PREPAREDNESS OF UGANDA WILDLIFE AUTHORITY TO MANAGE IMPACTS OF OIL & GAS ACTIVITIES ON WILDLIFE: A CASE OF THE ALBERTINE REGION

BY

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Declaration

I **Naomi Mukunde Muhereza** declare that this research thesis report is my original work and has never been submitted for a degree award in this University or any other Institution of higher learning. I certify that although I have drawn upon a range of sources cited in this work, the content of this thesis is my own work.

Signature……. Date…….

Naomi Mukunde Muhereza

Approval

This research thesis report has been submitted with the approval of my supervisors,

Signature……. Date……

Dr. Levi Kabagambe

Dedication

This research is dedicated to my sister, Mrs Jolly Rubongoya who has stood with me through everything. Your inspiration and commitment and belief in me has made me move this far. May God richly bless you.

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First, I would like to thank God for equipping me and enabling me bring this literary piece together. Without him, I wouldn't make it.

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Abstract

The study was carried out with the aim of analyzing Uganda Wildlife Authority's preparedness to address the negative impacts of oil and gas activities on wildlife resources and the role local communities can play in addressing and supporting preparedness for the impacts. Specifically, the study objectives included to a) examine the effectiveness of the regulatory mechanisms in protecting wildlife resources against adverse effects of oil activities; b) assess the institutional capacity of UWA to address likely impacts and c) assess the role played by local communities in addressing the potential negative impacts of oil activities on wildlife resources in the Albertine region.

A total of 90 randomly selected respondents for community surveys and 30 purposively sampled key informants from UWA were interviewed. The latter were from the headquarters and field level (Murchison Falls National Park). Data collected was coded, entered and cleaned and analyzed using Statistical Package for Social Scientists (SPSS ver 22) to generate descriptive statistics

Different impacts such as disruption of migration routes, death of wildlife, pollution of the resources and increased poaching exist as a result of activities related to oil and gas. The study revealed that UWA has established various strategies internally to address impacts of oil and gas such as establishment of a specialized Oil and Gas Monitoring unit, recruitment of ranger force to boost the existing numbers although it has not fully undertaken an analysis of the potential hazards to wildlife resources and a vulnerability assessment. They have also done a capacity gaps assessment in their human resources, developed training schedules and identified trainers albeit this has not been fully cascaded to the lower levels of the rank and file of the organization. It was also revealed that there is need for aggressive implementation of the regulations in place. The most effective regulatory mechanisms that have been implemented to date are related to waste management, impact assessments for projects that are not directly related to wildlife management and control of poaching.

It is therefore recommended that; a training and capacity building plan for the different staff and even part of the community members in preparedness and management of impacts is undertaken and; that an engagement plan for community members to be more involved in supporting management of impacts from oil and gas needs to be developed and consequently implemented. This will improve efficiency and save the organization resources through community participation.

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CHAPTER ONE

INTRODUCTION

1.1. Background of study

Catastrophic events have created a greater awareness for disaster preparedness across all sectors, public to private (Simpson, 2006). The world has developed disaster risk managements frameworks and one of such is the Sendai Frameworks (UNISDR,2015) which replaced the Hyogo protocol. The five most important aspects of disaster include preparedness, resilience, mitigation efforts, social vulnerability, and hazard exposure (UN/ISDR & UN/OCHA, 2008). There are potential benefits from clearly understanding national, institutional and community preparedness, and providing a means to encourage communities that are more vulnerable and less prepared to improve their preparedness efforts. The frameworks aim at ensuring systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programs in member states. They further stress that disaster risk reduction is not just an issue to be addressed by humanitarians, scientists or environmentalists, but is also critical to national sustainable social and economic development processes.

Uganda's is committed towards development through macro-policies such as the Vision 2040 and the National Development Plan II (GOU, 2014). Her development over the recent years gained more impetus after discovery of oil in Albertine Graben in 2006 (Lesedi, 2010, Balikuddembe and Ardalan, 2014). The region has been accorded a high level of conservation priority by the International Union of Conservation of Nature(IUCN) and other conservation agencies (Kanyamibwa, 2013). Murchison falls, which forms part of the landscape is home the endangered Rothschild's giraffe, elephants, lions, buffalos and boasts of over 100 species of birds (Prinsloo *et al.,* 2012) Several threats to this region have been identified and some relate to infrastructural developments and energy developments such as oil and gas(Louise,2007). With these developments, it is imperative that resource managers are fully prepared to manage the negative impacts such as pollution of wildlife resources, land fragmentation leading to disruption of migratory routes, animal deaths and others; that might arise to continuously conserve the wildlife resources (UWA,2014). Moreover, the country risks to loose close to $ 1.6bn (WTTC, 2017) which tourism contributes to the GDP if these impacts are not addressed. Hazen et.al 2016 predicted an impact on fish spawning of Atlantic Bluefin tunas arising out of the Deepwater horizon oil spill. Drawing lessons from other oil producing countries such as Costa Rica, such measures have been put in place with several policy and institutional measures to control adverse

effects of disasters. For example, Costa Rica's National Disaster Management Law clearly outlines the roles and responsibilities of each of the government and non-government partners involved in preparedness and response. This legislation also established a revolving Emergency Fund for disaster Response as part of the national budget. The Uganda Wildlife Authority(UWA) was established by an act of Parliament to be the custodian of wildlife resources in Uganda through their sustainable management. Some of the impacts of oil and gas activities have already been observed and documented such as disruptions in wildlife movements (Ayebare, 2011; Mulondo,2015). With oil and gas predicted to continue, it is necessary that mechanisms to address potential impacts of this activity on wildlife resources is undertaken

1.2. Problem statement

The oil and gas industry holds major potential of hazards for the environment and local communities. Uganda is no exception and already experiencing a lot of environmental issues and with the discovery of oil and expected exploitation, a lot of hazard to the environment is expected, thus adding on the already existing burden of environmental management. Some negative impacts of the initial exploration stages have already been reported by Prinsloo *et al.,* (2012) such as disruption of wildlife routes, death of species, increased human-wildlife conflicts and these may have more devastating effects, especially on the rich wildlife resources in the Albertineregion.

Although Uganda is a signatory to the Sendai Framework for Risk Disaster Preparedness 2015-2030, which replaced the Hyogo Framework for Action 2005-2015 (Okiror 2015), some efforts have been put in place by different players regarding disaster risk management e.g. the development of guidelines by Uganda Wildlife Authority (UWA) on oil and gas explorations in protected areas (UWA,2014), internal company tools and guidelines although they are at a limited scale and scope. Broadly speaking, these measures should include capacity analysis and capacity-building, hazard monitoring, forecasting and early warning. The extent to whichUganda as a country is implementing the disaster management frameworks and particularly, thereadiness and preparedness of Uganda Wildlife Authority as a lead agency to address potential impacts from oil and gas explorations on wildlife is not well document. This study will thereforeseek to assess the preparedness of UWA to address the potential impacts from oil and gas

explorations with a view of making recommendations on how best to plug the gaps and ensure full preparedness as the country transitions into the production stage of oil and gas activities.

1.3. Aim and Objectives

1.3.1. Aim

This study aims at establishing UWA's preparedness to address the negative impacts of oil exploration activities on wildlife resources and local communities in the Albertine region

1.3.2. Specific objectives

The specific objectives of the study will be;

a) To examine the effectiveness of the regulatory mechanisms in protecting wildlife resources against adverse effects of oil exploration activities in the Albertine region.
b) To assess the institutional capacity of UWA to address likely impacts of oil exploration on the wildlife resources in Uganda's Albertine region.
c) To assess the role of local communities in addressing the potential negative impacts of oil exploration activities on wildlife resources in the Albertine region.

1.4. Research questions

The following research questions will guide this study;

1. How effective are the regulatory mechanisms for protecting wildlife resources against adverse effects of oil exploration in the Albertine region?
2. What is the capacity of UWA to address likely impacts of oil exploration on the wildlife resources in Uganda's Albertine region?
3. What is the role of the local communities in addressing potential negative impacts of oil exploration activities on wildlife resources?

1.5. Justification

The ever-increasing worldwide demand for energy has resulted in unprecedented levels of oil and gas exploration, and one of the most recent finds has occurred in the Albertine Rift region of the East African Rift Valley. While this promises substantial economic development from oil and gas production for Uganda and the region, these activities can have devastating effects on the wildlife. Recognizing the high levels of biodiversity richness in Murchison Falls National Park (MFNP), it is important to assess the potential impacts of oil exploration on the wildlife in the park and to attempt to devise appropriate methods of minimizing any disturbance that is caused

by these activities. Attention must be paid to the fact that behavior and response patterns can vary enormously between species, such that some mitigation measures may need to be site- or species-specific dependent on individual site circumstances.

The most widespread and dangerous consequence of the oil and gas industry is pollution which is associated with virtually all activities throughout all the stages of oil and gas production, including wastewaters, gas emissions, solid waste and aerosols generated during drilling, production, refining and transportation. The effects of such occurrences can also directly affect the tourism sector which is a key income earner for Uganda. According to the World Travel and Tourism Council (2015), the direct contribution of Tourism to Uganda's GDP in 2014 was UGX 2,762.5bn (4.3% of GDP). This study sought to provide a comprehensive assessment of existing policy and institutional frameworks that would establish Uganda's preparedness to handle negative impacts of oil exploration on wildlife. This study brought out institutional and policy gaps that need to be addressed and the role of communities in ensuring protection of wildlife resources.

1.6. Theoretical framework of the study

This study will assess the institutional capacity of Uganda Wildlife Authority (UWA) using the McKinsey 7S framework. Developed in the early 1980s by Tom Peters and Robert Waterman, two consultants working at the McKinsey & Company consulting firm, the basic premise of the model is that there are seven internal aspects of an organization that need to be aligned if it is to be successful (Bartone and Wells, 2009). The McKinsey 7S model involves seven interdependent factors which are categorized as either "hard" or "soft" elements (Figure 1).

"Hard" elements are easier to define or identify and management can directly influence them: These are strategy statements; organization charts and reporting lines; and formal processes and IT systems. "Soft" elements, on the other hand, can be more difficult to describe, and are less tangible and more influenced by culture. However, these soft elements are as important as the hard elements if the organization is going to be successful (Ravanfar, 2015).

Using this approach, it is conceptualized that protection of wildlife resources against adverse impacts of oil and gas depends on organized systems such as financial capacity, trainings, capacity analysis and contingency planning as well as how best the existing laws and regulations on wildlife resources are coherent with the oil and gas legal framework. The knowledge and

ability to support management of wildlife resources by community members also plays a great role as indicated in Figure 1 below.

