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Oil Exploration and Sustainability

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Abstract:

The discovery of lucrative oil and gas reserves in the Albertine Graben basin in South West Uganda, could possibly multiply government revenue several fold. Findings, which signify a major possible change in the country's position considering the fact that it is one of the low incomes, aid dependent countries in the Sub Saharan region. However, the commercial exploitation of this resource also presents the country with formidable environmental challenges due to weak institutions, lack of public participation, poor communication (as results of gaps in information flow), unskilled labor in the oil industry, absence of crucial policies, poor organizational structures and governance system, indicators that continue to affect all activities leading to unsustainable actions at both the national and community levels. This could give birth to more disastrous results like civil strife, sabotage of oil dealing and the resource curse phenomenon. The study focuses on aspects of long term sustainable actions which require engagement of all actors, dissemination of information among others driven by all the four sustainability domains (political, economic, ecological and cultural pillars) to prevent potential negative impacts on the country's socio-economic development. The thesis uses a qualitative research method to explore how sustainability can be at the forefront of the natural resource management inclusive mineral exploration, with the benefit of best practices from Botswana, another Sub-Saharan country. The study's main findings conclude that establishment of robust institutions, well-formulated policies and organised governance structure (that follows rule of law and transparency) are important factors that could greatly shape activities in the oil industry and evade dreadful conditions that could affect both inhabitants and the environment.

Keywords: Oil exploitation, Sustainability, Institutional theory, Livelihood and environment, Uganda

The imagery on cover Page; Oil Rigs and Oilfield operation unit in Bulisa and Hoima district; Source: Katwesige 2013

Preface:

This research study is a master's thesis that was carried out at Aalborg University during the fall semester 2013/2014 and constructed within the framework of Aalborg University's Problem Based Learning Model.

The study theme was chosen due to the desire to enhance the responsible management of natural resources in the study context given the rampant cases of abuse in the management of natural resource endowments. A case study was used to help appreciate/provide further insights into the current on goings in the oil field. The study results will be shared with policy makers, legislators and administrators who can help implement sustainability concerns in the preliminary oil and gas developments. The study contributes to useful information for better planning; sustainable resource use and management.

The author of this study was located in Denmark, but worked hand in hand with two research assistants in the capital city Kampala and the Bulisa – Hoima area where oil activities are ongoing. Thus this report is an outcome of cooperative data collection efforts to which many people have contributed.

The author would like in particularly to warmly thank Pernille Bertelsen (supervisor) for the immense support and constructive critique that has taught me the art of research.

Special thanks also go to the following people; Paul .K. Nyanzi; Gabriel and Georgina Asabawebwa, Bakusekas', Nyongbela Ndangoh. G, Margaret Barihihi, Dorte Holmgaard Jensen, Botswana's government officials, Mr. Isingoma Vitah, Donkor, F. Kwabena, Ogungbemi B.T and all my other colleagues who contributed and provided valuable information. Above all am grateful to God for seeing me through this journey.

LIST OF ACRONYMS

BTI	Bertelsmann Stiftung's Transformation Index
CIA	Central Intelligence Agency
CBD	Convention on Biological Diversity
E&P	Exploration and Production
EBI	Energy and Biodiversity Initiative
ED	Editor
EDS	Editors
EIA	Environmental impact Assessment
GIS	Geographical Information System
IDS	Institute of Development Studies
INTOSAI	International organization of Supreme Audit Institution.
IPIECA	International Petroleum Industry and Environmental Conservation Association
IUCN	International Union for Conservation of Nature
MEA	Millennium Ecosystem Assessment
MEMD	Ministry of Energy and Mineral Development
N.D	No Date of Publication
NO	Number
OGP	Oil and Gas Producers
PSA	Production Sharing Agreements
UN	United Nations
UNCBD	United Nations Convention on Biodiversity
UNDP	United Nations Development Programme
UNEP	United Nations Enviromental Programme
UWA	Uganda Wildlife Authority
VOL	Volume
WWF	World Wide Fund for Nature

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1.0. INTRODUCTION

This Thesis examines factors that influence the sustainable oil and gas development activities in the Albertine Region. It informs of what problems may emerge explaining the why and how. The research takes up the case of Uganda's newly discovered oil juxtaposed with Botswana's working example to build contribution in realizing the sustainable natural resource management and livelihood measures.

This introductory chapter begins with the background study, which explores the subject matter, framing the purpose for this thesis research and associated research questions that guide the project. It outlines the principle and scope of the report along with a line of different methods undertaken.

The further sections outlined here frame the entire chapter

Section 1.1: Provides the necessary background information for the study provides.

Section 1.2: Focuses on the Problem formulation and the main research questions guiding the thesis.

Section 1.3: Present reasonable grounds why this study was undertaken and rationale for the study.

Section 1.4: Outlines the general structure of this report describing how other subsequent chapters have been organized. It also briefly defines the boundaries of the study stating how these have delimited the study.

Section 1.5: Summarizes all information presented in this chapter one.

1.1. Background

The Ugandan golden jubilee celebration of 9th October 2012 was occasioned with a key mile-stone in its history; which is the discovery of commercially viable deposits of oil in the last ten years. This resource is one of the prominent fossil fuels among which is coal, and natural gas. The formation of the three resources is after many hundreds of millions of years ago in what is known as Carboniferous period. "*Carboniferous*" gets the name from carbon, the basic element in coal and other fossils (WWF, 2009). IUCN (2003) observes that, oil and gas exploration along with production often paves way for economic activities in relatively undeveloped areas, which promotes economic and social activities; comprising of migration, unstructured settlements, agricultural conservation and infrastructure development. A report on energy and bio diversity initiative by EBI (2005:11), lays emphasis on the increasing global demand for energy projected to triple or even quadruple by the year 2050. It is apparent that in the short and medium term, a significant portion of this demand is to be met with oil and gas, with natural gas playing a key role in bridging the post fossil fuel era transition to a time when renewable energies possibly become the world's primary source of energy; so an increased use of natural gas shall indicate greater need for pipelines to transport oil and gas (Ibid).

Furthermore, since Uganda is a low income, aid dependent country in the Sub Saharan region, Oil discovery signifies a major possible change in the country's position given that Uganda has received above US$19 billion as development aid over the past 25 years (Global witness; 2010). Oil revenues projected to be accrued from oil imports are deemed to possibly fund a larger percentage of the national budget boosting investments in many sectors such as health, roads and the rail network when the country starts off its production after the completing its refinery (Esuruku, 2013;10). Drakenberg (2009), also corroborates that the country is to attain economic independence as both the local government and community level look forward to having this oil resource reposition the local governments to become key agents of local economic development and extensive employment opportunities to the local population (Ibid:). However, the pessimistic outlook lies at striking a balance between the new industry developing into a socially inclusive and environmentally sustainable sector and need for money.

Researchers, Ruhanga and Manyindo (2010:5) showed that; Uganda as a landlocked country in eastern Africa has opportunity to benefit more from its natural endowments. However the area where this oil deposits lie is measured to be a key biodiversity[1] valued region that should be maintained. The study projects that returns on investments from biodiversity (generated from agriculture and tourism activities) alone can be as high as US$ 63.9 billion per year. This implies that the livelihoods of people in Uganda are intertwined with the sound environmental and natural resource management. Conversely there are threats on how oil and gas resources are to be exploited. Currently competition has emerged from different companies (such as Tullow Oil, Heritage, China National Offshore Oil Corporation among others) in bid to obtain more contacts for exploration and production of this oil both in Uganda, Kenya, Tanzania and alongside the Africa's east coast whose oil has also presently been unveiled (Taimour ,2012:9). Invariably there may be pressure on the exploration activities, a process, which could encourage severe damage on the environment. Questions about the dangers of resource extraction in the absence of accountability and transparency systems with existence of weak regulative frameworks in Uganda are aspects that need to be tackled to ensure that Uganda prospers from its resources in order to attain sustainable development.

[1]Biodiversity is defined as a natural area made up of a variety of plants, animals, and other living things.

1.2. Problem Formulation

Uganda is rich in natural resources and has policies with institutions that guide how these natural resources should be exploited and environmentally managed yet they continue to be degraded; putting at risk individual livelihood and the overall national socio-economic development. The discovered lucrative oil and gas reserves in Albertine region presents possibilities of having the government's revenue multiplied in twofold within the period of about ten years adding up to an estimation of 15 % of gross domestic product (World Bank ;2010). Although discovery of oil in commercial quantities could be a blessing, there are associated severe environmental problems that may come with it. Therefore, the Ugandan government needs to take into account sustainable measures to avoid the messy situation of the Niger Delta Region of Nigeria where local inhabitants' lives has been affected in terms of health, social livelihood and food insecurity, which are a result of pollution from oil spills (Oilwatch Africa n.d.). Against this backdrop of the Niger delta, it is proactive enough for Ugandan government to avoid a similar occurrence.

Further still, concern is raised over the current state of Uganda's natural resource base whose depletion and damage demonstrates failure on the side of the Ugandan government in managing its resources sustainably. There is some sense of fear from the public which arise from past records of mismanagement of public funds in higher public offices (as reported in the press in the case of the Global Fund saga- The Washington Times 2006) and the weak institutional credentials of Uganda making the public to expect that less or nothing may change if oil production begins in the Albertine region. Such patterns of poor governance may well expose Uganda to similar social and environmental ordeals like those of the Niger delta, costs that will have to be borne by future generation. Similarly, the authority concerned should be cautious enough to achieve a fair, ethical balance of costs and benefits between the present and the future; which is otherwise recognized as Intergenerational equity (Sneddon etal 2006:254).

The present study examines what problems could emerge as a result of oil and gas exploration in the Albertine rift region and what feasible pathways can be charted in order for Uganda oil exploration to be carried out in a sustainable way. Lessons are drawn from Botswana, where resource extraction is quoted to be exemplary with attribution to good governance systems, sound policies and well run institutions (African Economic Outlook 2012: 1,Meijia and Castel 2012: 3). Poor people often bear the brunt of environmental degradation, as their livelihoods are mainly based on environmental resources with little alternatives (MEA, 2005). Given that agriculture is the backbone of the local economy in the Albertine Region[2] (80%), changes in biodiversity and the associated ecosystem services could have extreme consequences on the wellbeing of the local population(Esuruku,2013).

Consequently, the study looks at how the biodiversity and the associated ecosystems services can be protected against the backdrop of the oil extraction. The research adopts a qualitative approach as well as usages of quantitative data using the case study design and political ecology approach seen as an effective preferential management style in resource management. To summaries this; the thesis looks at oil exploration and sustainability. Sustainability calls for proper management of environmental, social and economic aspects that could erode the territory's carrying capacity. Therefore, these three sustainability aspects frame the work.

[2] Communities in are largely engaged in subsistence agriculture.

1.2.1. Research focus

These considerations led the research to focus on people, oil companies, civil society organizations and government institution in the Albertine area where oil exploration events are progressing. The study lies at effecting of policies and policy makers interface where institutional role in shaping actions of the community, establishing service delivery for good governance could be enforced. It aims at informing those responsible for implementation actions (legislators, policy makers, administrators) with the relevant sustainability concerns in the preliminary oil and gas developments. Besides, it makes an effort to add to the diverse knowledge of existing information for better planning; sustainable resource use and management, tackling issues that could materialize correspondingly with the replica of Botswana. To reach the objective of this thesis, the following research questions define this study.

Research questions:

The main research question is:

How can oil and gas exploration activities in Albertine Region be carried out in a sustainable way?

This is supported by specific working questions:

1. What problems can emerge as a result of oil and gas exploration in the Albertine region?

This question would lay much emphasis on institutional challenges and livelihoods of communities

2. How can Uganda learn from the case example of Botswana about sustainable natural resource management?

1.3. Justification of the study

As any country in the world intends to make the best use of its natural resource base revenues, Uganda equally has given a mixed bag of feelings amongst its citizens in light of expected oil revenues to foster development on personal and national level. However, it proves to be a big challenge and distress for majority of rich oil producing countries with an exception of Ghana in Africa, which also has started facing issues of oil revenue management (BTI; 2013:6). Based on the experience of Uganda's national resources management practices that has seen a number of resources diminish, the Government may attempt to accumulate money from Investors at the detriment of the environment. I considered it a suitable time to take biodiversity studies of this kind into account in the Albertine region in particular because, In this case Uganda faces a unique challenge in the oil resource field in relation to biodiversity; where over 34 drilled oil wells are in the protected area and those outside it are just in a 2kms distance from the protected area (WWF2009). Sanya and Agencies (2013) validate that a total of 82 oil wells thus far have drilled successively in the recent oil activities, with other additional oil wells are to follow suit.

Considering the finite nature of oil reserves, with the challenges as presented by in an editorial release by Mbanga (2011), it indicates that wild animals such as, elephants, giraffes, and buffalos which were hitherto a common sight, have now fled into more remote areas due to over speeding trucks of the oil companies leaving a lot of dust in the area which threatens the survival of these animals. More so, some areas have been declared off limit (no go areas) areas for tourists. This is a wakeup call for a biodiversity study in relation to oil exploration and production activities. Therefore this research is an urgent intervention that its findings can best be put to use when the case is in its infancy. This study once completed is to contribute to the knowledge base of the

sustainability field, informing policy makers of what challenges could be existent in order to revise weak policies, and for those responsible for implementation to improve their approaches. This could realize the objective of establishing intergenerational equity as well as preventing conflicts and environmental damage, which would occur with great challenges.

The choice of having Botswana as an exemplary case study is for cross- case synthesis that could perhaps model a related picture of the theoretical potentials. Botswana is a land locked country just like Uganda and has had similar state of affairs like Uganda. As one of the poorest countries dependant on donor aid, Botswana has been able to change its status to a middle-income country with an estimated GDP per capita of USD16, 800 in 2012 in comparison to USD 70 as of 1966 (Central Intelligence Agency (CIA), 2013). The country now takes pride in having a stable economy in Africa and has upheld one of the world's highest economic growth rates of about nine percent (Ibid). In general, Botswana is cited as a least corrupt country in Africa that has excelled in managing her natural resources and sharing with the citizen revenues.

1.4. Organization of the thesis report

This Thesis comprises of six chapters with each chapter encompassing consequent sub sections. Chapter one defines the research problem, causation and how it could be addressed. It provides significant background information on the research subject, stating the underlying principle why it's being undertaken. Chapters two; Reviews knowledge of previous research work and literature with the purpose of shaping the research problem and identifying what theories could be used to analyses the identified problem.

Chapter three to chapter six expounds on the body of this report consecutively: The design for this research project is clarified in chapter three where the section highlights the conceptual footing for carrying out a qualitative research, laying out what sampling frame was used along with the data collection techniques employed among others. Chapter four; presents the Theoretical framework with different concept and theories that the researcher chose to guide her focus on the problem of interest. Chapter five; is a discussion chapter where the author's views have been presented with emphasis drawn from theories and the raw collected data.

Chapter six ; summarizes all the research findings and supposition presented in this thesis report highlighting development made in addressing the associated and crossing cutting matters . It also discusses possible courses of action that may be pursed either for further research or for dealing with the identified gaps.

Scope:

The center of attention for this research is on civil society organization, locals, oil companies and government institution. However the thesis is established based on empirical responses of civil society organization and natives within the Albertine region. It excludes the oil licensed companies as it has not possible to acquire information from them due to the bureaucratic protocols encountered and the limited time paused by the project work. The study analyses the role of institutions, their challenges and livelihoods of communities as these are considered key in sustaining the oil industry. Albertine regions covers a total of about 13 districts (Esuruku, 2013:11) however focus was laid on Hoima and Bulisa districts where major oil activities are undertaken.

1.5. Summary of chapter One

This chapter has given an account of the Oil and gas exploration as the defined problem, exploring the roots of the subject matter being studied in reference to the existing literature. The study scope and extent to which this thesis is delimited is presented showing existent gaps that the study has embarked on.

