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Petroleum Resource Management: The role of institutional frameworks and fiscal regimes in value creation

A Comparative Analysis for Norway and Nigeria

Thesis Advisor: Linda Nøstbakken

Author name: Shweta Jadhav

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Abstract

The petroleum industry plays a big role in the economy of oil-exporting countries such as Norway and Nigeria. So while the countries depend on their petroleum resource to literally “fuel the economy”, studies have shown that macroeconomic activity and fluctuations in oil prices are not significantly linked and thus do not completely describe the sector’s performance. It is therefore that other factors, such as the design of the institutional frameworks, could be instrumental in driving the sector’s performance and creating value. As studies in resource management point to an institutional dimension, this paper explores the role of institutional frameworks as well as fiscal regimes in deriving value from the petroleum resources for Norway and Nigeria respectively. The countries are chosen because they share similarities in the origins of their petroleum industries but have since taken different paths to exhibit diverse petroleum sector performance.

The paper studies the factors that create, affect and negate value creation for Norway and Nigeria in a qualitative sense to restrict the scope of the paper. The paper presents a comparative study of gauging the factors for each country in its respective context of creating value in the petroleum industry.

List of Abbreviations

CBN	Central Bank of Nigeria
DPR	Directorate of Petroleum Resources
E&P	Exploration and Production
ECA	Excess Crude Account
EOR	Enhanced Oil Recovery
FIRS	Federal Inland Revenue Service
GDP	Gross Domestic Product
GPFG	Global Pension Fund Global
HC	Host Country
HSE	Health, Safety and Environment
IOC	International Oil Company
JOA	Joint Operating Agreement
JV	Joint Venture
JVA	Joint Venture Agreement
MPE	Ministry of Petroleum and Energy
NAPIMS	National Petroleum Investment Management Service
NCS	Norwegian Continental Shelf
NEITI	Nigerian Extractive Industries Transparency Initiative
NNOC	Nigerian Nation Oil Company
NNPC	Nigerian National Petroleum Corporation
NOC	National Oil Company
NPD	Norwegian Petroleum Directorate
NSIA	Nigerian Sovereign Investment Authority
OAGF	Office of the Accountant General of the Federation
OEL	Oil Exploration License
OML	Oil Mining Lease
OMPADEC	Oil Mineral Producing Areas Development Commission
OPEC	Organisation of Petroleum Exporting Countries
OPL	Oil Prospecting License
PSC	Production Sharing Contract
RSC	Risk Sharing Contract
SDFI	State Direct Financial Interest
SWF	Sovereign Wealth Fund

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1 Motivation

Norway and Nigeria are both rich in fossil fuel reserves. Although it might seem strange to interface these two countries when making a comparative analysis given the politico-socio-economic diversity that they exhibit, the countries do share a common thread in terms of discovery of oil, production capacity and the economy driven by the oil wealth.

A common aspect that the countries share is the period of oil discovery and embarking as an oil producer. In Norway, oil was first struck in December 1969 and production started June 15, 1971 (NPD, 2013). Whereas, oil discovery in Nigeria dates back to 1956, when Shell-BP discovered oil in Oloibiri in the Niger Delta with the earliest oil production starting in 1958 at 5,100 bbl/d (NNPC, 2014).

According to BP Statistical Review (2013), Norway has proven oil reserves of 7.5 thousand million barrels of oil constituting 0.4% of world's proven reserves while Nigeria has total proved oil reserves of 37.2 thousand million barrels of oil, which constitute 2.4% of the world's proven reserves. Interestingly however, in terms of production, Norway constitutes 1.9 million barrels per day while Nigeria is at 2.4 million barrels per day, making these two countries the biggest oil producers in Europe and Africa respectively.

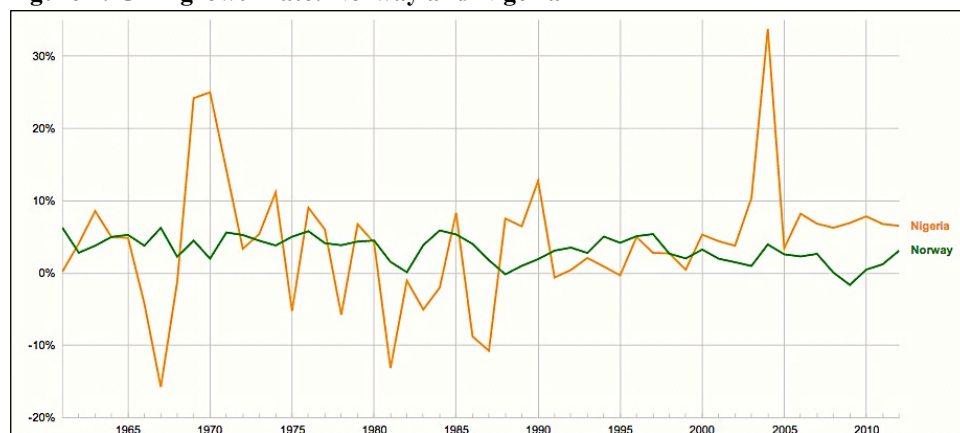
Oil revenues also form a major chunk of the Norwegian and Nigerian economies, as the petroleum industry is the biggest industry for both. Ending 2012, the oil and gas exports formed 52% of total exports, 30% share of government revenues and formed 23% of GDP for Norway (NPD, 2013). For Nigeria ending 2012, the oil and gas exports formed 96.8% of total exports for contributing 75.3% share of government revenues and forming 19.6% of GDP (CBN, 2012)

Also while Norway invests its oil revenues in the Government Pension Fund Global - often cited as the most successful sovereign wealth fund in the world, as of 2011 Nigeria has followed suit by starting the Nigerian Sovereign Investment Authority with a seed capital of \$1million (NSIA, 2014). Even with the above similarities, the countries have differently performing petroleum industry. The motivation for this paper lies in understanding this very difference.

2 Research Question

When a nation depends heavily on its non-renewable natural resource(s) such as oil, its economy is exposed to fluctuations in the global commodity prices. As noted above, oil revenues do form a big portion of the government revenue, export revenue and GDP, which could make both countries vulnerable to oil price shocks. It could be postulated that their GDP growth might have some correlation with the oil prices. Comparing the GDP growths for Norway and Nigeria in the graph below, it can be seen that the two curves differ.

Figure 1: GDP growth rate: Norway and Nigeria



Source: World Bank

While Nigeria's GDP growth shows a greater correlation with the positive oil price shock of the 1970s as well as seems being impacted by the closely followed negative oil price shocks¹, Norway's seem pretty stable.

The graph thus forms the motivation for this report. Why is it that Norway has a better performing petroleum sector than Nigeria and what are the factors that determine sound natural resource management? The aspects that influence the manner in which a nation manages its natural resources can be broadly classified in three ways; namely

- The institutional framework for managing the resources – The industry organisation and the business environment.

¹ Post the discovery of oil in Norway and Nigeria, the major oil price shocks were in 1973, 1980 when oil prices peaked around \$55 and \$100 per barrel in \$2012 terms. More recently, oil prices peaked around \$100 per barrel in \$2012.

- The fiscal regimes to extract the resource rent thereby converting a non-renewable resource into a renewable monetary resource.
- The policies and frameworks to pump the resources back into the system to promote the economic activity of the country.

This paper focuses on the first two aspects. The aim is twofold

- To gain an insight into the petroleum industry of Norway and Nigeria by studying the institutional frameworks and fiscal regimes directly affecting it.
- To understand what factors determine value creation in the petroleum industry and exactly how these countries aim to maximise their resource rent.

The paper starts with the literature review in Section 3, which is followed by giving a lens to understand the analysis process better. Further organisation of the report is as follows. Section 4 presents the role of institutional frameworks in value creation from the lens of political economy. The section starts by analysing the history of oil industry evolution in Norway and Nigeria with a special focus on the evolution of their respective National Oil Companies (NOCs). The sector organisation is then presented and analysed from the perspective of the Governance Indicators by the World Bank. The section concludes by analysing the lifecycle of petroleum operations in both countries and how it creates more value for the respective States².

Section 5 presents the role of the fiscal frameworks present in Norway and Nigeria to capture value i.e. to capture the bulk of the resource rent generated. The various fiscal and non-fiscal instruments used by the States are studied, while attempting to understand the rationale behind the choice of each. The section concludes by a brief overview of fiscal policies that exist in Norway and Nigeria and how it is also creating and adding value to the State. Section 6 presents the other side of the story in enlisting factors that affect value creation in Nigeria through the introduction of ‘The Nigerian Cost Factor’. These factors do not strictly lie within the institutional framework or fiscal regimes but still have some overlaps with both.

Finally, Section 7 summarises the main findings in this study and concludes the paper. It connects the dots through the various factors discussed in the above sections to fully understand their role in value creation for Norway and Nigeria.

² The word ‘State’ or ‘States’ is used to refer to Norway and Nigeria as per the context.

3 Literature Review

The literature review is broadly grouped in three categories. The first category is *Resource Curse*. Literature in natural resource management is abundant on this phenomenon. It also presents a good lens to start the research as Norway and Nigeria lie at the opposite ends of the spectrum of the resource curse syndrome. The second category is *Oil Price shocks and its impacts on macroeconomic activity*. It is important to consider this perspective to understand if oil prices alone indeed have a significant impact on the macroeconomic activity for Norway and Nigeria since the macroeconomic activity is an indication of value creation. The third category is *Role of institutional frameworks on oil sector governance*. The literature in this category provides a backbone to the analysis of value creation due to design of institutional frameworks. Finally, the fourth category is *Role of fiscal regimes in resource rent extraction*, which sets the foundation for analysing the value captured from petroleum resources by fiscal regimes in Norway and Nigeria.

3.1 Resource Curse

The Resource Curse phenomenon is based on the observation that countries rich in mineral resources often have poor governance structure, weak institutions and inequitable distribution of the resource wealth among the citizens of the state. So while Nigeria suffers from Resource Curse, Norway seems to have found a way to avoid it.

Frankel (2010) performed an econometric analysis to conclude that mere possession of natural resources does not lead to the resource curse syndrome. Rather, factors such as commodity price volatility, the Dutch Disease, political and civil unrest and poor institutional quality sets stage for a resource curse. Karl (2006) emphasises that the resource curse problem is more political than economic. Robinson et al. (2006) illustrate the role of political incentives generated by resource endowment as key to identifying if resource abundance leads to curse or a blessing. Barma et al. (2012) have indicated that governance indicators for most-resource rich developing countries are poor, thereby attesting that the resource curse has an institutional dimension.

3.2 Oil price shocks and it's impacts on macroeconomic activity

A number of factors influence oil price than the mere economic dynamics of the demand and supply functions. As noted earlier, for economies that are heavily dependent on rents generated from non-renewables, shocks in global commodity prices can have some impact on the macroeconomic activity. The perspective is important since Norway and Nigeria are both heavily dependent on oil and do bear the risk of exposing their economies to volatility in oil prices.

Iwayemi and Fowowe (2011) analyse the relationship between oil price shocks and impacts on macroeconomic activity in net oil-exporting developing countries with Nigeria being one of the four countries analysed. Their findings suggest that oil price shocks do not significantly affect the macroeconomic indicators in the short run. A noteworthy observation drawn from the study is that the growth rate of (manufacturing) output and capital formation decreases from a positive shock and increases from a negative shock. In their conclusion, the authors also indicate that policy aspects do have a role to play in cushioning from oil price shocks.

Chuku (2012) studies the effect of oil price shocks on macroeconomic variables in Nigeria such as the CPI, real oil prices, real GDP, and foreign reserves. The study starts with the observations that the above macroeconomic indicators do not exactly mirror the trends in oil price development. The author concludes that such shocks are not indicative of the Nigerian macroeconomic activity. However, the study bears the same results as Iwayemi and Fowowe (2011), when studying the impact of oil price shocks while adding that the shocks merely cause inflation in the short run. The study thereby draws attention to the fact that the role of oil price should be deemphasised when charting national development plans for Nigeria.

Literature focusing on oil price shocks for developed economies mostly centre on the US. Mork (1989) concludes that the effect of negative oil shocks do not affect the macroeconomic activity in the US while the same cannot be said for positive shocks.

Jiménez-Rodríguez & Sánchez (2005) in their paper on oil price shocks in OECD countries, have suggested that positive oil price shocks impact the Norwegian GDP positively while the negative shocks do not have a much significant impact. The same is not true for UK however, even though Norway and UK are both net oil-exporting countries. The authors also mention that the real exchange rate appreciation is much stronger for UK than for Norway in the light of positive shocks, which then make adjustments difficult in times of negative shocks. The author also draws attention to the dispersion hypothesis that indicates that oil price affects the output through dispersed allocation across various sectors (Lilien, 1982). What this means is that an oil price increase would contract an oil-intensive sector while giving impetus to an energy efficient sector.

Through the available literature the consensus is clear, for developing as well as developed net oil-exporting countries, that positive oil price shocks spell good news while negative shocks do not affect macroeconomic activity to a large extent. This result is noteworthy because oil price shocks can now be treated exogenous to oil-exporting countries' macroeconomic activity. It is thus possible that the macroeconomic activity, which has a significant share of the non-renewable resource rent, could be affected by endogenous factors. As most authors also point towards the role of institutions in oil sector governance, it could be the factor affecting the macroeconomic activity, which is what we turn to next.

3.3 Role of institutional frameworks in oil sector governance

Several authors acknowledge the role of sound institutional framework in oil and gas sector performance. Thurber et al. (2011) examine the Norwegian Model of petroleum sector management and state that separation of functions in a sound regulatory framework has been instrumental for the oil and gas sector's performance in Norway. Hunter (2014) also sheds light on the role of regulatory framework in optimizing the petroleum resources by comparing Australia and Norway. Hunter's study concludes that Norway's objective based policies give a better result for petroleum sector performance than Australia's rule based policies.

A good way to characterise oil sector performance is taking note of the trend in production in producing countries. Toft & Duero (2011) have found that political-

institutional frameworks do affect the investment environment in the upstream sector, which thereby affects production portfolio. Barma et al. (2012) further attest that institutional quality and governance make up the quality of economic and natural resource management policies adopted and implemented to derive economic value from the natural resource.

When studying institutional framework for oil and gas sector performance, an important aspect to consider are the NOCs as they not only control roughly 90% of the world's petroleum reserves but also form an interface to manage the political and economic interests of the state in petroleum sector (Boscheck, 2007). Thurber et al. (2010) perform an extensive study on how patronage affects the performance efficacy of the Nigerian NOC - NNPC and conclude that it has far-reaching impacts on the sectors' performance. Thurber & Istad (2010) also study the Norwegian NOC – Statoil to illustrate how it has been instrumental in managing the State's interest in petroleum sector management.

The available literature does indicate that the design of the institutional frameworks indeed affects petroleum sector performance. Existing literature in this aspect can be summarised as the ones that acknowledge and assess the impact of institutional design and governance in the petroleum sector performance and the ones that illustrate the design of institutions and the regulatory framework. Furthermore, it is also important to capture the value created which is focus of the fourth category.

3.4 Role of fiscal regimes in resource rent extraction

Fiscal regimes are important in capturing the value of the non-renewable source as revenue to the state. It has been found that a tax regime should be progressive and based on profits to capture the bulk of the resource rent (Barma et al., 2012). The authors have also found evidence that fiscal regimes tend to be more complex and difficult to administer in developing countries with weak-governance and low capacity than in countries exhibiting strong governance and sound technical capacity to administer the tax regime.

It is also important to have sound policies that manage the captured resource rent as is illustrated by Ushie et al. (2013), when they address the role of institutional quality in the macroeconomic activity as a result of positive oil shocks. The authors' recommendations call for a sound institutional structure to manage the windfalls from oil shocks. The same view is shared by Budina et al. (2007), who conclude that volatility in government expenditures is more responsible for the non-performance of the non-oils sector than the Dutch Disease phenomenon. Although the core focus of the report is not on how the revenue is spent, this study brings to light the economic impact of government policies.