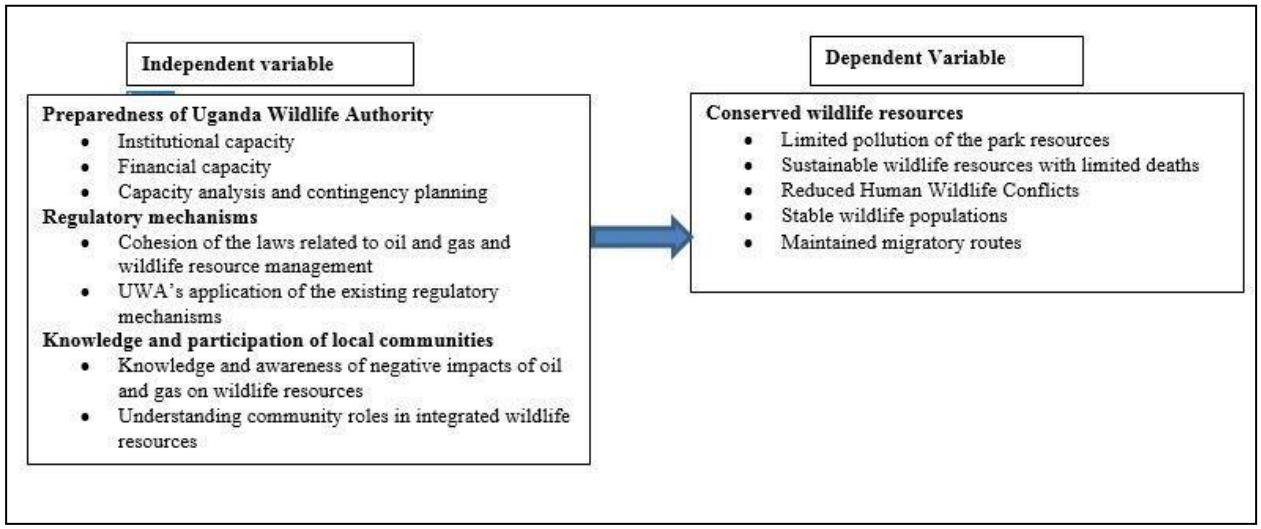

Figure 1: Conceptual Framework

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a topic (Rocco and Maria, 2008; Sutton, 2016). Literature reviews are usually secondary sources, and do not report new or original experimental work. Literature reviews provide a description, summary and critical evaluation of a given issue in relation to the research problem being investigated. This section provides a review of literature relevant to this study. It gives a summary of the oil sector in Uganda, progress so far made, a review of existing policy and institutional frameworks related to oil exploration that impacts on wildlife resources in Uganda and lessons from other oil producing countries.

2.2 Oil and Gas Exploration: The Process

The process of extracting oil and gas from the lower rock sediments can be classified into exploration, appraisal, production and decommissioning and each stage comes with different activities. Exploration involves the search for rock formations associated with oil or natural gas deposits, and involves geophysical prospecting and/or exploratory drilling. Under the appraisal phase, the characteristics of the oil and its flow properties is undertaken, and this phase helps in determining the field development process and how best to extract the oil. It is during the production process that hydrocarbons are separated from the mixture of liquid hydrocarbons, gas, water, and solids, removing the constituents that are non-saleable, and selling the liquid hydrocarbons and gas. Decommissioning involves plugging the well(s) and restoring the site when a recently-drilled well lacks the potential to produce economic quantities of oil or gas, or when a production well is no longer economically viable (UNEP, 2008). Each of these stages and associated activities comes with different types of disasters that are associated with the process.

2.3 Oil and Gas Exploration Disasters

Disasters undermine development achievements, impoverishing people and nations (Calkins, 2015). World over, disasters in the oil and gas exploration have occurred and these have had a big impact on the economy, environment and biodiversity as well as the social economic lifestyles.

In 1964, C. P. Baker drilling barge burned and sank after a shallow gas blowout. Of the 43 crew on board, eight were confirmed dead with 13 missing, presumed dead and 22 injured off the coast of Mexico. The Sea Quest whilst working off Nigeria, the Sea Quest suffered extensive fire damage after a blowout in 1980 and was then deliberately sunk.

In 1988, at Norco, Diamond County, Louisiana, USA, an explosion at a Shell-owned oil refinery occurred after a gas escape from a corroded pipe, leading to debris being spewed to over 8 kilometers. This accident caused seven fatalities and injured forty-two (42) people and caused an economic loss estimated at $706 million (https://www.oilandgasiq.com/).

In April 2010, 40 miles (60 km) southeast of the Louisiana coast, along the U.S.A. Gulf Coast of Mexico in 5,000 feet of water, the Deep-water disaster happened. This environmental disaster is now considered the second largest in U.S. history, behind the Dust Bowl. The BP operated rig caused the loss of 11 persons, and studies have indicated that its impacts has caused cardiac arrests amongst people exposed as well as having impacts on the biodiversity (Hazen, et.al, 2016)

2.4 Impacts of Oil and Gas explorations

Oil and gas related disasters causes harm to wildlife through physical contact, ingestion, inhalation and absorption. Floating oil can contaminate plankton, which includes algae, fish eggs, and the larvae of various invertebrates. Fish feeding on these organisms can subsequently become contaminated through ingestion of contaminated prey or by direct toxic effects of oil. Larger animals in the food chain, including humans, can consume contaminated organisms as they feed on these fish (USFW, 2010).

Oil and gas resources account for over 98% of the country's export earnings and 83% of Nigeria's total revenue (Bayode *et al*., 2011). However, petroleum exploration has triggered adverse environmental impacts in the Delta region of Nigeria through incessant environmental, socioeconomic and physical disasters that have accumulated over the years due to limited scrutiny and lack of assessment (Achi, 2003). In Nigeria, immense tracts of mangrove forests have been destroyed because of petroleum exploitation in the mangroves (Wikipedia, 2006).

These have not only caused degradation to the environment and destroyed the traditional livelihood of the region but have caused environmental pollution that has affected weather conditions, soil fertility, waterways aquatic habitats and wildlife.

Additionally, the weakness of legislation in terms of inadequacy and unwillingness or incapacitation on the part of the government to enforce such legislations has made them quite ineffective (Bayode *et al*., 2011). For example, Nigeria's Oil Spill Management Plan which involves investment in projects for the monitoring, control and clearance of spilled oil is very vital. Bayode *et al*., 2011 farther reported that Ondo State Oil Producing Area Commission (OSOPADEC) lacked technical and financial support for the clearing of spills, monitoring and controlling pollution arising from oil spills. The authors farther recommended that Oil Companies working in the region should form 'Clean-Up Cooperative Partnership' to monitor, control and clean oil spills whenever it occurs. The roles and responsibilities of all the stakeholders in the monitoring and control of oil exploration and exploitation activities in the region must be clearly defined. OSOPADEC should embark on aggressive enlightenment campaign by educating every stakeholder with a view to know and carry out their expected responsibilities. The recommendations made by Bayode *et al*., 2011 clearly show lack of policy and institutional preparedness of the concerned national parties. According to Calkins (2015), strengthening preparedness for response at national and local levels can play an important role in saving lives and livelihoods particularly when integrated into an overall disaster risk reduction approach.

In Uganda, for instance, the impacts of explorations on wildlife have been documented well by Prinsloo, et.al (2013) who noted that large mammals tend to move a distance away from activities related to oil and gas.

2.5 International and Regional Policy Frameworks against the negative impacts of oil exploration

International and regional treaties and conventions are, in principle binding on national governments. Uganda has ratified several international agreements relating to the environment. Both global and regional agreements have implications for oil exploration and production. So, the importance of abiding by international obligations by any country including Uganda cannot be over emphasized. International jurisprudence in this area is clear. According to Article 27 of

the Vienna Convention on the Law of Treaties, 1969, a State is under duty to honour its international obligations even if it means amending its municipal (national) law. The case law from 1872 in the Alabama Claims Arbitration to more recent times in the United Nations Headquarters Opinion makes a similar statement. Uganda, therefore, is under obligation to abide by the terms of the treaties ratified to avoid occasioning a breach of international obligations. The major binding conventions include:

2.5.1 Convention on the Protection of the World Cultural and Natural Heritage (1972)

The Convention requires each party to recognize that it has the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage (Art. 4).

It further defines natural heritage as *"geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation*;". Since oil and gas explorations in Uganda occur within an area where threatened species and plants exist, this convention relates greatly to the impacts that might arise out of oil and gas activities. It further requires parties to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall endeavor, in so far as possible, and as appropriate for each country. (Art. 5) Effective measures to be taken include assessment of the feasible project alternatives to prevent or minimize or compensate for adverse impacts and assess the nature and extent of potential impacts on these resources, and designing and implementing mitigation plans.

2.5.2 Convention on the Conservation of Migratory Species of Wild Animals (1979)

The Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. The Convention on conservation of migratory species of wild animals, (1979), in Article 3.4 requires parties to undertake appropriate measures to prevent the endangering of migratory species. In that regard, EIA and SEA serve as important tools for implementing Article 3.4 of the protection of migratory species specified in Appendix 1 of the convention.

2.5.3 The Convention on Biological Diversity (1992)

The Convention has three main objectives all of which have implications for Environmental Impact Assessment (EIA), these are: to conserve biological diversity; the use of biological diversity in a sustainable fashion and to share the benefits of biological diversity fairly and equitably (Art 1). The Convention makes the following requirements in relation to EIA:

- Parties are required to use EIA effectively to avoid or minimize significant adverse impacts on biodiversity; (Art. 14)
- Parties are also required to promote consultation on activities that are likely to significantly affect adversely the biodiversity of areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate.
- The Convention introduces Strategic Environmental Assessment (SEA) to assess environmental implications of policies and programs particularly for those with major implications for natural resource use for example, transport, hydropower and others.

2.5.4 The EAC Protocol on Wildlife Conservation and Law Enforcement

The preamble to the protocol notes that member states have the sovereignty to manage their wildlife resources and the corresponding responsibility to sustainability use and conserve these resources. Article2 (i) stipulates that each party is required to ensure the conservation and sustainable use of wildlife resources in its jurisdiction. Each State is also required to ensure that activities in its jurisdiction or control do not cause damage to the wildlife resources of other states or in areas beyond the limits of national jurisdiction.

2.6 National Regulatory Framework relating to Oil and Gas and Wildlife Resources

In Uganda, environmental regulations are found under a variety of national policies and laws. In some cases, these are included in clauses inserted into oil policies and laws, while in some other cases, specific regulations are put in place such as pollution control, waste management and transportation, water and air quality, environmental safety and health, protected areas, noise and nuisance regulation. This part of the paper deals with the existing Ugandan regulatory framework and examines the practices that can be adopted in Uganda for environmental conservation. The

Policies define standards and responsibilities for environmental management which has implications for oil exploration and production. The major ones regulating oil and gas related activities include the following:

2.6.1 The Wildlife Act (1996)

This Act provides for sustainable management of wildlife in Uganda and establishes a coordinating, monitoring and supervisory body the same purpose. It is the law that establishes UWA and mandates it to manage wildlife protected areas in a manner that ensures sustainability. Current oil and gas activities are happening mainly within the borders of protected areas and therefore ultimately, responsibility for effective management lies with UWA. The law clearly states activities that can occur within protected areas ranging from biodiversity conservation; scientific research; and other economic activity. It also clearly stipulates how effective management of the protected areas and therein the species such as wildlife resources can be undertaken

2.6.2 The Oil and Gas Policy 2008

This is a new policy which came into force on 1st January 2008 whose main goal is to use the country's oil and gas resources to contribute to early achievement of poverty eradication and to create lasting value to society. The policy has principles that are relevant to the protection of the environment and conservation of biodiversity. It requires that the environment, human development and biodiversity should be neatly balanced for mutual benefit and survival.