2.0. STUDY CONTEXT

This chapter briefly provides an overview of Uganda's history, looking at its natural resources status, the political structures and state of affairs for civil society organization (that are believed to complement the government work in management) in addition to the recent facets of the new oil exploration in the south western region.The chapter also presents a brief introduction of Botswana whose detailed lessons are to be outlined in the following chapters later on.

2.1. Brief History of Uganda

Uganda is a landlocked country in East Africa bordered by Kenya, South Sudan, Democratic Republic of the Congo, Rwanda, and the south by Tanzania. It lies within the Nile basin, and has a total surface area of about 240,038 square kilometers (CIA; 2012). The political structure of the country is made of a multi-party political system comprising of National resistance movement (NRM) which is the ruling and holds the majority seats in parliament, Democratic Party and Forum for democratic change (FDC), among others however currently NRM is the executing party running the country with different policy framework and structures although opposition parties still show discontent in one way or the other (Bertelsmann 2012).

Politically, Uganda still follows the movement system which is based on individual merit demonstrated through elections. Governance and Law enforcement together with information dissemination is decentralized following a local council system from ministerial level, to district level to village level (from local council (LC) V, Vi, iii,ii,I consequently)

Uganda as a nation is gifted with various natural resource and fertile soils that makes it boost of an agricultural based economy. With over eleven ethnic groups present in the country (with broad cultural systems and beliefs), her current population is estimated at 34 million people with a rapid growth rate of about 3.3 percent , that is believed to double in the years to come (CIA world fact book, 2013). This is in many respects similar to Botswana a country that primarily depended on agriculture with vast natural resources (mineral reserves) even though it boosts of a smaller homogenous population of about 2.1 million people (Ibid). Contrary, this poses a bigger challenge to Uganda whose largest part of the population exerts pressure on environment natural resources for their livelihood.

Bertelsmann's report of 2012 concurs with this, signifying that about 75 percent of Uganda's population lives on less than 2 US dollars a day which qualifies the nation to be among the lingering poorest countries in the world. Uganda as a nation , suffers effects of inflation that saw it's rate rise to about 14 percent as of 2012 , devaluing the country's currency and biting hard into Ugandan's pockets. Present statistics attest that Uganda's small economy is gradually growing with a GDP (purchasing power parity-ppp) of USD 51.27 billion as of 2012. However, the GDP per capita as per purchasing influence parity is low with projection put at USD 1400 plus growth rate of 2.6 percent (CIA World fact book, 2012). Uganda's economic development is dependent on the sustainable management of natural resources but this cannot be realized if the trend at which the resources are declining persists.

2.1.1. Present State of Uganda's Natural Resource Endowment.

Natural resources[3] such as fertile land, forests, water and mineral resources including gold, copper and oil are the base of all mankind in the world (NEMA 2007). Uganda relies extensively on use of these resources since the natural resource base is described as one of the varied wealthy base in Africa; indispensable to the country's economy seeing that it predominantly contributes to of the National Gross Domestic Product (Keizire et al ,2006). Management of the natural resources is thus significant to Uganda economic development (Ruhanga & Muyindo 2010). Although people's livelihoods are built on this base, increased man made drivers and related pressure create many challenges [4](Ibid). Uganda's resources that benefit all populace ranging from the national upper class to the local citizens are being exploited past their regenerative capacity damage which is mark-ably demonstrated as below;

Agricultural Resource:

Agriculture as a resource contributes significantly to Uganda's economy and the nation untiringly due to its fertile soils, a comparative advantage of engaging in agriculture[5] which is a dominating sector that employs about 80 percent of the population. While the sector adds to the economy's Gross domestic product (GDP) with a proportion of about 23 as of 2011 (UBOS, 2011), its performance is poor and has been declining over the years with low productivity earnings. For instance; Uganda's agricultural land is being depleted. According to UBOS (2011), Uganda's land area is about 199,807. Square km. However due to dependence on subsistence agriculture, inhabitant are encroach more on wetland and forest land to increase their cultivated land cover. From 1990 the cultivated land area was about 84,010 Square kilometers (sq. km), which increased to 99,018.4 sq. km in 2005 and now stands at 140620 sq. km (World Bank 2010). This variation shows a rise and a growing challenge on the land, a base for all activities. Comparable research by NEMA (2007) points this to the increased population growth rate, use of elementary farming technology that promotes depletion and degradation of natural resources alongside unemployment rates in the country that could lead to accessible land running out completely by the year 2022. These impinge more on community livelihood of not having enough food to sustain them. Other natural resources taken account of include; forestry and wildlife, water resource (lakes, rivers, and bog), fisheries and minerals which hold up different agricultural system.

Forest: A Forest resource in Uganda is made up of both natural forests and plantations. Natural forests comprise of tropical high forests as plantations covers both pines and hardwood (UBO; 2012). Forest cover is key elements of environment endowed with essential services that are significant. It is the foundation of the country's future livelihood and growth; it also provides Uganda's household energy requirements as well as provides 6 percent of the country's GDP employing 100,000 people directly and other 750,000 indirectly. It supports wildlife country's heritage generating about 5.6 percent of GDP through tourism (NEMA 2007) and thus forestry covers the 3 core pillars to sustainable development pillars. Though forestry may seem to be such a key sector to Uganda, It is depleted and still faces numerous threats that deter its contribution to development.

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[3] For purposes of this research; the term natural resource indicates as raw material derived from the environment (ecosystem and biodiversity) whose good or services are valuable to social, economic and cultural welfare.

[4] Examples are: over exploitation and deforestation activities yet short of continuous use of natural resources affects communities and economy at large.

[5] It covers crop and animal production, forestry, fisheries and the Agro-forestry trade.

UBO(2012) states that, Uganda's forests consisted of 49,000 sq. km In the 1990's, but this has drastically reduced to 28,998 sq. km as of 2011(World Bank,2013) contrasting great from 75000 sq. km that existed in the early years of 1980 yet at risks being cleared. In other words, 27 percent of the forest cover has been lost over these short periods of time (1990-2005) and today it is estimated that the 38 percent of only remaining forest cover could be lost by 2021. Uganda Atlas (2009) declares that increased population growth in the country exerts lots of pressure on land by converting most of forest land to other land use such as agriculture. This unsustainable action coupled with increased energy demand for wood fuel in both rural and urban households creates deforestation which is major threats to Uganda's forests amid others that leads to rapid reduction and demise of the resource.

Water Resource and Fishery

Besides forestry, endowment value of the water resource in Uganda is massive. This supports the fishery sector and irrigation activities. The fishery sector contributes towards the socio-economic progress of community's livelihood. As a money-making sector, the fishery reserve exposed to different pressures induced by heightened demand for fish products from diverse marketplaces that overrun local yields attracting Illegal fishing. A few checks put on fishing methods and zero on harvesting quantity raise concern due to large exploitation subjected to this water resource which has been expanding during the past years (UNDP 2005).

Further research by NEMA (2010) accounts that total fish exports is lessening (as of 21 percent in 2008 to over 14 percent in 2010), due to pollution and poor finishing practices is causing dreadful effects to the water reserve (NEMA, 2010). For example; European Union imposed bans on all fishery products from Uganda due to failure of meeting quality standards resulting from contamination and use explosives in their catchment process. Water bodies (the lakes, rivers and streams) are progressively facing pressure that may lead to their demise owing to silting as of eroding soils on the slopes closest them. This could be a driver of having water resources being lost through silting and experiencing drops in water storage capacity a severe implication on livelihood of the society, both in terms of quantity and quality and given the added threats of climate change (UNDP 2005). These circumstances portray the present state of how Uganda's resources continue to be degraded imposing not only various costs on Uganda's economy in terms of revenues but also touching people's livelihood security mainly those who benefit from different sectors for survival. This means that any changes made on the environment directly affects human livelihood in addition to development (Ibid).

2.1.2. Uganda's Recent Oil Discovery

In 2006, 2.5 billion barrels of, commercially viable deposits of crude oil in the Uganda's Albertine Graben was publicized. Since then new deposits have been cited in Hoima basin, Lake Kyoga basin, Lake Wamala basin and the newest being the, Kadam-Moroto basin (Bategeka et al 2009). Hitherto, at least 800 million barrels of reserves were confirmed (Global witness 2010). New policies aligned with the discovery have come to steer the production process. Banfield (2009: 4), reports that Uganda's newly acquired oil industry is classified by the oil industry press as Africa's *hottest inland exploration frontier*. Which would imply that the over 2.5 billion barrels of oil already found may be possibly enough to generate adequate wealth to the poor Ugandan. Currently Oil exploration is ongoing with a refinery constructing on its way. Oil and gas industry is a new sector in Uganda which demands having right skilled manpower to oversee the operation of the industry.

The Oil and Gas Regulatory Framework

The (1995) Uganda's Constitution, article 244 states that, *ownership and control of minerals and petroleum in, on or under any land or waters in the country is vested in the Government*. The constitution empowers parliament to make laws regulating exploration and exploitation of minerals and petroleum, the management of arising revenues, payment of indemnities, and the conditions for restoration of derelict land. This mandate together with the petroleum Act, chapter 150 of the laws of Uganda along with the petroleum regulations (1993) that provides for the legal and regulatory frame work under which the ministry of energy and mineral development through the petroleum exploration and production development promotes and regulates the exploration of oil and gas in Uganda. It's this exploration that led to the discovery of viable amounts of petroleum in the Albertine region sited on the entire western border of the Country.

Policies have come into force to give way for the enactment of a suitable Petroleum Act to handle the development and production of Oil and Gas appropriately (National Oil and Gas policy, 2008). The Policy states that, the *petroleum act shall among other things; include provisions for the development and production of natural gas; bringing on board international best practices in the areas like improved Oil Recovery together with health, safety and environmental standards*; provide harmony with proposed law on management of petroleum revenues; provide for National participation to enhance value on Oil and Gas activities; and provide for a more competitive licensing process. However the petroleum bill drafted by the Ministry of Energy and Mineral Development in 2010 has been in parliament since then pending for debate (Otoa 2011). So if policies are to exist only on paper, what sustainable actions can be effected? Aggressive prospects for sustainable development are continually daunting.

2.1.3. The Art of Petroleum Contracting, Licensed Oil and Gas Companies in Uganda

The national Oil and gas Policy (2008), the petroleum Act provides for agreement between Government and Oil companies. The type of agreement used in Uganda is the production sharing agreements (PSA) where parties to share are the Government and Licensees (Oil companies). The specific obligations and requirement to the parties are detailed in the PSA. Uganda's Albertine region is divided into nine exploration areas with five of them having active production sharing agreements (See Fig 1.1; MEMD, 2010). The Ministry of Energy and Mineral Development (2010) reports that four production sharing agreements have been awarded to Tullow Oil, Tower resources Neptune, Heritage and Dominion petroleum limited. It further states that Uganda is receiving many other applications for unlicensed exploration areas.

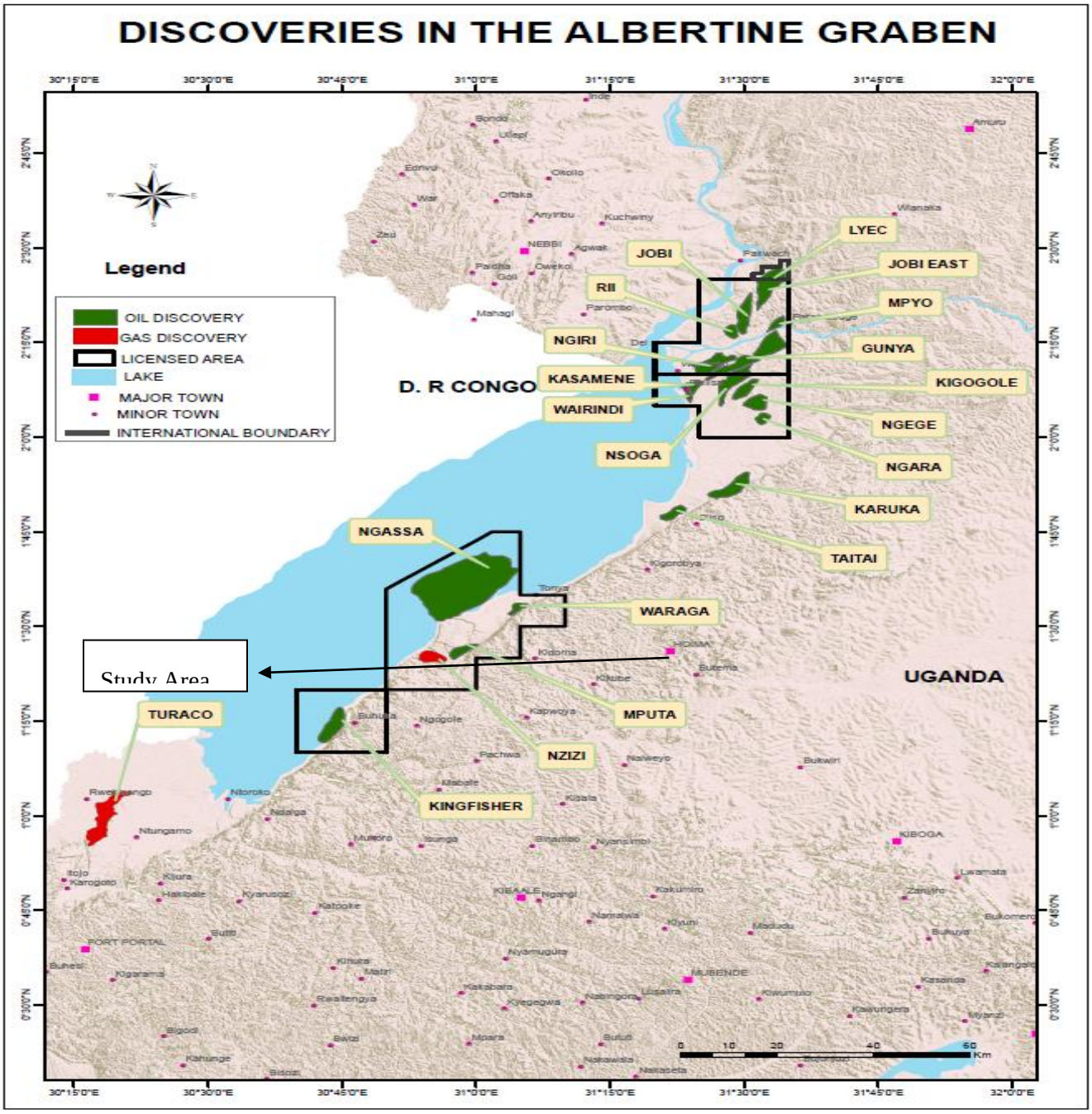
Sharma (2003) asserts that, nearly everywhere hydrocarbons are developed; potential implications for loss of biodiversity prevail thus, this strategy should point towards the role these two main stakeholders have in piloting nature conservation actions as the oil industry develops. EBI (2003:1) observes that, mounting demands for energy uncover possibilities of having to use oil and gas march up this demand over the subsequent decades, the risk to loss of different species living within a particular area (biodiversity) from energy development projects is expected to increase. Whilst oil and gas operations are often not the biggest threat to the biodiversity, they may possibly have a wide range of negative impacts on environment though in some cases, company activities can make a positive contribution to biodiversity conservation. So companies must make themselves aware of the potential ecological impact of their operations and most way to conserve the environment is to prevent the degradation of habitats (Boyd et, al; 2001:30)

2.1.4. Guiding Principle for Sustainable Resource Management

Uganda is party to a few of multilateral conventions and initiatives namely; The Convention on Biological Diversity (CBD) ; Climate Change-Kyoto Protocol; The Convention on International Trade in Endangered Species of Wild Fauna and Flora ; The Convention on Migratory Species ; The Ramsar Convention on Wetlands; The world heritage convention 1972 among other. These demand establishments of increasing focus on the application of such agreement to instigate development that is sustainable as well as also to provide valuable social and eco benefits to the local communities (Benn, 2010).