The fiscal regime should also function in a way that not only minimises economic risks to the state but also makes the sector more attractive for oil companies who have the know-how to extract the resource out of the ground³. As noted earlier, Toft & Duero (2011) have found evidence that investment frameworks do impact the manner in which the upstream sector is perceived to be attractive by the IOCs. Alternatively, Osmundsen (1999) has noted that the Norwegian state bears a greater economic risk and suggests measures to obviate it.

3.5 Conclusion

In summary, most authors do acknowledge the role of institutional frameworks and fiscal regimes in petroleum sector performance. Some also suggest that resource curse has an institutional dimension and the choice of fiscal regimes affect macroeconomic activity rather than oil price volatility. Some authors study the various institutions in greater detail.

This paper takes a broader overview in combining these insights and studying them in the light of the petroleum sector in Norway and Nigeria. These countries present an excellent specimen for the study, as they share similar characteristics in terms of petroleum production but are also extremely dissimilar in the sector's performance. Moreover, this paper adds to the literature in terms of value creation for the state and the oil companies as a result of institutional design and fiscal regime. Effort has been made to understand the various factors that contribute, affect as well as negate value creation.

³ Used figuratively to indicate extraction from various geological terrains on land and water.

A lens for understanding historic implications in value creation

Before we delve deeper into comparing Norway and Nigeria for their characteristic institutional frameworks and fiscal regimes, it should be emphasised that we are comparing two very different countries. Some factors are obvious, such as the fact that Norway is a developed high-income OECD country faring excellently on the World Development Indicators⁴. On the other hand, Nigeria is a lower-middle income country faring rather poorly even in comparison to other lower-middle income countries and sub-Saharan African countries⁵.

There are also historic implications contributing towards this difference. It is important to keep this in mind, so as to fully appreciate why the institutional frameworks in Norway and Nigeria have evolved into what they are. While looking at the history of the two countries, three distinctions should be made that help to understand the evolution of the institutional frameworks.

- **Demography** – In the 1950s, before the discovery of oil in commercial quantities, Norway had a small population of a little over 3 million while Nigeria was around 38 million. Today Norway consists of 5 million people while Nigeria is around 179 million⁶. The ethnic makeup of Norway is also more homogenous as compared to Nigeria.
- **Enterprise Capacity**⁷ - Norway already had good technical capacity in managing it's natural resources like hydro through hydro power production, fisheries as well as insights into civil engineering through it's shipping industry. Nigeria on the other hand, was a British colony with cash crops driving the economy. Its technically capacity was also limited.
- **Location of reserves** – Norway's petroleum resources are located in the Norwegian Continental Shelf (NCS) in the North Sea while Nigeria's are located in the marshy terrains of the Delta region as well as offshore.

These simple factors have some serious implications. Firstly, the advantage of having a small population in addition to an established enterprise capacity in natural resource management made Norway more competent in managing petroleum resources. Also,

⁴ Data from World Bank, available at <http://data.worldbank.org/country/norway>.

⁵ Data from World Bank, available at <http://data.worldbank.org/country/nigeria>.

⁶ United Nations Department of Economic and Social Affairs. Populations Division

⁷ The term is credited to Al- Kasim (2006)

the location of the reserves in the NCS meant that they were far away from human interference even in the event of spills, accidents and gas flaring. It also meant that a particular domicile group could not make exclusive claims to the resource and to the rents it generates. Additionally, a homogenous ethnic group meant that there was no animosity in competing for distribution of resource wealth.

Nigeria is an outcome of the British colonisation that put together different ethnic tribes under one administrative colony. Colonisation also meant limiting technical capacity of the masses so as to retain power. Being a colony of an active participant of the world wars also meant that geopolitical interests in oil were active in Africa with European powers having vested interests in their colonies. The interests never faded even after gaining independence and the Biafra civil war (1967 - 1970) is testimony to the interference of the French and the British in securing access to Nigeria's oil resources. Additionally, the location of reserves inland, the principle of derivation and the unfortunate separation of domicile ethnic groups complicate the ownership of the resource rent.

Just by observing these three factors, it can be said that Norway has been in a favourable position to better manage its petroleum resources while the situation in Nigeria was less favourable with factors complicating the value creation process. These core factors interplay in the political economy of the two countries and will be encountered in various contexts and illustrated in greater detail in the sections that follow. There could of course be more factors that shape the status quo in Norway and Nigeria, however we restrict the lens to these core factors to gain a better understanding of how they interplay and create value for the States especially in the context of managing their respective petroleum resources.

Section 4

The Role of Institutional Frameworks in Value Creation

4 The Role of Institutional Frameworks in Value Creation

Natural resource management entails managing natural resources by a state found within its sovereign borders so as to derive value from the resource for the betterment of its current and future generations. Petroleum resources present various challenges to management and value creation given the unique nature of the resource. Not only are these resources limited and non-renewable, but they are also of high economic value. Moreover, the entire value chain from resource extraction to distribution to the end user requires complex technical know-how and high investments in addition to mitigating social and environmental risks. Also, because the resource is limited and generates high economic rents, capturing the economic value from the non-renewable resource and transforming it into sustainable cash flows for the future is not only important but also complex. Countries that fail to capture, convert and distribute this value suffer from what is known as 'The Resource Curse'. As the phenomenon is linked to institutional quality and governance, it is important to focus on the role of the institutional framework in value creation from petroleum resource management.

Barma et. al (2012) draw attention to the fact that quality of existing institutions is a key factor in assessing a resource-dependent country's economic outcome. This section thus performs a comparative analysis on aspects of the institutional frameworks in Norway and Nigeria that play a role in maximising value out of the petroleum resources. For this section, the State is the primary actor and the aim is to check value maximisation from the perspective of the State as the primary stakeholder.

This section is organised as follows; The first part presents a very brief history of the oil industry in highlighting the key events and milestones that set stage for its petroleum activities, as it is important to look back at the events that shaped the nations' petroleum sectors as they stand today. This part would illustrate, in greater detail, the factors described in the preceding section. This part also presents the evolution of the NOCs of Norway and Nigeria, as they are important institutions that manage the States' interest in petroleum activities. The second part presents the way the petroleum industry is organised in the light of the World Bank's governance indicators. The third part presents the description of the lifecycle of petroleum operations in both countries.

For each part, separate instances are presented for Norway and Nigeria following a short summary while gaining a closer look at the impacts it has in value creation for each State. The section concludes with a summary of key ideas.

4.1 History of petroleum industry

4.1.1 Norway

Al-Kasim (2006) gives excellent details for the Norwegian oil industry. The following extract on Norwegian oil industry history is summarised from the author's book.

Norway was a small country with 3 million people with shipping, fishing and hydroelectric industry dominating its economy before the discovery of oil in the NCS in 1969. Scepticism had always prevailed with the discovery of oil within Norwegian territory as late as 1958. However, major gas discovery in Groningen, Holland in 1959, accelerated International Oil Company (IOC) activity on the UK side. Norway was reluctant on its stand with respect to the finer interpretations of the Geneva Convention, nevertheless, The Royal Decree of 1963 proclaimed sovereignty of Norway over its continental shelf. Median-line negotiations were still pending with UK to determine fully the extent of NCS under Norway. The negotiations went smoothly and were closed before any petroleum activity began and major discoveries made. In the meantime, Norway was also making preparations to form a regulatory framework to govern the petroleum activities and thus was appointed the Norwegian Petroleum Council in 1965.

1966 marked the first well drilled on the NCS and led to a dedicated three-member unit under the Mining Division to overlook oil matters. The discovery of the Cod Field encouraged signs of petroleum reserves and led to the expansion of the Petroleum Section with personnel from legal, economic, geological and technical background being recruited between 1968-1972. Until 1965, 10 licenses were handed out to only conduct geological surveys by means of a temporary law. The Royal Decree of 9 April 1965 however, laid the foundations for the system of licences that exists today. Two types of licenses were awarded;

Reconnaissance license that gives the holder three years to conduct geological surveys over specified areas but without the exclusive right to survey, drill and exploit petroleum.

Production license, on the other hand, gave the holder the exclusive right to survey, drill for and exploit oil in the specified area with each block being approximately 500 km² and license period spanning 46 years. However, after the first six years it was mandatory to relinquish a third of the license area followed by another third in the following three years. The applicant had not only to apply for the production license but also pay area fees, royalty and a company tax on net revenues as a result of its petroleum activities.

To keep up the momentum of petroleum exploration, the Second Allocation Round was announced between 1969 -1971. This era coincided with the first commercial discovery at Ekofisk and the move towards resource nationalisation by the OPEC that also persuaded Norway to insist state participation in petroleum activities by IOCs on the NCS. The Ministry of Industry, in a report of 12 June 1970 to the Parliament, gave the first glimpse of suggestions of the ‘Norwegian Model’ of separation of functions necessary to organise and govern the petroleum activities. In the same year, the Royal Decree prescribed the HSE standards. 1972 marked the formation of Statoil, Norway’s NOC, to manage the State’s interest in the petroleum sector.

With the second allotment round more discoveries came online and the rising oil price of the early 70s made it financially viable for Norway to explore in deep offshore. However, concerns also grew large of the impact the newfound oil wealth would have on the Norwegian economy. In 1974, the Labour Union submitted a report to the Parliament throwing caution to the wind by highlighting the Dutch Disease and impact of possible future dependence on oil revenues for Norway. Thus forms the cautionary approach of Norway to exploit its petroleum resources while protecting domestic industries. The ambition to build local capacity in the petroleum activities gave rise to the ‘Norwegian Cost Factor’. 1978 marks the fourth allocation round that compels 50% of the R&D in petroleum activities to be done in Norway. In 1979-80, IOCs were beginning to complain that it was costlier to produce on the Norwegian side than on the UK side owing to the local content obligations imposed by Norway.

Towards the late 70s a need arises to define a Norwegian oil policy in the light of increasing discoveries and oil revenues. Natural gas discoveries also made it necessary to appoint a Gas Co-ordination Committee in 1983, to co-ordinate gas activities. The Troll contract of 1986 created a commercial outlet for exploiting

associated gas. Increased dependence on oil revenues also drew attention to decouple public spending from oil revenues and thus was born the Petroleum Fund on the recommendations of the Tempo Committee.

1985 saw the advent of the Petroleum Law in Norway covering the entire life cycle of petroleum operations from licensing to decommissioning. The eighties also witnessed a strong urge by the state to develop NOC to decrease IOC dependence and secure future revenues for the state from petroleum activities. Production peaked in 1987 and in the autumn of 1986, the state braced up for the eventual decline by proposing tax adjustments as incentives to make newer fields available for development. This bore fruit with investments increasing between 1985 -1990 due to new fields and construction of gas pipelines. Towards the late 80s in the light of maturing fields in the NCS and recovery options being costly, Statoil is partly privatised to prospect for oil internationally.

Today, the Norwegian Petroleum Industry is cited as an example of the most successful and transparent industry and the 'Norwegian Model of Oil Sector Governance' is presented as an ideal template for institutional setup in petroleum-rich countries.

Evolution of Statoil

Den Norske Stats Oljeselskap AS, literally translating to The Norwegian State Oil Company is today better known as Statoil. As mentioned earlier, the resource nationalisation trend of OPEC in the early 70s prompted Norway to consider a NOC as a means of resource management. The Parliament report 25 also stated that a state-owned oil company could help the state avoid the negative impacts of oil development through two modes, 1. Controlling the pace of petroleum production and 2. Having supervisory control over the operation on the NCS (Thurber & Istad, 2010). Statoil was incorporated as a limited liability company with two employees on 18th September 1972. In 1976, Statoil made its first discovery in Tommeliten. Statoil founding CEO, Johansen continually attempted to gain the best acreage and favourable licenses to Statoil and also gave impetus to pushing carried interest to the NOC. In the 1980s, the State became concerned of the NOC's power and the possibility of it becoming a state within a state. The IOCs on the other hand were complaining of partial terms to the NOC. The State therefore decided to clip the

NOCs wings by slashing half of Statoil's holdings and transferring them to State Direct Financial Interest (SDFI) in 1985 (Thurber & Istad, 2010).

Early 90's saw a change in Statoil through change in leadership and partial privatisation of the NOC. In the wake of dwindling domestic reserves, an alliance was formed with BP in 1990 that led to international expansion in Angola and Azerbaijan. The company was listed on the Oslo Stock Exchange and the New York Stock Exchange in 2001. 2007 led to the merger of Norsk Hydro into Statoil to create a single dominant Norwegian company representing the State in the petroleum sector.

Statoil moved up the technological curve with the onset of the technology agreements put in place by the State from the Fourth Allocation round in 1979. Thereafter it takes credit for technological innovations like the multiphase pipeline of 1982, innovations for cutting emissions from petroleum activities in 1991 to name a few. Its first experience with unconventional oil was in 1994 in Venezuela.

Today, Statoil has performed well financially and has demonstrated strong market performance. It has succeeded in its mission to not only represent the State's interest in firm control over the petroleum resources on the NCS but has also built domestic technical capacity and expertise in production and exploration activities in the challenging environments such as the NCS (Thurber & Istad, 2010).

4.1.2 Nigeria

The petroleum industry history and the evolution of the NOC the Nigerian National Petroleum Corporation (NNPC) are inextricably interlinked. Both are characterised by dynamics of the political economy of Nigeria emerging as an independent state and reaping the benefits of its petroleum resources while witnessing changes in governances from military regimes to civilian governments. Ethnic tensions also colour the political economy of Nigeria, with the North dominated by the Hausa-Fulani tribes, the West by the Yorubas and the East by the Igbos.

The brief overview presented below is based on summarising the works of Astebuga (1999), Nwokeji (2007), Hosman (2009), and Thurber et.al (2010).

Pre-independence

Nigeria already had its first piece of legislation on petroleum in 1889 in the form of the Petroleum Ordinance of 1889, which laid the basic framework for development of

petroleum and natural resources. This legislation was followed by Mineral Regulation (Oil) Ordinance of 1907. The 1907 ordinance gave the sole rights to petroleum explorations exclusively to British personnel and companies; quite natural since Nigeria was a commonwealth British colony at that time.

The first well was however, drilled by a German firm – Nigerian Bitumen Company in 1908. The well came out dry and the operations were stopped in the light of World War I. Interest in pursuing oil activities piqued with the formation of Shell/D’Arcy Petroleum Development Company of Nigeria – an alliance between Shell Petroleum Company and British Petroleum. The company gained exclusive rights to the entire territory of Nigeria in the form of the Oil Exploration License (OEL). The company drilled its first well in 1951, which came out dry. Oil was then struck in 1956 in commercial quantities in the Oloibiri region and commercial production begins at 5,100 barrels of oil per day in 1958. It also marked the first shipment of crude oil to Europe and Nigeria’s entry into the world as an oil-producing nation. By 1957, however Shell-BP voluntarily reduced its acreage to 40,000 km² of Oil Prospecting Licence (OPLs), of which it converted 15,000 into Oil Mining Leases (OMLs) in 1960 and 1962 turning over the remaining to the government.

To check the petroleum activities of Shell-BP, the Mineral Oils (Safety) Regulations of 1952 were put into place, which were later replaced under the 1963 regulations. Also, the Oil Pipelines Act of 1956 was passed to ensure transportation of crude over long distances. To extract the resource rent, the Petroleum Profit Tax Act was established in 1959 with a retroactive effective date of January 1, 1958. In order to add momentum to exploration activities and to remove over-dependence on a single oil company, the government repealed Section 6(1)a of the Mineral Oils Ordinance of 1914. 1958, thus marks the entry of IOCs in the Nigerian petroleum industry including Mobil Oil, Texaco, Occidental, Agip, the Italian state-owned oil company, as well as its French counterpart of Safrap, which is today, Elf.