The policy hinges on the principles of sustainable development and in pursuit of this, it imposes on the oil companies the responsibility of protecting the environment where they work or any areas in the country impacted by their operations and Government to regulate and monitor compliance. Since most of the oil operations are within the protected areas, it is an important policy regarding managing devastating impacts to wildlife resources arising out of oil and gas operations. The policy has a specific objective dealing with the environment and biodiversity. The policy is designed to ensure that oil and gas activities are undertaken in a manner that conserves the environment and biodiversity. It has several strategies to achieve that objective. These include:

1. Ensuring availability of the necessary institutional and regulatory framework to address environment and biodiversity issues relevant to oil and gas activities.

2. Ensuring presence of the necessary capacity and facilities to monitor the impact of oil and gas activities on the environment and biodiversity.
3. Promoting environmental protection in oil and gas activities.
4. Requiring oil companies and their contractors/subcontractors to use best practices in ensuring environmental protection and biodiversity conservation.
5. Requiring oil companies and any other operators to return all sites on which oil and gas activities are undertaken to their original condition as an environmental obligation.

To achieve the above objectives, the Policy proposes to the following actions:

- Upgrading the relevant Environment and Biodiversity legislation to address oil and gas activities.
- Strengthening the institution with a mandate to manage the impact of oil and gas activities on the environment and biodiversity.
- Developing master plans for the oil and gas producing region (Albertine Graben)

2.6.3 The National Environment Management Policy (NEMP) (1994)

The overall goal of this policy is the promotion of sustainable economic and social development that enhances environmental quality without compromising the ability of future generations to meet their needs. One of its objectives is to ensure development through sound environmental and natural resource management and use. The strategies to implement that objective include optimization of renewal resources such as oil and ensuring that their developments are in tandem with sound management practices. One of the strategies identified to achieve this goal is the process of Environmental Impact Assessment (EIA).

The policy clearly states that an EIA should be conducted for any policy or project that is likely to have adverse impacts on the environment, but does not explicitly commit application of EIA recommendations. This statement is further embedded in the National Environment Act, Cap 153, which makes EIA a legal requirement for eligible projects and policies such as exploration to produce petroleum in any form.

2.6.4 The Uganda Wildlife Policy (2014)

The Policy goal is to ensure the sustainable management of the wildlife resources of Uganda. The Policy requires an environmental impact assessment for all proposed developments within

their estate and environmental audits of existing facilities, and imposes necessary restraints based on the results of these exercises. Further, management of wildlife resources includes management of important water catchment areas and wetlands that recharge water resources targeted for oil exploration and production.

2.6.5 Uganda Forestry Policy (2001)

The objective of the Uganda Forestry Policy is to establish an integrated forest sector that achieves sustainable increases in the economic, social and environmental benefits from forests by the people of Uganda, especially the poor and vulnerable. Policy statement 7 emphasizes the need for forest biodiversity conservation part of which includes wildlife. In addition, the boundaries of the forest reserves in certain instances in contingent and continuous with national park e.g. Budongo Forest reserve (managed under the forest policy) and Murchison Falls National Park (under the Wildlife Policy). The policy also looks at dual management of resourceswhere forest estates are under the management of UWA. Maintenance of the forest cover and the biodiversity therein is crucial for oil exploration and development since it ensures activities are undertaken in a sustainable manner.

2.6.6 Disaster Management and Preparedness Policy (2010)

The overall goal of this policy is to establish institutions and mechanisms that will reduce the vulnerability of people, livestock, plants and wildlife to disasters in Uganda. The policy provides for:

- Land use planning to minimize degradation and conservation of the environment through rational exploitation of the related resources;
- With respect to oil exploration there is need to make provisions for disaster management and preparedness on matters such as oil spills, gas flaring land use, resettlement of displaced people, compensation of lost investments and opportunities, among others should be considered.

It further clearly stipulates the different institutions and the actions that they need to undertake to reduce impacts of disasters. Key amongst these is the Ministry responsible for oil and gas explorations; and the one responsible for wildlife management.

2.6.7 The Petroleum (Exploration, Development and Production) Act, 2013

This is a new law that was enacted in 2013 after oil and gas activities had already commenced. It repealed the earlier Petroleum (Exploration and Production) Act, 1985 and sought to regulate petroleum exploration, development and production as well as establish key institutions for management of oil and gas resources. It provides for requirements of reconnaissance works being undertaken in a wildlife area in a way that considers the breeding and migratory patterns of the wildlife in the area and requires assessments of potential pollution, especially to wildliferesources being clearly undertaken before stipulates guidelines for activities. It further prohibitsaccess to land resources without prior consent to the landowner and in the case of operations in the protected area, the mandate falls with UWA.

The Act further under Section 31 imposes obligations and duties on the licensee which are important for the right to clean and healthy environment. These include ensuring exploration and development operations are in a proper and safe workmanlike manner in accordance with good oil field practices; and taking all reasonable steps necessary to secure safety, health and welfare of the persons engaged in exploration and development operations. The licensee is also required to control the flow and prevent the escape in the exploration or development area of petroleum, gas or water.

The Act further requires that where pollution occurs, it should be treated and dispersed in an environmentally acceptable manner. The licensee is also required to furnish the commissioner, prior to the drilling of any well, a detailed report on the technique to be employed, an estimate of the time to be taken, the material to be used and the safety measures to be employed in the drilling of the well. In case of flare natural gas, the licensee is required to furnish the commissioner with reasonable notice of the intention to abandon any well and the closure or plugging of any well should be carried out only with the prior consent in writing of the Commissioner.

2.7 Oil Exploration in the Murchison Falls National Park

Oil exploration in Uganda was first done by Wayland in the 1920s (Mwebaza, 2003). Wayland and others documented up to 52 oil and gas seeps in the Albertine Graben. However, petroleum exploration activities were halted due to the Second World War in 1945 until 1983 when

geologists resumed exploration activities in the Albertine Graben, revealing reasonable oil presence. This led to the creation of the Petroleum Unit in 1985, in the Geological Survey and Mines Department to spearhead exploration promotion; and the enactment of the Petroleum (Exploration and Production) Act of 1985 to make provision for the exploration and production of petroleum and related matters. The Petroleum unit was replaced by the Petroleum Exploration and Production Department which commenced aeromagnetic surveys (Tumushabe, 2004).

The ever-increasing worldwide demand for energy has resulted in unprecedented levels of oil and gas exploration, and one of the most recent finds has occurred in the Albertine Rift region of the East African Rift Valley (Prinsloo *et al.*, 2012), with some of the most intense exploration activity occurring in Murchison Falls National Park (MFNP). This promises substantial economic development from oil and gas production for Uganda and the region. MFNP is one of four savanna parks in Uganda which is recognized for its uniqueness and importance for biodiversity conservation.

Recognizing the high levels of biodiversity richness in MFNP, it is important to assess the potential impacts of oil exploration on the wildlife in the park and to attempt to devise appropriate methods of minimizing any disturbance that is caused by these activities. Attention must be paid to the fact that behavior and response patterns can vary enormously between species, such that some mitigation measures may need to be site- or species-specific dependent on individual site circumstances.

2.8 Preparedness for Oil and Gas Disasters

In the absence of concerned efforts to address root causes, disasters represent an increasingly serious obstacle to the achievement of national development goals. Until the last few years the East Africa region has been a sleepy backwater for the upstream industry, but the discovery of significant quantities of oil in Uganda in 2006 has ushered in a bonanza (Deloitte, 2013). Onshore oil discoveries in Uganda have been followed by discoveries in Kenya while offshore world-class discoveries of gas have also been seen in Tanzania and Mozambique (Okuthe, 2015). Although potential hydrocarbon basin across East Africa is the subject of intensive interest, the commercial exploitation of this resource also presents the East African countries with formidable environmental and social challenges due to weak institutions, lack of public participation, poor communication, 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 (Okuthe, 2015).

Preparedness is the capacity and knowledge developed by governments, professional response organizations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazard events or conditions (UN/ISDR & UN/OCHA, 2008). Strengthening preparedness for response at national and local levels can play an important role in saving lives and livelihoods particularly when integrated into an overall disaster risk reduction approach (Calkins, 2015). Strengthened preparedness for hazard events is mainly concerned with increasing capacity to predict, monitor and be prepared to reduce damage or address potential threats and strengthening preparedness to respond in an emergency and to assist those who have been adversely affected (UNISDR, 2015). Unpreparedness could give birth to more disastrous results like civil strife, sabotage of oil dealing and the resource curse phenomenon. It is therefore imperative for each country to be adequately prepared to manage any devastating impacts of oil and gas exploration.

2.8.1 The Norwegian Model

Norway is well known for an administrative system in which it assigns oil sector functions to three state-controlled institutions, each with its own distinct role (Thurber *et al.*, 2011). First, there is the commercial entity, NOC Statoil, which carries out extensive oil operations both in Norway and abroad. Second, there is the policy- making body, the Ministry of Petroleum and Energy. The Ministry works with (and has at various points guided) the country's political leadership in setting goals for the sector, makes plans to achieve these goals, and oversees the crucial licensing process. Third, there is the regulatory and technical advisory agency, the Norwegian Petroleum Directorate (NPD), which compiles data on all hydrocarbon activities on the Norwegian Continental Shelf (NCS), collects fees from oil operators, advises the Ministry on technical matters, and sets hydrocarbon regulations related to resource management. This separation of roles and responsibilities between commercial, policy, and regulatory bodies became known as the ‘‘Norwegian Model’’ of oil sector governance (Al-Kasim, 2006).

According to Lahn et al., (2007), the general principles of good governance in the petroleum sector include ‘‘clarity of goals, roles and responsibilities’’ among government bodies. Boscheck

(2007) also noted that lack of clarity around regulatory responsibilities indeed has contributed to the problems in Nigeria's oil sector. The theory of how the separation of functions model might improve oil sector performance is built on several claims, which are supported in part by observations of how the model has worked in Norway. First, the Norwegian National Oil Company (NOC) may be able to focus more exclusively on its commercial activities, enhancing its operational performance and increasing the short- or long-term financial return to the state (Al-Kasim, 2006). Second, the creation of autonomous policy and regulatory bodies mayimprove the ability of the government to monitor and benchmark both the NOC and other playersin the sector, thereby improving performance (Thurber and Istad, 2010). Third, conflicts of interest in which, for example, the NOC could use its regulatory or policy powers to privilege itself against competitors, or to privilege its (or its partners') commercial interests over the revenue-generation goals of the state are potentially reduced (Al-Kasim, 2006a; Thurber and Istad, 2010).