International conventions and agreements form an important facet to issues surrounding Environment and the oil and gas industry. They are a significant pressure driving the development of a strong business case for biodiversity conservation (IUCN, 2003). This denotes that oil companies have to develop actions that reinforce minimizing of environmental risks in their operations. According to EBI (2003:2) failure for oil companies to come up with better performance can result into costly project delays and destruction to a company's repute on biodiversity issues so the responsibility to conserve and protect the environment should be applicable at all phases of exploration and production tasks. Namely; from the seismic acquisition, the drilling, production phase till end of the field's life (Chaîneau and Miné; 2010:587).Equally the United Nations Decade on Biodiversity, support governments to mainstream all areas of main concern within economic and developmental activities being planned, to carry out and publicize results of national strategies in the implementation of the strategic Plan for Biodiversity (Benn, 2010)

Figure 1.1: Map Showing Uganda's discovered Oil and Gas and licensed areas in the Albertine Region.



Source: Uganda Petroleum Exploration and Production Department, 2013

2.2. Botswana

Botswana is marked in many ways as a notable African country with the fastest growing economy. The country got its Independence four years (1966) after Uganda at a time when it was among the 25 poorest countries in the world (Acemoglu et al 2001). Through good governance and proper management of its aid integrated into national priorities with sound management of its mineral revenues, Botswana has worked its way out to become a middle class economy (Ibid). Botswana is endowed with natural resources such as diamonds, copper, nickel, coal, iron ore, silver among others with diamond extraction taking over all economic activity, in the country. Though Botswana may not be such a model or rich with specifics concerning Oil management the pattern through which the country manages its natural resources may draw significant lessons to Uganda. Botswana has cautiously accounted for its natural resource revenue with effective and competent independent institutions that are supported by all relevant political actors (Central Intelligence Agency – CIA 2012; BTI 2012).

The average growth in real GDP besides annual per capita income that the country has sustained between 1965/66 and 2005/06 has been described as an outstanding and uncontested economic performance record of any country in the world (Leith 2005:4).Botswana has strong governance structures with longest liberal democracy in Africa Botswana is depicted as an "indigenous developmental state", in which secure political elite have pursued growth promoting policies, developed and maintained viable inherited modern institutions of political, economic, and legal restraint. Being a poor country and knowing the resource constraints that they faced, Botswana took on an open policy towards foreign investment and pursued a non-aligned foreign policy to maximize volume and diversify sources of foreign aid(Maipose and Matsheka; n.d:14). These policies have paid off well – leading to the discovery and successful exploitation of copper, nickel and diamonds. It should also be acknowledged, as Meijia and Castel (2012:14) implies to some extent, that the government in Botswana has not ignored the development and management of other alternative resources that generate revenue.

This is demonstrated by Government efficiency in working conjointly with existent institutions, strengthening of sustainable fiscal rules for economic diversification. It is worth to note at this stage that behind the high growth pattern of Botswana lays two remarkable puzzles namely; Botswana has dealt with the issue of manpower constraint to excel through importing skills while cautiously embarking on building its own human capacity. This strategy has enhanced the patronage through a bloated civil service (Maipose and Matsheka; n.d). The approach to national development put emphasis on development planning thus enabling the government to take not to spend more than the economy could absorb and to avoid the boom and bust cycle. This strategy composed of a set of rules for smoothing public spending in the face of revenue shocks and accumulating financial asserts for future generation which has been the life-line for Botswana's sustainable development.

2.3. Overview of Literature

This section explored the main concepts of theoretical inquiry on the body of literature relating to conservation and sustainability measures within the field of Oil and Gas industry. Authors whose work closely related to the themes of my study have been chosen following the frequency of their being cited to have an idea of their influence/impact/validity. These included books, peer reviewed journals and newspapers articles among others. With the newspaper articles, I looked at credible newspapers in my country. To be sure of the credibility, I compared what they reported with what was making rounds in other media circles. I also talked to people on the field who can relate to the issues being reported by the newspapers. The ensuing sections outlines linkages of oil activities to the sustainability which are reviewed through the domains of sustainability (ecological, social and economic pillars) to examine possible problems that tends to occur and strategies that could be taken on.

2.3.1. Linking Oil Activities to Livelihoods alert

There is an increasing concern about how oil activities impact livelihood patterns touching the social, economic, and cultural elements such as fishing, agriculture, livestock and eco-tourism strategies. Far-reaching effects on people' source of livelihood vary from founding of short term employments, loss of land in terms of displacements to changes in the standard of living halting ways people meet the needs for their families (Esuruku 2013, 6). According to UNDP (2006:75) oil activities create unrelenting effects like conflicts which are influential factors to poor human development. These stem from land use/land ownership or destabilization among communities. Going through Niger delta, UNDP remarks that it is "a *place of frustrated expectations and deep-rooted mistrust* outcomes derived from overlooked actions related to Oil operations (canalization, oil spills and lack appropriate waste among other) that continue to alter the surroundings on which people rely for subsistence activities. Countless point of views revolves around who is liable for all these harms but this cannot take away the pain it has caused the people. This provides a complete view of what effects could erupt if mining companies fail to pay attention to the value the environment derives to its society.

Abuse of livelihood support base can lead to a situation where poverty reinvents itself in subtle ways. Recent research by Nakayi (2013) illustrates this phenomenon as follows;

"*Imagine that a poor land dependent peasant in Hoima, whose dream was always to get one million shillings, is given five million in compensation for his land (now part of an oil installation). He rejoices his new status as a millionaire. He marries a second wife, and also purchases a motorcycle (boda boda). He has lost property (land and house) and acquired, among others, a chattel. He has changed from being a 'rich-poor-man' to a 'poor-rich-man'. If the motorcycle is stolen tomorrow, he will still have to struggle; earn enough to maintain the rented house, new wife and extended family*".

Such constructs don't only entail deprivation of one's opportunity to earn a descent living but rather could lead to increased crime rates within the study region represented by anxiety and circumstances of the Uganda's oil extractive region at this time; The case in point is not merely an African problem, comparable examples in South America are justified by Washington AFP (2013). The ruin of oil and gas extraction in Amazon basin reveals immense ecological degradation and social troubles that continue to affect local people's lives in Ecuador. Presently Chevron Oil Company faces law suit for failure to pay to the Ecuadoran villagers and the local government for the massive environmental damages caused in the amazons rain forest affecting local people's lives. It is evident that Mineral extraction processes involve unsustainable dealings but there are procedures oil industry can undertake to work towards attaining the values of environmental sustainability.

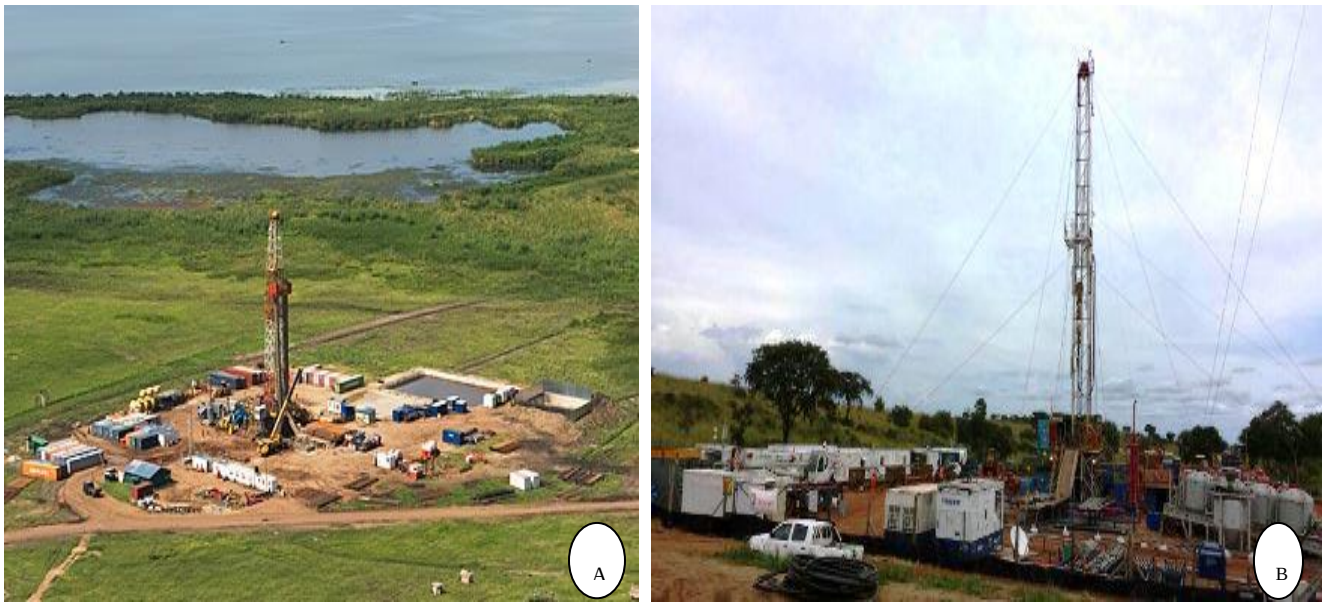
2.3.2. Oil and Gas Activities and its linkage to the environment.

Ugandas' National Oil and Gas policy (2008) observes that numerous oil and gas activities can be subdivided into upstream, midstream and downstream respectively. Upstream covers promotion, licensing, exploration, development and production of petroleum. Midstream includes transportation, refining of oil and conversion of gas. It's recognized that upstream petroleum also take accounts of transportation, especially transportation of oil and gas on petroleum fields and in between these fields and processing centers which calls for road construction. Downstream petroleum deals with the distribution, marketing plus sale of petroleum products. Oil and gas production activities however, present diverse environmental impacts ranging from land grabbing in oil regions, alteration of land surface areas, ecosystems, atmospheric pollution to water impacts (Oil watch n.d). As Finer et al (2008:1) exemplifies Oil access roads bring on deforestation and related shocks which generate both indirect

and direct impacts whose damage cannot be effectively managed. Concern of altering land surface area with activities like drilling and construction (as exposed in figure.1.) in the Albertine fragile area can possibly destroy inhabitant's livelihoods influencing their ability to harvest much from their land[6]. Eman et al (2012: 7479), argues that nearly all oil find its way into the ecosystem through leakages of lakeshore oil refineries. Though spills occur inadvertently, this is a basis for severe and extensive damage to marine ecosystems, terrestrial life and human health also natural resources. This shows a connection between oil refineries and water resources which does not diverge much from Uganda's Tullow Oil's refinery that is still in its preliminary development stage (see Fig.1.1)

Kityo (2011:1) indicates that, Oil exploration activities ought to follow sets of ecological studies, such as strategic environmental assessment, environmental and social Impact assessment studies, however; sites where these studies are conducted often lack baseline data needed to backup the assessed impacts from these studies. This hampers the evaluation process of both the direct and indirect ecological effects linked to environment.

Figure 1.2: An Oil installation refinery activities in Hoima.



Source Photo A: New Vision 2013. **Source: Photo B: Author 2013.**

WWF (2009) considers Albertine rift of Uganda as Africa's most ecologically diverse area for animal species and has the highest level of endemism (nativeness). This slim stretch of land just 45 km wide runs from the southern tip of Lake Tanganyika to about 30 km above Lake Albert in Uganda. About 14 percent of all African reptiles with 175 species, 19 percent of all African amphibians with 119 species, 35 percent of all African butterflies with 1300 species, and 39 percent of all African mammals with 402 species (Plumptre and Cox; 2006:183). This high biodiversity area is protected through a network of over fifteen National parks and Wildlife reserves comprises about 70 percent of all Uganda's conservation areas. IUCN (2003) refers to biodiversity as complex genes, species, ecosystems and ecological processes that sustain life on earth, providing

[6] Oil Spills may end up finding their way into these nearby waters threatening Fishing and farming communities that are dependent on the resource.

human society with food, medicine, natural resources, ecological services, and aesthetic benefits. It is a web where ranges of variability among living organisms and the ecological complexes occur and the ways in which they interact with each other and their environment (Ramesh 2003). Evaluation done using the IUCN Red List criteria shows that 40% of 40177 species are now listed as threatened with extinction (irreversible) (Sharma, 2003, Gunawardene. et al. 2007: 1567). In light of this, the EBI (2003) concludes that the most feasible way to safeguard the ecology is to prevent degradation of habitats.

Environmental Concerns on Biodiversity

Oil activities relate more with the environment which is a base for ecosystems and biodiversity. Key biodiversity questions in the oil and gas life cycle demand assessments of biodiversity risks to have integrity measures shield priority areas. Gunawardene et al (2007: 1567), contends that preservation of biodiversity is the right of way comparable to facing challenges of climate change. Oil spills and the Biodiversity of a given Ecosystem: Oil spills are an immediate impact on the environment and local inhabitants' lives. Birds may be perceived by the media as the highest priority for response attention, but other groups of animals, including invertebrates, fish, reptiles and mammals, can also be affected (IPIECA, 2000:7).

In support of this, Boyd et al (2001:8), who is a researcher in the field of ecological management and Oil field, adds that varied resources stand at variable risk of exposure to untreated oil and chemically dispersed oil as toxicity is linked with the capability of a substance to kill. The study categorizes and discusses these resources as follow: *Surface-dwelling resources* - This in general include birds, marine mammals and reptiles whose risk is high due to exposure of floating oil on the surface during a spill. *Water column (pelagic) resources* - contains fish and plankton; their risk is lower to oil spill exposure. Dispersion can conditionally increase the risk of exposure to these resources. For the Bottom-dwelling (benthic) resources – these resources live on, or beneath the ground like species of crabs, bivalves, and plants. They are in general at lower risk of exposure during a crude oil spill but mainly affected by sinking oil. The Intertidal resources live in the areas that are out in the open to air like shore birds. If a spill reaches the shore, these resources stand at a high risk of contact as they greatly affect not only the fishing industry but also farming could be affected due to oil spills damage on land hence cautious should be taken.

Gas Flaring and Venting and Environmental Conservation

Gas flaring process occurs when crude oil is pumped from the ground to produce petroleum. Surplus natural gas is released from an oil field and destroyed by fire contributing momentous carbon emissions to the environment. The option to release gas to the atmosphere by flaring and venting is a critical practice in oil and gas production, primarily for safety reasons (OGP;2004). it not only wastes the precious resource but also brings on adverse effects that potentially contribute to global warming (Campbell ;2005). Over 95% of human - related emissions of carbon dioxide are associated with the consumption of solid, liquid, or gaseous hydrocarbon fossil fuels. Flaring and venting predominantly destroys all media of the environment (air, soil and biodiversity) generating increased temperatures and noise in an area (UNDP, 2006; 79). Hence Chaîneau (2010) advises that for environmental and resource conservation reasons, flaring and venting should always be minimized as much as practicable, consistent with Global safety considerations.

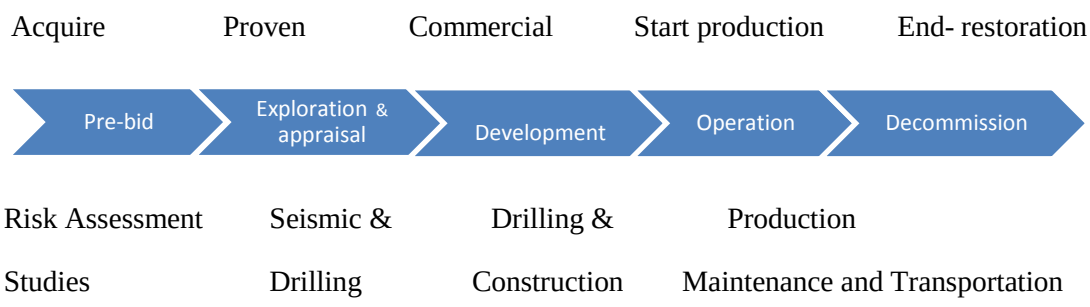
Furthermore, prior studies have shown links between oil and gas activities and the environment (IUCN, 2003;; Boyd et al, 2001), focus more on adding biodiversity /environment maintenance into oil activities but did not show well detailed effects of the different oil and gas activities on people's livelihood and sustaining equity in an integrated way. It is important to recognize that empowering communities to be managers of their own

environment as means to attaining long term sustainability is key . A closer look at the National Oil and Gas Policy for Uganda (2008) shows that the policy only covers the upstream and some mid-stream activities of the petroleum value chain but it is silent on the downstream activities which includes decommissioning and restoration of the environment to its original state after the oil and gas activities. Earlier research (Kharaka, 2003), underlines that oil and gas development activity have numerous direct links to environment and livelihood for communities on onshore ecosystems. As such, this has yet to be examined in an offshore environment, particularly in a protected area of a developing country such as Uganda.

