is paralleled by the yet unsettled outcome of the so-called Arab Spring.	**Qualitative Analysis:** 1-Background on several strands of relevant literature, in part to highlight the notion of the resource curse, its alleged features, and what may lay behind it; 2-Observation on disparate outcomes, including the presence of relatively strong resource-rich performers in the Middle East, and what may explain changes in the role of natural resource abundance; 3-The processes associated with the Arab Spring are analysed; 4-Issues and policies in the Sultanate of Oman are examined.	1-The Arab Spring signalled a stronger bottom-up engagement by new generations, challenging authoritarian regimes and calling for greater accountability 2-Riches in natural resources helped the GCC countries wither the crisis and led to more investment in education and are used to promote jobs 3-The availability of natural resource rents coupled with local culture presents severe challenges (bloated public sector, poor education, weak labour market performance, resistance to risk taking and innovation) 4-Many of the reforms recently initiated will work only as long as the natural resource rents continue to flow. If this pattern prevails, productivity will remain low and growth will not be sustainable. 5- The trick is for natural resource wealth to back local "culture" that is constructive, conducive to more effective policy coordination, and serve to support value-enhancing processes instead of rent-seeking.
From Resource Curse to Rent Curse In the MENA Region	Adeel, Malik	2015	1-Political Economy of the MENA Region: How do natural resources shape paths of economic and political development? 2-The Middle East suffers from a broader rent curse, not just an oil curse	**Qualitative Analysis**: 1-Questioning the exclusive focus of the prevailing literature on oil. 2-Summarising the Middle East experience 3-Developing the case for a broader conceptualisation of rent streams that includes, besides oil, foreign aid, remittances and government regulation 4-Studying the relevance of the MENA Experience to enrich global debate on natural resources and development,	1-Impact of oil on politics is conditional, depending on a variety of non-oil contexts, including the crucial role of historical legacies 2-Oil rent is one causal factor that interacts with a wider 'configuration of causes'. The Middle East suffers from a rent curse, not just an oil curse. Oil revenues in MENA are complemented with other unearned income streams from aid, remittances and government regulation. These revenue streams are inter-linked: resource-rich neighbours are a major source of capital flows for resource-poor economies in the region

				focusing on the: i) Size and significance of rent streams; ii) Channels of rent distribution; iii) The external environment; iv) Labour Market; v) Business-State Relationship; vi) Human Development	3-Regulatory rents that result from market subversion are particularly important in understanding business- state relationship and its bearing on political economy 4-The pre-existing institutional arrangements of a state shapes the effect of oil wealth 5-Concentrated economic and political structures in the MENA region are fundamentally linked with the creation, distribution and sustenance of rents
The Institutional Curse of Natural Resources in The Arab World	Selim, Hoda Zaki, Chahir	2014	1-The resource curse in the Arab world is primarily an "institutional curse" 2-Is the current level of income sustainable for resource rich Arab countries?	**Quantitative Analysis:** 1-Empirical design: Augmented growth model, which includes a host of variables such as real GDP, institutional (or physical) and human capital variables, land, natural resources rent, in addition to factors of production of the classical model. Sample of 22 Arab countries for the period of 1960-2012 used for the growth regressions using the following econometric techniques: i) Ordinary Least Squares (OLS) and ii) Panel Estimations (fixed effects FE)	1-Political institutions, on their own, do not always impact growth. When they interact with natural resources, they reduce the negative effect of natural resources on growth but do not offset it. 2-The curse has operated in different ways in the Arab world: i) In the GCC, large rents per capita have been utilised to increase government legitimacy and foster regime stability. The curse is expressed through segmentation of the labour markets in the form of well-remunerated public sector jobs and other generous social welfare schemes to national citizens. ii) the populous group comprised of poorer rentier states, have experienced conflict, violence and social unrest. 4-Positive correlation between natural resource rents and limited freedom in political rights and civil liberties, where resource-rich Arab countries lag behind **7-Recommendations:** i) Improve the quality of institutions; ii) Politics affect resource exploration, causing resource curse, especially when rents influence politics; iii) Address sustainability issues to generate future income and contribute to sustainable development, including fiscal institutions and fiscal policies; iv) Improve public spending efficiency; and v) Promote Transparency
Resource Curse and Power Balance: Evidence from Oil-Rich Countries	Bjorvatn, Kjetil; Farzanegan, Mohammad Reza; Schneider, Friedrich	2012	Role of political fractionalization in understanding the ''resource curse".	**Quantitative Analysis:** Empirical design using panel data for 30 countries from 1992-2005, using the pooled Ordinary Least Squares, and Fixed Effects econometric tools, to estimate the relationship between oil rents and GDP per capita and whether it varies systematically with the balance of political power. The sample includes: Algeria, Angola, Ecuador, Iran, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, UAE,	1-The evolution of political power balances and imbalances can have important effects on a country's ability to benefit from its oil revenues. When the level of fractionalization is high, indicating a weak government, oil revenues appear to be fully wasted: Above a critical level of fractionalization, there is no significant, positive effect of oil revenues on income. In contrast, when governments are less fractionalized, for instance, consisting of a single party, oil revenues have a pronounced positive effect on income