Post –Independence

Nigeria gained independence in 1960 and became a republic on 1 October 1960. However, Shell-BP had near monopoly in oil operations until then and enjoyed the privilege of gaining the best acreage in the region that continues even today. In 1964, Gulf Oil Company made the first offshore discovery. Other discoveries were made in

the same decade and Nigeria relied heavily on the expertise of the IOCs to develop its petroleum industry, the State earnings limited to the royalty payments by the oil companies. As production increased, government revenues from oil started increasing. Nigeria distributed revenues among its states based on the principle of derivation under which regions generating revenues were entitled to receive a bigger share. Most of the oil production was (and continues to be) concentrated in the Igbo-dominated South, which piqued the animosity of the northern and the western states dominated by the Hausa-Fulani and the Yoruba. The fight for revenue control led to two military coups in 1966 and ultimately culminated into a civil war in 1967-1970 affecting production. Although the war did not affect the production capacity, it brought the petroleum industry to the limelight of political dynamics in Nigeria making it the cornerstone of asserting control over oil by those in power.

In 1970, 12 concessionaries appeared on the oil concession map thereby leading to the upgrading of the Ministry of Mines and Power to the Department of Petroleum Resources. The end of the war coincided with the oil price hike of the early 70s. Oil windfalls inflated government budgets and spending resulting in policies that would prove unsustainable in the face of oil price drops. Nigeria joined the OPEC in 1971 and echoing the resource nationalisation sentiment, established Nigerian National Oil Company (NNOC) to gain control of its petroleum resources. The State accelerated its learning curve in the petroleum industry based on experiences of other OPEC members. Through the NNOC, the state renegotiated terms with IOCs for equity participation and subsequently increased equity participation from 35% in 1971 to 55% in 1973 and 60% in 1979. It also scrapped traditional agreements and entered agreements like Joint Ventures (JVs), Production Sharing Contracts (PSCs), Risk Sharing Contracts (RSC) and participation agreements. In order to increase local content, the Nigerian Indigenisation Decrees of 1972 and 1979 were passed. NNPC was established in 1979 to address issues of corruptions and mismanagement; the evolution of the NNPC is described in detail in the following section. The second oil price hike opened more avenues for corruption and wasteful revenue allocation and thus the economy suffered with mounting external debts due to the drop in oil prices in the 80s. A military regime took over and put in austerity measures hitting the Nigerian populace. The most important effect of this was in the Niger Delta where sustained demonstrations against the austerity cuts and rising anger over the

destruction of the regions through oil operations coupled with poor infrastructure growth and alternative avenues for employment have, to this day, made the region unstable. In 2005, the Niger Delta crisis led to a drop in production from 2.5 million barrels/day in 2005 to 1.6 million barrels/day in July 2009. An amnesty deal by the government and the militant forces had helped assuage the situation, however the region still presents a significant business risk. We now shift focus to the evolution of the Nigerian NOC as it is inextricably linked to development of the petroleum sector and lays the foundation for analysis of value creation.

Evolution of the NNPC

The NNOC is the precursor NOC of Nigeria created in 1971 to be the overseer of the State's interest in the petroleum industry. It was also important to avoid the State being overtly dependent on IOCs. To check oil windfalls and to suggest efficient ways of marketing Nigerian crude, a panel was set up in 1975 under the military regime of Murtala Muhammed. A separate Ministry of Petroleum Resources was created and NNOC was transferred to it in the Obasanjo administration of 1979. Following the recommendations of the same panel, NNOC and the Ministry of Petroleum Resources merged to form NNPC. The NNPC thus formed, had the power and responsibility of the NOC and also acted as a regulator. The ministry under it meant that it was also overseer of policy formulation and coordination. It was also responsible to refining of crude. NNPC showed the first signs of being a state within a state in the late 70s when the NNPC leadership almost ignored the government appointed board.

A new military regime led by Buhari came underway and the Ministry of Petroleum Resources was restored. Under the Babangida regime (1985-93), NNPC was restructured into five divisions including a Petroleum Inspectorate that improved organisational clarity. In 1988, NNPC was commercialised and transformed into a holding company with 12 subsidiaries as limited liabilities companies. NAPIMS (described later) was created to manage the State's interest in the industry. Additionally, the Petroleum Inspectorate was transferred to the Ministry of Petroleum Resources. The Babangida regime also opened the upstream sector to private indigenous companies through first public bidding for oil blocks in October 1990. The regime also considered privatisation of refineries to resolve domestic fuel scarcity.

The same year, Oil Mineral Producing Areas Development Commission (OMPADEC) was established to channel resources towards development of the Niger Delta. The Abacha regime (1995-98) created the Petroleum Trust Fund for depositing and disbursing revenues from increases in refined petroleum product prices, to facilitate infrastructure rehabilitation. The regime also scrapped the Department of Petroleum Resources.

The civilian government came to power with the Obasanjo regime after 16 years of military rule and set out to make major reforms in the Nigerian petroleum industry. The Department of Petroleum was reinstated and natural gas development remained the major focus. The gas sector had been neglected over the years and in the absence of a market for gas or fiscal incentives for exploiting natural gas, it was flared by the IOCs. A mandate set to terminating gas flare was put into practice and Nigeria became a significant exporter of natural gas by 2005. December 2004 set the plans in motion to create a market for Nigerian natural gas, through the creation of the West African Gas Pipeline. The pipeline would supply gas to the neighbouring states of Ghana, Benin and Togo. The Nigeria Master Gas Plan was also announced in 2008.

In April 2000, a 25-member committee was appointed to make recommendations for the reform of the Nigerian petroleum sector. The aim of the exercise was to ensure maximization of Nigerian economic development by growing reserves and production, developing gas market, working to allow the petroleum industry to create new industries, improving accountability and providing for the autonomy of the principal public sector agencies. The company made several key partnerships in 2005.

4.1.3 Analysis and Role in Value Creation

Looking at the manner in which the oil industry evolved in Nigeria and Norway, it is not hard to see that their paths have been completely different, that very well puts into perspective the design and major forces shaping the institutional features.

Norway

Before the discovery of the oil on the NCS, Norway was an independent country having competence in managing its natural resources such as hydro and fisheries as well as had technical capacity through years of experiences in the civil engineering and shipbuilding. So when oil was discovered, the State was in no hurry to exploit the

resource to pump the revenues into its economy. Rather it was more cautious in the way the newfound riches would impact its domestic industry and the social life. It was also quick to address that oil activities require special focus and thus created and expanded the Petroleum Section with people of high technical calibre early on. Norway also benefited from the development of petroleum activities on the UK side. UK having more industry experience in oil operations, gave Norway the insights of creating terms similar to its neighbour not only to learn from its experiences but also to make the NCS competitive for oil companies to opt into the Norway side. Furthermore, it recognised early on that it needs to build local capacity in the sector and therefore established and enforced regulations to do so. It also took its time to build a sound legislation covering all aspects of the petroleum activities while having flexible decrees to allow and encourage petroleum activities.

Furthermore, the State's interference in NOC activity was minimal. When the state did intervene, it was to help accelerate Statoil's performance by giving it favourable terms than leave it to its own devices of learning by doing. The presence of domestic competition in the form of technically competent companies like Norsk Hydro meant that the State could not only benchmark Statoil's performance but also leverage synergies. Until mid-90s this reflected into Statoil and Norsk Hydro dominating production on the NCS (Thurber & Istad, 2010). This simple fact gave the State the power to regulate the tempo of petroleum production, which is critical under Hotelling's rule.⁸ Norway also recognised that it was important to contain Statoil's influence and avoid the phenomenon of it becoming '*a state within a state*'. The State's intervention through transferring Statoil's financial holdings into SDFIs not only helped contain its influence but also gave the State more participatory role in production licenses which in turn gave it an opportunity to extract more of the resource rent. Norway's entry into the EEA meant that it could no longer give favourable terms to Statoil (Al- Kasim, 2006). Also in the light of maturing fields on the NCS, it was necessary for the state to prospect for oil internationally. The partial

⁸ Hotelling's theory entails that it is important to regulate the rate of exploitation of petroleum resources to benefit from the rents it generates. The producer/resource owner is faced with two choices – a. Either to dig the resource, get the economic value of it and invest it into other ventures that provide future cash flows or b. Leave the resource in the ground until the time that the future value appreciates which makes it financially more valuable. The important thing to consider here is the discount rate of the two options.

commercialisation and the alliance with BP in the early 90s addressed both these issues and helped diversify Statoil's portfolio.

Finally, the State was prudent from the onset of protecting the economy from the ill effects of oil-revenues and the creation of the Petroleum Fund (subsequently renamed the Global Pension Fund Global) not only helped Norway clear its external debt but also prevented it from the ill effects of the economic slowdown of 2008.

Nigeria

Unlike Norway, Nigeria was a commonwealth colony of the British whose economy was sustained mostly through cash crops and administered by the British. Regulations for petroleum activities were in place in Nigeria even before oil was discovered. Moreover, petroleum activities were spiked with geopolitical interests of the British and the French in maintaining access to petroleum resources of Nigeria. Petroleum activities did bring in huge revenues. Barma et.al (2012) point out that short-term increase in rents makes long-term decisions more difficult to sustain and also that in this context even technical things can experience a political undercurrent. This is evident in the case of Nigeria. The oil price rise of the early 70s coupled with increasing production generated massive rents, which in turn inflated government budgets. The fiscal policy turned out to be unsustainable when the prices collapsed and lead to macroeconomic volatility (Budina et. al, 2006). The fact was aggravated by Nigeria's population growth, which grew by 30 million between 1970 and 1985 alone. The rents generated also meant that NNOC (NNPC) was at the focal point of oil activities and the revenues it brings in, nurtured a system of political patronage (Thurber et.al, 2010). Moreover, the Ministry of Petroleum Resources came into effect 20 years after commercial petroleum operations were in place, thereby slowly giving NNPC more responsibilities than were adequate for an oil company, which led to it becoming a state within a state.

Furthermore, the instability of the governance regimes meant that those in power had shorter time horizons and therefore a high discount rate of the future. This in turn implied that those in power restructured and reorganised the sector to generate more value for themselves even if it meant favouring external entities like IOCs over indigenous companies. This 'Roving Bandit Effect' has comprised the Hotelling's principle for Nigeria. The restructuring process had the implication that the State lost

on building indigenous capacity. As Hosman (2009) indicates, NNPC not only edged out local companies by not renewing their licenses or by favouring IOCs, the State failed to enforce the employment criteria stipulated within the Indigenization Decrees. The absence of domestic capacity and domestic company capable of competing with IOCs meant that IOCs are it's implicit operators even to this day.

It should be duly noted however, that Nigeria did learn from the OPEC experience by bargaining a greater equity share but failure to keep up with the cash calls, demanded for it's share of equity, meant that those type of agreements would not attract investor confidence in the future. Also, in the absence of indigenous capacities, this meant that Nigeria's resource wealth risks not being extracted. Moreover, failure to protect and develop the Niger Delta has led to instability in the region and has caused disruptions to service. Nigeria in the past, thus failed to create value in terms of building local capacity, preventing ill-effects of oil revenues on it's economy and directing the course of petroleum activities in it's territory. However, reforms are underway to address these issues.

4.1.4 Summary

In summary to section 4.1, it can be said that even with the similarities in terms of discovery of oil, the oil industry evolved very differently in Norway and Nigeria. Norway benefited from having some industry experience and a mature industry supporting the economy before oil was found. This was certainly not the case for Nigeria, which was not only overwhelmed with it's new found riches but it's characteristic political economy saw competition among it's own people to gain a bigger share of the oil pie. Norway has been cautious and prudent with its petroleum sector, with policies spanning a longer time horizon. Nigeria on the other hand, routinely experienced changing governance, each of which tried to shape the industry in a manner most profitable to those in power and thus characterising 'The Roving Bandit Effect'. Norway also was very careful in separating State's interest and the commercial interest of its NOC, which has become an epitome of oil sector governance. Nigeria on the other hand, focused more on restructuring it's NOC to serve as a means of siphoning the rents it generated, than on looking at the bigger picture and propelling NNPC in competition with the IOCs. Over the same period of time, Norway and Nigeria have evolved into very different petroleum - rich countries.

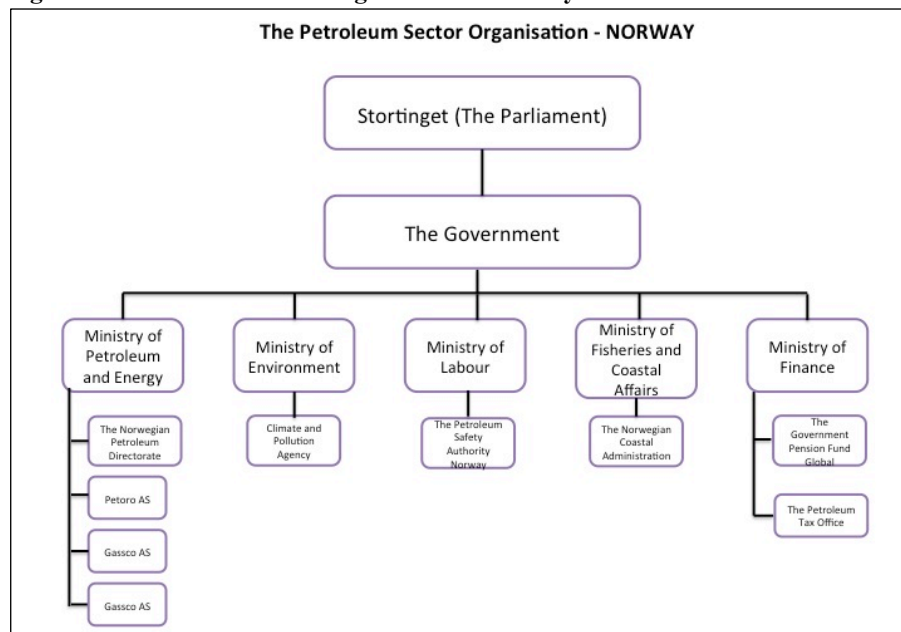
4.2 Sector Organisation

Upstream operations in petroleum industry are not only risky, capital intensive but also require technical know-how. In many cases, Host Countries (HCs) lack this technical know-how and must rope in the services of the IOCs to extract the resource. The objectives are different for the HC and the company commissioned to extract the resource. The only overlap in their objectives is to extract the resource so as to derive economic value from it.

On one hand, the oil company is interested in diversifying its risk portfolio across petroleum fields in different countries with different geological structures. The other value addition for the company to engage in petroleum activities is to accelerate its own learning curve and carve a technological niche. The State, on the other hand has to not only ensure that the resource generates value for the economy but also to ensure that it captures maximum portion of the rent, builds local capacity, enhances other industry involvement in processing of petroleum products to name a few (Barma et.al, 2012). The State manages these objectives by creating an institutional structure to manage petroleum operations and interface with the oil companies to eventually help extract the resource and derive economic value from it. This is the lens of value creation for the HC to provide an institutional and regulatory framework for the oil companies to operate in their territory.

4.2.1 Norway

Figure 2: Petroleum Sector Organisation: Norway



Source: Author's own based on data from The Norwegian Petroleum Directorate, 2014

The Norwegian petroleum sector organisation is characterised by clear separation of roles and responsibilities and has been often cited as ‘The Norwegian Model of Oil Sector Governance’. As mentioned earlier, it was the report of 12 June 1970 that laid the foundation of the Norwegian Model. It has the following institutional

Ministry of Petroleum and Energy (MPE)

The MPE is responsible for managing petroleum resources in the NCS. It also ensures that petroleum activities carried out are in line with the guidelines set by the Parliament and the Government. The MPE also fully owns the state-owned companies - Petoro AS, Gassco AS and partially owns Statoil.

Norwegian Petroleum Directorate (NPD)

The NPD is the regulator and reports to the MPE. It is the advisory body for the MPE and the administrative authority for exploration and production of petroleum deposits. It also stipulates regulations and makes decisions under the petroleum activities regulations and is the primary authority responsible for collection and analyses of all data related to the NCS.