The oil and gas project lifecycle

Oil as valuable commodity undergoes different phases. The Energy & Biodiversity Initiative (EBI),2003:13) describe,the oil and gas development project lifecycle as a five fundamental stages illustrated below;

Figure 2.1: The Oil and Gas Project Lifecycle



Source: EBI, 2003:13

The first stage is the Pre-bid: Companies set up whether or not to acquire a concession or express interest in a new area. In general this comprises of chains of preliminary high- level identifications and assessment of potential economic, environmental and social concerns which determine whether accompany should proceed with investment and exit the project lifecycle

Exploration and appraisal: Is the next stage in the cycle entailing understanding of the subsurface to conduct seismic surveying and, if warranted, drilling and evaluation of data is done with the intent of confirm the existence of commercially viable quantities of hydrocarbons.

Development phase: Its only operational if commercial viable quantities of hydrocarbons are revealed to allow companies decide whether to develop the field or not. Undertaking this phase involves investment of hundreds of billions of dollars over 20-40 years as development takes the drilling of production wells and construction of facilities, such as pipelines and terminals, to process and transport the hydrocarbons. *Operations*: Is the production stage takes the day to day production of oil and or gas, maintenance of facilities and transportation of the hydrocarbons to market via pipelines and export terminals following field development. The Decommissioning phase comes in when the commercial life of the field comes to an end. Removal of facilities and the restoration of project site and other pertinent proceedings to the sites are done.

Improve the environmental performance of a project to ensure safety in the access of hydrocarbon resources has to be launched at the set off. Oil and gas production activities build up potential effects on aquatic and lakeshore along this entire life cycle. At the pre-bid stage of oil and gas development, a company may choose not to proceed with investment and exit the project lifecycle owing of biodiversity or environmental safety concerns (Ibid, 2003:13). Sharma (2003:87) consents that for technical, economic or further reasons, an industry may not

carry on with the activities after the completion of exploration and appraisal. These possibilities may raise diverse issues about the stability of environmental, biodiversity-related values, commitment and practice from one business firm to another, potentially putting at risk sustainable biodiversity management and a company's ability to maintain the reputational value of its activities in relation to biodiversity conservation (EBI, 2003:15).

UNEP (2013; 1) describes Oil and gas as natural products produced by the degradation of organic material in geological deposits within the earth's surface. Illustration in Table one attest that Oil activities are a source of environmental devastation that Invade on individual livelihoods thus if not managed wisely infects feasible environmental effects can go beyond the odds reviewed below;

Table .1: Main Oil Activities and their Underlying Effects on Aquatic and Lakeshore Environment

Activity	Effects
Seismic surveying	Noise effects on fish and mammals
Rig fabrication exploration	Dredging activities , these affect surroundings and filling of lakeside surroundings
Drilling or Rig emplacement	Discharge of drilling fluids and cuttings; risk of blowouts. (drilling of fixed well results in numerous
Routine rig Operation	Deck drainage and sanitary wastes
Development and production platform fabrication	Land use conflicts and increase channelization in closely residential area
Separation of oil and gas from water	Persistent discharges of petroleum and other pollutant.
Production of storage facilities and pipeline	Lakeside use conflicts
Transfer of oil to tanks	Increased threats of oil spills, severe and unceasing input of petroleum.
Construction of on shore facilities for transportation and storage of pipeline operation	Lakeside use conflicts , changes of wetland due to pipeline constructions ,oil spills and chronic leaks
Refining and expansion operation	Lakeside use conflicts, increased pollutant loading depending on regional demands.

Source: (Neff 2002; Neff etal 1987:152)

Transport of oil naturally involves use of pipeline network hidden underground that cause alteration of ecosystem with its effects normally overlooked in the name of economic aspects like revenue. Equally UNDP (2006:75) asserts that dredging activities alone impinges heavily on all parts of the environment whose shocks lead to the abandonment of the dredged materials on the banks of inland waterway and rivers. This causes acidification due to changes in the topography and hydrology. Water contamination, damage to vegetation, fish kills and changes in land use. Altered topography prevents the natural re-succession of mangroves. Integrating

sustainable measures in all oil development imperatively follow practical steps. According to Core Logic (2013) Oil activities entail asset and data management for integrity purposes which resolves around the use of Geographical information systems (GIS). GIS produces a robust spatial analytics to map oil activities and operation. This covers monitoring the life cycle of pipe operation such as identifying decay, poor design in the harsh topography, reporting and examining the pipeline integrity along with building a reliable environment for storing critical data.

Boyd et al (2001; 16) notes that toxic effect of oil and gas spills can be lethal and sub lethal such as disorientation, reduced growth and reproduction. The amount of oil exposure on human being shall experience depends on many factors including; oil type, spill volume, shoreline type, tide stage, and weather conditions. Across species, direct contact with oil may cause burns, and irritation of skin, eyes and mucous membranes. Ingestion may cause disruption of the gastro-intestinal and immune response systems along with damage to organs such as the liver and kidneys. Inhalation may lead to respiratory and neurological damage/disorders. Secondary effects related to captivity should not be overlooked and may include pressure sores, damage to feathers or skin, lack of appetite and spread of infectious diseases. Every effort should be made to avoid these secondary effects since no clear-cut correlate between size of spill and extent of damage, but a number of other factors are important in influencing the degree of damage and recovery times. (Ibid)

Oil Processes and Water Resources

Water is naturally present in the oil and gas reservoirs, Even though efforts are made to produce hydrocarbons selectively; some water is produced, amid the separation of oil and gas (Neff etal 1987:153). Operations of oil and gas development hold numerous volumes of water in their reservoirs. Moreso water acts as a lubricant to the drilling machines, cooling of the machines and engines. Environmental damages continue to be linked with water since water is in turn brought to the earth surface through pipelines as waste water (Neff (2002:1;).

The American Petroleum Institute (2005) observes that around 17 million cubic meters of water are produced daily in offshore operations worldwide together with 120 million barrels of oil equivalent, and that, about 40 percent of the daily water production is discharged offshore. Management of produced water in offshore developments provide distinct challenges for the oil and gas industry; in most areas, discharge of produced water to the sea is an option that can be considered as part of a sound management strategy (Johansen et al 2001: 433). Neff (2002:1) notes that when the hydrocarbons are produced, the water component is separated from oil and gas in the first stages of processing to allow crude oil to be refined moreover for offshore operations - separated produced water has generally been discharged to the sea. Uganda's oil and gas wells discovered so far (2011) in the Albertine rift are all offshore near and around Lake Albert (See fig.1.1)

2.3.3 Oil and Gas Activities and the Economics impacts.

From an economic perspective, Oil and gas pose challenges in their initial stages, ranging from the capacity of oil to be extracted, decreasing return on investment (which may lead to oil peaks[7]), and unemployment rate to Pollutants (Hall et al 2008:118). Other economic consequence identified develops from Oil leaks and Seismic exploration activities. These have a tendency to create economically irreversible impacts from new enhancements such as roads; with pollution in sectors like fisheries and agriculture. Consumption of fish

[7] Increase in demand of Oil supply can cause increased price leaing to economic slowdown. Supply corresponds to demand factors which can lead to more oil drilling activities.

exposed to oil spills harms the market for fish from an affected region. Evidence by Tonts et al (2012:), Illustrates that resource regions also battle with unequal distribution of income, employment and unstable commodity markets linked to fluctuations in production and unemployment as result of with high population growth and high incomes. Resultantly the three sustainability pillars (social , ecological and economics)are naturally linked meaning all aspects have to be integrated as one problem by passing other aspects affects the possibilities of dealing with the others.

Sum up of chapter two

Certain activities within the oil and gas developments arise with clear and visible consequences both on the environment and the local populace if unsustainable actions are put into effect.

This section identified and examined the diverse links between the oil activities and sustainability in order to understand and establish how different domains of sustainable development could be incorporated into Oil and gas development sector. It shows how Oil activities, environment and people's livelihoods are interconnected.

The different sections explain how these linkages come about and what possible results could come into sight calling on for some measures to be followed which has guided this research project. The next section examines the applied research strategy in the study of how oil as a mineral resource could be extracted in a responsible and sustainable way in order for it to remain an invaluable national patrimony.

3.0. METHODOLOGY

The study gives both a descriptive and explorative account of the practical methods used to carry out this research addressing the theoretical considerations of case study research strategy and the limitations encountered in the data collection.

3.1. Research Design

The logic structure of this thesis took on a qualitative approach with a case research design, intended to permit in-depth study of fundamental themes. Uganda was selected as a single case study focusing on the country's respective natural resource management and oil industry, with the view of being informed about best practices of policies, institutions, governance issues and natural capital by Botswana as a country with similar features. The case study designs validate emerging constructs and proposition in the data set; guiding the study of various units within the identified case by underlining the mechanism by which an incident is brought to being (Flyvbjerg 2011:301). This was entirely in line with the justification for opting for this study strategy. Case studies can contribute significantly to a researcher's own learning process by shaping the skills needed to do a good research. Flyvbjerg (Ibid :303) states that case studies; contain multiple wealth of details, totality and variation which allows the author to understand fully how and where intervention may have worked collectively with correlated general effects. Though "*Proof may be hard to come by owing to absence of hard theory, learning is certainly possible*"(Ibid: 303). This implied that, the author was to achieve more sound and applicable knowledge on the sustainability area under discussion.

More so, case studies are more than a method that principally helps researchers to open their eyes and carefully look at individual cases not in hope of proving anything but rather in hope of learning something. Flyvbjerg (2011) denotes that not all descriptions given about a case study are fit and practical. To comprehend the theme of sustainability in the oil sector and how this related to the environment, this fitted well with Merriam (2009) case study definition that classified a case study as*; "An intensive in-depth description and analysis of a bounded system of which,* the bounded system comprise a single unit (institutions, community or groups) that are delimited by boundaries. Case studies raise questions of how and why In order to interpret existing set of events where the researcher has little or no behavioral control over the actors or events (Yin 2009: 15).

Based on these twofold questions, this study followed both an explorative and descriptive approach. The general point of departure for this thesis took on the why question giving a descriptive account on why Uganda's natural resources are reducing? The other questions were thought-provoking study research questions that explored more on what problems may emerge in the new oil industry explaining why they could emerge if nothing is done. This course of action set off the next building block of the research design which involved analysis of different literature to examine the research questions and also to identify any gaps in knowledge of study topic.

3.2. Document Analysis:

A desk study research analyzing existing literature related to sustainable oil extraction, natural resource management, and circle of sustainability, political ecology and Oil management in resource rich economies contributed to generating factual data about the theme and shaping the research questions that guided this thesis. Document analysis as a research strategy complemented other data collection methods in assembling empirical data used for the project. Most of information about the oil blocks, number of drilled wells along with licensed

company areas were got from online sources (Ministry of energy and mineral development sources, Ugandan newspapers whose reporters have actively been in the regions and other visibly sources).

Review of scientific articles, journals, archival records, websites, use of Google scholar and Aalborg University Library database (AUB) repeatedly made it easier to collect data (Bernard 2011:92). Based on the document analysis, the literature review chapter and theoretical framework of the study were formed; sustainable livelihood theory and Institutional theory as the main theories used in this thesis as well as the circle of sustainability as a process tool supplemented theories, assessing how sustainability in the region could be achieved in all the undertakings of the oil management and community engagement.

The shortcoming linked to this method included; selection of the right documents, document retrieval, partiality of the researchers, whether unintentional or purposeful, presenting prejudice from other authors for specific documents; the likelihood for intentional misrepresentation of the material and difficulties in gaining access to classified material (Yin, 2009; Bernard & Ryan, 2010). However the author used wealth sources of information to avoid over reliance single source and this also aided in the identification and classification of choice of unit for the empirical analysis.

3.3. Sampling Methods Applied

Selection of respondents to have representative samples was based on the non probability sampling methods (purposive sampling technique). According to Bernard (2011: 148), purposive sampling methods are outstanding in the phenomenological studies where the objective is to identify and clarify enriching phenomenon. Preference of this process included use of snowball sampling and convenience sampling method as effective ways to build the sample frame where one or two respondents were drawn.

Some of the selected respondents (four in number) exercised a chain referral method after reviewing the shared questionnaires by identifying other suitable respondents (depending on availability, area of responsibility and technicality) who were referred to the researcher for help and collection of desired empirical data to inform the research. Similarly, convenience sampling worked well with, civil society organizations, local people and community informants in Albertine oil extractive region. The researcher used research assistants to aid in the data collection in Uganda as this method seemed to be quick, less costly and an opportune way to reach out to different respondents in the shortest time possible.

3.4. Data Collection:

In this thesis, both primary and secondary data from diverse sources of evidence such as Interviews(primary , telephone and email Interviews), document reviews, web page /blog reviews , newspapers and archived reports were used to generate empirical information , that test the theories and accurately describe them. Other research strategies used give a backing in examining the research questions at different stages. For instance institutional, social, and environmental factors that contribute to sustainable oil extraction and management are evaluated to embrace significant characteristics of real life events. It's argued that (Bernard and Ryan, 2010:18), data can be collected using three different approaches like; indirect, direct and elicited approach. The indirect approach used in this research involved; data collection from photographs and other research studies, the direct approach covers observation method where as the eliciting incorporates the interview process applied.

3.4.1. Interviews:

Just like the previous resources in Uganda have been mismanaged, genuine anxiety still exists among citizens on what could follow the oil resource. Essentially there was need to hear from the perspectives of the local people, companies involved and the associated institutions in order to carry them along in this important resource extraction. According to Kvale (2009:1), Interviews describe the life events and experiences of the respondents with respect to analysis of the significance of the portrayed phenomena. As Gill et al (2008:292) argues, Interviews are basically the correct technique to use when exploring sensitive topics (like oil management), to create conducive environment for respondent to take part. This method constituted the fundamental part of the data collection for this thesis where three types of interviews were used. These consist of; face-to-face interviews (conducted by the peer research assistant in Uganda), telephone interviews and email interviews used in areas where extensive access was an obstacle. Both structured interview and semi structured interviews followed the why and how questions.

All in all a total of ten key informants (assigned different code for data analysis - see Table .2) from Botswana, civil society organizations and local community were interviewed for primary data collection. This is in line with Bernard (2011:154)'s perspective that shows that ten to twenty knowledgeable people are conceivably enough number to *uncover and understand core categories in any define study*. In view of this, the sampled number is adequate enough to contribute to empirical facts assembled but more would have been possible if I had been in the field myself. The registered challenges are highlighted in the ensuing section. The details about the respondent to the interviews are provided in Appendix section.

3.4.2. Reliability, Generalization and Validity

To emphasize the point of data quality, a mixture of steps taken during the research project are documented so that all the information gathered shed light broadly on content of the study research questions such as (ascertaining the causal relationships of the themes being studied. A research assistant with prior knowledge of data collection was mentored on issues linked to the expected role to come up with a good report. Even if case studies are given a false notion of failing to be generalized and not contributing to scientific development due to the difficult in development of general propositions and theories on the basis of definite case studies; Flyvbjerg (2011:302) argues that it may not be the case. It is achievable where knowledge is to be gained. Thus the author is hopeful to gain more knowledge at the end of this research that is said to be transferable even where it may formally not be generalisable. Generalization can as well be applicable to the study of human affairs and natural science, a research being undertaken now thus this case is of value in this process.