Given that much of the theory is derived from observations of Norway's experience, this study seeks to extrapolate to Uganda with substantially different bureaucratic and political institutions. The general idea that ''best practices'' applicable under certain institutional conditions can be ineffective or harmful when institutional prerequisites are absent is well- summarized by Rodrik (2008). Norway's relative success in managing its hydrocarbons has prompted development institutions to consider whether this ''Norwegian Model'' of separated government functions should be recommended to other oil-producing countries (Thurber *et al.*, 2011).

2.8.2 The Sendai Framework (2015 – 2030)

Following the 2004 Indian Ocean earthquake and tsunami event, the global community adopted the UN Hyogo Framework for Action (HFA) for Disaster Risk Reduction 2005-2015, which set out priorities to help countries achieve disaster resilience by encouraging the establishment of national platforms and strengthening disaster governance. The Hyogo Framework for Action specifically challenged states to foster a "holistic approach" to disaster risk reduction that would promote and support dialogue, exchange of information and coordination among early warning, disaster risk reduction, disaster response, development and other relevant agencies and institutions at all levels (UN/ISDR & UN/OCHA, 2008). The HFA also stressed the need for a holistic approach to disaster risk reduction that could link international, regional, national and

community level initiatives. The framework also emphasized that communities themselves are not only usually the first responders to disasters but are also central actors in reducing risk. Therefore, one of the key tasks of a national preparedness capability is to strengthen and enhance this capacity at the community level (including resource capacity), and to make sure that this capacity is reflected in national level planning processes.

The Sendai Framework for Disaster Risk Reduction (SFDRR) is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015 (UNISDR, 2015) and focusses on building the Resilience of Nations and Communities to Disasters. The Sendai Framework is built on elements which ensure continuity with the work done by States and other stakeholders under the HFA and introduces many innovations as called for during the consultations and negotiations. To support the assessment of global progress in achieving the outcome and goal of the present Framework, seven global targets were agreed upon. These targets are being measured at the global level and they include the following;

1. Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rates in the decade 2020–2030 compared to the period 2005–2015
2. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015
3. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by2030
4. Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030
5. Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
6. Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030 and
7. Substantially increase the availability of and access to multi-hazard early warningsystems and disaster risk information and assessments to people by 2030.

Learning from the HFA, the Sendai Framework prioritizes understanding disaster risk, strengthening collaboration at global and regional levels, and recognizing the critical role of stakeholders in enabling national action (Calkins, 2015). By recognizing weak institutional arrangements as drivers of risk and the need to strengthen disaster risk governance, the SFDRR supports that Disaster Risk Reduction (DRR) is central to development and supports the principle that decision-makers should consider disaster risk in all new investments (UNISDR, 2015). Uganda is a signatory to the Sendai Framework (Okiror, 2015) and mandated to consider disaster risk reduction in her new oil investments. It is therefore imperative that Uganda's national disaster preparedness and management plan and policy take care of the country's preparedness to manage devastating impacts of oil exploration on the Wildlife and communities. This is central to building local communities' resilience in an area (Murchison Falls National Park) prone to disasters.

2.9 Preparedness for Oil disasters in relation to Wildlife

Preparedness for oil and gas disasters related to wildlife usually requires an assessment, planning, implementation and evaluation in a cyclical process. Development of preparedness responses especially to wildlife impacts, the plan must be based on a proper assessment of wildlife risks, scenarios and available response capabilities. (IPEACA-IOGP,2014). The preparedness needs to be all inclusive and able to avert any potential impacts to wildlife such as spills, reduction of ranging lands and habitat fragmentation through infrastructure developments.

2.10 Challenges reported in the pre-exploration phase in the Albertine region

The Albertine region hosts Uganda's magnificent tourist sites such as the Murchison Falls National Park. Most of the Albertine Graben oil is onshore and nearby tourist zones and this creates a 'paradox of benefiting' between the two sectors (Balikuddembe and Ardalan, 2014). Its worthy noting that, many oil operations are taking place in the highly-valued Uganda's Murchison Falls National Park. According to Rwakakamba et.al (2014), oil exploration and exploitation detriment the ecosystem thus impairing the settlement patterns of animal species by forcing them to migrate from one place to other places.

A similar situation is attributed to the sporadic wild animal attacks at 0.48% especially marauding elephant in Noyan district – West Nile region of Uganda causing crop fields destruction, killing and injuring people, sometimes unwarranted displacements and transferring zoonotic diseases. Oil exploration is said to be one of the contributory factor, forcing away animals from their habitats due to noise associated with heavy vehicles and machinery, as well as vibration (Prinsloo *et al.,* 2012). Aside that, different tree species have also been uprooted during several oil construction activities. Apart from impairing Uganda's tourism which has been thriving well, these activities, if not well managed, may also lead to debilitating climatic impacts such as drought and rainfall dropping.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides details about the study area and the methods that will be used for data collection and analysis. The study area section presents the geographical location of the study area, the altitude and major features in the study area. The methodology sub section outlines the research design adopted by the study, sampling and data collection techniques used as well as tools and methods that will be used to analyze the data.

3.2 Research Design

According to Kothari (2004), research design is a plan, a roadmap and blueprint strategy of investigation conceived so as to obtain answers to research questions. The study employed descriptive and correlational research design within the sample of the communities and wildlife resource managers in and around Murchison Falls National Park. Ghauri and Gronhaug (2005) asserts that using descriptive design, the problem was structured and well understood a fact that Mugenda and Mugenda (2003) agrees that this type of design is the most suitable because it gives a report on things as they are. The researcher employed both qualitative and quantitative approaches.

3.3 Study area

This study will be conducted among communities adjacent to Murchison Falls National Park in Buliisa district. Buliisa District is in the northern part of the Western Region of Uganda. Curved out of Masindi District in 2006, the district is about 340 km northwest of Kampala, the Ugandan capital, and is located between latitudes 1º23′ and 2º 21′ North and longitudes 31º 24′ and 33º 24′ East. It is bordered by Nwoya District (in the North), Masindi District (in the East), Hoima District (in the South) and Lake Albert in the West. The district covers 3,200 km2 and this includes parts of Lake Albert, Budongo Forest Reserve, Murchison Falls National Park and Bugungu Wildlife Reserve. Some of its highest points reach 1,800 m above sea level. Buliisa District is composed of six sub-counties (Biiso, Buliisa, Butiaba, Kigwera, Kihungya and

Ngwedo) and one town council (Buliisa Town Council) as indicated in Figure 2 below.

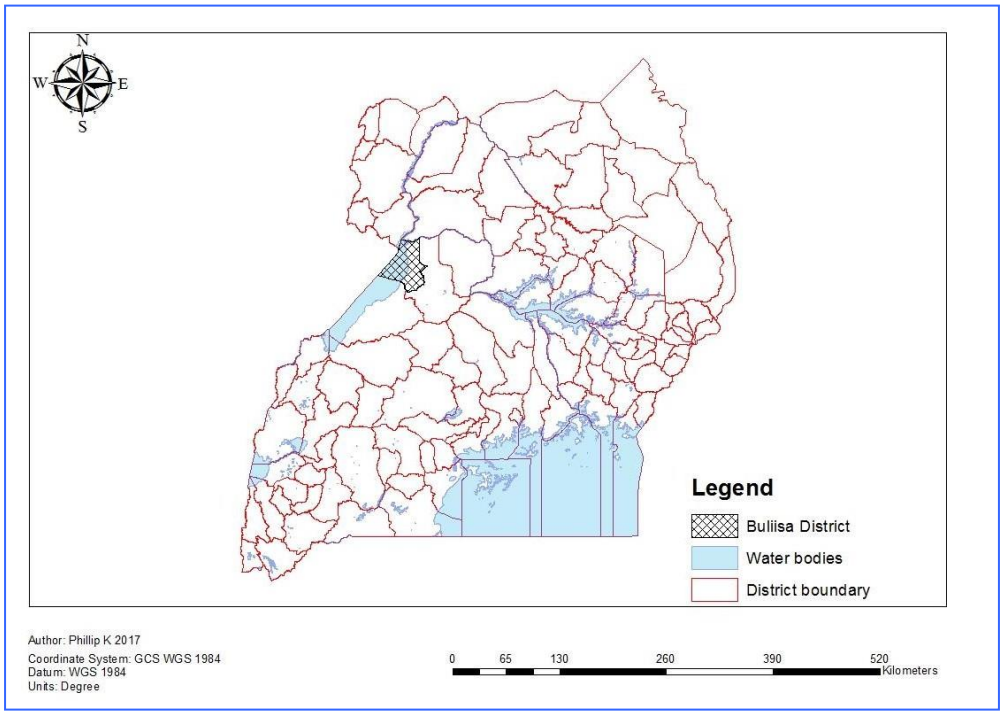

Figure 2:Map of Uganda showing location of Buliisa District

The recent development of oil and gas activities has put Bullisa at the spotlight since it is at the centre and thus the basis for a choice of the study area.

3.4 Methods

3.4.1 Information sources

The sources of information for this included policy documents and government reports related to oil exploration activities in the Albertine rift, laws and regulations related to the mandate of UWA. This was to support in the examination of the effectiveness of the regulatory mechanisms in protecting wildlife resources amidst the anticipated effects from oil and gas exploration. In addition, key informant interviews with UWA and community members intended to capture information related to assessment of the institutional capacity of UWA to address likely impacts of oil activities and the role of local communities in addressing the same in the Albertine region.

3.4.2 Population

The study population for this study was the communities around Murchison Falls National Park and the staff of UWA. Two sub counties (Ngwedo and Kigwera) were purposively selected and two villages in two parishes i.e. Avogera parish (Avogera LCI) and Kigwera parish (Kirama LCI) considered for the research due to their proximity to the national park and highest activities in

relation to oil and gas activities happening and therefore are at the frontline of the anticipated oil and gas impacts especially on the wildlife resources. Thirty respondents from within UWA were purposively sampled out of the three hundred staff assigned to the park with a greater focus on those in the oil and gas sector unit, the research and monitoring and field operations.

3.4.3 Sampling Technique for Community surveys

The household survey was done among communities surrounding Murchison Falls National Park in Buliisa. Villages which have a contiguous border with the national park was selected from the parishes that form Ngwedo and Kigwera subcounty and a simple random sampling design used to obtain the sample. The sample size determination followed this criterion

$$N = \frac{Z^2 P}{e^2}$$

Where; Z = the standard level of significance (Standard Normal value is 1.96)

P = the percentage of the sample for the present

e = the margin of standard error (10 %)

Thus $N = \frac{1.96^2 X 0.5^2}{0.1^2} = 96.04 \approx 96$

Considering 100 households, 50 households were targeted from each of the parishes and interviewed during this survey. However, the researcher managed to achieve a 90% success rate with 10% turning down the interview.