Statoil

Statoil represents the commercial arm of the Norwegian Model representing the state through active participation in the petroleum industry. The company is partially state owned with the State having a 67% ownership interest. It is an international public limited liability company, with operations in 33 countries and territories and more than 23,000 employees worldwide (Annual Report Statoil, 2013). Statoil engages in exploration and production, natural gas supply, R&D, pipelines, decommissioning. 70% of the company’s oil and gas production is from Norway.

Petoro AS

The fully owned state company manages the State Direct Financial Interest (SDFI) on behalf of the state.

Gassco AS

The fully owned state company manages the transportation of gas in the NCS and is the operator for Gassled.

The Ministry Of Labour

The Ministry of Labour oversees the regulation, supervision of the working environment, along with the safety and emergency preparedness with respect to petroleum activities.

The Petroleum Safety Authority Norway (PSA)

The PSA has the responsibility for technical and operational safety, also including emergency preparedness and working environment in the petroleum activities.

The Ministry Of Finance

The Ministry of Finance is responsible for collecting taxes and fees such as the corporate tax, special tax, CO₂ tax and NO_x tax, from the petroleum activities, on behalf of the state.

The Petroleum Tax Office

The Petroleum Tax Office lies within the Norwegian Tax Administration, which in turn reports to the Ministry of Finance. It is responsible for ensuring correct levying and payment of taxes and fees adopted by the political authorities.

The Directorate of Customs and Excise

The Directorate of Customs and Excise is responsible for ensuring correct levying and payment of the NO_x tax.

Government Pension Fund - Global

The Ministry of Finance manages the Government Pension Fund – Global the operative management responsibility of which has been delegated to the Norges Bank.

The Ministry Of Fisheries And Coastal Affairs

The Ministry of Fisheries and Coastal Affairs ensures sound emergency preparedness against acute pollution in Norwegian waters.

The Norwegian Coastal Administration

The Norwegian Coastal Administration ensures the State's oil spill preparedness.

The Ministry Of The Environment

The Ministry of the Environment is responsible for managing environmental protection and the external environment in Norway.

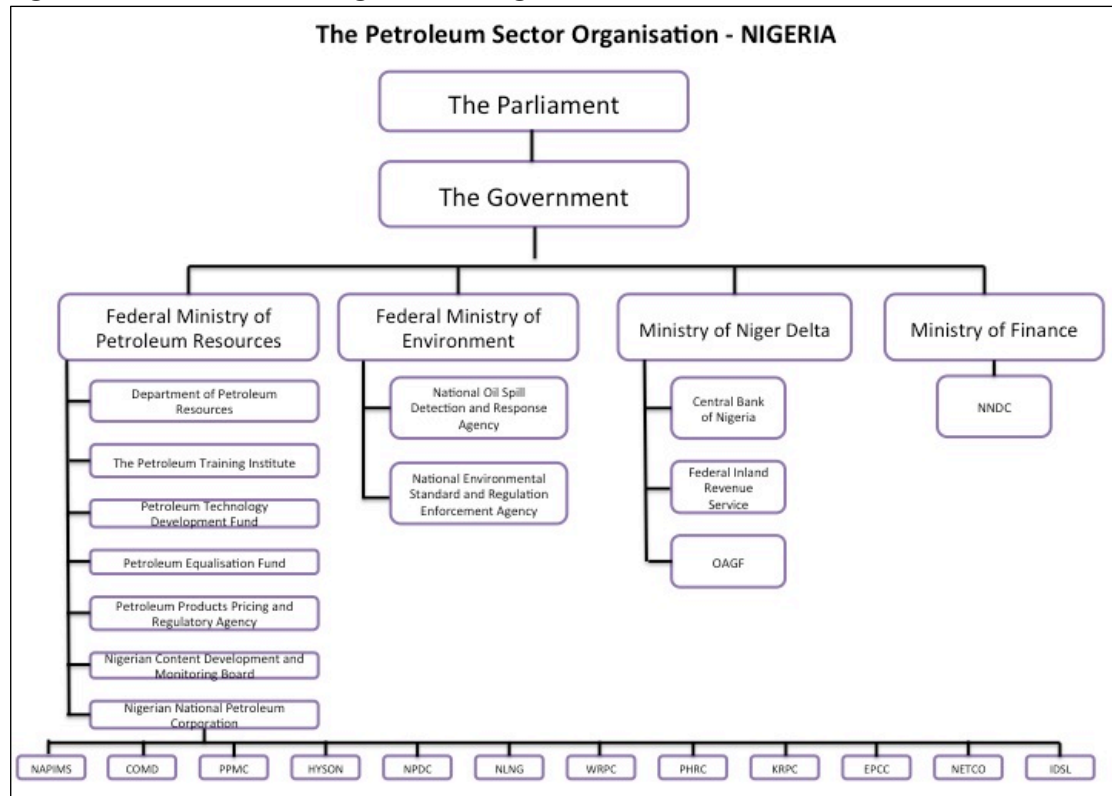
The Climate and Pollution Agency

The Climate and Pollution Agency is responsible for following up the Pollution Control Act while providing advice and basic technical materials to the Ministry of the Environment.

4.2.2 Nigeria

The information for the Nigerian oil sector organisation is primarily sourced from the audit report of the Nigerian Extractives Industries Transparency Initiative (Sada, Idris & Co, 2013).

Figure 3: Petroleum Sector Organisation: Nigeria



Source: Author's own based on data from Federal Republic of Nigeria⁹

Federal Ministry of Petroleum Resources (FMPR)

The FMPR is responsible for initiating policies for the oil and gas sector and supervises the implementation of approved policies. It also has a lot of agencies and parastatals under it, which ensure the execution of the approved policies for the sector.

Nigerian National Petroleum Corporation (NNPC)

The NNPC is Nigeria's NOC representing the State in the petroleum activities. It is wholly owned by the state and is a fully vertically integrated oil company and its functions can be categorized as follows (Thurber et al.,2010):

- A sector manager and quasi regulator through NAPIMS (described below)
- Buyer and seller of oil and refined petroleum products
- Plays operational role in upstream, downstream and gas transport activities

⁹Federal Republic of Nigeria, Government. Available at <http://www.nigeria.gov.ng/2012-10-29-11-06-51/executive-branch>. Last Accessed May 31, 2014

- Service provider to the Nigerian oil sector.

The NNPC is a holding company with 11 fully owned subsidiaries and two partially owned subsidiaries or Corporate Business Units (Nwokeji, 2007). Thurber et al. (2010) categories them as follows:

Table 1: NNPC subsidiaries by function

Interface with IOCs
National Petroleum Investment Management Services (NAPIMS)
Crude Oil Buyers and Sellers
Crude Oil Marketing Division (COMD)
Pipelines and Products Marketing Company (PPMC)
Hydrocarbon Services Nigeria (HYSON): Marketing JV with Vitol
Operational (Upstream and Natural Gas)
Nigeria Petroleum Development Company (NPDC): E&P
Nigerian Gas Company (NGC): Natural gas pipeline operation
Operational (Downstream)
Nigerian LNG (NLNG): LNG facility operation, 49% NNPC-owned
Warri Refining & Petrochemical Company (WRPC)
Port Harcourt Refining Company (PHRC)
Kaduna Refining & Petrochemical Company (KRPC)
Eleme Petrochemicals Company Limited (EPCL)
Services
National Engineering & Technical Company (NETCO): Engineering design
Integrated Data Services Limited (IDSL): Seismic data processing

Source: Thurber et. al (2010)

National Petroleum Investment Management Services (NAPIMS)

As mentioned above, NAPIMS is one of the 11 fully owned subsidiaries of NNPC and operates in the upstream sector of the petroleum industry. It interfaces with the IOCs by acting as a government agent while entering in PSCs while being the approver for yearly budgets for IOC led JVs (Thurber et al., 2010).

Additionally, it also engages in frontier exploration services in basins where IOCs are reluctant to venture into (Sada, Idris & Co, 2013).

Department of Petroleum Resources (DPR)

The DPR is aligned under the Ministry of Petroleum Resources, and is responsible for supervision of all petroleum industry operations carried out under licenses and leases in Nigeria. It is responsible for processing all applications for licenses, monitoring the timeliness of operations along the value chain of petroleum activities. Additionally, it ensures the payments of all rents and royalties accruing to the State. Furthermore, it maintains records of operations of the petroleum industry related to

petroleum reserves, technical viability of production and exports of crude oil, gas and condensates, licenses and leases.

The Petroleum Training Institute (PTI)

The PTI is a parastatal of the Ministry responsible for human capacity building for petroleum sector.

The Petroleum Technology Development Fund (PTDF)

The PTDF is a parastatal of the Ministry responsible for initiating and coordinating programs for development of petroleum technology.

The Petroleum Equalization Fund (PEF)

The PTDF is a parastatal of the Ministry to oversees petroleum-bridging activities.

The Petroleum Products Pricing and Regulatory Agency (PPRA)

The PPRA is a Government agency that fixes the benchmark prices of petroleum products. It is also responsible for regulating and monitoring the transportation and distribution of petroleum products in Nigeria.

The Nigerian Content Development and Monitoring Board

It is an agency under the FMPR established to regulate and monitor the implementation of indigenous participation in all activities of the petroleum industry.

Federal Inland Revenue Service (FIRS)

The FIRS is responsible for collection of taxes and royalties due to the State.

The Central Bank of Nigeria (CBN)

The CBN holds the State's accounts for petroleum revenues and is an advisory for the state in the financial matter.

Office of the Accountant General of the Federation (OAGF)

The OAGF is the chief accounting officer, responsible for the receipts and payments of the Government; supervision of the accounts of Federal Ministries and Extra-Ministerial Departments; maintenance and operation of the accounts of the Consolidated Revenue Fund and other public funds; and maintains and operates the Federation accounts.

Niger Delta Development Commission (NDDC)

The NDDC is the body solely responsible for the development of the neglected and disputed Niger Delta region that has the maximum petroleum reserves in the country.

Tertiary Education Trust Fund (TETFund)

The TETFund is an intervention agency with the objective of improving the quality of Education in Nigeria. The FIRS assesses and collects the 2% Education Tax imposed on the assessable profit of all registered companies in Nigeria and hands it to the TETFund which later disburses the amounts to educational institutions at Federal, State Government levels while overseeing their operations.

Revenue Mobilization Allocation and Fiscal Commission (RMAFC)

The RMAFC was created to ensure a fair and equitable share of revenues from the State's fiscal policy to its constituent states.

4.2.3 Analysis and Role in Value Creation

Norway's petroleum sector organisation is known as the 'Norwegian Model' and is often cited as a role model for good governance of the petroleum sector. The characteristic of the Norwegian Model is the clear separation of functions between the Ministry overseeing the petroleum activities to ensure that they are aligned with broader government objectives, the Directorate playing the regulator and Statoil representing the commercial interests of the State in petroleum activities. It introduces clarity of roles and avoids conflicting interests. While Nigeria's governance structure also shows a clear distinction between the Ministry, the Directorate and the NOC-NNPC, the NNPC Act of 1977 (NEITI, 2010) also vests regulatory responsibilities onto NNPC. This introduces conflict of interests.

The most conspicuous thing about the sector organisation of the two countries is the simplicity of the Norwegian Model and the complexity of the Nigerian Model. The Norwegian Petroleum Directorate itself is tasked with four main responsibilities that relate back to regulation but its Nigerian counterpart is also responsible for collecting payments accruing to the government from petroleum activities whereas, the OAGF already exists to collect all revenues due to the government. This indicates a slight duplication of roles. Furthermore, the DPR of Nigeria is also responsible for managing agencies tasked with building indigenous capacity and improving local content. Norway, manages these roles through its NOC.

4.2.3.1 Technical Capacity

Barma et al. (2012) and Thurber et.al (2010) highlight the importance of technical capacity of governmental agencies tasked with regulating and monitoring the

petroleum sector. Technical capacity to administer functions is crucial in any sector and it is no surprise that a sector's performance hinges on it, as it is the most important tool for value creation. As has been noted above, Norway has been diligently building technical capacity in the petroleum sector, both in administrative sense and also on the technological front, while Nigeria has mostly failed to do so. Thurber et.al (2010) point that the FIRS and the DPR lack capacity for tax and royalty collection, which results in under collection of revenues. Nwokeji (2007) also states that duplication of functions between the NNPC and the DPR not only creates inefficiencies, but also puts pressure on the limited pool of talent when the same functions are to be performed in two different agencies. The same can be observed for DPRs role in revenue collection and that of the OAGF.

Thurber et.al (2011) analyses if separation of functions alone is necessary for a high performing petroleum sector and they conclude that even developing countries like Angola, that have no clear separation of roles have an efficient well performing petroleum sector. The author recommends that for countries like Nigeria who have a low institutional capacity, the focus should first be on developing technical and institutional capacity.

4.2.3.2 Legal and Regulatory Framework

Barma et al. (2012) point out that legal and regulatory framework is one of the key technical issues in sector organisation. The authors state that an enforceable, transparent, comprehensive regulatory framework provides a stable and predictable policy environment thereby improving investor confidence. For the framework to be enforceable, the requisite technical capacity must be present.

Governance is an important factor to gauge institutional efficacy. In the context of the State and the petroleum industry, we try to analyse how Norway and Nigeria fare on the World Bank Governance Indicators. The chart below, presents Norway and Nigeria's percentile ranking for the year 2012 for each of the Worldwide Governance Indicators.

Table 2: Governance Indicators 2012

Indicator	Year	Percentile Ranking	
		Norway	Nigeria
Voice and Accountability	2012	100	27.5
Political Stability and Absence of Violence/ Terrorism	2012	93.8	3.3
Government Effectiveness	2012	98.1	15.8
Regulatory Quality	2012	91.9	25.5
Rule of Law	2012	100	10.4
Control of Corruption	2012	98.6	11.0

Source: Author's own based on data from Worldwide Governance Indicators (The World Bank Group)

As can be observed, Nigeria fares poorly and Norway rather excellently on the governance indicators. Below, we analyse each in greater detail.

Voice and Accountability

Historic factors, as noted in the previous section do influence the current governance situation, however the imposition of confidentiality clauses in Nigeria's laws and regulations in the petroleum sector do impose barriers on transparency (NEITI, 2010). Al-Kasim (2006) mentions the meticulous reporting requirements demanded by Norway. The information thus, generated not only helps foster transparency but also gives the opportunity to make informed decisions and acts as a learning repository for future endeavours.

Political Stability and Absence of Violence/ Terrorism

The post-independence history of Nigeria, gives a clear idea of governance power shifting between the military regimes and civilian governments. Political stability affects the institutional framework and correspondingly the regulatory policies as can be concluded looking at Nigeria's example. It is an important factor in the petroleum industry for two reasons:

- Upstream petroleum activities are risky, capital intensive; require resource mobilisation and span for decades¹⁰. This makes it necessary for oil companies to have stable policies for the longer run as they would otherwise incur sunk costs or losses and increase in risk level. For the State, lower predictability of

¹⁰ The average lifecycle of an oil field from exploration to decommissioning is 25 years.

policies perceived by the investor (IOCs) would lower their confidence in the State and demand higher risk premium (Barma et. al, 2012). This has the potential to affect future investments in the sector.

- Lack of confidence in time horizons perceived by the companies can compel them to adopt short-term production approach which increases the rate of depletion of the resource (Barma et. al, 2012). This could be in conflict to the State's goal of tempo regulation.

Absence of violence and terrorism is key to conducting business. It becomes even more crucial in the petroleum industry where companies incur sunk costs if their ability to produce is disrupted. For the oil company, it presents enormous risk not only to its facilities but also to its human capital. It also increases the break-even time for the company and discourages future alliances with the State. Moreover, damage to personnel could also increase the chances of the companies facing reputational risk. The State then bears the risk of making the sector unattractive for the oil companies and risks letting the resource stay in the ground.