For validity and reliability purposes, I have used of a chain of evidences, including photo images taken in the field, documents analysis following research carried out in similar region and primary data generated from interviews to produce different themes for study; these have helped to form and support the validity of this study. The case study strategy is open to the replication logic that covers external validity. The logic present with various case explorations is comparable to the replication logic of quantitative research as findings can become more vigorous giving a researcher more chance to ascertain higher degrees of vigor for the findings (Yin, 2009: 54).

3.4.3. Content Analysis

Data Analysis follows an inductive content analysis that permits identification of themes and patterns of explicit word used in raw data and literature reviews (Hsieh & Shannon 2005). To grasp the meaning of all qualitative data produced by the interviews and document analysis, explanation building through content analysis as an

interpretive technique was adopted. The case content analysis is informed by deducing the inference of content textual data holding on to naturalistic patterns. These are; direct content analysis, conventional and summative content analysis.

Fig 3.1: Three Approaches to Content Analysis:

Type of Content Analysis	*Study Starts With*	*Timing of Defining Codes or Keywords*	*Source of Codes or Keywords*
Conventional content analysis	Observation	Codes are defined during data analysis	Codes are derived from data
Directed content analysis	Theory	Codes are defined before and during data analysis	Codes are derived from theory or relevant research findings
Summative content analysis	Keywords	Keywords are identified before and during data analysis	Keywords are derived from interest of researchers or review of literature

Source: Hsieh and Shannon (2005)

The thesis took on the summative content analysis whose basis was to understand why certain Issues were held. Summative content analysis describes studied keywords to construct meaning to the themes being studied in a broader context. All primary data was thus structured through formation of categories and examining the theories fully to understands people's insight and way of life subsequently. It is through this lens that meaningful concepts, themes and other concerns informed by the research questions were extracted to generate credibility to the data and draw conclusion.

3.4.4. Limitations and Challenge of Data Collection

The author of this thesis has encountered a number of challenges in the collection of the empirical data as detailed below:

Sensitivity of data being collected: Respondents from Oil companies that are licensed to extract and produce Oil in the Albertine region in Uganda are held in reserve to provide the desired data due to the sensitivity and discretion of activities in the oil sector. To schedule any interview, one needed to go through special protocols and bureaucratic measures to be successful in getting any information from the key selected principal staff in the Oil companies. None of the selected respondents with in the oil companies (such as Tullow Oil and Total) was willing to offer any information without a glimpse of this letter.

In addition, the researcher encountered more difficulties when contacting the Ministry of Energy and mineral development (the petroleum exploration and production department) to request for an official approval to carry out this research. Due to high levels of bureaucracy and information disclosure the author was compelled to redefine the scope of the study as highlighted in the first chapter.

Respondents were very unwilling to disclose information concerning the oil activities, which they consider as highly sensitive hence the reason why no satisfactory information is given. Majority of the officials are professionally elusive because they very much intend to protect their vested interest and image of their company's and to continuously secure their own jobs which deters having detailed facts that could be add more knowledge to the study.

Further on, working on a tight budget with insufficient funds to collect the necessary data proved to be achallenge. The author incurred more costs on following up on sent questionnaires tools, peer research assistant work and making of International calls (telephone) to have interview data in the short time possible. Majority of the interviews conducted involved making International calls which lasted between 15- 30 minutes.

Another extra ordeal I tried to compensate for is language barrier in Denmark. This forced me to opt for an English speaking country since I could not communicate and read Danish proficiently. Otherwise a study would be carried out anywhere in Denmark where I believe accessing information may have been probably easier and less costly.

Dependence on research assistant; Not having pure observation of the situation on ground and how respondents react (body language, interruptions with telephone by having noise in the back ground plus poor net work encountered - interviewee stood by the road side) while making follow up and telephone interviews, has ended up pushing me to take a last minute decision to get on the field so that I can use my judgment in generating conclusions for this research. Although some aspects or issues may be missed, to overcome the mentioned challenges the author was able to compensate for this but making use of the internet service more to search for extra empirical documents to review as well as establishing continuously communication for interviews and follow ups.

Summing up chapter three

In a nutshell, this chapter gives an overview of basic methodological demarcations initiated and the reasons why these demarcations were conducted. It gives the criterion used to interpret of the research finding and highlights the standard on which data collection was built (Use of numerous sources of evidence).

4.0. THEORETICAL FRAMEWORK

This chapter accounts for the scientific approaches used in study, developing the link between the selected theories, empirical data collected and how these have been applied in the study with an outlined analytical framework. Taking up an environmental perspective on which this thesis is built, it is vital to describe particular key concepts that enlighten the sustainability theme and how this relates to both livelihood and development. Besides, other concepts such as political ecology and Institution that are essential to the study are also presented concisely.

4.1. Definition of Key Concept

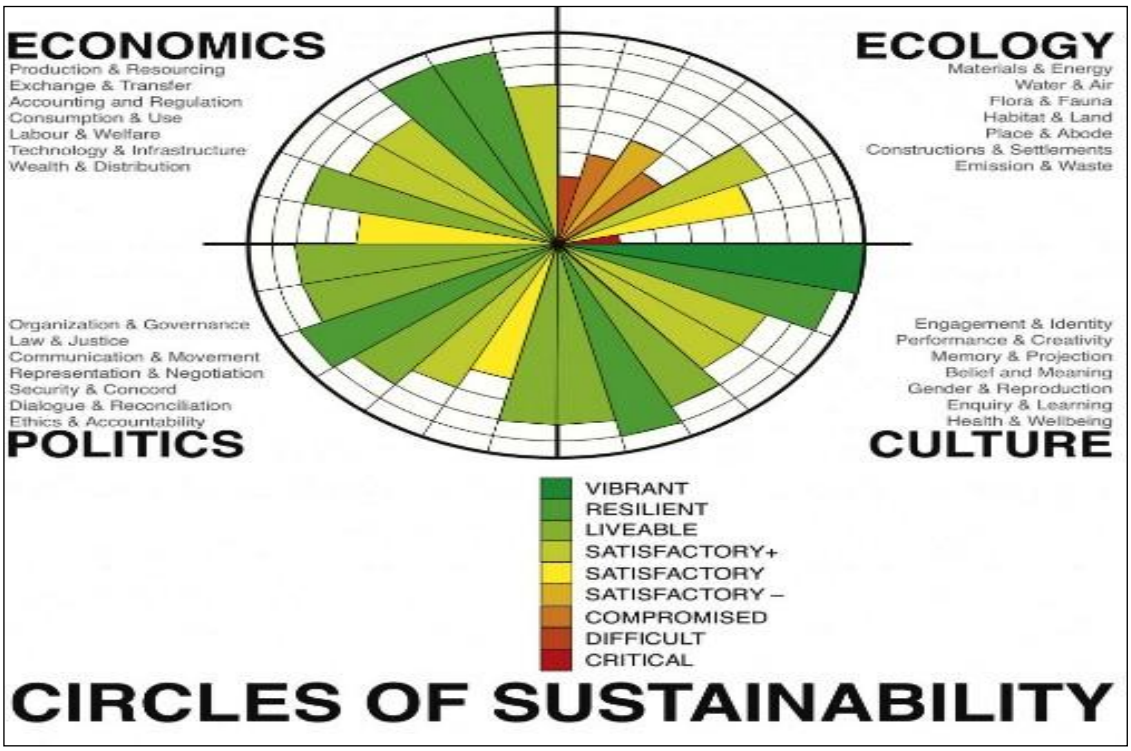
Tools of measuring sustainability; placing environmental sustainability into all oil and gas development activities call for proactive measures. The concept of sustainability tackles the principle of needs and societal equity. It is a term that is virtually expressed interchangeably to showcase the same interest associated with social and ecological Issues as sustainable development. Both terms are to be used interchangeably all through this thesis. The concept gives emphasis to the necessitate for sustainability mirrored in environmental, economic and social pillars as well as business segments (that's centered on triple bottom line) hence; it classified to *refer to developmental pattern that meets the need of present generation without compromising the ability of future generations to meet their own needs* (United Nations World Commission on Environment and Development, 1987). This Implies that every people should be able to meet their own needs as well as permit the future generation to inherit resources that are in good condition so that they can also benefit from them. Padilla (2002) identifies sustainability as an equity commitment to the future so pursuit of sustainable development takes into account how resources are managed and extracted across all sectors. Usually existing methods (such as the triple - bottom line approach) assessing sustainability are too exhausting and defy efficient implementation measures inclining more on the economic pillar as a core realm taking environmentalism to be only an externality within the structures (Henrique and Richardson ;2005: xix).

On the contrary; sustainability deals with this cautioning us about biophysical carrying capacity of the earth and the limited natural resources we depend on. So, feasible impacts that are caused by poor management practices (like in oil exploration ventures) can be high if no practical guidelines for sustainable measures are followed. For instance the polluter pays principle which requires that costs of environmental damage be met by the polluter ought to be operative so that any dire damage that may arise along all stages of a project's life cycle is addressed. UNEP (1997) specifies that, human, socioeconomic and cultural impacts along with Impacts on the natural environment must be carefully assessed (UNEP 1997, pg 11).

In general, harsh impacts on the environment rely on the geology of refinery facilities, socioeconomic and geopolitical situation of the country. The connection between economic development and sustainability is enlightened using the circle of sustainability. This approach comes in to take action to drawbacks of triple bottom line method proposing the need to have "diverse a*ctivities woven, unwoven, and rewoven in the light of new knowledge's about them amid social & environmental challenge(*Paul and Scerri ; 2011:5)

Circle of sustainability; is defined as an approach that develops interpretative accounts for sustainability. It steers community commitment in recognizing serious issues that affects them and need to be tackled to afford attainment of sustainability and resilience among communities. Figure 3.2 illustrates the four domains; economics, ecology, political and cultural at play used in understanding sustainability.

Fig 3.2: Basic determinant domains for sustainability



Source: Paul James, UN global compact cities 2011.

To drive sustainability, social life ought to identify with these four integrated domains (economic, political, and ecological and culture), such as embarking on premeditated measures to ensure sustainable balance between all effects of oil and gas developmental activities generated by all the domains (Paul James; 2011: par 1).

Circle of sustainability as a tool: basically, prime objective established by the circle of sustainability understanding how communities can develop their resources following an empirical scope based on nine elements to account for sustainable development. The key issue rests on how pressure rising from the four domains can be collectively negotiated within diverse settings in order to develop positive sustainability.

The ecological domain; In effect focuses on issues regarding human engagement with nature. Environment here is regarded as a material realism that takes on both social and natural aspects for example building infrastructure, biodiversity, emissions or water sources that are easily affected with waste emissions.

Economic domain; takes into account activities in line with production, utilization and management of resource among others. Assessing the economic aspects of sustainability supports defining costs of living and income generating activities like farming. *Political domain* is classified in terms of practices of power, which cuts across sectors and time space for example legitimization, sanction and regulation. It considers both public and private governance thus citizen participation, availability of representativeness and accountability of government need to be demonstrated here. Lastly is the cultural domain; though hard to define is regarded as "practices, discourses, and material expressions, which in due course, express continuities, discontinuities, commonalities,

and differentiations, of meaning. Examples in cultural domain could contain a number of sacred places in a given area and the mode in which they are recognized, used or maintained;

The circle of sustainability cannot be separated from them four domains of sustainability however these are driven by these subsequent attributes; Cross-domain: it integrates a four-domain replica of economic, ecological, political and cultural dimensions; Participatory: It is boosted by all the people with interest or concern about the outcome of activities.

Relational: it establishes relationship not only within the domains but also classifies critical matters and indicators; Cross-supported- combines both qualitative and quantitative indicators meaning it presents ample quantification which lets discovery of conflicts which must be revealed to non skilled people as well ;Standards oriented; the circle bonds with other upcoming modeling standards. Therefore to have a sustainable structured system that allows a community to practice livelihood strategies that may make it possible for them to cope with and adapt to change like harsh conditions the circle engages a set of practices tied to human activity following these four domains. This circle is adapted and used in my work to assess a number of sustainability issues within the Uganda's new oil industry and questions of how institutions can drive sustainability with more details presented in the following chapters.

4.2. Theories

Several literatures consulted in the study attest to the significant impact of human livelihood and institution as drivers of change and their role in protecting biological integrity (MEA, 2005). The Millennium Ecosystem Assessment for example alludes to the fact that biodiversity conservation is strengthened when it embraces spiritual, ethical and fair use than solely on market forces. These thematic areas are under the scope of institutions, sustainable livelihoods framework, and political ecology hence the use of these theories.

The Basic Concept of Institution:

Political ecology as a driver for institutions: The concept of Political ecology is defined differently by various scholars (Robbins ;2012, Watt , 2000 , Le Billion 2001) with the term sustaining fundamental changes in the management of nature and rights of people working directly or indirectly with institutions like states or organizations to challenge current condition. Le Billion (2001:564) argues that the people face unusual ecological circumstances when they have too much or too little resources exposing them to high risks of violent conflicts. *Resource scarcity (generally renewable resources) and resource abundance (with respect to non-renewable resources)* all generate strife hence the best mode is to enlist the two angles. This linkage between these two elements puts forward the basic theoretical root for this study. This concern is explored more in the sustainable livelihood approach and Institutional theory.

Political ecology is seen as a measure that seeks to appreciate complex relations between nature and society through observant examination on means of access and control over resources and their implications for environmental welfare and sustainable livelihoods. (Watts; 2000; 257) This means that social institutional structures grant valuables controls over resources to avert conflicts that could emerge. Most recent research by Forsyth, (2013:11) shows that previous approaches to political ecology embodied insufficient steps that aimed at separating environmental issues and politics in the environmental plan. This not only causes grave problems that lead to environmental strategies to inflict undue restrictions on livelihoods of marginalized people, it also heightens conflicts. In comparing political ecology to other rational meaning, *Forsyth (2013:20)* identifies political ecology as an *approach to environmental politics that allows the booming integration of political analysis with the formation and dissemination of understanding of ecology reality.* In this

standpoint, this definition stresses the importance of harmonizing both political issues with environment discourses that represent people and environmental problems which could be attained with the use of institutions. To Robbin (2012;116), issues such as power relations in conservation and development plans, inequality and poverty, ethnicity in political ecology are time and again overlooked yet they relate more to processes of nature conservation, degradation and legitimization.

Robbin puts forward four themes; environmental identity and social movement, degradation and marginalization, conservation and control along with environmental conflict; as major problems compelling most ecologists to tag along the political ecology line of research. Attention is thus on how poor people are affected by the actions of people in power, which results in politically influenced measures on the environment (Bryant and Jarosz 2004:808). These are key factor that form important approaches of knowing how a sustainable oil development can benefit all actors (Oil industry sector, private sector, government and social community in the long run).

Similarly Adger et al (2001) summaries, that biodiversity exploitation is framed in the approach of political ecology where causal discourses of environmental change get tied onto policies and institutions liable to executing development goals. In general, the stance for political ecology is to draw attention on the importance of integrating the categories of people and environment as any division may possibly be a starting point of oppressive policies based on coercive conservation(Bryant and Jarosz 2004;809). Steering roles to inform governing institutions about the latent diverse complexities that surround the environment, the people and development issues is what this study strives to achieve in order to enhance environmental management aspects in this regard

Institutions: effective controls for resources like oil and gas supervision take in functions played by Institutions in establishing various processes which aim at sustainability. Realizing sustainability as equity assurance entails use of institution. According to Padilla (2002; 80) Institutions are described as representative or guardians for future generational rights that should have the ability to enforce sanctions in order generational rights are respected. Institutions are also considered as *the "rules of the game" that emerge from formal laws, informal norms and practices, and organizational structures in a given setting* (World Bank, 2000: p xii). In other wards institutions shapes actions of the community, execute policies and service delivery to ascertain good governance. Institutional building further creates stability among communities. Padilla (2000; 80) thus emphasizes that, establishing institutions to manage and negotiate the execution of sustainability requirement at global scale is essential.