3.4.4 Variables and indicators

The main variable and indicators that the study adopted to establish UWA's preparedness to manage devastating impacts of oil exploration activities on wildlife resources and local communities in the Albertine region are summarized in

Table 1 below:

Table 1: Key study variables and indicators

Objective	Variable	Indicators
I	Assessment of the effectiveness of regulatory mechanisms for protecting wildlife resources against adverse effects of oil and gas activities	• Gaps in the existing laws • Areas of improvement • Cohesion amongst the laws in relation to oil and gas and wildlife resources
II	Preparedness of UWA to manage oil and gas disasters affecting wildlife resources	• Contingency planning • Capacity analysis and capacity building • Hazard monitoring, forecasting and early warning • Information management and communication
	Readiness for response to negative impacts of oil exploration	• Standby arrangements • Resource allocation
III	Local community knowledge of the potential negative impacts of oil exploration on wildlife	• Number of community members aware of likely negative impacts of oil exploration • Number of local communities involved in control of negative effects of oil exploration on wildlife. • Understanding of the potential roles that the local communities could play in mitigating negative impacts of oil and gas on wildlife resources

3.4.5 Procedure for data collection

The study involved a desk review and documentation of existing policies and laws that related to oil and gas with a view of determining their effectiveness in averting the negative impacts to wildlife resources and the following laws were reviewed:

a. The Wildlife Act,1996
b. The Wildlife Policy,2014
c. The Petroleum (Exploration, Development and Production) Act,2013
d. The Disaster Management and Preparedness Policy. 2010

Key Informants interviews were conducted with employees of UWA to understand the organizational preparedness to handle any potential impacts to wildlife arising out of oilactivities. This was augmented with wildlife sector reports for triangulation purposes.

Structured questionnaire was administered to local communities adjacent to Murchison Falls National Park in Bullisa to determine their preparedness and knowledge about efforts to avert negative impacts that might arise from oil and gas activities on wildlife resources.

3.4.6 Data collection instruments

This study used two main data collection instruments i.e an interviewer administered semi-structured questionnaire (see **Appendix II: Questionnaire for Local communities**) to the households and an interview guide for the UWA representatives(see **Appendix I: Tool for Interview of UWA Officials**). The semi-structured questionnaire was used to collect data from household heads among communities adjacent to Murchison Falls National Park. The tool was administered by a local interviewer in together with the researcher. The key informants targeted for this study included selected employees of UWA.

3.4.7 Quality/Error control

Quality control during the study ensured that the research measures what has been planned to be done while ensuring that the research instruments capture data required to address the research problem (Copper and Schindler, 2008; Cummings & Woley, 2008). The researcher ensured that all specific validity attributes are addressed by involving colleagues, friends and research experts in the assessment of the research tools before administering them to the respondents. This

process helped establish whether the research instrument adequately meet the validity and reliability requirements.

Reliability of a research instrument refers to the consistency or repeatability of the measurement of some phenomena. The study tested the reliability of the research instrument using a Test-retest method which involve the administration of the same data collection tool at two different points in time to the study units and obtaining a correlation between the two sets of responses.

3.4.8 Strategy for data processing and analysis

Data from key informants will be summarized (univariate analysis) into frequencies and percentages of responses on the likely negative impacts of oil exploration and preparedness of UWA to manage the negative impacts of oil exploration on wildlife and local communities. This enabled the researcher to describe the organization's capability. Bivariate analysis was used for determining the empirical relationship between two variables. To see if the variables are related to one another, it is common to measure how two variables simultaneously change together. Cross tabulations and the analysis of associations, comparing between key variables such as capacity building and readiness for response was done. Analysis was carried out on key variables to assess their correlation as per the indicators listed in Table 1.

The local community (wildlife resource adjacent communities) awareness of the likely impacts of oil exploration was documented, since they are key stakeholders in the averting the negative impacts of oil exploration. Data from individual household interviews (Park adjacent communities) was cleaned, coded and entered in the Statistical Package for Socio Scientists (SPSS), version 21. Descriptive statistics were used to establish the socio-demographic characteristics of the respondents interviewed. Data is presented in this thesis using cross tabulations and descriptive statistics to check for associations with in different variables of interest. A Likert scale was used to understand the relationship of the responses of various respondents (Gay *et al.,* 2009).

3.4.9 Anticipated methodological constraints

The researcher anticipated the following methodological constraints especially during the main data collection exercise;

1) The selected staff of Uganda Wildlife Authority (UWA), concealing some of the information required for this study, thus affecting accuracy of the findings.
2) Some government documents not being easily accessible to the researcher to enable her to do a comprehensive review of existing policy and institutional framework documents during the study. However, majority of the documents have been made available to the public on many government websites.

CHAPTER FOUR

RESULTS & DISCUSSIONS

4.1 Introduction

This section provides the outputs of data analysis on the socio demographic characteristics of the respondents from Uganda Wildlife Authority, with a focus on their views related to preparedness to manage oil and gas impacts on wildlife resources. The focus is on the effectiveness of the regulatory mechanisms, the institutional capacity, the contingency planning and early warning systems for management of impacts. It discusses the results in context of the objectives and the relevant literature reviewed.

4.2 Socio-demographic characteristics of the Respondents

Table 2 below gives a summary of the socio-demographic characteristics of the respondents working with Uganda Wildlife Authority(UWA). Of the respondents, interviewed, 30% are attached to law enforcement, 26.7% in the Oil and Gas monitoring department whereas 20% belong to the Finance and Administration. The high percentage of those attached to law enforcement and oil and gas is a good characteristic since they understand the actual operations related to oil and gas, and law enforcements.

Most of the respondents are educated beyond degree level (Bachelors;36.7% and masters;13.3%) and that most of them (46.7%) had served the organization for a period of 4-8 years. Only 33.3% had worked for more than 8 years in the organization. This offered a great opportunity since they are considered knowledgeable especially of the internal operations of the organization.

Table 2: Socio-demographic characteristics of UWA respondents

Variable	Frequency	%
Sex of respondent		
Male	21	70
Female	9	30
Age of respondent		
26-32Years	10	33.3
33-40 Years	11	36.7
41-48 years	8	26.7
>49 Years	1	3.3
Highest level of education attained		
Primary	1	3.3
Certificate Holder	2	6.7
Diploma Holder	12	40
Bachelors	11	36.7
Masters	4	13.3
Period of service in the organization		
<3 Years	6	20
4-8 Years	14	46.7
> 8 Years	10	33.3
Department where respondent is attached		
Law enforcement	9	30
Research & Monitoring	7	23.3
Finance & Admin	6	20
Oil and Gas Monitoring	8	26.7

Objective I: To examine the effectiveness of the regulatory mechanisms in protecting wildlife resources against adverse effects of oil exploration activities in the Albertine region.

4.3 How effective are the regulatory mechanisms to address negative impacts?

Uganda Wildlife Authority (UWA) is a mandated institution by an Act of Parliament to manage wildlife resources in Uganda in a sustainable way. In its mandate, many regulatory mechanisms have been established through the Wildlife Act and the researcher sought to understand how effective they have been in addressing potential negative impacts to wildlife resources arising out of oil and gas explorations. The researcher interviewed senior officers at head office as well

as field staff in Murchison Falls within the different departments and their responses are discussed herein below:

Regulation against poaching

Section 21(a) of the Wildlife Act notes that whoever engages in poaching commits a crime and therefore it is a mandate for UWA to control poaching. The organization executes extended and round patrols to curb illegal entrants into the protected area who potentially kill animals. In doing this, it has avoided annihilation of the species. One of the respondents said, "*We usually go for even a period of a week to camp deep inside the park, looking for poachers".* Moreover, it should be noted that oil and gas activities potentially increase population in protected areas with an increase in the workforce entering the park, who could potentially poach. As a strategy, together with different partners, UWA is developing an offenders' database to capture finger prints of all offenders and ensure that they are monitored. In addition, UWA is implementing SMART (Spatial Monitoring & Reporting Tool) which can determine where to carry out patrols for effectiveness using computer algorithms based on previous occurrences of illegal activities. One of the senior UWA staff interviewed commented thus; "*with SMART, we are becoming better since targeted operations yield highest results".* This approach is becoming more effective since it increases chance of arrests and prosecution. The researcher found out that although poachers are usually arrested, there are repeat offenders who usually make it back to the park and it appears the process of arrest and prosecution of the poachers has not yielded much. This has for example been the basis for a new bill on Wildlife that is before parliament. It realizes that the deterrents to crimes in the current Act are not effective and therefore a need for a review

Regulation of projects indirectly related to wildlife management

Furthermore, the Wildlife Act under Section 24(1) requires that an Environmental Impact Assessment (EIA) for any activity other than wildlife management (Section 21c) being undertaken within the protected area is executed prior to operation. The researcher found out that all the activities related to oil and gas in the Murchison Falls National Park had been subjected to EIAs. To date, over 100 impact assessments and associated audits related to oil pads, storage facilities, access roads and other oil and gas infrastructure within the national park have been undertaken. This mechanism is effective and been fully executed as no development has occurred without prior impact assessments. One of the staff in the Oil and Gas Monitoring Unit noted "*The*

joint monitoring undertaken by UWA together with NEMA and PEPD have ensured institutional collaboration and at times issues are resolved on ground and immediately". This ensures that remediation especially on aspects mentioned in the EIA is done appropriately. The mechanism has proved to be very effective and provides a barrier to negative impacts since they are potentially identified at an earlier stage and mitigation mechanisms proposed.

Regulation of community access to resources

Section 25(2) provides for regulated community access to resources which are crucial for the survival of those communities. This usually includes firewood, thatch grass and medicinal plants on selected days agreed upon by the resource user group(s) and UWA. The authority believes that better livelihoods for the communities around the park leads to reduced illegal activities within the park. However, this approach has not been successful since the members who access resources usually act as reconnaissance teams for poachers most times. Access to resources in the context of oil and gas has included casual jobs available within the park by the oil companies. As a strategy, UWA has been involved in screening for those who get jobs within the park related to oil and gas and one of the criteria has been "a person who has never been arrested for illegal activities" within the park. Details of job applicants are ran against the offenders' database to eliminate wrongdoers. This approach generally seems effective and working since it has ensured that only those who are considered clean access the rather lucrative job offers in the oil and gas sector.

UWA is also engaged in collaborative resource sharing where 20% of all the gate collections in each year are handed over to the communities that surround the park. This approach has ensured that a positive rapport is built between the authorities and the population for effective wildlife resource management. The approach is bottom-up with a bias in conservation as a pre-requisite. This provides a lee-way to address any potential impacts that might arise since community members are able to collaborate with UWA to invest in approaches for conservation albeit at a small scale. On further inquiry on how the communities utilize the resources, one of the respondents attached to community conservation noted "*the other day we handed over money to the sub county which was by the communities to establish a tree nursery to start environmental restoration in their place"*

Regulation against introduction of Alien Species

Management of wildlife resources requires that biodiversity is maintained and avoid alien species. Section 26(2) f of the Wildlife Act provides for "control of the introduction of alien species of animals or plants" within the protected areas. One of the key aspects that increases spread of the same is increased population and machinery movement between sites. As a control measure, it is imperative to control machinery being used in the park through pressure cleaning to get rid of seeds of alien invasive. Although this has not been undertaken by UWA, the latter is serious about personnel coming into the park and what they carry along. Checks are undertaken for all oil and gas workers at points of entry into the protected area though this is not thorough enough to detect any of the materials being imported. It is therefore not an effective deterrent and it needs to be further checked and realigned with the oil and gas sector.