Government Effectiveness, Regulatory Quality, Rule of Law

These factors go hand in hand and are influenced by the technical capacity to administer effective administration and discharge of duties. Sector organisation and separation of functions is important as has been noted earlier and Norway scores well because its sector organisation has become an anecdotal example of governance. In Nigeria however, reforms and institutional building efforts have failed for two primary reasons as pointed by Thurber et.al (2010)

- President being the key figure in Nigerian government sits at the nexus of the State, NNPC and the IOCs and thereby also sits at the top of the patronage pyramid. This position gives the president immense power to appoint people in important and lucrative positions while curtailing his ability to alter the governance parameters as they sustain the patronage ecosystem, he himself used to get to top.
- The Roving Bandit: Lack of will to transform resulting from short-sightedness.

A way to increase the technical capacity in governance agencies is to attract superior talent by setting out competitive terms. The NPD leadership did just that by obtaining a generous and competitive salary structure for NPD to develop its technical capacity

(Thurber et.al, 2011). No such effort seems apparent by the DPR, which has perpetually relied on NNPC for personnel in their arranged marriage (Nwokeji, 2007).

Control of Corruption

Transparency in operations, accurate reporting and accounting, complete laws and regulations goes a long way in controlling corruption.

Table 3: Corruption Perception Index comparison 2004 - 2013

Year	Country rank	
	Nigeria	Norway
2013	144	5
2012	139	7
2011	143	6
2010	134	10
2009	130	11
2008	121	14
2007	147	9
2006	142	8
2005	152	8
2004	144	8

Source: Author’s own based on Data from Corruption Perception Index

Observing the data from the Corruption Perception Index, it can be noted that while Norway has made significant efforts in improving its corruption perception rank, Nigeria seems to be stuck in the most corrupt countries category. Almost every study focusing on Nigeria addresses the issues of corruption. Thurber et.al (2010) and Nwokeji (2007) highlight the fact that corruption is ubiquitous in the oil industry and it forms a basis of a patronage system. Besides patronage, corruption also stems from factors such as lack of clarity, presence of loopholes, red tapesim and number of middlemen to name a few. Corruption increases operating costs for the IOCs, which in most cases cannot be officially reported or categorised under accounting standards. For the State, corruption causes loss of credibility and in the longer run; the value created is grabbed by the chain keepers rather than dispensing to the society.

4.2.3.3 Role of the NOC

It is essential to address the role of NOC, as a critical part of the institutional framework, in value creation. It is through the NOC that the State formally participates in the activities of the petroleum sector on level grounds with the IOCs.

Boscheck (2007) highlights the fact that NOC cannot be treated as black boxes as they not only represent the State's political and economic interests in petroleum operations, but also control about 90% of global petroleum reserves. NOCs, at the time of inception, lack the technical capacity and capital available at the disposal of the IOCs. It is then upon the State and the NOC to make the NOC as competitive as the IOCs.

Statoil has succeeded exceedingly at carving a niche for itself by being a forerunner in technological innovations in the NCS and now in the challenging conditions of the Barrents Sea. It has also successfully secured access to funding through partial privatisation and forming strategic alliance with BP allowing it to explore for oil in 34 countries creating more value than a traditional NOC.

The role of NNPC is more crucial in the Nigerian petroleum industry as it not only has to manage the State's interest in petroleum activities but also ensure it regulates the tempo of the activities while honouring its OPEC production allocations. The national daily crude production capacity is currently 2.5million b/d (NNPC, 2014) while the OPEC production allowance for Nigeria has ranged between 1.3 million b/d – 2.3 million b/d between 1982 and 2006 (OPEC, 2007). It can also be fairly concluded that NNPC has not been extremely instrumental in leveraging its position to build domestic capacity. Additionally, the nature of financial flows between NNPC and the State entails that it has no financial autonomy, which seriously cripples its ambitions of growth (Thurber et. al, 2010).

4.2.4 Summary

In summary of section 4.2, it can be noted that Norway's petroleum sector organisation is characterised by clear separation of roles with an extremely successful NOC. In Nigeria's case, even if sector organisation shows a clear separation of roles on the surface, the functional dynamics are littered with duplication of functions, weak governance and low technical capacity. The governance indicators indicate that Norway's better score makes its petroleum sector more attractive to IOCs than Nigeria's, which creates conditions apt to exploit natural resources for value creation.

4.3 Lifecycle of petroleum operations

Petroleum activities are complex and require a great deal of technical know-how. Additionally, since it cannot be confirmed with 100% accuracy whether a given area will contain oil that can be exploited in commercial quantities, the upstream sector is extremely risky and capital intensive. Due to these reasons, the HC ropes in the services of the IOC as they are better equipped to proceed with upstream operations and also since their diversified portfolio puts them in a better position to manage risks. However, giving the control entirely to IOCs is not favourable to HCs, which is why the HCs enter into different model agreements with the IOCs. The type of model agreement dictates the terms of HC – IOC engagements. Presented below are some of the most common model agreements that are used in Norway and Nigeria.

Joint Venture Agreements

Under the JV agreements, the State via its NOC contributes to upstream projects based on equity participation. The partnership can be between more than two participants with one participant being designated as the operator. The production and risks are also shared proportionately among equity participants.

Production Sharing Contracts

The PSC design entails that the HC appoints a competent IOC as a contractor to develop petroleum activities in a certain region. The IOC assumes all the risks in the project and is solely responsible for developing the project. The production, if any, belongs to the HC. The production consists of three parts:

'Royalty Oil': Representing payment of royalty to the HC.

'Cost Oil': The share of oil after the 'Royalty Oil' given to the IOC to recover its operating costs. In Nigeria, this is capped to 40% per annum; any additional costs can be carried forward.

'Profit Oil': The profit oil is shared between the IOC and the HC on the split agreed upon in the PSA. IOC share of the profit oil decreases as production increases.

Over and above, the IOC is also liable to pay income tax on its net profits from the PSC. As a HC therefore, the PSCs provide resource rent in terms of 'Royalty oil', 'Profit Oil' and the tax paid by the IOC.

Service Contract

The service contract is similar to the PSC however; the IOC is remunerated in cash for its services rather than in crude oil.

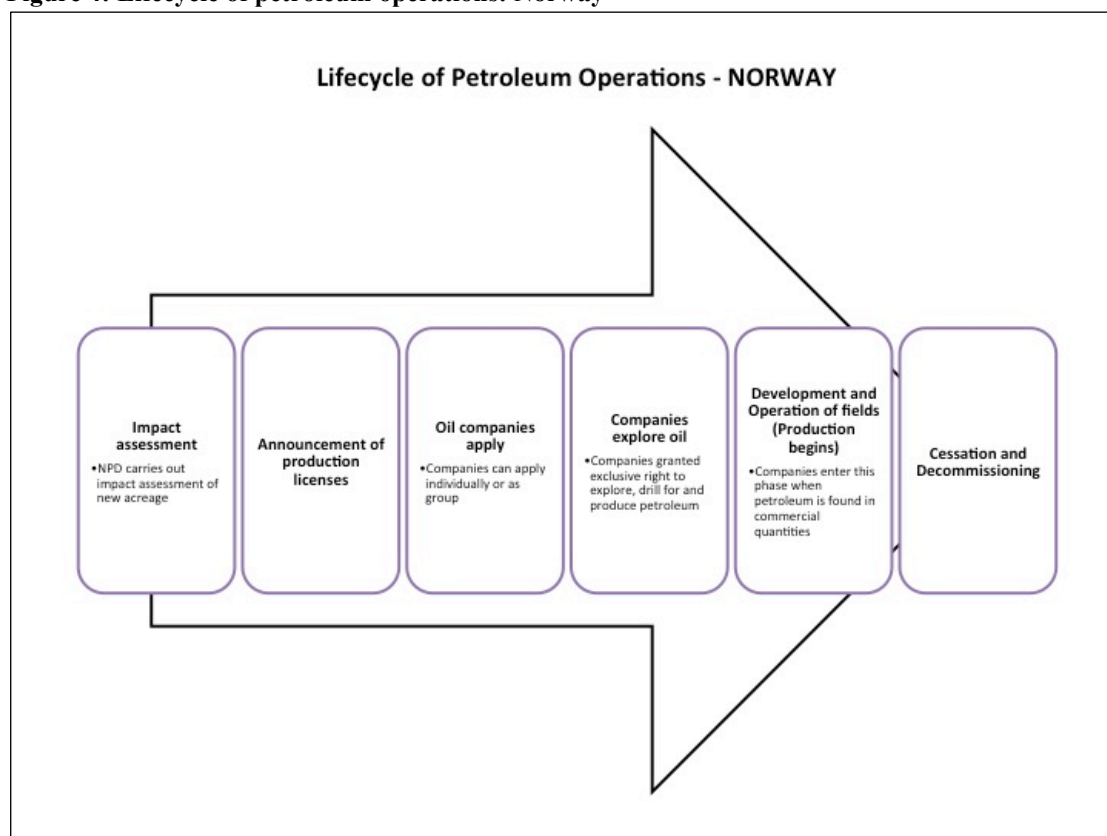
Marginal Fields/ Sole Risks

As fields mature and production drops, it is no longer profitable for the big IOCs to exploit these fields rather than focusing on producing from other “juicy” fields in their portfolio. Such fields are then sold to smaller operators. This is a model agreement used in Nigeria and the independent operators are indigenous companies.

The model agreements are an important way to understand how the HC and the IOC interact with each other through the entire lifecycle of petroleum operations, which is what is illustrated in the following part. Of the various model agreements stated above, only JVs are common to both countries, while the rest are used only in Nigeria.

4.3.1 Norway

Figure 4: Lifecycle of petroleum operations: Norway



Source: Author’s own based on data from The Act 29 November 1996 No. 72¹¹

¹¹ The Act 29 November 1996 No. 72, The Norwegian Petroleum Directorate. Available at <http://www.npd.no/en/Regulations/Regulations/Petroleum-activities/>. Last Accessed May 31, 2014

The Act 29 November 1996 No. 72 relating to petroleum activities, gives the lifecycle of petroleum operations in Norway as is summarised below.

Before an area is opened for petroleum activities, an impact assessment is carried to gauge the economic, social and environmental impacts of the said petroleum activities as well as its impacts on other industries in the particular and neighbouring regions. Following the assessment, the government makes public announcements for blocks that would be accepting production licenses. Applicants then apply individually or in groups and the licensing is governed by the licensing policy. The MPE awards production licenses to the applicants while designating an operator responsible to oversee the operational activities that are authorised by the license.

A Production license grants companies the exclusive right to survey, explore for, drill and produce petroleum in the acreage granted. The licensees also own the petroleum produced. The production license is valid for 10 years during which the licensee carries out exploration work by submitting a work commitment program. After the commitment has been fulfilled the licensee can either relinquish the license or continue to the next phase of developing the resource.

The development of the field continues if the discovery is found to be commercially viable. The licensee submits a *Plan for Development and Operation* to the MPE for approval. The plan must contain an impact assessment of the economic, social and environmental impacts of the proposed petroleum activities. Post approval, the licensee is solely responsible for the development of the field. The petroleum produced is subject to taxation as described in Section 5.

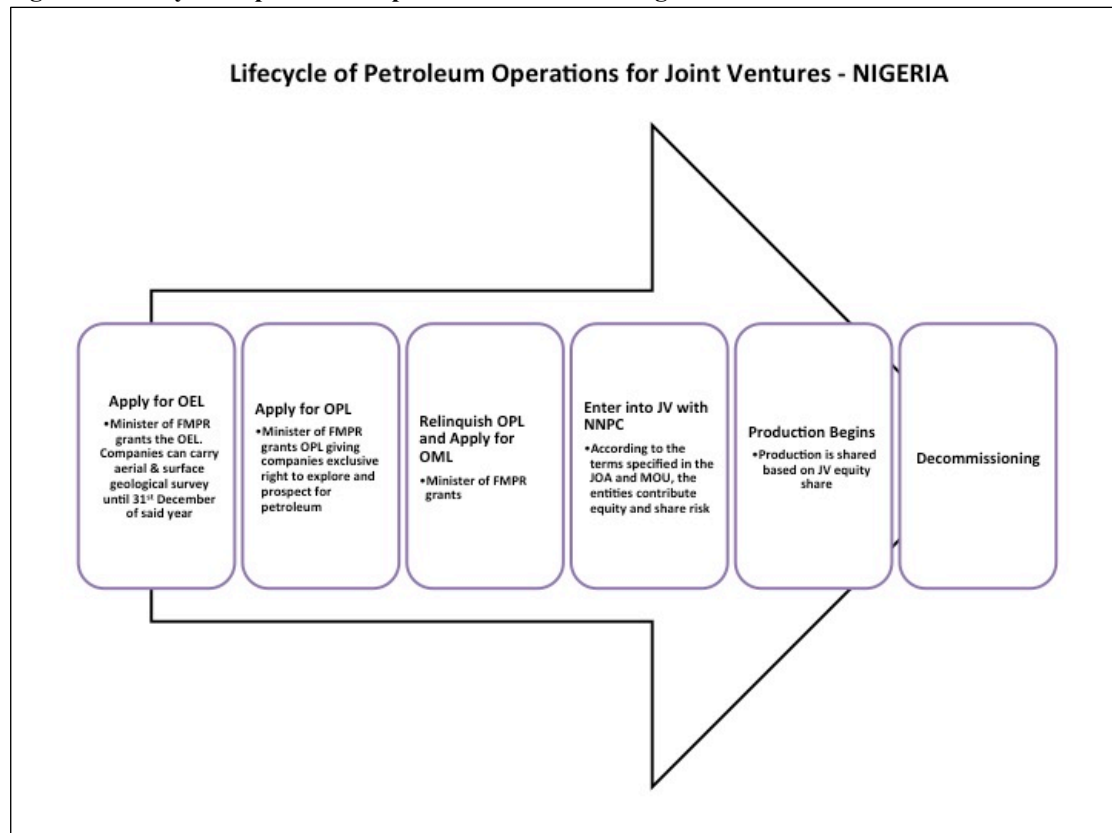
Two to five years before the expiry of the production license or cessation of operation, the licensee is required to submit a decommissioning plan to the Ministry. The plan must consist of assessment of impact from disposal activities and the proposed plan to carry out the dismantling of facility and cessation of activities.

4.3.2 Nigeria

Unlike Norway, Nigeria does not have one streamlined process that can snugly fit into the framework of describing the entire lifecycle of petroleum production. Nigeria has different types of model agreements for engaging in upstream activities. These are

the JVs, the PSCs, Service Contracts and Marginal Field /Sole Risk Operators. As have been described above.

Figure 5: Lifecycle of petroleum operations under JV: Nigeria



Source: Author's own based on Astegbua (1999)

The lifecycle for petroleum operation under the traditional leases system is based on the Petroleum Act of 1969. Under this Act, a company wishing to undertake petroleum operations in Nigeria must be incorporated in Nigeria. The first step is to acquire an Oil Exploration Licence (OEL). The OEL is granted by the Minister of the Federal Ministry of Petroleum Resources in Nigeria and entitles the owner to carry out aerial, surface and geological surveys and drilling no greater than 91.44 meters in an area, no greater than 12,950 km². The license terminates on 31st December in the year of application with a possibility to extend for another year provided certain criteria is fulfilled. Following the OEL, the applicant can apply for an Oil Prospecting License (OPL) through the same application process. The Minister again has the discretion to grant the license and set the duration of which cannot exceed 5 years including renewals. The OPL gives the owner the sole right to explore and prospect for oil in the area designated. If oil is found in commercial quantities, the applicant must relinquish the OPL and apply for an OML. The Minister again has the discretion

to award the OML, which gives the owner the right to carry away and dispose off the petroleum found in the area granted. The JV agreement is entered between NNPC and the oil company when the OML is granted and the terms of the agreement are specified in the Joint Operating Agreement (JOA) and in the OML (Nlerum, 2010). The participants contribute equity and share risk as per the participation agreement and share the production on the same basis.