The Institutional Theory

According to Scott (2001) institutions are 'social structures which have attained a high degree of resilience'. The institutional theory can be decomposed into three core thematic areas; the cultural cognitive, normative and the regulative. These three core thematic areas work in tandem and when combined with appropriate activities and resources, bring about stability and meaning to social life (Ibid, 48). Institutions operate at various degrees of power ranging from *the 'world system to localized interpersonal relationships'* and are affected by both periodic and constant change they entail stability (Scott, 2001). This implies that institution have the inherent capacity to 'control and restrain behaviour thus being able to shape actions.

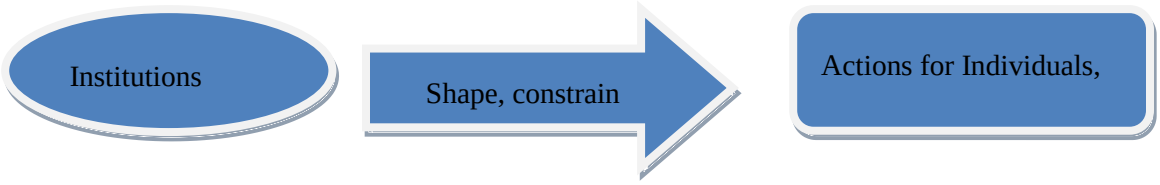


Fig 3.3: Institution structure - *source Authors'* conception

This Illustration delineates Institutions as entities that affect decision-making actions. According to Scott (2001:80), institutions are held by structured activities determined by perpetual behavior or practice. This signifies that institution can enforce restrictions by dictating legal, moral, and cultural limits; setting off legitimate from illegitimate activities. They also assist and sanction activities and actors offering guidelines and resources for conduct. However this is passed on through four different types of carriers (ibid 79-83); Symbolic system covers; Rules, laws, values, Relational system – involves Governance system, Routine - standard operating procedure and Artifacts.

This approach engaged by Scott is taken to understand the process through which Ugandan institutions (that may deal with activities within newly established oil industry) can be built, The three pillars put forward by Scott represent the underlying processes that could be used to, construct change ultimately influencing planning and organization outcomes to try to avert conflicts and overlapping roles in the industry. The *regulative pillar* of institutions touches on upholding social law and order. It deals with producing rules that must, or ought to be observed. This is related to introducing rules or conventions, ensuring compliance so as to reward or punish behaviour as appropriate. The procedure is reflected in several measures including shaming or shunning as well as the use of the police and law courts (Scott, 2001).

The normative pillar aims at desirable goals by focusing on, how things should be done. For the *cognitive pillar*; consideration is laid on how Institutions make individuals and other actors conform to behaviour in relation to communal ideas of social realism which structure meaning to commonly expected outcome. Through the lens of these three pillars, Institutions are able to increase the identity of organizational structures in an institutional environment. Institutional have great impact on the practice of individuals and communities (Peters 2005; 164). The theory offers an approach into the political activities that are believed to occur within the institution. Understanding social structures can help determine how resource management could be executed.

In this thesis the institutional theory is used to have a complete understanding of how institutions can drive actors (Oil companies and local communities) and the local coherence in governing actions. Uganda as a country is alleged to have records of weak institution and regulative frameworks (The Washington Times 2006) yet according to Melham et al (2006; 2) nations with weakened, and less pushy institutions are more liable to undergo negative aspects of resource curse, this could be less the reason why Botswana a less corrupt country has had to pay much attention in having and building high levels of institutions to support the country (CIA, 2012). Glavovic et al (2007;15) affirms that existing organizations and their activities can greatly encroach on chances for poor people to access and benefit from assets, which consequently impact livelihood strategies they assume. This is a comparable to the Albertine regions the oil extractive area where different actors are alleged to be grabbing land near the oil wells (Kwesiga 2009). Hence examining how institutional building is done in this new sector to ensure that all activities and work structures are stable is important.

To Robinson et al (2006) quality institutions are crucial in influencing developmental outcomes and assessing conflict risk given that they effect of institutional pressure, to be capable of prevent miss-use of resources. . Companies can adopt quality standard as a result of three types of forces which may come either through regulation, expected roles or shared conceptions. Taking on examples from Angola and Democratic republic of Congo; Reed (2009;31) demonstrates that oil extraction compromises livelihood of communities leading to distorting effects particularly in the absence of institutional control structures which undermines democratic accountability and equitable development. UNDP (2006:2) reports that Niger delta in Nigeria is now considered as a place *of a Long years of neglect and conflict* due existent of weak traditional institutions with no developed framework to constrain behavior subsisted prior to Oil extraction activities. To attain more fair development empowerment of individuals, marginalized groups and stronger social institutions and is now a requisite which shows how significant exploring at institutions is.

At present Uganda‘s two petroleum drafted bill still awaits approval from parliament (OTOA 2011) thus In absence of a regulative framework within the oil industry, it could be apt to have institutions watch and shape activities within Uganda’s Oil extractive area. Once institutions are formed and process established, they may possibly use Sustainable Livelihood approach (SLA) to target how to work with communities. The Sustainable Livelihoods approach harmonize the institution theory by drawing attention to the essential role played by institutions, who establish how people can access diverse forms of capital and use their assets in advancing sustainable livelihoods (Glavovic et al 2007:2). Sustainable Livelihoods approach cultivate equally allied sustainability basic plans lay more attention on a people-centered approach other than preservation of ecosystem integrity.

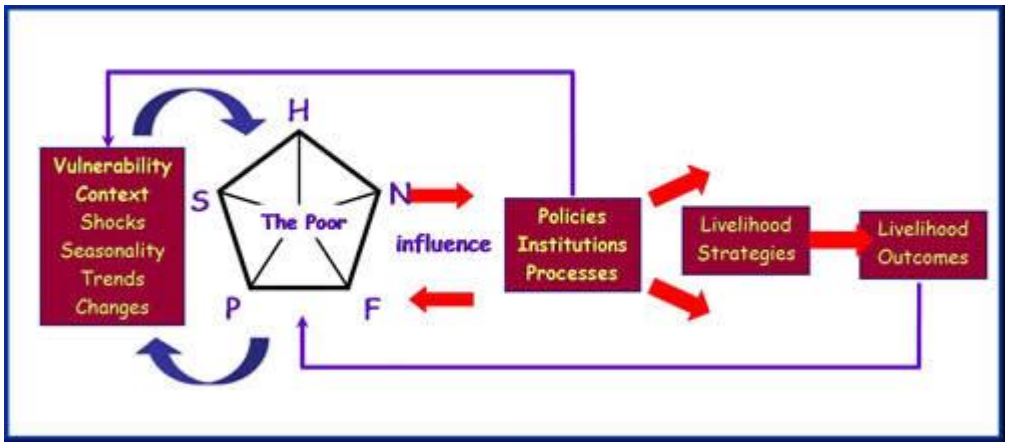
Livelihood Approaches

The sustainable livelihoods approach (SLA) affords profound insight into the livelihoods of the poor. It touches on the main factors that affect the poor’s livelihood and the cyclical interactions amongst these factors. Furthermore it is a holistic model which helps simplify the complex dynamic s of poverty. This conceptual framework places people at the core of development and offers practical tools for rolling out targeted interventions which empower the poor to develop their resources and exploit their opportunities (IDS, 2012).

Sustainable livelihood

Department For international development (DFID) describes the sustainable livelihood framework as ‘the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base”(2000; p.1, section 1.1).

Fig 4.1: The Sustainable Livelihood Framework



Source: The International Fund for Agricultural Development (IFAD)

The exceeding figure showcases the features of the sustainable livelihood framework. Assets represent the fundamental building blocks of the sustainable livelihood theory. When people develop their assets, the capacity is built to address potential threats to their wellbeing. The framework underscores outlines the assets which promote sustainable livelihood and their mutual interactions. These elements include health, education and social support. People's access to their assets is governed by their Vulnerability Context. Civil unrest and disasters for example form part of the vulnerability context and they can limit people's access as they cannot make maximum use of their assets in the face of such life threatening danger.

Factors that threaten poor people's livelihood are influenced by personal circumstances and the overall context. This section of the framework opines that in the quest to improve livelihoods; it is imperative that changes at the policy level go in concert with enhancing individual and household assets. Benefiting from the livelihood outcomes is governed by the socio-political climate which determines how well people mobilize their assets to attain their goals. The sustainable livelihood framework can be decomposed into three chief: (1) the asset portfolio which represents the nucleus of livelihood, (2) the Vulnerability Context and Policy, Institutions and Processes, and (3) the loop connecting livelihood strategies and livelihood outcomes (DFID, 2007).

Why take on the Sustainable Livelihoods approach?

The sustainable livelihood approach links up well with theme for the study, as it practically illustrates how different oil and gas intervention activities such as land displacement may possibly have an effect on certain dealings like fishing and farming with the oil extractive region.

Livelihood assets differ both in occurrence and form in various regions and these are briefly outlined here in the perspective of livelihood prospects and threats. The Vulnerability Context of livelihoods comprises the shocks, trends and seasonality with their potential effect on people's livelihoods; this can be presented in form of natural disaster, conflicts, employment opportunities or increased prices for products.

However Policies, Institutions and Processes can also affect ways through which people utilize their assets. These comprises of political and institutional elements and factors within government and the private and the civil sectors that impact livelihoods (DFID, 2007). The extent of vulnerability of a community is determined by the potency of their livelihoods, the income-generating ventures they partake in, their access to a myriad of

resources important to their livelihoods coupled with the support of their social and institutional capital. The main feature which dictates the options and strengths of peoples' livelihoods are the existing resources that they can access and use (DFID, 2007).

Following Uganda's new oil Industry a number of challenges concerning community livelihood could be up-and-coming ranging from the influx of new people in the area, increased prices of goods, land displacement and limited access to farming or fishing grounds in Albertine region. This can contribute to struggle for resource. Esuruku (2013, 6) and Red Pepper, (2013) affirm that about 80percent of the population in Albertine region face waves of being kept out in decision, degradation and discontent over the ongoing dealings in the area. If peoples derive their livelihoods from environmental resources then any poor administration of these resource has a direct effect on people themselves who barely alternatives (MEA, 20) this implies that the primary drive to support livelihood ought to resolve more on tailoring the community's actions towards sustainability measures in resource management. Hence the contest on how sustainability can be linked with poverty reduction has to be continuous. People are able to increase their access to resources now and for the near future if they pursue a right path become proactive partners in managing resources for sustainable development.

Carney (2003:15), in her study establishes that Sustainable Livelihoods approach offers a set of key normative principles that guide actions to address community complexities .These include; people, participatory approach, empowerment and sustainability.

SLA is People-centered: center of attention should be on poor people's livelihood other than the resources, or services they may use. b) *Empowerment;* accords a voice to the needs and welfare of people; c) *Responsive and participatory*: induces active participation of people to locate and tackle their own issues whereas d) Sustainable: this harmonizes economic, institutional, social and environmental sustainability as dimensions to sustainability. All are essential and need to be unified.

The subsequent Operational principles to this approach are: (I) *Multi-level and holistic standard*: micro level activity ought to inform development of policy and an efficient governance setting. (ii) *Partnerships*: livelihoods are made up of multifaceted and changing relationships between people and a series of other actors. (iii) *Disaggregated*: recognizes the need for different strategies and diversity between poor communities, including sexual characteristics. (iv). *Flexible and long term commitment: It calls for responsibility and formative line of attack to offer support* (Ibid 16). The Sustainable livelihood approach considers working alongside poor people as a key factor in reduction poverty, an aspect reflected in political ecology too. The approach builds on people's strengths. *E*ven though sustainable livelihood framework has promising outcomes, it cannot be attainable without adequate institutions to ensure the enabling climate and long term sustainability it is for this cause that these two theories are registered. Having established the theoretical basis for the study; the ensuing section deals with the common aspects of the two theories which will form the basis for the analysis.

4.3. Establishing the Analytical Frame:

This section outlines the approach used for analysis of my case study data. To run through how the two proposed theories / methods are used, analysis of these key themes are examined to create a contributory connection that not only traces emerging influential factors that may lead to unsustainable oil extractive but also answer the set research questions.

This analytical frame puts to use key questions of how, what, and why to establish a problem tree that identifies factors that probably explain their roots in the later section. Why questions; explains the idea behind research work to obtain the empirical knowledge of the theme, where as the how and what; explores springs of actions. These contribute to the theme and content analysis of the thesis, I basis my analysis on these key themes which fall within the presented theories above.

Policies/laws: fall under the transforming structures of the sustainable livelihood framework and normative/regulative aspect of the institutional theory. When policies are current and proactive to conditions on the ground, they are effective in achieving their objective. However if they are out of date and not tuned with undertakings on the ground, nor given the requisite implementation, then they are ineffective in meeting their objective. Thus effective policies are needed to avoid abuse of resources as well promote best practices from all stakeholders.

Institutions; institutions are a means of enhancing livelihoods as they bridge the gap between the asset portfolio and the livelihood outcomes. Thus robust institutions have a crucial role to play as they can boost resilience to vulnerability and help safeguard the livelihood of the local community. So the study report on the current role of institutions involved in the oil activities, how they constrain and drive sustainable management of resources and how their influence could be further in this. For the case of oil exploration in Uganda; institutions here would refer to government institution and civil society organization. Other actors involved take in poor people within the region who are greatly affected by any changes caused by oil extraction activities and the oil companies.

Human capital: that is the amount and quality of knowledge as well as the labor available in the area. It is important in prescribing a local content strategy for the area. Understanding local expectations in the light of the mineral exploration is imperative. The study tries to ascertain how these are objectives are being managed (such expectations so as to avoid possible conflict) following the SLA approach.

Natural capital: this feature falls under the asset portfolio of the sustainable livelihood framework. When the natural capital is managed sustainably, then both present and future generations can benefit. The study will be informed from best practices in other areas with similar socio-economic parameters and suggest how these lessons to can be tailored to the Ugandan context.

Summing Up

To be able to make comprehensive analysis from the case study research design, different theoretical concepts that structure the research focus based on the theory and empirical inquiries were introduced. The section presents the theories that frame the reference of the study and the analytical frame linking them to the subject being studied. The SLA provides a practical interesting framework that analyses the structure of sustainable livelihood for communities. Even though, it's essential to know that this is simply an approach used to guide the study on sustainable oil extraction but does not provide a solution. The Institutional theory develops our understanding of how it works and how it persuades change of behaviour to impede development.

5.0. Discussions

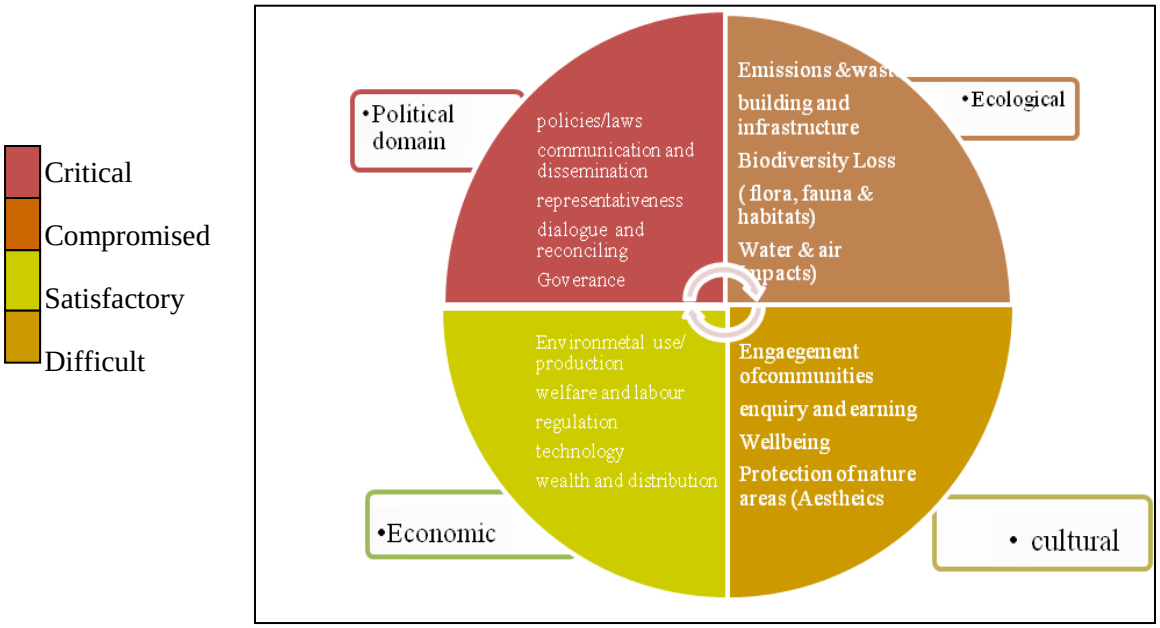
This section presents the results obtained in this thesis, in which the author shows how the contemporary status of Uganda's Oil region that hinge on the four domains of the sustainability circle (adapted from Paul ,James 2011) which comprise of; political, cultural, ecological and economic domains. The section also touched upon Botswana exploring its different areas (governance, polices, institution building and community inclusive) to be able to identify openings that Uganda as a country could replica.