Regulation against waste disposal

Under section 26 (2) d, the authority is tasked with waste management within the protected areas. It is supposed to control the disposal of litter or waste. In relation to oil and gas and the associated impacts, this framework is effective since it ensures the protected area remains waste free. To date, UWA together with the concerned authorities have ensured that all drill waste, hazardous and nonhazardous waste including kitchen waste and human waste is not disposed within the park. "*The drill waste from Rii-B for example, we insisted it should never be within the park. Heritage had to look for a place in Purongo to consolidate the waste",* noted one of the senior UWA staff. All is consolidated at waste sites that are found outside the protected area; with one being at Tangi (northern bank) and Bugungu (southern bank). This ensures that wildlife resources are not contaminated with waste from oil and gas activities.

From the results, the most successful regulatory mechanisms to date are related to waste management, impact assessments for projects that are not directly related to wildlife management and control of poaching. However, efforts need to be made in regard to community resource sharing and use since it seems to be failing.

Objective II: To assess the institutional capacity of UWA to address likely impacts of oil exploration on the wildlife resources in Uganda's Albertine region.

4.4 Capacity of UWA to manage potential impacts from Oil and Gas operations

This section sought to understand their capacity to manage of potential impacts of oil and gas to wildlife resources.

4.4.1 Institutional capacity

The proportion of the respondents who strongly agreed (36.7%) to the fact that there was institutional collaboration and coordination between the different departments of UWA in averting impacts of Oil and Gas was highest and only 13.3% disagreed to the fact. This resonates well with capacity to achieve a certain task requiring coordination and collaboration as noted by (Spanyi, 2017) who observes that departmental collaboration is essential for value creation and is a glue necessary for success of a project.

N=30

Table 3: Structure and Organization of UWA

	Disagree	Neutral	Agree
Sufficient Departmental Staffing	33.4	10.0	56.6
Structure allows for effective delivery on organizational mandate	10.3	10.3	79.3
Support from Top Management	10.7	10.7	78.6

An assessment of the structure and organization of UWA showed some variations as indicated in Table 3 above. Most of the respondents (78.6 %) agreed to the fact that there is support from top management (Board of Directors and the management team) to them as they execute their duty and mandate. The role of the Board is to review and approve management plans and overalloffer strategic direction of organization. It should be noted that some of the strategic directions offered to date has been the approval of different guidelines for management of wildlife amidst the oil and gas activities.

On whether the current organization structure allows for effective delivery of UWA's mandate, 79.3% agreed to this and this. Organizational structure clearly lays out how different work positions relate to one another and it is important to remove any bottlenecks that would otherwise hinder smooth operation of the entire system as noted by Cosh et.al (2012) who observed that Organization structure and innovation performance in different environments increases decentralized decision – making and innovation if it is supported by a formal structure and

written plans In the case of UWA, this is positive and therefore provides for a clear way of executing their role of management of wildlife resources in Uganda.

On the issue of departmental staffing, 56.6% agreed that their departments are sufficiently staffed to meet their needs whereas another 33.4% disagreed with this notion. It is important to further understand why this variation in responses. A further analysis of the departments of the various responses in regard to stafffing sowed that most of those who agreed to being sufffiencently staffed were in Research & Monitoring and Oil and Gas monitoring departments as shown in Table 4. On the contrary, those that felt that they were not sufficiently staffed were mostly in law enforcement as well as Finance and Administation

N=30

Table 4: Views of whether there is sufficient staffing by department

Department	**5-point Likert scale**				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Number of Staff responding				
Law Enforcement	1	3	1	2	2
Research and Monitoring	0	0	2	5	0
Finance & Admin	0	3	0	2	1
Oil and Gas Monitoring	1	2	0	4	1
TOTAL	2	8	3	13	4

4.4.2 Financial Management

Financial management is the heart and soul of an organization. For each entity to fully and effectively execute its roles, it needs to have proper financial management systems in place and there must be resources to run its operation. UWA's preparedness to address different impacts of oil and gas was assessed regarding departmental and overall organizational budgets and how each of these units have been able to execute their core mandate with the resources assigned to them. Table 5 shows that 70% of the respondents strongly agree that the organizational annual budget is sufficient to deliver on its core mandate of managing wildlife resources.

N=30

Table 5: Views on sufficiency of the organizational annual budget

Response	Frequency	Percentage
Disagree	5	16.6
Neutral	4	13.3
Agree	21	70

This was further cascaded to the department level where 65.5% agreed that the department share of the budget was sufficient to deliver on the core mandate and objectives (Table 6) whereas 24.1% disagreed to this fact.

N=30

5-point Likert Scale	Frequency	Percent
Disagree	7	24.1
Neutral	3	10.3
Agree	19	65.5

Table 6: Departmental share of budget

Further inquiry on how different departments have been performing amidst the resource envelope showed that most of them (67.9%) agreed to the fact that they had at least achieved 75% of their core mandate with the budget that they received the previous year (Table 7).

N=30

	Frequency	Percentage
Disagree	5	17.8
Neutral	4	14.3
Agree	19	67.9

Table 7:Budgets delivered three-quarters of departmental mandate

On the other hand, 17.8 % disagreed that they had achieved more than three quarters of their mandate given their budgets in the previous year. Although this is a lower percentage to those who strongly agreed and agreed, it is important to ensure that efficiency in the use of the resources allocated to the different departments is improved if the organization is to avert the negative

impacts that arise out of oil and gas explorations. This is because the oil and gas sector requires great efficiency in the execution of the different tasks (pers.communication)

4.4.3 Contingency planning and preparedness

The UN/OCHA (2008) defines preparedness as the capacity and knowledge developed by governments, professional response organizations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazard events or conditions. It is therefore important to understand how Uganda Wildlife Authority as a parastatal for government is prepared to handle negative effects to wildlife accruing out of oil and gas activities.

An inquiry into whether UWA has conducted a potential hazard analysis to wildlife resources noted that most of the respondents (62.1%) disagreed to this assertion. This was a stark contrast to the 24.1 % who agreed to the same fact (Table 8). This unfortunately puts the organization at a disadvantage knowing that for one to effectively address a challenge, it is important that you understand the potential hazard or cause of the same.

N=30

Statement	*Responses*		
	Agree	Neutral	Disagree
Organization has conducted an analysis of potential hazards to Wildlife	24.1	13.8	62.1
Vulnerability assessments effectively been undertaken	26.6	13.3	60
Limited capacity of staff to address impacts exists	21.4	25.0	53.5

Table 8:Organisational Hazard analysis to Wildlife resources

Vulnerability assessment is very important since it provides an avenue to determine to what extent the negative impacts might affect an institution. 60 % of the respondents disagreed to the fact that vulnerability assessment has effectively been undertaken in opposition to the 26.6 % who agreed to the same statement. This strongly rhymes with what was noted earlier about hazard analysis. Vulnerability and hazard analysis in UWA has not been effectively been undertaken

and this puts the organization at a disadvantage in addressing the negative impacts arising out of oil and gas explorations.

Although a greater percentage of respondents (53.5%) strongly disagreed to the fact that limited capacity amongst staff to address impacts of oil and gas exists, the previous responses regarding hazard analysis and vulnerability challenges this notion. 21.4% were on the positive side of this statement noting that indeed there is limited capacity of UWA staff. This puts the organization to a disadvantage in terms of preparedness and thus requires greater attention to ensure that staff obtain the necessary capacity to address the impacts to wildlife resources arising out of oil and gas activities.

4.4.4 Capacity Analysis and Building

Statement	3-point Likert Scale (Percentage response)		
	Disagree	Neutral	Agree
Capacity needs assessment been undertaken	20.69	27.59	51.73
Existence of standards, procedures and protocols	17.24	13.79	68.97

Table 9: Capacity analysis

An analysis to understand whether UWA has undertaken a staff capacity needs assessment indicated that indeed it had been done with 51.73 % agreeing to the fact. This was closely followed by 24.14% who strongly agreed and only 20.69% noted that a capacity needs assessment hasn't been undertaken (Table 9). It appears the training schedules and the procedures and protocols that are institution wide as indicated in Table 9 above that have been developed have not been disseminated yet and it would be good for the management to disseminate these to all staff that are concerned.

It is clear the organization is on the path to prepare for the oil and gas sector although this needs to be undertaken quite faster since oil production is projected to start in 2020.

Results on preparation in terms of identification of relevant and experienced individuals in the oil and gas sector within the departments showed that indeed 66.7% of the respondents agree to the fact that they have been identified (Table 10). This was further augmented by the different trainers to address different negative impacts on oil being oriented on the different staff needs (71.5%). This is a clear indication that the organization is on track to deliver on its core mandate of wildlife resource management.

N=30

Statement	Responses(Percentage)		
	Disagree	*Neutral*	*Agree*
Experienced individuals in the Oil and Gas issues have been identified	16.7	16.7	66.7
Different trainers on aspects of negative impacts on oil have been oriented on the needs	17.9	10.7	71.5
Training materials on various issues of impact management have been developed	30	6.7	63.3
Training materials on various issues of impact management are readily available	31	20.7	48.3
Effective training schedule has been developed	17.9	32.1	50

Table 10: Training needs identification and material development

Although efforts have been made to prepare for any issues arising out of oil and gas activities, it is important to strongly note that indeed materials have been developed (63.3%) and that they are readily available (48.3%). This is somewhat a contradiction and raises the question of whetherthe developed materials have been disseminated to all or are just being reserved for a few individuals.

Objective III: To assess the role of local communities in addressing the potential negative impacts of oil exploration activities on wildlife resources in the Albertine region.

4.5 Role of Local communities in addressing impacts on wildlife from Oil & Gas Operations

The researcher sought to understand the role of local communities in addressing the negative impacts on wildlife that could arise out of oil and gas activities. Ninety households were interviewed in two villages of two different parishes that neighbor Murchison Falls National Park and the socio-demographic characteristics are presented in Table 11 below.

N=90

Variable	Frequency	Percentage

Parish		
Avogera	47	52
Kigwera	43	48
Gender		
Male	57	63
Female	33	37
Education Level		
Primary	43	48
Secondary	29	32
Certificate Holder	13	14
Diploma holder	4	4
Bachelors	1	1
Masters	0	0
Marital Status		
Never married	17	19
Married	39	43
Widowed	13	14
Separated	21	23

Table 11: Sociodemographic characteristics of the households

Gender disaggregation shows that 63% of the interviewees were male and that most of the respondents (48%) had attended school up to primary level, with the highest education being a bachelor's degree (1%). It is also noted that 43% of the respondents were at least married with 14% having been widowed while 19% had never married or been married before.