				Venezuela, Azerbaijan, Bahrain, Brunei, Cameroon, Chad, Congo, Equatorial Guinea, Gabon, Indonesia, Kazakhstan, Mexico, Norway, Oman, Russia, Sudan, Syria, Trinidad and Tobago, Vietnam, and Yemen.	2-With a strong government, resource wealth can generate growth even in an environment of poorly developed institutions, while adding oil revenues to a weak government may have damaging effects on the economy.
Six oil abundant Gulf countries, cursed or blessed?	Titulaer, Lonneke	2010	The effects that the sector growth has in the GCC countries on regional and individual economic growth.	**Quantitative Analysis (Empirical Analysis)**: 1-Observe the resource curse phenomenon through economic diversification and economic growth for the GCC countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE. An estimation of the influence of the growth in the added value of different sectors on the GDP per capita growth is attempted, during 1980-2008 period. 2-Running a panel data model with fixed effects: to verify whether growth in the added value of the different sectors is something that explains this change in GDP per capita and which sector has the biggest influence.	1-Policy implementations and regional efforts do not provide enough support to drive growth in all sectors. 2-Manufacturing sector is hardly of influence economic growth for almost all countries 3-Oil sector is still the main driver of economic growth for half of GCC countries, the other half relies on services. **Individual countries:** i) Bahrain: Growth in the oil and services sector has positive effect on the annual average GDP per capita growth rate. Tourism is the only sector affecting economic growth. ii) Kuwait: High correlation between the growth rates in the oil sector and the annual growth rates of GDP per capita. iii) Oman: Positive effect between oil and service sector and the economic growth. The services sector is more important for the economic growth compared to the oil sector driven by the finance, tourism and retail sectors. iv) Qatar: Positive effect between the growth rate of the oil and services sector and the growth rate of GDP per capita. v) Saudi Arabia: Growth in the oil and services sector is positively related to the economic growth. vi) UAE: Oil and services sector have a positive influence on the economic growth. The Services sector is driven by tourism and retail.

II-Economic Development & Diversification

Title	Author (Last, First Name)	Year Published	Hypothesis/Research Questions	Methodology	Main Findings
Economic diversification in resource rich countries: History, state of knowledge and research agenda	Alsharif, Nouf; Bhattacharyya, Sambit; Intartaglia, Maurizio	2017	Is economic diversification desirable for a resource rich country?	**Quantitative Analysis:** 1- mapping diversification trends of 35 petroleum exporting countries. Changes in their non-oil export shares is mapped over the period 1962–2012 sourced from the World Integrated Trade Solutions (WITS) of the World Bank and UN Comtrade database of the UN. 2-Changes in non-oil private sector employment as a share of total employment are mapped. The latter is sourced from the International Labor Organization (ILO) and covers the period 1969–2008. Diversification spells over a decade are analysed. The shares fail to provide a holistic picture of the nature of diversification across the entire economy. 3- Correlation of non-oil exports share with several macroeconomic policy and institutions variables using bivariate plots. Regression results are shown linking non-oil exports and employment with resource rent and geography.	1-Diverse patterns in diversification are found, resulting in different challenges for different countries and regions. 2-Strong negative correlation between oil dependency and diversification were also found, even after controlling for country unobserved heterogeneity such as geography, country specific trends such as culture and demographic factors, time varying global shocks, and cross-sectional dependence. 3-A closer look at the residuals indicate that MENA and Sub-Saharan African countries have more room for policy manoeuvres when it comes to diversification.