5.1. Results Presentation

5.1.1. Analysis of the four sustainability domains

According to this customized circle of sustainability the four domains highlighted offer insight into what I observed following the study carried out in Uganda's Oil extraction region. The illustrated key of different colors characterizes what is happening within the four domains as detailed here**.** .

Fig 4.0: Modified circle of sustainability



Source: author's construction; 2013

Political domain; generally considers processes of authority how these are communicated. The study result indicates that dialogue, as a channel of communication is a necessity sustained by collective efforts and teamwork to have a thriving economy and environment. This demands Information dissemination and transparency. However a considerable number of the respondents in Hoima reported seclusion from all ongoing oil and gas development proceedings. Programs structured do not meet societal needs, as inhabitants are compelled to accept any resolutions despite their reservations.

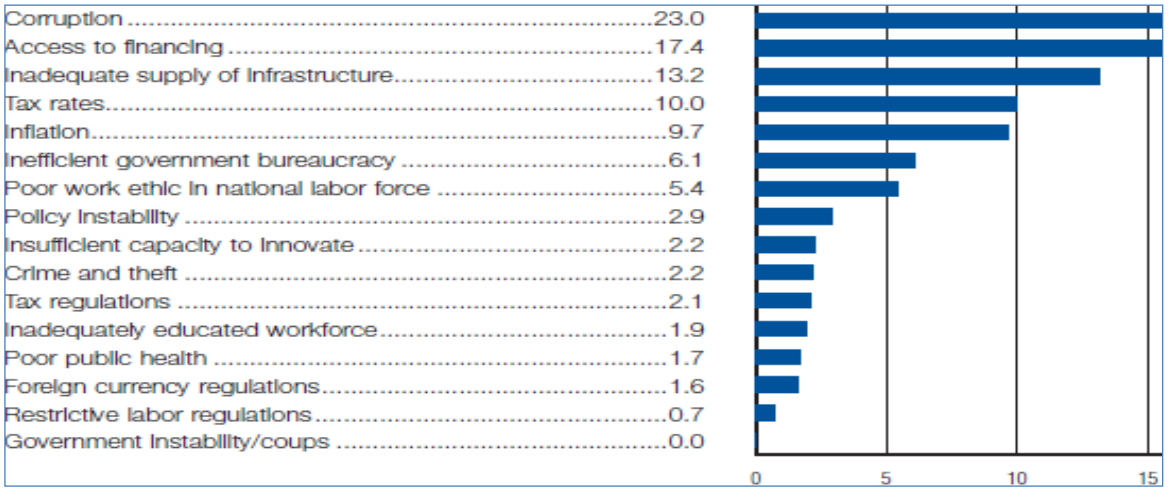
There was this recurrent outcry among respondents in the area which could be summarized with the words of respondent G." *there is no plan for us, it's worrying …I have no right to decision making only need to abide, and Government has ignored most of our pleas on land that was used by Tullow oil illegally*". This does not predict well for the oil Industry and inhabitants because principles on how to carry out sustainability and

resilience measures rest on a participatory approach. Concealing information is an impracticable action that might stimulate potential threats leading to linked conflicts.

Nearly all aspects examined within the political domain revealed a critical state of events in the oil industry; According to Nakayi (2013)'s earlier research in the allied region, attestation of negative consequences such as capitalist development are in existence coupled with absence of transparency measures and distrust. Thus mutual efforts by many actors, taking in local communities, CSOS in the region, scholars and donors ought to be sought. Development in the Oil extractive area is limited as some stakeholders still bemoan the secrecy surrounding oil explorations. Respondent J clarifies that" information is hidden for fear of people to demand a share.., at the beginning they used to publicize details for the discovery but since 2010 they stopped". Similarly, Odinga (2013) reacts;" *what is in this oil for Ugandans?" Is it money, roads, schools, hospitals, democracy, diseases, starvation or teargas and kiboko*[8]? Whilst confirming the hunger for more information, he admits there is very little information in the public domain regarding the current oil status. This shows the critical need to address issues of oil politics more determinedly (Nakayi 2013) so as to balance the domains satisfactorily, integrating the human and environmental dimensions notions underlined in the political ecology.

Conducive working environment is a prevailing challenge influenced by a range of factors in terms of performing company activities like oil operation in Uganda. World Economic forum 2013, observes that corruption levels in Uganda top the list of all factors that that deter smooth running of various activities. Uganda is ranked 134th out of 148 countries with unstable competitiveness profile demonstrated with different dimensions in figure 4.2 (Schwab, 2013**)**. Presently corruption levels in Uganda are extensive and greater than before, seeing that they are reported to have grown from about 21percent 2010-11 to 23 percent in a short space (Ibid). Non transparency practices give birth to corruption tendencies which continue to affect governance, communication and causes despair by threatening the macroeconomic environment essential for business opportunities (Ibid;374).

Fig.4.2: Drivers accounting for business activity in Uganda



Source: Schwab (2013, 374) - Global competitiveness report: 2013-14

[8] Local word that means striking using a stick to cause violent pain.

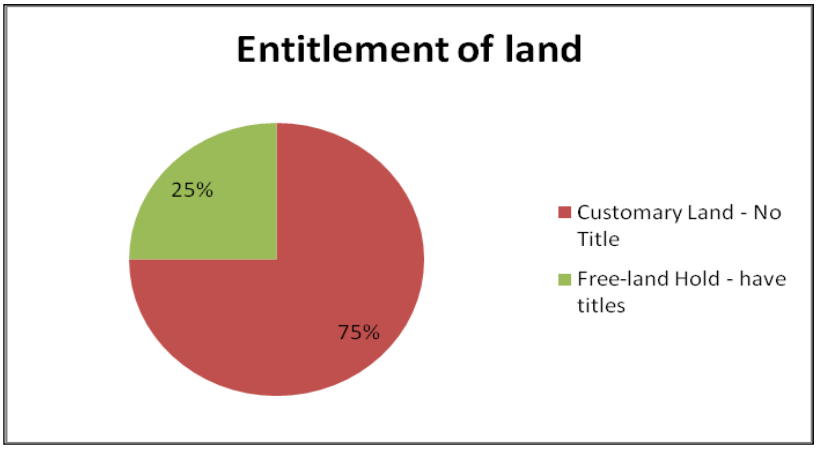
The current organization and governance structure in the Oil industry are established as weak. For example Main government institutions and CSO lack the technical know-how relating to oil advocacy and supervisory. According to Odinga (2013) only 20% of the needed work has been carried out by the civil society organizations (CSO) in performing their role as watchdog due to it being under resourced and consequently lacking the needed capacity." *We do not know what we are we supposed for do, what to advocate for.., what are we supposed to say at local level, What are our rights?., we lack the training. Most of us do not understand how the industry is moving ……I think it is moving so fast* "(respondent D). This finding shows how unprepared CSO and government institutions are in all matters concerning oil activity, management and preparation of local communities for environmental challenges within the oil sector. Moreover, enforcing standard measures that need not be compromised but becomes a challenge when those supposed to carry them out are incompetent. This suggests efforts to carry out capacity building for both relevant government institutions and associated CSO should be stepped up.

The dynamic nature of oil exploration covers both top-down and bottom –up approaches that need to efficiently balance not to compromise best practices and intended goals. CSO's as an avenue for enhancing this bottom-up approach complement government efforts at the grassroots levels. These are a bridge between the government/oil companies and the local people given that they are in constant touch with the inhabitants. However the study (my communication with interviewees), established that CSO's and government institutions have differing views on the operational aspects of the oil industry. Civil society doing advocacy work on oil are at loggerheads with the government with some being already threatened with deregistration. This heavy handedness can be interpreted as lack of positive environment /security for business functions which could weaken the CSO front.

Further still, the study findings shows that issues concerning the presence of military troops or army within the oil extractive region (both on boarders and within the region) terrorize the populace and CSO's attempts in campaigning for right actions of the resource access and use. According to Red Pepper, (2013) activities of a number of Civil Society Organizations-CSOs have drawn the attention of Uganda's ministry of Internal Affairs in the oil region. For the locals this can be stressing to the locals communities who are not used to the presence of army officials hence regarded as an intimidation measure.

Economic: the study enlightens that, the inception of oil exploration has introduced some new socio-economic challenges, which are of immense to the locals and needs redress. Though locals extol the increased trade in their areas they lament the sky rocketing commodity prices. Prices of land, goods and house rent have accompanied an influx of people into the oil areas leading to a population increase and competition in resource use plus jobs. In addition, most of the land belonging to the locals is on customarily basis; it's either inherited or bought lacking the associated legal documents. This makes it practically impossible to defend their land in the law courts a scenario illustrated in the figure below.

Fig 4.3: Nature of Land Ownership in the oil areas



The above figure demonstrates the present challenge with land ownership in the oil areas. Recent developments have underscored the urgent need to address this burning issue of land ownership as over 7000 local residents from 13 villages were to be displaced from their ancestral land to make way the construction of an oil refinery (Red Pepper, 2013). A local CSO known as AFIEGO in defense of the locals reacted that although the refinery was important it should not be at the cost of peoples' rights (Ibid). Land issues can cause serious land conflicts to crop up and landless people given that the price of land is also escalating in the region. Those who received cash in compensation of lost land may not be able regain huge chucks of land for diverse agricultural purposes they once had. This can increase the vulnerability of their livelihoods with reference to the sustainability livelihood framework.

Cultural domain: this aspects deals with the under lying relationships or engagement networks of how to classify key critical issues that could drive meaning to people and avoid divergence. In Uganda's context issues concerning the cultural social domain are still intricate. Influx of new people in the areas has come with new behaviour and society values,

The country of Botswana is commended for its dependable management of its natural resources. For instance; the author found out that the Mines and Minerals Act in Botswana lays down clear cut roles for different parties in the issuing, monitoring of mineral concessions and obligations for the concession holders. It is this organization that has played a great role in the success stories of Botswana so existence of proactive policies is needed to guide the effective management of natural resources. My communication with key informants from Botswana government shows that mineral areas are divided into small management units referred to as *Community hatching areas at district level* to enhance effective monitoring and supervision. This combined with the atmosphere of trust and consequently the existence of a cordial relationship between NGOs and the government given this rapprochement each appreciates the complementary role of the other.

Significant competitive indicators illustrated in fig 4.4 are considered as pillars used to establish natural resource management and industrial activities contrasting with otther nations. As shown in this image, Bostwana's institutions rank highly compared to other driven factors, Botswana is rated highlyat rank 32 out 140 states than Uganda (that is ranked 104). This note worthy indicator suggests that Botswana is farily ahead of other low and middle income countries which makes it a good case example to replicate.

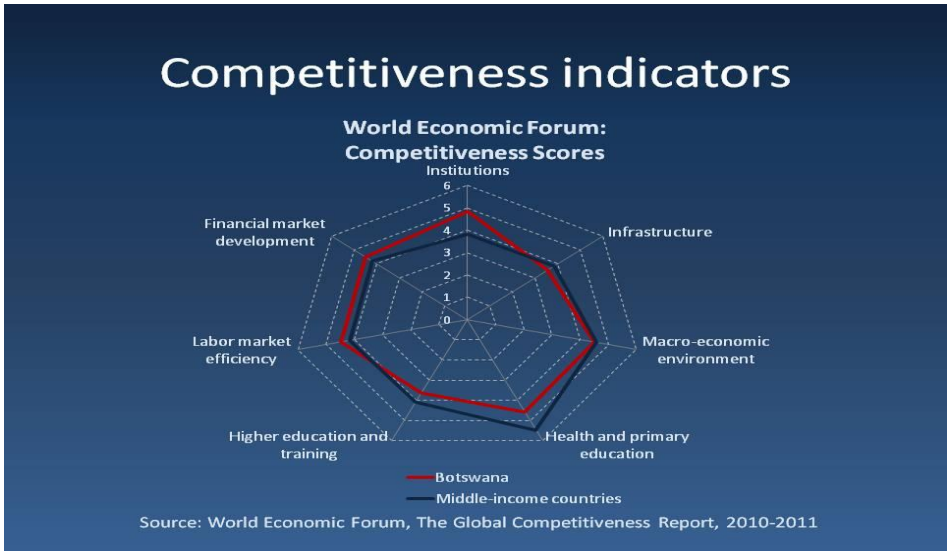


Fig 4.4: Competitive Indicators: **Source: Schwab; 2010**

Ecological domain:The major objective of this domain is to protect natural resources which consents intergration of sustainablilty practices into all Oil activities.Study findings validate that, present bills that could act as regulations to oversee economic activities and how oil companies conserve the environment are critised to be lacking in content. These laws create no central provisons for public involvement/consultation of the affected communities (Mika,2012). The Article/sections within the bills restrict dissemination of information ,giving no clear defineds roles for institutions. Thus the ecological domain is compromised as no extra pressure is mounted on oil companies owing to the abasence of bills/ regulations that gives no room for acountability measures yet oil activities hasten emission and destruction of different habitats /ecosystem in form of constructions.

5.2. Result Analysis

This section analyses the results of this study. The result is analyzed based on the theoretical framework presented in earlier. The results of this work (specific for Uganda) are analyzed making reference to Botswana and other nations. This comparative approach makes it possible for Uganda to draw certain lessons from the failures and successes of these reference nations.

Institutions: tendency towards sustainable resource management builds on the design and implementation of well-formulated policies, which is arrived at through use of efficient institutions. The existing institutions in Uganda concerned with administration the oil activities were found to be weak; inadequate human resource and finance. Finance and human resource are very important for the control and follow up of the activities of the rich oil companies. This is probably the most significant factor if meaning to societal life is to be afforded (Scott 2001; 48).

Many of drawbacks identified in the current institutions (inclusive of government and CSO) make it impossible to create sustainable resource management criteria. Sustainability measures are not accorded any primacy in the ongoing activities so far. This is reflected in the inadequate expertise of the main institutions and CSOS in the field of Oil and gas supervision. Many do not know what areas to give prioritize in the new oil industry and this could ruin ecological, social and economic aspects.

The inability of the government to provide defined standards to the oils companies is one of the most upsetting results. Mehlum et al (2006; 2) makes it clear that nations with weak institutions are legitimately exposed to the resource curse which Implies that quality institutions strongly have an effect on sustainable growth. Institutions make the rules of the game in a society (World Bank; 2000). In the case of Botswana's case, efficient institution have led to success recorded in sustainable management of its resources. It's therefore inevitable for Uganda to follow a similar path in order to attain the same success as Botswana. As a recommendation, Institutions in Uganda such as CSOs should not be seen as adversaries to the government rather they should be seen as key partners for the sustainable development of the oil sector.

Policies/Laws: policies are guidelines which help to mitigate problems that can arise within a particular sector whereas laws outline how activities should be carried out.