4.5.1 Anticipated negative impacts on wildlife resources from oil and gas activities

The researcher sought to understand whether there are anticipated negative impacts to wildlife resources and whether there are already some occurring in and around their communities. Most of the respondents noted that some of these are already happening within their surroundings as indicated in Table 12

Observed impact	Percentage Responses

	Yes	No
Animal migration	63.3	36.7
Wildlife Deaths	58.9	37.8
Competition for territories	41.1	57.8
Destruction of wildlife grazing and breeding grounds	47.8	52.2
Blockage of migratory routes	48.9	51.1
Wildlife in human settlements	70.0	30.0
Increased human-wildlife conflicts	74.4	25.6

Table 12:Response towards impacts on wildlife currently happening

It is clear from Table 12 above that the communities are already experiencing increased wildlife related conflicts (74.4%) and these relate to wildlife encounters and attacks especially from stray animals and crop raiding as well as wildlife presence within human settlements (70%) as well as animal migrations (63.3%). However, it should be noted that most of the respondents (57.8%) did not report having observed competition for territories. This could be related to the complex and scientific nature of the observations related to territorial competition which could not effectively be observed by the community members.

In anticipation of the future impacts on wildlife resources, it is clear from Table 13 that most of the respondents strongly agree to the fact that some of the various impacts are bound to happen. For instance, increased human wildlife conflicts (90 %), blockage of migratory routes (78.9%), death of certain wildlife species(67.8%) and increased animal migrations (64.4%).

N=90

	Percentage Response		
Statement	Disagree	Neutral	Agree
Animal migration	28.9	3.3	64.4
Wildlife Deaths	6.7	23.3	67.8
Competition for territories	11.1	18.9	70
Destruction of wildlife grazing and breeding grounds	14.4	34.4	50
Blockage of migratory routes	17.8	3.3	78.9
Wildlife in human settlements	10	6.7	83.3
Increased human-wildlife conflicts	3.3	6.7	90

Table 13:Anticipated occurrences to wildlife because of oil activities

These responses are in tandem with what (Jalkotzy et al. 1997) noted that the impacts of different industrial activities on wildlife are varied to include wildlife species avoiding certain habitats, a disturbance of habitats and deaths of the wildlife resources amongst others

4.5.2 Role of community in addressing negative impacts to wildlife resources

63.3% community members interviewed noted that although they are not fully involved (Figure 3) now in any programs that are aimed at controlling the negative impacts of oil and gas activities on wildlife resources, there are some roles that they could play.

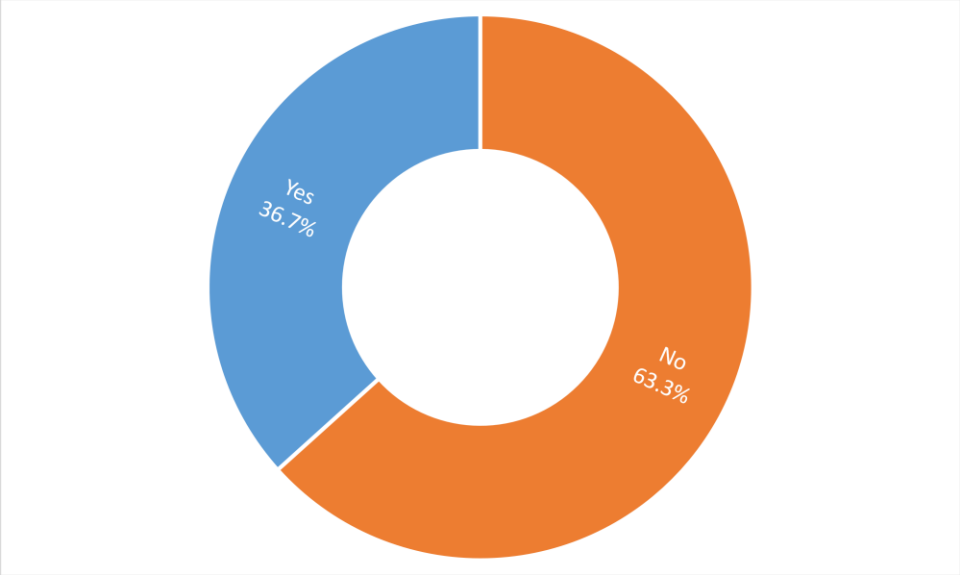

Figure 3:Community Involvement in management of wildlife resources

Key: 63.3% Not fully involved,36.7% involved

The respondents noted that they could effectively be utilized by the wildlife authorities in informing and alerting them of any impacts to wildlife resources. The mandate of UWA is to manage wildlife resources in a sustainable way in and out of protected areas. The community members are the first line of action to protect these resources and they can be further engaged. One of the respondents in Avogera village had this to say; "*The problem with wildlife people is that they think we cannot help them, yet we have good information and are willing to help".* They envisage to be more engaged through reporting presence of wildlife (especially big game) within their areas for UWA to handle, reporting of illegal activities being undertaken by workers in the oil and gas activities and community members themselves.

The respondents also noted that they could become more involved through supporting conservation efforts of wildlife resources. One of the mitigation hierarchy supposed to be undertaken is offsetting. The community members noted that they could participate through availing land to offset the negative impacts. A widow in Kigwera noted that "*I can be able to grow trees that are no longer common in the park and these can be used to plant again areas that have been degraded within the park".* The creation of a seed bank of various species of plants within their communities as an insurance against any potential impacts in the national park is a good initiate that could be explored. This they noted could be utilized as a reserve to restore the area later.

The communities also noted that they could support the monitoring and inspection component. Currently, all inspections especially on oil resources is with the UWA and PEPD without community involvement. They noted that it is imperative and prudent for them to be further involved during the inspection to give due credence to the outcome. One community leader in Kisyabi village said "*The problem with the oil people is that they don't involve us. They choose wildlife people alone, forgetting that we can also help in monitoring the impacts such. One time a kob was stuck in a marram site with mud and communities finally killed it".* Community monitoring of the impacts on wildlife is possible and creates an easier opportunity for saving resources since they have the potential to reach areas where UWA might be constrained; especially within the community areas.

CHAPTER FIVE

CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction.

This chapter seeks to provide concluding remarks and make recommendations from the study. The conclusions are based on desk reviews and the surveys that were undertaken and bring out aspects that were captivating. On the other hand, the recommendations are courses of action that could be undertaken to ensure efficiency and effectiveness of UWA in management of impacts on wildlife arising out of oil and gas activities

5.1.1 Conclusion

From the study, the following conclusions were made;

a) The most successful regulatory mechanisms to avert negative impacts from oil on wildlife resources are related to waste management, impact assessments for projects and control of poaching.
b) Uganda Wildlife Authority has established various strategies internally to address impacts of oil and gas such as the creation of a specialized Oil and Gas Monitoring unit as well as recruitment of ranger force to boost the existing numbers. To date they have two Oil Wardens with over 100 rangers committed to oil and gas related activities. This notwithstanding, the organization still has not fully undertaken an analysis of the potential hazards to wildlife resources and a vulnerability assessment is still lacking for the same.
c) In as much as capacity gaps assessment of the human resources has been undertaken, training schedules developed and materials also developed to support any further training, these have not fully been circulated to all concerned since cases reported lack of knowledge of their existence. This is also true for the procedures, protocols and standards that are essential tool for contingency planning and capacity analysis.
d) Community members are currently not involved in managing the negative impacts arising out of oil and gas activities, yet at times they are at the interface of the park and wildlife in their daily lives

5.1.2 Recommendations

From the study, the following recommendations can be adduced;

a) Efforts need to be made regarding community resource sharing and use since it seems to be failing as one of the regulatory mechanisms. In the Wildlife Bill before parliament, it is recommended that benefit sharing models and mechanisms need to be considered to improve on the modalities that will lead to a win-win situation.
b) A training and capacity building plan for the different staff and even part of the community members in preparedness and management of impacts is necessary. UWA together with the other institutions with the related mandates need to develop a mechanism for this so that all the concerned parties are ready. In addition, the schedules, procedures, protocols and plans already in place need to be disseminated to all the people in languages that are comprehendible for all.
c) An engagement plan for community members to be more involved in supporting management of impacts from oil and gas needs to be developed and consequently implemented. This will improve efficiency and save the organization resources through community participation.

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APPENDICES

Appendix I: Tool for Interview of UWA Officials

Introduction

I am **NAOMI MUKUNDE MUHEREZA a** student at IPSK/Uganda Christian University, Mukono pursuing a Master of Business Administration, oil and gas management.

I'm undertaking a study that aims at establishing Uganda's preparedness to address the negative impacts of oil exploration activities on wildlife resources and local communities in the Albertine region. As key stakeholder in the oil sector, I would like to have a short interview with you concerning this subject matter. The interview will take about 20 minutes. All the information I obtain will remain strictly confidential and will only be used for academic purposes. I would very much appreciate your participation in this survey, but participation is voluntary and you can choose not to answer any individual question or all the questions. However, I hope that you participate in this survey since your views are important. Now, do you want to ask me anything about the survey?

Part 1: Demographic characteristics

Age	18-25 years ☐ 26-32 years ☐ 33-40years ☐ 41-48 years ☐ Above 49 years ☐
Education Level	Primary ☐ Secondary ☐ Certificate Holder ☐ Diploma Holder ☐ Bachelors ☐ Masters ☐
Gender	Male ☐ Female ☐

Marital Status	Never married ☐ Married ☐ Widowed ☐ Separated ☐
Department	
Period of employment in organization	

Part II: Effectiveness of Regulatory mechanisms

a) How does UWA operate in mitigating poaching within the protected areas? Do you think the methods are appropriate?

b) What are the corporation arrangements that are in place for UWA to collaborate with Petroleum Exploration and Production Department(PEPD)?

c) What standards or guidelines have been developed for effective management of wildlife resources? Are there any specific to oil and gas sector and how are these being implemented?

d) How does UWA ensure that the oil and gas activities do not have negative impacts on wildlife?

Part III: Institutional Capacity Assessment

Institutional capacity to manage devastating effects of oil exploration

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am comfortable with the institutional collaboration and coordination between different of UWA in averting impacts of Oil and Gas					
My current departmental structuring allows for the institution to effectively deliver on its mandate of managing wildlife resources sustainably					
My current department is sufficiently staffed to deliver on its role in the management of wildlife resources sustainably					
Our organization's overall annual budget is sufficient and appropriate to deliver on its mandate					
My department's share of the organizational budget is appropriate and supports delivery of our mandate					
My department has achieved 75% of our core mandate with the budget that we get					
I am confident that the financial management systems in place allow for an efficient running of our operations					
The top management of UWA is very supportive to all staff for effective delivery on the mandate					

Contingency Planning

Items	5-point Likert Scale				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

My organization has conducted an analysis of potential hazards to wildlife resources from oil and Gas explorations					
My organization has carried out vulnerability assessments of the hazards have effectively been undertaken					
Capacity development of staff regarding planning to address negative impacts to wildlife resources arising out of oil and gas explorations is limited					

Capacity analysis and building

Items	**5-point Likert scale**				
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
My organization has undertaken a staff capacity needs assessment to enable it to be fully preparedness for negative impacts that arise out oil and gas explorations on wildlife resources					
Individuals experienced in the oil and gas disasters management relating to wildlife within the organization have been identified					
Different trainers have been effectively oriented about the training requirements of the staff					
Training materials on the management of the oil and gas activities on wildlife for different target audiences (decision makers, managers, technical staff, community organizations) have been developed					

Training materials on the management of the oil and gas activities on wildlife for different target audiences (decision makers, managers, technical staff, community organizations) are readily available to them					
An effective and all-inclusive training schedule on the impacts of oil and gas activities on the wildlife resources has been developed					
Institution-wide training in standards, procedures, and protocols related to on how to handle devastating impacts of oil and gas activates on wildlife are in place.					