Gulf Sovereigns Will Find It Hard To Diversify Away From Hydrocarbons	Cullinan, Trevor; Bernu, Julien	2017	Why Diversification Remains Aspirational in the GCC?	**Quantitative Analysis:** Comparison of the 6 GCC countries in terms of: i) GDP growth against oil prices; ii) monthly real effective exchange rate (2007-2017); iii) average number of years of schooling GCC compared to the world (1950-1980-2010); iv) Trends in International Mathematics and Science Study (TIMSS) and Poisson Iteratively Reweighted Least Squares (PIRLS) assessments of GCC countries compared to other countries (2016 for TIMSS and 2011 for PIRLS); v) distance to frontier for the GCC countries (2010-2017)	1-Gulf economies' high concentration and dependence on the hydrocarbon sector could become a credit negative factor when not offset by substantial financial buffers. 2-The challenges to GCC economic diversification remain substantial and GCC governments' 20- and 30-year visions are aspirational, with significant progress to be made if they are to be achieved. 3- In boosting private sector development, GCC economies will be able to mitigate their vulnerability to adverse oil price movements and enhance long-term economic growth, which we would view as supportive factors for their credit ratings. 4-Both exchange rate rigidity and geography do not lend themselves to organic manufacturing sector-led growth witnessed when other hydrocarbon dependent countries have diversified. Improvements in education and broader societal changes may also support private sector development. To date, success in downstream activities has been significant, but outside of oil and gas, where the region's competitive advantage lies remains unclear.

The Impact of Low Oil Prices on Algeria	Escribano, Gonzalo	2016	This paper addresses three concerns related to the political economy of low oil prices in Algeria: (i) whether they may lead to a repeat of the events of the mid-1980s; (ii) to what extent the economic and the political crisis could block or encourage much-needed economic and political reforms; and (iii) the implications for relations with Europe.	**Qualitative & Quantitative Analysis:** i) The paper discusses the extent to which low oil prices could foster an environment for economic and political reforms, and the benefits that the international community, specifically Europe, could derive from taking advantage of this moment in time to press for new energy policies that improve both supply and overall security. ii) Indicators used: GDP growth rate (1984-1989; 2012-2016), fiscal balance as % of GDP, current account balance as % of GDP, reserves in months of imports, total debt service as % of exports of goods, services, and primary income), number of terrorist incidents (1970-2013), natural gas production (1970-2020 projections), oil production (1965-2019 projection).	1-While Algeria's economic situation has greatly deteriorated, there are many factors that suggest that, unless oil prices remain depressed for an extended period of time, the country is not going to repeat the mid-1980s oil countershock that led to recession, massive popular revolts, an Islamist victory in local and legislative elections, and ultimately a military coup, political repression, and a bloody civil war. 2-The Algerian economy is in a far better situation today to weather the oil price collapse than in the mid-1980s and 1990s. 3-The risk of instability should spur Europe to rethink its energy relations with Algeria. 4- Low oil prices may have increased the Algerian appetite for reform, including in the energy sector; and the prospect of competition from US exports of liquefied natural gas may prove an additional driver for change. Such a window of opportunity may not last long and merits exploration.
Economic Diversification in Oil-Exporting Arab Countries	The International Monetary Fund (IMF)	2016	Key challenges and policy issues related to economic diversification in oil-exporting Arab countries	**Quantitative Analysis focusing mainly on the following indicators:** i) GDP composition of Arab Oil Exporters, 2014; ii) Oil and Non-Oil Fiscal Revenue, 2014 (Percent of total government revenue); iii) Arab Oil Exporters share of GDP and employment by sector; iv) Measures of Economic Diversity: Economic Complexity Index, Export Diversity Index, Export Quality Index, Manufacturing Value-Added GINI, Economic Complexity Index and GDP per Capita, Export Diversity Index and GDP per Capita.	1- Oil-exporting Arab countries face three-pronged challenges: job-creation, macroeconomic volatility from oil prices and the depletion of oil resources. 2-To achieve economic diversification, oil-exporting Arab countries should continue to strengthen macroeconomic stability and improve regulatory and institutional frameworks. 3-Policies and strategies to create dynamic new tradable sectors are needed to accelerate economic diversification. 4-Notwithstanding these key elements, economic diversification will not be successful without security 5-Policies to support economic diversification should be tailored to country specific circumstances.