The Legal and regulatory framework on oil extraction in Uganda is yet to be approved by parliament.. Moreover, not all articles presented in the bills (the petroleum, Development, and Production bill) along with value Addition bill) mirrors transparency, information flow and consultation or public involvement for the affected population. The bill does not reflect the aspiration of the Ugandan public. In addition no clear divisions of institutions tasks and checks are provided (Banfield and Tumusiime; 2011).

The lack of an inclusive environmental management plan to deal with various aspects of the environment such as water, fisheries, wastes, oil spills and pollution, affected communities and biodiversity could contribute to making Uganda encounter severe environment damages like those in Niger delta. For example Shell Oil Company worked in the Niger delta region for over 30 years without applicable control or environmental regulation to guide their activities, which weighed down the region with ills related to wastes, effects of environmental pollution and oil spills that up to now are still a challenge to the Nigerians' government to control (UNDP; 2006:81).There is a strong correlation between policies, sustainability and institutions that do support the effective implementation of these policies. Poor policies can potentially cause continuous delays in the ratification process, paving way for conflicts and other related risks.

Currently, land related problems such as loss of land, displacement and, land grabbing are on the rise in Albertine region. This problem arose due to the necessity of land for the construction of oil refinery and other oil related activities. This has affected livelihoods of communities in the region leading to landless people and clashes. Though the Constitution (Amendment) Act, 11 of 2005 states that: "All minerals and petroleum in, on or under any land or waters in Uganda are vested in the hands of the Government on behalf of the Republic of Uganda." which implies that government has the authority to manage the resources located on or below citizens' land for the public interest, however, local peoples claim that their rights to property and territory allow them the right to free, prior and informed consent regarding proposed extractive projects on their lands. The key feature here lies between consultation, consent or compensation. The 1989 International Labor law, convention number; 169 evidently articulates that local people should be consulted about any development projects on their land (International Labor Organization; 1989**)**. But this is lacking in the oil region.

The majority of respondents in Uganda's oil area reiterated that oil companies (such as Tullow oil) have taken over and exploited their land without their consent denying them right of entry to their farming lands (Monitor, 2012). People's livelihoods are tied directly to their ability to engage in subsistence related activities. Communities experience pain and impact when unable to fend what to eat. What happens from such cases is the growing opposition from the populace whose pleas and needs seem to matter to no one. For the case of Botswana, sound management of its resources is built on potent policies and ability of their execution. Botswana draws on national integrity systems to steer use of good governance, transparency and roles of public

institutions. For example; environmental management plans, where occupants of the preferred land are consulted prior to commencement of any work are guiding principles that suppressed build up of conflicts. Mineral Companies as a rule are obliged to submit periodical reports of their prospecting activities and what is more, all land issues are managed by the land board. All these strategies stand on democracy, self reliance, unity and development values. These key factors define Botswana's accountability across all sectors (Meijia and Castel, 2012; 8) hence Uganda too can embrace the above example to address ongoing challenges within its oil sector.

Besides, study results demonstrated extreme bureaucracy and red tape in the oil industry. This not only imposes notable economic costs to the industry but rather slows down processes affecting economic growth and development. Too many protocols challenge the element of trust in all government transactions particularly in the establishment of favorable working environment for private sectors and economic diversification (Meijia and Castel, 2012). Thus, there is need for the government to cautiously handle the concern.

Even if transparency and information features are also fundamental blocks in building governance structures and checks on corruption. These still poses a challenge within the oil extractive region. Information accessibility is paramount to all stakeholders in this industry. The Uganda's Oil and Gas Policy 2005 also mandates information sharing therefore absence of communication from both the oil company and the government can spur potential sources of social conflicts accordingly and loss of revenues from the industry through corruption.

Participation;

Similarly participation of all stakeholders' especially local communities in all decision making concerning oil activities in their own land is paramount. To build a sustainable practice, citizens should spear head developmental activities and if they are willing parties in partnership with the government then development could be realized in this industry, which may not be the case at hand. About 80 percent of the respondents from the primary interviews, declared lack of inclusiveness in all government oil dealing. They pointed out cases of destruction of cultural heritage (Bunyoro Kingdom), displacements, being barred from fishing activities yet a major source of income, unemployment and encountering attacks from wild animals (85% of the Albertine region is a game reserve)that are displaced a result of oil construction activities. These challenges coupled with lack of participation create intense feelings among the people to want to try and destroy/sabotage government plans in this industry as a way of revenge. For example due to exclusion can steer diverse forms of sabotage local people can choose to set a blaze oil pipelines that pass through their lands.

Development of other sectors (Non Oil) as well as services entail extensive participation, citizens expect to take part in all oil connections and benefits, so any barring forces merely keep them on the edge (Reed (2009; 6). With this view, based on the Ugandan context, if the oil sector is developed hand in hand with the existing economic activities like fishing, farming and participation of the local communities, this can bring about sustainable development since sustainability and sustainable livelihood require engagement and empowerment of people to pursue robust livelihood strategies. Better democratic ways such as sensitization of people can also be an option to help enhance government's image in the oil sector and eliminate fear among communities.

Human capital:

Oil extraction is a sensitive sector that requires technical knowhow and skilled expertise of human resource. This sector in Uganda is a new industry, thus being faced with shortage of skilled labor which represents high odds of having Inexperienced institutions both for the government and civil society Organization that are supposed to act as a watch dog over these competent oil companies.

Similarly, my results support and augment these findings to show that the Oil companies are more prepared with qualified technical personnel than the Ugandan government which has been proved through the high fees paid to expatriate employees in the sector. UNDP (2006) corroborates with this finding asserting that Oil companies are well informed with updated maps, images and technical staff, which makes them have better advantages over local government agencies. Environment injustices can take place as a result of scarcity of skilled human resources which greatly affects livelihood of people as poverty and environment are inextricably linked (Reed ,2009; 69)

Ugandan Universities have had no study courses in line with petroleum management yet also expatriates may not be prepared to train locals demanding for exorbitant fees. This challenge has compelled government to send some official in the industry to acquire the required skills to run this industry at cheaper fees. Equally this, should not seen as a drawback to the development of the new oil industry given that Botswana also had similar challenges but has strived to manage this through importation of skilled labor, as it continues to build both its skilled and unskilled labor .

Another present challenge in the oil extractive area is the high level of illiteracy among the inhabitants, these do not know how to read or write yet nearly all documents or meetings relating to oil events are produced in the English language. Legal proceedings taking place in the region (compensation in case of displacement and sales and land ownership) , most of them demand l some educational background to understand certain aspects . Locals should not thus sit and wait for oil companies or government to create openings for them. They should make effort to empower themselves through adult literacy education and working in groups can also be a better choice as a start off.

Natural capital: is solely dependent on environmental resources (like land, lakes and forestry) that support all human activities (MEA, 2005). There is existent of Oil in the off shores of Albertine region flowing through the national parks like, (the Murchison Falls National Park); however there is also indication from the assembled data that the operational licensed companies (example to Tullow oil) have no extensive environmental management plan to deal with biodiversity conservation, fisheries, wastes, oil spills and pollution for the affected communities. Tullow Oil company considers waste and effluent pollution, spillages and leakages, as negligible impacts (Kasimbazi; 2009). This raises concern over environmental degradation Issues, which is elaborated by unpleasant incidents drawn from companies like shell in Nigeria that have been in oil production longer that Tullow Oil. These have experienced worse scenario in the management of oil spill then how best will Tullow oil tackle this if it considers such impacts minimal? Consequently the local communities in the Albertine oil extractive region have expressed their pleas to have the government spearhead conservations measures early enough before they are traumatized like other nations. On the whole, it's not possible to say that one size can fit all as par the features of development. Different countries differ starting from their colonial legacy.

Sum up

This section discussed the possible predicaments that could crop up as a result of unsustainable events in the exploitation of oil and gas activities in the Albertine Region. It incorporates lessons from Botswana with suggestion on its policies, political governance structure that consists of democratic institutions and the society. Botswana's private and public sectors work in unison to pursue the nation's collective interests, which is different from Uganda

6.0. Conclusion

This section answers the research questions with emphasis placed on the result findings of the study that are presented all through the report. The study was guided by the main research question: ***How can oil and gas exploration activities in Albertine Region be carried out in a sustainable way?*** This was aided by the following sub-questions; *what problems can emerge as a result of* oil and gas *exploration in the Albertine region*? And *how can Uganda learn from the case example of Botswana about sustainable natural resource management?*

Establishing feasible problems that may perhaps surface from the oil and gas exploitation activities was done using the lens of institution theory and sustainable livelihood approach. Focal points was put on both government and private institutions operating in the oil extractive region with the communities as key actors to examine how they drive sustainable resource management. The definition for Sustainable oil exploitation can be reflected in the definition of sustainable practices which fits in the three pillars of sustainability (Ecology, cultural and economic pillar). Thus sustainable oil covers liable practices that take into account the regenerative capacity of the resource. This is the approach that wasemployed through the report.

Study results have demonstrated that several factors influence oil exploitation and sustainability; robust government structures are vital for enhancing the sustainable development and economic growth of a nation. My findings however suggest the presence of highly weak institutions[9] which lack the capacity to adequately address the potential socio-economic challenges associated with the oil exploitation. Current institutions in Albertine oil extractive area hold variances with the government on a number of ongoing activities in the region. Yet these are the pillars that would be advocating for legitimate policies to bring notice to the government on all existent gaps' within laws and policies. Illogically some are at present on the verge of being deregistered as a result of this.

Strengthening of local institutions as a way to enhance social equality is essential. Other Important factors that need urgent redress are; delays in ratification of policies and laws that could guide how petroleum licensed companies could carry on their activities. This is illustrated by the agitations of watch-dog institutions in their continuous demand for explicit sustainability measures from the oil companies. It is important in this perspective to understand that in the absence of binding laws; no one can be held accountable in any environmental or social damage caused. Consequently, vigilant consideration have to be given on what interim instruments to use on all current activities that are progressing to check if compliance with environmental standard is being adhered to. There are strong indications that environmental mitigation measures may fail to be followed.

The major problem I found among others is the inadequacy of information flow; information concealment, lack of transparency, limited participation and land conflicts. These factors raise several questions that could lead one to be curious as to whether or not the resource could be advantageous to all. Community views construct realities, denoting that assertions from people makeup apt stories that express how people discern their world. In order to manage people's expectations, social uncertainty and fear, seal of secrecy and absence of partnership should be avoided as they compromise a healthy work environment with elements of mistrust, sabotage of activities and setting in corruption tendencies. The *weak and oppressed possess weapons of protest*, including the use of narratives in suppressive environments. Narrative are shown to be the dominant tools used to

[9] Weaker institution in this study constitute lack of capacity in human resources, finance and absence of support from political leaders

empower people to deal with violence (James Scott; 1985 as cited in Reed 2009), thus participation of inhabitants even in form of community groups can be implemented to enable them feels part of the activities.

Besides, I have also found that rapid increase in population creates significant pressures on the environment and community as it bring about social and environmental impacts. For example increased competition for resources like fishing grounds, land, development of slums, occurrence of increased prices, and new behavioral changes could engender increased epidemic of social vices. These factors erode the purchasing power of local people, hiking inflation costs of basic needs. Establishing sustainability as illustrated by the circle of sustainability and the SLA bring into play the environmental management and monitoring plan tools along with institution that guide and shape the implementation processes. A general point of critique is the political and bureaucratic aspects that have an effect on sustainability implementation process as they affect the integration of local communities into their oil activities.

In this regard, Uganda should learn not only from the case example of Botswana, which stands out as a case with classical aspects overriding as to sustainability issues, but also from other nations. It's clear that Botswana has thrived through carrying on the legacy along with working in partnership with other private sectors like De Beers; make use of both traditional and modern institution and flexible policies. Botswana's governance structures too have created a favorable atmosphere for institutions that accommodate for inclusiveness and accountability to heighten industrial activities. Botswana's leaders see their resources and biodiversity as an asset for sustainable development hence aiming at conservation and this makes a difference.

The key lessons that can be learnt from this thesis

In concusion , although my data reveals that institutions that could be liable to influencing sustainability are weak these are fuelled by some other undlerlying causes. Sustainability is fundamental to development, but this needs to be translated into everyday language and in all sectors to obtain relatively more attention than before. Discourses on sustainable practices within the oil industry such as the increasing use of the term *sustainable* in relation to resource use, waste assimilation and ecosystem management show how sustainability is being interpreted. However, it is institutions that can drive or develop the language of sustainability. By initiating sustainable assessment forms, quality institutions, processes and governance structures form vast prospects to incorporate sustainability in the Uganda's oil sector.

Further still, poverty and environment are interrelated phases because causes of poverty lead to continuous depletion of resources. People are not able to understand sustainability when they lack even the basic minimum necessities required; therefore lack of participatory approaches by government on issues concerning oil development affects sustainability. Lastly, I presume that its impracticable to pursue these changes unless the governemnt takes the lead . This thesis presents a few motivating perspectives for possible further study; Due to various dealings and bureaucratic measures that drive the oil sectors, the issue on information flow still stands out and is hard to come by. This area offered key questions in regard to challenges present in obtaining information concerning Oil activities in the Albertine region. Identifying how institution building and enhancement of public participation would be good cases to pursue further in order to lower the latent drawbacks in the oil and gas exploitation activities in Uganda.

Sum Up

Chapter 6 provides a short summary of the answers to the research questions presented in this thesis report. The contributions of sustainability knowledge to the oil sector in this research was made correlating with the selected theories and putting forward lessons learnt and possible future research areas.

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Appendix 1: List of Resource Informants

Table 2.	**List of Informants 2013**		
Informant Codes	**Informants**	**Responsibility**	**Method used**
	Botswana Officals (3 in total)		
A	Mr. Ofentse Ditsele	Deputy Director - Development and Operations Division- department of Mines	Email Interview
B	Mr. Pelonomi Matlotse	Bostwana Department of environmental affairs	Email Interview
C	Mr. Khulekani Mpofu	Bostwana Department of environmental affairs- Head, Policies and Programmes	Telephone Interview
	Civil society Organisation (3 persons)		
D	Isingoma Vitah	Member NGO Forum - Albertine Region Hoima	Telephone Interview
E	Dr. Rose Nakayi	Lecture , Makerere University School of Law	Review of Archived Data
F	Odinga, William	Researcher	Review of Archived Data
	Local Inhabitants (4 Persons)		
G	Kabatoor Alice	Natives in Hoima /Bulisa	Face to face Interview
H	Katwesige Jackson	Natives in Hoima /Bulisa	Face to face Interview
I	Interviewee- name withheld	Natives in Hoima /Bulisa	Face to face Interview
J	Interviewee- name withheld	Natives in Hoima /Bulisa	Face to face Interview

Appendix II

Audio Interviews (copy on attached CD)

Questionnaires (copy on attached CD)

Application letter to the Ministry of Energy and Mineral Development

12th November 2013

The Permanent Secretary;

Petroleum Exploration and Production Department

Ministry of Energy and Mineral Development

Plot 21-29 Johnston Road,

P. O. Box 9; Entebbe Kampala

Dear Sir;

RE: Request Information Interview Approval in the Albertine Graben Region

I am a Ugandan student pursuing a Masters' program at Aalborg University Denmark and presently working on my Master thesis within the scope "Resource Sustainability and Development", which aims at charting best approaches on how; a sustainable oil development could benefit the business sector, government and social community. I am seeking for permission to allow me schedule informational interviews with different licensed Oil companies (like Tullow Oil; Total limited) in the Albertine graben region to be able to collect some empirical data that would make my study thesis project a success. All information received is to be considered entirely for academic purposes.

The local communities and Oil Companies' background and experience in this region are considered as an Invaluable asset that may possibly frame potential courses of action of how sustainable development goals could be reached. The results of my study intend to draw benefits to all companies involved directly in the Oil activities, the government, inhabitants within this region, civil society organization as well as to the entire research community underlining what sustainable lesson could be taken on.

Thank you so much for your attention and consideration

Looking forward to hearing from you soon

Yours' Sincerely
Esther Namuyondo
Graduate Student; Aalborg University