Hazard monitoring, forecasting and early warning

Items	Rank				
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
My organization has developed early warning systems to detect any potential impacts from oil and gas activities					
The developed early warning systems are regularly tested and modified based on lessons learned.					
Institutional arrangements to facilitate effective and timely early warning systems that have been developed are in place					

Readiness towards response to impacts of Oil and Gas Exploration

a) How prepared is the organization in responding to any disaster arising from oil exploration in the National Park?

b) What recommendations would you give to government to put in place to ensure adequate preparedness for managing devastating effects of oil exploration activities on wildlife and local communities?

……

……

…….

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THANK YOU FOR YOUR TIME

Appendix II: Questionnaire for Local communities

I am **NAOMI MUKUNDE MUHEREZA a** student at IPSK/Uganda Christian University, Mukono pursuing a Master of Business Administration, oil and gas management. I'm undertaking a study that aims at establishing Uganda Wildlife Authority's (UWA) preparedness to address the negative impacts of oil exploration activities on wildlife resources. Particularly, I am interested in understanding the role you play as in ensuring the country's preparedness. The interview will take about 30 minutes. All the information I obtain will remain strictly confidential and will only be used for academic purposes. I would very much appreciate your participation in this survey, but participation is voluntary and you can choose not to answer any individual question or all the questions. However, I hope that you participate in this survey since your views are important. Now, do you want to ask me anything about the survey?

Part I: Demographic Characteristics

Village	
Parish	
Age	18-25 years ☐ 26-32 years ☐ 33-40years ☐ 41-48 years ☐ Above 49 years ☐
Education Level	Primary ☐ Secondary ☐ Certificate Holder ☐ Diploma Holder ☐ Bachelors ☐ Masters ☐
Gender	Male ☐ Female ☐
Marital Status	Never married ☐ Married ☐ Widowed ☐ Separated ☐

Household size	

Part II: Participation of local communities in Mitigation of negative impacts arising out of oil and gas activities on Wildlife Resources

As a community member, you play a key role in mitigating the negative impacts of oil and gas.

1. Are you aware of any negative effects of oil exploration in the park on the wildlife?

2. If yes, please list them

……
……
……
……

3. Do you anticipate any of the following to happen because of oil and gas activities? Is any of them already happening? (*Please Tick as appropriate*)

A=Agree, SA=Strongly Agree, D=Disagree, SD=Strongly Disagree, N = Neutral

Variable	**SD**	**D**	**N**	**A**	**SA**	**Have you observed any of these events**	
						Yes	**No**
Animal migration							
Wildlife deaths							
Competition for territories among wild animals							

Destruction of wildlife grazing and breeding grounds							
Blockage of wildlife migratory routes							
Wild animals in communities							
Increased human-wildlife conflicts e.g. crop raiding, loss of human life							

Community participation in preparedness

4. Are you involved in any programs aimed at controlling negative effects of oil exploration on wildlife resources?

5. If yes, how are you involved?

……
……
……
…….

6. Do you think as a community member, there is a role you can play in supporting the other institutions in managing the negative impacts that might arise out of oil and gas activities? If yes, what role do you envisage as actively playing?

……
……

…..……

……

……

……

THANK YOU FOR YOUR TIME

Appendix III: Application Letter for Research in UWA

Institute *of* Petroleum
Studies - Kampala

August 7th, 2017

TO WHOM IT MAY CONCERN

Dear Sir/Madam

INTRODUCTION FOR MS. NAOMI MUHEREZA TO CONDUCT RESEARCH IN YOUR ORGANISATION

Greetings in the precious name of our Lord.

I wish to introduce to you the above-named person, who is a Masters student pursuing Masters of Business Administration in Oil and Gas, of Uganda Christian University in affiliation with the Institute of Petroleum Studies Kampala(IPSK).

Her proposal has been approved by our vetting committee and is in the process of collecting data. Ms. Naomi would wish to conduct research in your organization.

The title of her research is **"The Analysis of Uganda Wildlife Authority's preparedness to manage devastating impacts of Oil and Gas activities on Wildlife Resources in the Albertine Region."**

By copy of this letter, all respondents are notified that this study is for academic purposes and as an Institution, we request you to corporate in facilitating this very interesting research project.

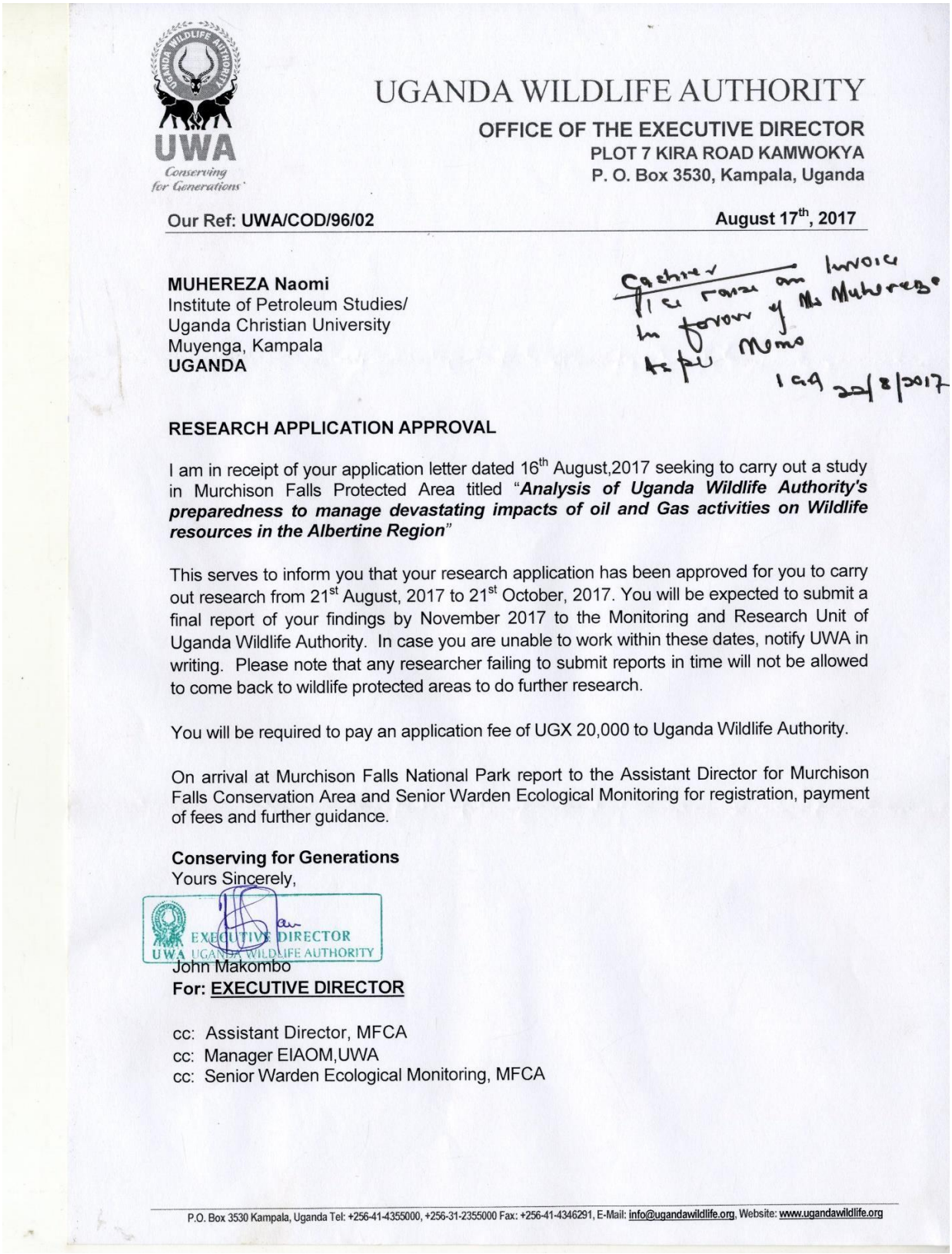
Sincerely,

INSTITUTE OF PETROLEUM STUDIES - KAMPALA
17 AUG 2017
REGISTRAR
TEL:0414695610

Dorcas Magoba
Academics Registrar

Le Palm Plot 244/245, Tank Hill Road, Muyenga - Kampala, Uganda
Tel: +256 414 695610 Email: info@ipsk.ac.ug Website: www.ipsk.ac.ug

Appendix IV: Authorization Letter for Research from UWA



UGANDA WILDLIFE AUTHORITY

OFFICE OF THE EXECUTIVE DIRECTOR
PLOT 7 KIRA ROAD KAMWOKYA
P. O. Box 3530, Kampala, Uganda

Our Ref: UWA/COD/96/02 August 17th, 2017

MUHEREZA Naomi
Institute of Petroleum Studies/
Uganda Christian University
Muyenga, Kampala
UGANDA

Cashier
Pls raise an Invoice
in favour of Ms Muhereza
to pay Nemo
1 cq 22/8/2017

RESEARCH APPLICATION APPROVAL

I am in receipt of your application letter dated 16th August,2017 seeking to carry out a study in Murchison Falls Protected Area titled "***Analysis of Uganda Wildlife Authority's preparedness to manage devastating impacts of oil and Gas activities on Wildlife resources in the Albertine Region***"

This serves to inform you that your research application has been approved for you to carry out research from 21st August, 2017 to 21st October, 2017. You will be expected to submit a final report of your findings by November 2017 to the Monitoring and Research Unit of Uganda Wildlife Authority. In case you are unable to work within these dates, notify UWA in writing. Please note that any researcher failing to submit reports in time will not be allowed to come back to wildlife protected areas to do further research.

You will be required to pay an application fee of UGX 20,000 to Uganda Wildlife Authority.

On arrival at Murchison Falls National Park report to the Assistant Director for Murchison Falls Conservation Area and Senior Warden Ecological Monitoring for registration, payment of fees and further guidance.

Conserving for Generations
Yours Sincerely,

EXECUTIVE DIRECTOR
UWA UGANDA WILDLIFE AUTHORITY

John Makombo
For: EXECUTIVE DIRECTOR

cc: Assistant Director, MFCA
cc: Manager EIAOM,UWA
cc: Senior Warden Ecological Monitoring, MFCA

P.O. Box 3530 Kampala, Uganda Tel: +256-41-4355000, +256-31-2355000 Fax: +256-41-4346291, E-Mail: info@ugandawildlife.org, Website: www.ugandawildlife.org