4.3.3 Analysis and Role in Value Creation

The primary observation that can be made by looking at the lifecycle of petroleum operations is again the simplicity and lucidity in the Norwegian way as compared to the Nigerian way.

The Norwegian illustration considers the entire lifecycle of the petroleum operations while the Nigerian seems a bit truncated and staccato. Also there is only one single streamlined process for Norway whereas the process is different for Nigeria based on the fiscal regime under which the upstream activities take place. In Norway's case, every phase is carefully thought of, streamlined and transparent, which helps assess the risk and reward in each stage. For instance, the preliminary impact assessment ensures that petroleum operations do not disrupt or harm the economic, social and environmental ecosystems of the acreage under consideration. Moving to the next phase, the State does not carry the financial risk of failed explorations. Next, the State participates through SDFI to oversee and regulate the tempo of the operations. When production begins in the next stage, the State benefits from the resource rent generated through its fiscal and non-fiscal instruments (described in more detail in the next section). Finally, after the field has been exploited, the State ensures that proper dismantling operations are effectuated such as not to disrupt or harm the economic, social and environmental ecosystems.

For Nigeria on the other hand, the complex arrangement adds more burden to the already starved technical capacity and presents more challenges to value creation. However as will be noted in the next section, Nigeria did have sound reasons to engage and leverage the different types of model agreements in its pursuit for creating more value and maximising the resource rent. It is also noteworthy, that presently it does not seem that Nigeria has strict plans for decommissioning and

dismantling of petroleum fields. The Nigerian Minerals and Mining Act of 2007, which is a principle for the legal and regulatory frameworks for the extractives industries, does indicate a weakness for not having any provision for restoration and reversibility of mining lands. Furthermore, it has still no provisions for HSE of miners and employees and even deprives host community involvement (NEITI, 2010). The exact details of how the lifecycle of petroleum operations takes place for the various regimes however could not be found in the public domain. It is therefore unfair to completely dismiss the possibility of value creation for Nigeria when looking at the lifecycle of petroleum operations.

4.3.4 Summary

In summary of section 4.3, it can be noted that different types of model agreements exist between the HC and the IOC throughout the lifecycle of petroleum activities. The model agreements provide a lens for understanding how the HC and the IOC interact with each other to derive more value from the petroleum activities. The common types of agreements are the JVs, the PSCs, the Service Contract and the Marginal Fields/ Sole Risk operators.

Norwegian petroleum lifecycle is characterised by the JVs and spawns over every detail of the petroleum activity while considering the impact of the activities on the social, economic and environmental aspects thereby containing the social and environmental costs. There is little data available on how Nigeria proceeds with its petroleum activities and it is therefore not completely possible to assess the extent of value creation. It is however clear that presently Nigeria has no strict regulations or plans in place to oversee the decommissioning aspects of petroleum activities.

4.4 Conclusion – Role of Institutional Frameworks in Value Creation

An institutional setup is essential to facilitate macroeconomic activities in a specific framework, which in turn creates value for the State. In the specific context of the petroleum industry, the role of institutional frameworks matter because of the high risk of the industry and the high economic rents it generates. Petroleum industry is also unique because of the social and environmental costs it imposes. These costs have to be balanced carefully while trying to derive value from the resource. Also, since extracting petroleum resource from the ground requires complex technical know-how, in most cases, the services of an incumbent IOC has to be sought by the State.

Value creation in the petroleum industry through a good institutional design therefore relies on the following factors:

- Extracting the resource from the ground and converting the non-renewable resource into a renewable monetary resource.
- Providing a lucid and stimulating business environment to attract the IOCs to carry out petroleum activities on the State's behalf.
- Engaging with the IOC to climb up on the learning curve of performing petroleum activities.
- Monitoring the activities of the IOCs to ensure that they are inline with the overall objectives of the State for deriving value from the petroleum resource.
- Engage other aspects of the economy in the petroleum sector so as to spread the value creation to other sectors.
- Mitigate social and environmental risks and minimise social costs.

Section 4 started off by presenting a brief history of the oil industry in Norway and Nigeria with a special focus on the evolution of the their respective NOCs – Statoil and NNPC. Later, the sector organisation was presented and the analytic framework built on the Governance Indicators by the World Bank. The final part of the section focused on value creation through the lifecycle of petroleum activities in Norway and Nigeria. Through each of these parts, core factors responsible for creating value were discussed along with their impacts.

Through the history of oil industry in Norway, it is evident that Norway leveraged its previous natural resource management experience to manage its petroleum sector. Moreover, Norway's approach towards exploiting its reserves was timely, prudent and cautionary. This helped Norway create a stimulating environment to encourage IOCs to participate in Norway's petroleum activities. Moreover, through continuous engagement of the State in petroleum activities, it was not only able to learn to manage the petroleum activities independently but also carved itself a niche in the form of Statoil, the domestic oil company champion. Norway's clear separation of functions through a partially privatised NOC not only provides clarity in functions but also helps create more value for the State through Statoil's activities abroad. Moreover, the meticulous detail of monitoring the lifecycle of petroleum activities creates a steady and lucid framework for the IOCs to follow and also creates value on the economic, social and environmental fronts.

Nigeria's oil industry history is coloured with elements of political economy. Being a British colony producing cash crops, meant that Nigeria (Nigerians) had no technical know-how of managing natural resources as complex as in the extractives industry. Moreover, a closer examination of the oil industry evolution brings to light the fact that the petroleum laws and regulations created pre-independence were such that it favoured Shell-BP more than the Nigerian State. It is but natural, for that is the principle of exploiting a colony for its resources. Nigeria has also been less lucky with the chronology of key events. The independence coincided with record high oil prices and poor enterprise capacity to manage natural resources. The absence of important domestic industries also meant that Nigeria's approach towards exploiting its resource was not as cautionary as Norway. High revenues in a short time managed by a yet juvenile administration meant unsustainable fiscal policies for public spending, which eventually culminated into political instability, animosity within the masses over the right of resource rent and the eventual struggle to control the NNPC as an important instrument in gaining financial gains for those in power.

All these factors have characterised the Nigerian petroleum industry as being politically dynamic with a lack of clarity that is intentionally maintained to derive profits for the chain keepers. Nevertheless, joining the OPEC accelerated Nigeria's ascent on bargaining more favourable terms for itself from the IOCs. It was also quick to enter in different model agreements to keep the pace of petroleum activities and

thereby derive more value from it. So while Nigeria has managed to eventually create an institutional framework to manage petroleum activities, it has yet to develop technical capacity to manage it independently and still relies heavily on expertise of the IOC to create value in its petroleum sector. Also the lack of another important domestic industry means that the petroleum industry is still at the heart of the Nigerian economy.

Returning back to factors of the institutional design that create value in the petroleum sector, it can be concluded that:

Table 4: Summary of factors creating value in Institutional frameworks

Factors creating value	Norway	Nigeria
Extract resource to derive monetary value	Succeeded	Succeeded but corruption negates some value
Provide a lucid and stimulating business environment for IOC activity	Succeeded	Partially succeeded. Duplication of functions and non-separation of roles still negates some value
Engage with IOC to ascent on learning curve	Succeeded	Failed.
Monitor IOC activity inline with State's objectives	Succeeded	Failed. State's objectives are coloured by the patronage network
Engage and protect other industries	Succeeded	Failed
Mitigate social and environmental risks and minimise social costs	Succeeded	Failed miserably. See Section 6 for details

Additionally, the above average rating on the World Governance Indicators and Corruption Perception Index makes Norway a more favourable business location than Nigeria, who has consistently performed poorly on the same indicators.

Section 5

Role of Fiscal Framework in Value Creation

5 Role of Fiscal Framework in Value Creation

While the institutional structure and sector organisation create value in attracting the IOCs to explore for, prospect and produce petroleum, the fiscal frameworks are essential to capture the resource rent once the resource has been extracted. It is the State's objective to maximise this resource rent and derive economic value from it.

The design of the fiscal framework is important to understand, as it should capture the bulk of the resource rent while ensuring that the required investment associated with the capital-intensive petroleum operations are not affected. There are various fiscal and non-fiscal instruments a State can employ to capture the resource rent.

This section is organised as follows. The first part presents the different non-fiscal instruments that Norway and Nigeria employ to capture the resource rent. The second part, briefly describes the fiscal instruments that the States employ additionally, to capture the resource rent.

Each part presents the factors for Norway and Nigeria separately. Each part then concludes with an analysis of the factors governing the choice of such instruments in the light of earlier discussions and throws light on how these create value for Norway and Nigeria.

Finally, the section concludes with a summary and implications to value creation from the main points presented in this section.

5.1 Non-Fiscal Instruments - Model Agreements

Once the HC and the IOC have decided to work together on upstream petroleum operations, they enter into binding contracts with each other. As described in section 4.3, these are called Model Agreements and describe the manner in which the State and the IOC engage in upstream oil activities. The main aim of these agreements is to mitigate, or share the Exploration and Production (E&P) costs and risks between them (Al-Atar & Alomair, 2005). The different types of model agreements prescribe and dictate the nature of ownership and IOC control of the resource. Two factors are important when designing the model agreements.

The quality of the reserves – Petroleum reserves can be currently thought to consist

of crude oil and natural gas. While natural gas has no quality variations, crude oil has two major quality measures – the API gravity and the sulphur content¹² that affect the price it fetches in the oil markets. Crude oils that have a higher API gravity (lighter) and have low sulphur content (sweeter) fetch a higher price.

Norway produces Brent crude oil from the North Sea, which is sweet and light and also sets the benchmark for oil prices in the oil markets. Nigeria produces various classes of oils¹³ most of which are light and sweet (NNPC, 2014).

E&P costs – As has been noted in the previous section, E&P activities are risky and capital intensive. High E&P costs are a result of maturing fields that require most sophisticated techniques like the Enhanced Oil Recovery and carrying out E&P operations in deep offshore. In countries with low E&P costs, the State seeks more control over operation and production of the resource (Al-Atar & Alomair, 2005).

Table 5: E&P costs per barrel of production: Norway and Nigeria¹⁴

Country	Exploration Cost	Production Cost	Total
Norway (North Sea)	\$7.50	\$3.00	\$10.50
Nigeria	\$3.00	\$2.25	\$5.25

Source: Author's own based on data from Al-Atar & Alomair, 2005

The above costs per barrel categorise Nigeria as a medium-cost country and Norway as a high-cost country. Consequently, the model agreements that exist in these two countries are a function of costs. Presented in the following sections are the non-fiscal instruments that Norway and Nigeria employ in upstream activities.

5.1.1 Norway

Dividends from Statoil

The State is the majority shareholder with 67% shares in Statoil and therefore receives dividends from Statoil's operations in Norway and abroad.

States Direct Financial Interest (SDFI)

The SDFI is a type of JV. The SDFI is what the name suggests; the state owns a share,

¹² The lighter the oil is the less dense and viscous it is. Viscosity has implications for extraction as viscous oil sticks to the rocks and it more difficult to extract and refine which increases costs. Oil with low sulphur content reduces SO_x emissions.

¹³ Antan Blend, Bonny Light, Bonny Medium, Brass Blend, Escravos Light, Forcados Blend, IMA, Odudu Blend, Pennington Light, Qua-Iboe Light and Ukpokiti

¹⁴ The values are in 2005 US dollars.

which varies from field to field, in the oil and gas fields, pipelines and onshore facilities through the licensing process. The state finances the investment for these projects based on its share while earning a corresponding portion of revenue from the petroleum operations.

5.1.2 Nigeria

JVs

Nigeria, via NNPC participates in JVs with IOCs. As mentioned earlier, the JV operates under the terms agreed in the Operating Agreement (JOA) with the NNPC and the Memorandum of Understanding (MOU) with the Federal Government. NNPC operates in seven joint ventures and the details of the equity participation are as follows:

Table 6: Joint Venture participants: Nigeria

	Partners	Equity Interest	Operator	No. of OMLs
1	Shell Agip Elf NNPC	30% 5% 10% 55%	Shell	58
2	Mobil NNPC	40% 60%	Mobil	4
3	Chevron NNPC	40% 60%	Chevron	16
4	Agip Philips NNPC	20% 20% 60%	Agip	N/A
5	Elf NNPC	40% 60%	Elf	14
6	Texaco Chevron NNPC	20% 20% 60%	Texaco	6
7	Pan Ocean NNPC	40% 60%	Pan Ocean	1

Source: Nigerian Investment Promotion Commission

Production Sharing Contracts

The share of PSCs is increasing in Nigeria since 2002. It was devised to develop frontier areas in the deep offshore. As these regions bear more risk, the royalty payment is adjusted on a sliding scale as was described in the previous section. Additionally, the PPT is reduced to 50% instead of 85% acknowledging the high risk of the operations. There were nine operators under the PSC in Nigeria between 2009 - 2011 (Sada, Idris & Co, 2013).

Service Contract

Currently, Nigeria only has one Service Contract with Agip Energy & Natural Resources Ltd. (Sada, Idris & Co, 2013).

Marginal Fields/ Sole Risk Operators

Currently, Nigeria has 23 operators managing the marginal fields on sole risk basis. These are all indigenous companies and are taxed at 85% or 67.5% (for the first 5 years) similar to the companies in the JV. (Sada, Idris & Co, 2013)

According to the NNPC Annual Report 2012¹⁵, the share of JVs in crude production has decreased from 93% in 2003 to 54% in 2012, while that of PSCs in 2003 was 2% and was 37% in 2012. For the same years, the share of Marginal Field/Sole risk operators has increased from 3.8% to 7.5%, while there has been a marginal change in Service Contracts share in crude production.

5.1.3 Analysis and Role in Value Creation

The rationale for Norway to enter into JVs through the SDFI is mainly to direct the tempo of oil operations and to ensure that the activities most accurately reflect the State's intentions in managing its petroleum resources. Both of these objectives are aimed at capturing more value for the State.

Nigeria, on the other hand employs various model agreements. One of the main reasons for this is the diversity of the availability of the resource base. Unlike Norway, where all its reserves are located in deep offshore on the NCS, Nigeria's reserves are located offshore as well as on land. Furthermore, even though the intention to enter into JVs was to gain a better control of petroleum activities and technology transfer, at which the state didn't quite fare well, the NNPC was falling short of its commitment for cash calls in the JV agreements with the IOCs. JV agreements are costly for the

¹⁵ NNPC does not fully guarantee the accuracy of the data in the report

State as they impose an economic cost even in the exploration phase where the chances of finding commercially exploitable reserves are never guaranteed. The State thus, took resort of entering into PSCs with IOCs to keep up the investments in the upstream sector. PSCs create value for the State as well as the IOC. In a PSC, the State bears neither the upfront economic costs of exploration nor the risk associated with it, which is completely transferred to the IOC. The IOC, on the other hand does not have to pay the resource rent to the State, until it recovers its operational costs. Furthermore, in Nigeria, the royalty payments in PSCs can be made in kind, i.e. in the form of Royalty Oil or Royalty Gas. While on the one hand, royalty payments in kind are useful for Nigeria to supply its domestic allocation and are an important instrument for generating revenues to NNPC¹⁶, it also creates more risks

- Selling crude in the market requires some expertise and with Nigeria's low technical capacity, it could rather have the IOCs sell the crude and use the cash payments.
- As will be elaborated in Section 6, the domestic allocation of crude is rather wasteful, inefficient and opens more avenues for bunkering and oil theft.