Economic diversification in Saudi Arabia: Myth or reality?	Albassam, Bassam A.	2015	1-Has the Saudi economy been diversified since the first development plan in 1970?	**Quantitative Analysis:** 1-The paper examines the government's efforts to diversify the economy using four variables: oil share of GDP, share of private sector in GDP, oil exports as a percentage of the country's exports, and oil revenues as a percentage of total revenues. The analysis covers nine development plans from 1970 through 2013. 2-Data from SAMA and Central Department of Statistics and Information (CDSI) are used to answer the research question. 3-Several methods have been used to measure the diversification of an economy, such as the Ogive Index, the Entropy Index, the Gini-Index, and the Herfindahl Index. 4-A comparison with similarly structured economies is presented using selected economic indicators. GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE) share similar political, cultural, and economic structures, and all these countries have an economic diversification plan.	1-After more than 40 years of development plans aiming to diversify the Saudi economy, oil is still the main engine driving the economy. 2-Having an applicable and measurable development plan supports diversified economy. 3-The Saudi government needs to fully consider economic diversification as a tool for better governance. 4-Having an appropriate and measurable development plan that supports the non-oil sectors' contributions to economic development, developing a strong and independent private sector that does not rely on government spending and projects, and learning from the experiences of similar economies whose national wealth benefitted from diversifying their economies are some of the steps needed to build a diversified economy.
State and private sector in the GCC after the Arab uprisings	Hertog, Steffen	2014	How accurate is the picture of economic and political ascendancy in the GCC?	**Quantitative Analysis:** Indicators used: i) Ratio of Government to Private Consumption in GCC compared to other countries, such as Germany, Singapore, and Turkey, in 2000 and 2009. ii) Composition of Saudi GDP in 1967, iii) Share of Government Capital Spending in National Gross Fixed Capital Formation (1974-2008), iv) Segmentation of GCC Labour Markets by Sector and Nationality (2005, 2008, 2009), v) Share of hi-tech exports in total manufacturing exports (%, 2009), vi) Domestic petroleum consumption in Saudi Arabia since 1980 to 2010.	1-The status of business in the Gulf rentier states is paradoxical: It operates on a large scale, is internationally integrated, contributes the bulk of national capital formation, and has attained fairly high levels of managerial sophistication. Yet it remains dependent on the state, living off government support, and contributing almost no taxes in return. 2-Business has used the GCC's comparative advantages well, but has not employed them as stepping stones into the much vaunted "knowledge economy" – instead, it has witnessed declining productivity and failed to provide quality jobs for the GCC citizens. The GCC governments continue to drive economic policy-making and the diversification agenda, with business lobbying often limited to the defense of the convenient status quo. 3- Gulf business is even less of a leader in the political arena, partly due to the ascendancy of mass politics and middle-class identities that have

					undermined the authority of traditional merchant elites as community leaders.
Saving Oil and Gas in the Gulf	Lahn, Glada; Stevens, Paul; Preston, Felix	2013	1-What might energy sustainability mean for the Gulf? 2-What kind of savings could enforcement of new standards achieve? 3-What is Holding Back Progress?	**Quantitative Analysis:** This report is based on the workshops and conversations with energy-sector stakeholders in the GCC conducted between 2011 and 2013. i) Percentage change in the GCC energy intensities (1980-2010; 2000-2010). Analysis based on the following indicators: ii) Energy resource use breakdown of GCC countries, 2010 iii) GCC oil fuel prices as a percentage of spot market prices	1-The systemic waste of natural resources in the Gulf is eroding economic resilience to shocks and increasing security risks. 2-Remarkable progress is evident in the clean energy targets and efficiency strategies that have sprung up across the region since 2009. 3-In all GCC countries the effectiveness of plans hangs in the balance, chiefly owing to governance challenges, lack of market incentives and unpredictable political support. 4-Success or failure in meeting sustainable energy goals in the GCC will have global impact, in addition to local economies. 5-Given their common aspirations and shared climatic, energy and market conditions, GCC countries could achieve more through cooperation.