Nevertheless, there are some positive signs. As has been noted above, the marginal fields are given to indigenous companies when they become unprofitable for the big IOCs. The growing share of marginal fields in crude production not only indicates extraction from fields, which would otherwise be abandoned, but also the increase of domestic participation in the petroleum industry. Both of which are good signs of value creation. According to the NNPC Annual Report 2012¹⁷, the amount of crude oil lifting by the various model agreements is as follows:

NNPC - 44%, JV – 24%, PSCs – 24%, independent and sole risk operators – 8% and marginal fields – 2%. For the year 2011, Export crude oil sales constitute 57% of total export sale value for JVs and 35% for PSC (Sada, Idris & Co, 2013).

It is however, important to note that the variety of the model agreements introduces complexity in administrating and effectuating them, which require good negotiations skills and high technical competence. As has been noted previously, technical competence is a big shortcoming for Nigeria. Moreover, complexity in contracts

¹⁶ The revenue model of NNPC is complex and the NNPC has no access to its own revenues.

¹⁷ NNPC does not fully guarantee the accuracy of the data.

increases the chances of loopholes that can not only be misinterpreted but also provide a source for corruption and patronage.

5.1.4 Summary

In summary of section 5.1, it can be noted that Norway and Nigeria both employ JVs as a non-fiscal instrument to participate in upstream activities. Moreover, this equity participation not only gives the State an opportunity to better control the petroleum activities, but also opens a revenue stream.

Additionally, the majority ownership in their NOCs generates more revenues. It should also be noted, that Nigeria employs far more diverse set of model agreements than Norway to address the difference in location of petroleum reserves and opportunities to exploit the reserves. Each type of model agreement bears a different equation of risks for the State and the IOC and the context of the reserve potential dictates the choice of the instrument.

5.2 Fiscal Instruments

5.2.1 Norway

Norway employs taxation as a fiscal instrument to extract the resource rent from petroleum activities.

Taxation on petroleum activities

A company operating within the Norwegian borders and performing petroleum activities is taxed under the Norwegian Petroleum Tax Act Section 1 to a total of 78% tax. Of this, 28% forms the corporate income tax liable to any company operating in Norway. The remaining 50% is a special tax for petroleum activities carried offshore on the NCS. A special allowance is made in the form of capital uplift that gives depreciation allowance for a period of six years and can be deducted from the special tax of 50%. This makes the tax regime neutral and non –distortive such that projects that have a positive NPV before taxation also remain profitable after applying tax.

The Petroleum Price Council sets a norm price for the petroleum produced and sold by affiliated companies operating in Norway. The norm price is used to calculate the taxable income. The norm price is derived in consensus through meetings with oil companies and differs for the different grades of oil and natural gas.

Area fee

The rationale behind the area fee as a fiscal instrument is to encourage petroleum

activities in an awarded area. For an area that lacks production or any active exploration, the companies are charged 30,000 NOK¹⁸s per km² for the first year, increasing to 60,000 NOKs per km² in the second year and to the ceiling amount of 120,000 NOKs per km² for the third year. The fees are steep but companies can apply for exemption by submitting a *Plan for Development and Operation* to the MPE.

Environmental Taxes

Norway is a member of the European Union - Emission Trading Scheme (EU ETS) and therefore requires petroleum activities to comply with emission quotas. Companies are required to purchase emissions quotas for their activities on the NCS for each tonne of CO₂ emitted. The price/tonne of CO₂ is based on the market price.

Additionally, even before participating in the EU-ETS, the CO₂ tax was introduced in 1991 as a policy instrument to reduce emissions of CO₂ from the petroleum activities. The tax applies for every standard cubic metre (Sm³) of gas that is burned or released directly, and every litre of petroleum burned. For 2013, the tax is set at NOK 0.96 per litre of petroleum or standard cubic metre of gas. (NPD, 2013)

Application Fees

The licensees pay the following administrative fees for processing the various applications. These are as follows:

Seismic Surveys – 33,000 NOKS

Exploration Permits- 65,000 NOKS

Extraction Permits 109,000 NOKS

5.2.2 Nigeria

Signature Bonuses

Signature bonuses are defined as payments made by the IOCs to the State on agreeing to carry out the model agreements.

Al-Atar & Alomair (2005) gives the different values for signature bonuses in Nigeria. The signature bonus is \$5 million for onshore production. The signature bonuses for offshore differ with depth starting at \$10 million for depths upto 100 and 200 meters, \$20 million respectively for 201- 500 meters, 801-1000 meters and in excess of 1000 meters. It is the highest for 501 - 800 meters at \$25 million.

¹⁸ 1 Norwegian Kroner (NOK) = 0.16 US Dollars (USD) as of June 2014.

Royalty

A royalty payment is due on every month on each producing concession by an operating oil company engaged in upstream operations an agreed percentage of oil produced after the adjustments for expenses related to treatment and handling.

Different royalty rates prevail for joint venture operations. They are as follows:

Table 7: Signature Bonuses and Royalties for offshore regions: Nigeria

Depth in meters	Royalty Rate	Signature Bonus
On shore production 0mts	20%	\$5 million
Production in territorial waters and continental shelf up to 100 meters water depth	18.5%	\$10 million
Offshore production beyond 100 meters and upto 200 meters	16.67%	\$10 million
In areas from 201 to 500 meters water depth	12%	\$20 million
In areas from 501 to 800 meters water depth	8%	\$25 million
In areas from 801 to 1000 meters water depth	4%	\$20 million
In areas in excess of 1000 meters water depth	0%	\$20 million
Inland Basin	10%	No data available

Source: Authors own based on Al-Atar & Alomair (2005)

Resource Rent Tax

The resource rent tax payable to the state is as follows:

- OPL entails NGN¹⁹200.00 for each km² or part thereof
- A nonproducing OML entails NGN300.00 for each km² or part thereof
- A producing OML entails NGN500.00 for each km² or part thereof

Petroleum Profit Tax (PPT)

The petroleum profit tax rate is 85% for all operations and is levied for all companies registered in Nigeria and engaged in upstream operations. However it is reduced to 65.75% for a period of five years for new companies until all the pre-production capital expenditure has been amortised.

Gas Flare Penalty

The penalty is imposed on oil companies engaged in flaring of associated gas during petroleum operations. The penalty is set to be a deterrent for wasting the resource. On

¹⁹ 1 Nigerian Naira (NGN) = 0.0061 US Dollars (USD) as of June 2014.

August 15, 2011, the penalty was raised from NGN 10 to \$3.5 per square cubic feet of gas (Business Day Online, 2013).

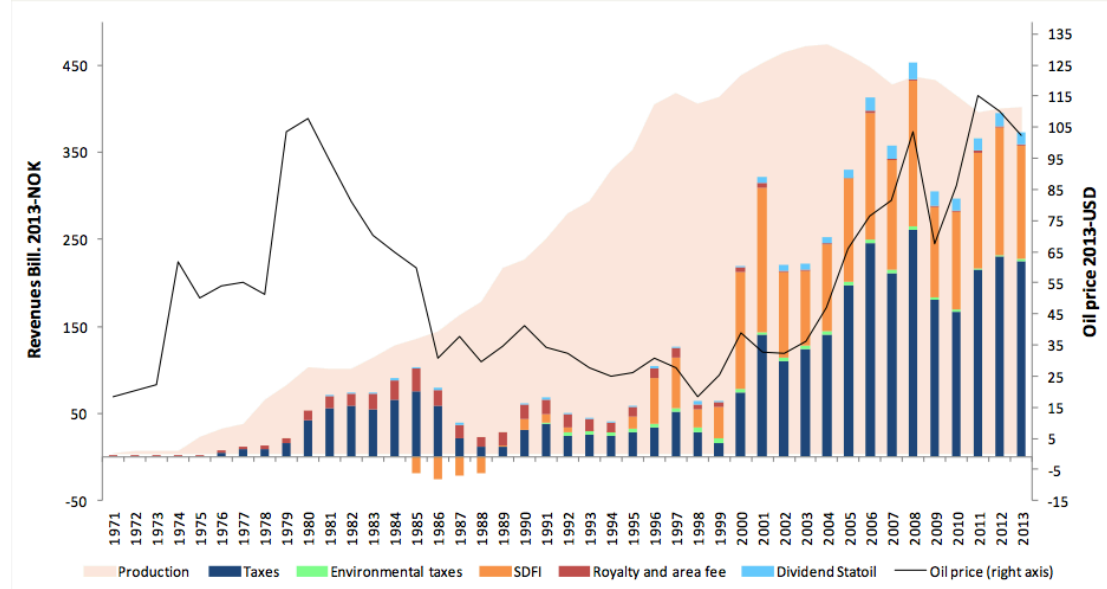
5.2.3 Analysis and Role in Value Creation

Norway traditionally employed taxation as a fiscal regime for industrial activities, so when the petroleum sector came online, it already had the expertise to administer it (Al- Kasim, 2006). Norway is able to demand and justify a high tax rate of 78% on petroleum activities as a function of transparency, streamlined processes and quality of reserves. Nevertheless, the State tries to attract investment by providing a capital uplift that make the tax system neutral for investors. In this manner, the State is able to extract a large portion of the resource rent. However, Al- Kasim (2006) and Osmundsen (1998) both criticise the risk of giving a high tax incentive to companies. Both argue that a high level of tax incentive does not compel cost-efficiency and could provide the IOC with perverse incentives to pass other costs to benefit from the tax incentive. However, Norway's reserves on the NCS are maturing and EOR operations do increase the E&P cost so the incentives do have some merit.

Through the area fees, the State is able to give impetus to accelerate exploration operations and thus result in early finds. The environmental taxation was created to minimise the negative impact of petroleum activities on the environment. However, a positive side effect was that it allowed Statoil to carve a niche in technological innovations related to Carbon, Capture and Storage (CCS) for petroleum activities.

Osmundsen (1998) characterises Norway as a risk seeking country, as the government seems to bear more risk than to mitigate it. The primary contentions for the author's conclusions were the abolishing of the sliding scale and carrying costs, with an SDFI interest of 80%, the state bears economic risk and Statoil's full state ownership meant that it's risk portfolio was not diversified other than the NCS. The last contention has changed and Statoil was partially privatised to exactly address this issue. In the figure below, it can be clearly noted that Norway has managed to capture the bulk of the resource rent over time. It also indicates the share of the different fiscal and non-fiscal instruments in generating economic value for Norway.

Figure 6: Government take from petroleum: Norway



Source: Ministry of Finance, Norway

The important observations from the graph are as follows:

- The government take on petroleum activities is increasing over time. This means Norway is able to capture more economic value from its resource base.
- Taxation is the instrument that has been generating the highest value over time, closely followed by SDFI.
- The resource rent is a function of oil prices and petroleum production.
- Dividends from Statoil are also becoming significant from the 2000s, this indicates increased activity from international operations.

For Nigeria on the other hand, Signature Bonuses present upfront payments and adds to the State revenues. Moreover, the sliding scale of the different royalty payments gives good incentives to IOCs to undertake deep offshore upstream activities. Moreover, the PPT helps capture a good share of the resource rent while also allowing the relaxed tax rate for IOCs to recover their pre-production capital expenditure.

The table below summarises the various financial flows for Nigeria.

Table 8: Financial Flows through Petroleum Production 2006 - 2011: Nigeria

	2006	2007	2008	2009	2010	2011
	\$USD Million	\$USD Million	\$USD Million	\$USD Million	\$USD Million	\$USD Million
Sales of Crude oil and Gas	27,177	30,875	47,794	20,804	32,698	45,560
PSC in Kind Payments	0	-1,674	-6,578	-3,193	-5,063	-8,836
Cash Calls for JVs	0	0	0	-2,960	-3,296	-2,537
PPT	10,627	8,084	10,957	5,400	8,590	18,764
Royalty Oil	4,405	3,872	5,433	2,578	3,854	6,041
Royalty Gas	13	26	31	31	75	90
Signature Bonus	985	510	45	5	0	216
Gas Flaring Penalties	0	0	0	19	18	22
Concession Rentals	0	0	0	1	1	2
Companies Income Tax	137	194	215	236	368	273
Value Added Tax	90	216	398	1,289	911	1,005
Total Other Flows	452	676	777	1,439	2,035	3,469
Total Flows to States	111	183	259	482	489	598
Total Flows to other Entities	691	820	1,032	1,037	968	1,236
Total	44,689	43,784	60,366	27,171	41,651	65,907
Aggregated graphs						

Source: Author's own based on data from NEITI, 2013

The final row illustrates the proportion of economic value generated (or lost) via the various channels each year. The deep coloured bars indicate the channel that has the highest (or lowest) value. It should be noted that the figures in red indicate no available data. As can be noted from above, sales of crude oil and gas create the most economic value for Nigeria followed by the PPTs and the Royalties. On the other hand, PSCs in kind payments and cash calls to finance the JV investments create negative value. It is also noteworthy to observe that the government take is very dependent on the crude production. A dip in production resulted in a dip in creation of economic value between 2008 and 2009²⁰.

5.2.4 Summary

In summary of Section 5.2, it can be noted that for both countries, the fiscal instruments are a function of domestic petroleum production and also create significant economic value. Also, taxation creates the biggest economic value for Norway, followed by SDFI, while for Nigeria; it is the crude oil and gas sales followed by taxes that generate the highest economic value.

5.3 Fiscal Policies aiding in bracing for impact

5.3.1 Norway

Government Pension Fund Global

²⁰ It should be refreshed that instability and militant activity in the Niger Delta, resulted in a loss of production to an all time low at 1.6 million barrels/day from an expected capacity of 2.5 million barrels/day.

As was noted in Section 4.1.1 on history of oil industry in Norway, the Norwegian government created the Petroleum Fund to cushion the economy from oil price volatility. The fund was renamed the Government Pension Fund Global in 2006 to highlight the objective of providing for future public pension costs. The fund has a diverse investment portfolio and invests internationally to avoid domestic inflation and thereby the Dutch Disease for other industries. All of the petroleum revenues, generated from the various fiscal and non-fiscal instruments, as discussed above, are deposited in the fund. Withdrawals can be made from the fund into the State budget to cover for the non-oil fiscal deficit. However, the withdrawals are capped at 4% of the Fund's value annually. Ending 2013, the fund was valued at 5206 billion NOKs (Ministry of Finance, 2014).

5.3.2 Nigeria

Excess Crude Account

In 2004, the Excess Crude Account (ECA) was created to act as a fiscal reserve for Nigeria to cushion the economy from the volatility of oil prices by acting as a stabilizing fund and to also fund development of infrastructure projects (SWF Institute, 2014). A benchmark price for oil is considered and oil revenues over and above the benchmark price are pooled into the ECA so that in the event of price volatility, the ECA can be used to bridge the gap between the actual oil income and the budgeted one. For 2013, the benchmark price of oil was \$79 (EIA, 2013).

Nigerian Sovereign Investment Authority

The ECA is not protected for withdrawals and has no legal backing, which led to the creation of the Nigerian Sovereign Investment Authority (NSIA) in October 2011. The NSIA is the body responsible for the investments of the Sovereign Wealth Fund (SWF) of Nigeria. The SWF is composed of three distinct funds; A Stabilisation Fund to act as an economic buffer, a Future Generations Fund to pass the benefits of petroleum to future generations and the Nigeria Infrastructure Fund to invest in infrastructure for promoting economic growth. Each fund in the NSIA is legally protected under the NSIA Act (NSIA, 2014).

5.3.3 Analysis and Role in Value Creation

Norway's GPFG is another anecdotal example of the State's well-functioning Sovereign Wealth Fund. It lived up to its expectation of being able to cushion the Norwegian economy not only from the oil price volatility but also helped minimise

the impacts of the economic downturn of 2008. Nigeria's ECA on the other hand also helped smooth out the GDP growth rate after its inception in 2005. Now NSIA is aimed to create more value by acting as an economic buffer, a fund for future generations as well as a fund to accelerate infrastructure development.

5.4 Conclusion – Role of Fiscal Regimes in Value Creation

Following an institutional setup to attract and engage IOCs in undertaking petroleum activities for the State, the fiscal regimes are required to extract the maximum of the resource rent so as to derive economic value from it. Nevertheless, the State has to balance the fine ambition of extracting the maximum value from the economic rent while ensuring that the fiscal terms do not penalise the IOC for investing in petroleum activities. As Aye (2013) points out, the design of the fiscal regimes is instrumental in pitching the value proposition of the petroleum sector to the IOC. Fiscal regimes design is thus a crucial aspect of value creation in the petroleum sector.

Norway's main fiscal instrument is taxation, which also captures the biggest portion of the resource rent for the State. The second instrument that captures the most rent for Norway is the SDFI, which is how the State participates in the JV agreements while maintaining the tempo of petroleum activities. The share of dividends from Statoil is also becoming significant after the partial privatisation. Moreover, the early manoeuvre to create an economic buffer from oil price volatility has resulted in the largest Sovereign Wealth Fund in the world (SWF Institute, 2014). Overtime, Norway's fiscal design has indeed helped in capturing the most of the resource rent.

Nigeria's fiscal design is quite diverse. However, the choice of the model agreements is geared at keeping the tempo of the petroleum activities and is catered to address the risks involved in the diversity of the resource base. Nigeria has soundly adopted PSCs to lower risk and create favourable terms for itself and the IOC. Moreover, opening up the marginal fields to indigenous companies has created value in building domestic capacity as well as exploiting the resource in the marginal fields. For Nigeria, the sale of crude oil and gas creates the most value followed by the very high PPT of 85%. Nigeria's economic buffer, the ECA has helped cushion the economy however problems of low technical capacity in administering the regime could affect the value that is actually derived from the resource.

Section 6

Factors affecting value creation

6 Factors affecting value creation

The previous sections threw light on the factors in the institutional frameworks and fiscal regimes that create value for Norway and Nigeria by managing their petroleum resources. This section is devoted entirely to factors that affect value creation, which cannot be completely classified under either institutional frameworks or fiscal regimes and which are rather unique to the countries under this study. It is important to highlight these factors as they do have some overlaps with the institutional design and fiscal regimes, which directly affect the petroleum sector.

6.1 Nigerian Cost Factor

Al-Kasim (2006) introduced the term, ‘The Norwegian Cost Factor’ to denote the additional costs incurred by the IOCs operating on the Norwegian side of the NCS as opposed to the UK side due to additional constraints of adding local content and technology participation. Inspired by the term, this part presents some of the factors, unique to Nigeria, that impose additional costs and thereby create negative value for the State and the IOC. These factors are collectively called ‘The Nigerian Cost Factor’.

6.1.1 Fuel Subsidy

Subsidies on fuel are a common feature of developing countries aimed at protecting its people from oil price volatility in the international markets. For net oil-exporting countries, fuel subsidies represent a means of benefiting from the country’s resources. However, they are costly for the State, as it has to absorb the price volatility. Moreover, as the people of the State presume subsidy as their right to exploit their own resource, it gives less incentive to minimise wasteful consumption. The same is true in the case of Nigeria, however there are rather unique factors that make the subsidy situation interesting as well as complicated and therefore negates value creation. These are as follows:

- Nigeria has the lowest net electricity production per capita with more than 50% of the population without access to electricity (IEA, 2013a). 30% of the required electricity is produced through domestic gasoline and diesel generators, which are not only inefficient but also dirty (Harvard, 2010). This increases the demand for refined products and the lack of domestic refining

capacity means that they have to be imported. Moreover, the products are further subsidised, which in 2011 alone, cost the State \$8 million²¹ (Moyo & Songwe, 2012).

- As Thurber et.al (2010) point out, artificially low prices in Nigeria encourage diversion of products to neighbouring countries thereby creating fuel scarcity in the domestic market, which further creates a black market.

In an effort to gain more value for the State through the value lost in fuel subsidies, President Goodluck Jonathan announced removal of the fuel subsidy in January 2012. The news was met with nation-wide protests as prices per litre of gasoline rose from \$0.40 in December 2011 to \$0.88 in January 2012, a significant amount for a low to middle income country like Nigeria (National Geographic News, 2012).

6.1.2 Pipeline Vandalism, Oil Theft and Bunkering

Pipeline vandalism and the resulting oil theft and bunkering are unique characteristics of the Nigerian petroleum sector and no paper focusing on the Nigerian petroleum sector is complete without the mention of this phenomena. The phenomenon is so pronounced that even the NNPC acknowledges pipeline vandalisms in its annual reports and notes it as the single most critical challenge before the Nigerian petroleum industry. The pipeline grid is 5001 kms in length and connects storage depots to refineries; act as a transport medium for crude inflow to the ports and the refineries along with flow of refined products from the import terminals (Okoli & Orinya, 2013).

Pipeline vandalisms have taken the form of organised crimes, mostly undertaken by the militant groups who steal the crude oil. It can take range from pipeline disruptions via explosions to drilling holes in the pipes to steal the crude. The frequency and intensity of incidences is alarming with 499 cases reported in 1999 alone. The 2012 Annual report of NNPC²², records a total of 2256 line breaks of which 2230 were due to vandalism, 26 due to system deterioration and 34 due to fires (which are currently under investigation).

Oil-Bunkering is a form of oil theft. The activities range from drilling holes and siphoning crude in the Delta to sell in “domestic refineries”, to barges being filled at well-heads and crude shipments reaching refineries as far as China, and finally

²¹ 2011 US Dollars

²² The NNPC does not fully guarantee accuracy of the data in this report.

“white-collar” bunkering in which tankers are directly filled at the export terminals and the metering systems manipulated.

The scale of the theft is industrial, as is pointed out by Chatam House (Financial Times, 2014). The view is also shared by Patrick Dele Cole, businessman, former ambassador and former international adviser to President Obasanjo, who states that the oil theft in the Delta makes it the 12th largest oil producer in Africa with revenues exceeding the GDP of 15 different African countries. A NEITI audit report evaluated the total losses \$10.9 billion dollars due to oil thefts and vandalisms between 2009 - 2011 alone (Okoli & Orinya, 2013). This alone contributes to large negative value creation.

6.1.3 Analysis and Impact on Value Creation

It is clear that fuel subsidies create negative economic value for the State. The State could instead have invested the money in creating more social value in terms of investing in education, infrastructure etc. Faith Birol, chief economist at IEA, confirms that the subsidies aimed at benefiting the poor only create marginal economic value by stating, "Only 8 percent of the \$409 billion spent on fossil-fuel subsidies in 2010 was distributed to the poorest 20 percent of the population"(National Geographic News, 2012). The black markets spawned by the artificially low prices, further create market distortions and create negative value not only for the State and but also for the society.

Having looked at the scale of vandalisms and oil thefts, it could be easy to picture why it can be categorised under the Nigerian Cost Factor. For oil companies, this means a huge drop in daily production. Shell, the biggest IOC operating in Nigeria, reported a loss in production between 100,000 b/d – 400, 000 b/d amounting to losses of \$250 million from it’s earnings between April – June, 2014 alone (Financial Times, 2014). Oil theft has compelled Shell to divest it’s stocks in Nigeria by selling 8 blocks in the Delta to Nigerian companies since 2010 (Financial Times, 2013). Moreover, since Shell is also one of the operator for the pipelines, it has to bear the penalty of accidents happening on the pipelines it is responsible for, under the Oil Pipeline Act 1956 as amended in 1965 (NEITI, 2010). This imposes additional costs on the company for something that it is not entirely responsible for. Additionally, oil spills could also arise due to technical failures arising from sustaining repeated attacks on

infrastructure, which could further invite reputational risks. These factors create negative value for the company and makes business environment risky and unattractive.

The oil thefts create negative value for the State as well. As has been noted earlier, the economic losses are huge. Nevertheless, because it creates very high risks, it could affect investments by the IOCs in the long term. As Nigeria lacks technical capacity in exploiting it's oil reserves, this creates negative value in the long term. Additionally, it causes environmental degradation and loss of human lives, which impose additional social costs to the State (Okoli & Orinya, 2013). These factors can thus, be said to create negative social value.

Other factors that could also be thought of as increasing the Nigerian Cost Factor are as follows:

- Out-dated regulations and protocols lead to longer timespan for project approvals, as no framework exists to address new developments.
- Low technical capacity leading to administrative inefficiencies also increases the time taken for project approvals.

Both of these factors not only push the value creation to a later date but also give room to a lot of uncertainty, which compels the use of a higher discount rate. This in turn places less value on future value creation and thereby increases the opportunity costs associated with resources tied up in projects pending approval.

6.1.4 Summary

As a summary to section 6.2, it can be noted that fuel subsidy and oil thefts are the biggest factors of the Nigerian Cost Factor that create negative value for the state. The circumstances around fuel subsidy are complex and require interventions on a broader energy policy level. Oil theft is rather serious issue in Nigeria and has been burgeoning since the 2000s. Oil- theft is almost operating as a parallel industry in Nigeria cutting into the production and creating value only for the few involved in the process.

6.2 Conclusion – Factors affecting value creation

Nigeria has a big challenge in containing negative value creation that arises due to the Nigerian Cost Factor. Fuel subsidy is already eating into government budgets, with the state allocating as much as \$6 billion for subsidy payments in 2014 (National Geographic News, 2014). However, it should be noted that reforms have to be made to address the real issue that creates negative value. Leveraging the natural gas resources for electricity production could potentially reduce the dependence on refined products and subsequently reduce demand. This could further have positive implications in lowering the proliferation of the black markets and also decrease spending by the State on subsidizing refined products.

Addressing, the oil theft and vandalism is a serious issue that needs immediate attention. Refreshing from the very first section that provided a lens for analysis, it puts into perspective the historic implications that are responsible for the status quo in the Niger Delta. Marginalised communities suffering environmental degradation and loss of alternative employments took into their own hands to get a piece of the pie from the oil produced in their region. Also, sustained agitations over austerity cuts in the late 80s took a militant turn in the 90s. What started off as a will to gain benefit from being host communities has spiralled out of control and has spawned a parallel industry that neither creates value for the State nor the local communities while still imposing greater social costs. The oil theft situation is creating negative value for all stakeholders involved, be it the IOCs operating, the host communities, the environment and even the State. The only value it creates is for the small group of people who are involved in the bunkering process, however the cost to society is huge. Moreover delays and systemic inefficiencies lead to a higher discount rate for projects pending approvals and increases opportunity costs.

It can thus be observed that the unique factors contributing to the Nigerian Cost Factor do have an impact on value creation. These factors do not neatly fit under the institutional frameworks or the fiscal regimes but interplay in it's dynamics nevertheless.

Section 7

Conclusion and Future Outlook

7 Conclusion and Future Outlook

The motivation of this paper arose from a comparative graph of the GDP growth rates of Norway and Nigeria, two countries with similarities in their respective petroleum sectors yet exhibiting a big diversity in the petroleum sector performance. The paper thus sought an explanation for this difference in performance. The literature review pointed towards the role of institutional frameworks in petroleum sector performance while discounting the effect of oil price shocks on macroeconomic activity of petroleum dependent economies.

The paper thus endeavoured to focus on the aspects that are responsible for value creation in the petroleum industry. The core focus of the paper has been the role of institutional frameworks and fiscal design in value creation while gaining a better insight into the petroleum industries of Norway and Nigeria. The paper also introduced ‘The Nigerian Cost Factor’. The aim of the paper was to analyse what factors create value and in what manner. Quantifying the value creation is outside the scope of this paper.

The aim of the institutional framework is to provide an ecosystem for carrying out petroleum activities. While studying the evolution of the oil industry in Norway and Nigeria, a striking observation is the effect of historic factors on the status quo of the institutional frameworks. It would be fair to say that Norway has been lucky with favourable terms and policy interventions coming in at the right time to maximise the value creation. Nigeria on the other hand, survived through periods of political instability that created short time horizons for the policy makers who tried to “organise” the industry so as to seek favourable terms for themselves and not the State as a whole. Nigerian petroleum sector has thus exhibited the classic ‘Roving Bandit Effect’. It should also be noted that Norway’s model of separation of functions in the petroleum sector has been instrumental in creating a high-performing sector, which has indeed created more value for the State. Nigerian petroleum sector has witnessed a lot of shuffling but has, so far, only created more ambiguity and duplication of functions resulting in institutional inefficiencies.

Norway has been able to leverage synergies between Statoil and domestic competitor Norsk Hydro to control most of the high performing reserves on the NCS. Also, when the State did intervene in the functions of the NOC, it was to ensure more favourable

terms to propel Statoil into achieving technical competencies on par with its IOC peers. Nigeria on the other hand lost sight of building technical competencies while paradoxically placing NNPC at the centre stage. Statoil plays a purely commercial role, with the State merely being a majority shareholder with minimal interference. NNPC however sits at the complicated political nexus between the State and the IOC, neither having financial independence nor the benefit of making independent commercial decisions.

In terms of technical capacity, Norway has been prudent to create and enforce regulations to gradually reduce dependence on IOC know-how to manage its petroleum resources. Nigeria has failed to do through its NOC. Nevertheless, it should be noted that Nigeria did make strides learning through its OPEC colleagues and gained higher equity participation, the same way that Norway learnt through UK's experience. However, political instability and patronage becoming inextricable part of the petroleum operations have eaten into the value created for Nigeria.

Norway benefits from having not only a homogenous population, resources in similar geological terrains of the deep-shore but also prior industry experience. Nigeria possess neither, which further complicate the value creation dynamics. Norway therefore benefits from having a streamlined model agreements framework for engaging with the IOCs. Nigeria on the other hand, and rightly so, indulged in various model agreements based on the risk associated with developing the resource. This has been instrumental in increasing indigenous participation and development of marginal fields. While it does create value in creating more domestic capacity, it should be observed that the domestic companies would be fragmented and it would still be a while before one competent champion emerges among them to compete on level grounds with the IOCs. Additionally, the royalty payments in kind do impose the risk of marketing the crude but it helps assuage NNPC's revenue model to some extent.

A sound business environment is also the reason that Norway seems more attractive for investment decisions than Nigeria, which is still plagued by oil thefts, militancy and conflicts increasing the Nigerian Cost Factor and negating value. Other factors such as longer times to process applications in Nigeria also add to the cost factor and makes investing in already risky projects, a cumbersome exercise.

While the fiscal regimes in Norway and Nigeria are both sound and do seem to create a lot of economic value for the States, the regime administering capacity on Nigeria's end makes one wonder if the State is actually able to extract the rent that its own regimes make theoretically possible.

It has thus been found that a lot of factors create, affect and negate value in the Norwegian and the Nigerian petroleum industry. It has also been found that institutional frameworks and fiscal regimes, directly affecting the petroleum industry are complementary and a good design of both leads to greater value creation. Moreover, there are other aspects that do influence value creation and care should be exercised while addressing these and yet maximising social welfare.

Future Outlook

Norway's Government Pension Fund Global has proved to be an anecdotal example and Nigeria's three promising SWFs do present an exciting outlook. It only remains to be seen how they evolve and what function do they actually end up serving in value creation. Also in the light of dwindling domestic reserves and the habitual securities of the welfare state, it remains to be seen how Norway leverages its transformed resource wealth to sustain the economy and the high standard of living.

Nigeria's petroleum sector organisational inefficiencies have been recognised and efforts are being made to restructure and reorganise it through the Petroleum Industry Bill. However, the Bill has been in contention since 2007 and has yet to become a law, this has led to uncertainty in the business environment as some provisions of the bill prove unfavourable terms to the IOCs. It could be possible that the Nigerian analysis presented in this paper could be obviated by the developments introduced if the bill indeed becomes a law. For now, it remains to be seen if the Bill follows the path of NNPC restructuring exercises in the past or leads to a progressive petroleum industry.

Scope for Extension

This paper has presented the value creation factors in the petroleum industry for Norway and Nigeria in a qualitative sense to restrict the scope while giving a broad overview. An interesting research could result from quantifying the value that each of the factors discussed actually contribute and how the State uses these values.

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