ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING - A COMPARATIVE ANALYSIS WITH GLOBAL LEGAL FRAMEWORKS, FOCUSING ON UGANDA

RONALD SSENTONGO

S20M23/010

A DISSERTATION SUBMITTED TO THE SCHOOL OF LAW IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF MASTER OF LAWS IN OIL AND GAS OF UGANDA CHRISTIAN UNIVERSITY

April, 2024

UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

DECLARATION

I, **SSENTONGO RONALD** hereby declare that this dissertation entitled "**ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING - A COMPARATIVE ANALYSIS WITH GLOBAL LEGAL FRAMEWORKS, FOCUSING ON UGANDA.**" is my own original work and it has not been presented to any other institution for any academic award.

Sign ..... **Date**17th April 2024.....

SSENTONGO RONALD

S20M23/010

APPROVAL

This is to certify that, this dissertation entitled “An analysis of the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure: **ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING - A COMPARATIVE ANALYSIS WITH GLOBAL LEGAL FRAMEWORKS, FOCUSING’ ON UGANDA’** Has been done under my supervision and now it is ready for Submission

Signature ……  **……** Date 18/04/2024

MUGABI IVAN
ACADEMIC SUPERVISOR

DEDICATION

"With immense gratitude, I extend this heartfelt dedication to the divine force that guides us all. It's through the gentle nudges and flashes of insight that this journey of research and discovery has been possible. As it is written in Proverbs 9:10, 'The fear of the Lord is the beginning of wisdom,' and indeed, it is through divine guidance that this research has found its path. To my ever-supportive family, your unwavering presence and encouragement have been my anchor amidst the turbulent seas of academia. Here's to the countless late nights, the moments of frustration turned into triumph, and the unwavering belief that we can achieve greatness together. This work stands as a testament to our collective resilience and unwavering spirit."

ACKNOWLEDGEMENT

I express my profound gratitude to my esteemed research supervisor, Mr. Mugabi Ivan, whose unwavering patience and expert guidance have been invaluable throughout this research endeavor. His mentorship, both in a professional capacity and with a touch of parental care, has been instrumental in elevating this study to its current level of excellence.

I extend sincere appreciation to the respondents from the Ministry of Energy for their gracious cooperation and willingness to provide vital information during the research process. Their collaborative efforts have been essential in ensuring the success and completion of this study.

Furthermore, I am grateful to my colleagues at the Institute of Petroleum Studies Kampala, particularly the Honoris team, and the dedicated academic staff whose support and camaraderie have enriched my academic journey.

To my cherished wife, children, and all those mentioned above, I am deeply indebted for their unwavering support and understanding amidst the challenges and sacrifices endured throughout this endeavor. May the blessings of the Almighty be abundantly upon them all.

TABLES OF CONTENTS

LIST OF ACRONYMS

PAU …… Petroleum Authority of Uganda

EACOP …… East African Crude Oil Pipeline

IOCs …… International Oil Companies UK

…… United Kingdom

NEA …….. National Environmental Act 2019

O&G …….. Oil and Gas

ABSTRACT

The lifecycle of oil and gas infrastructure entails multiple stages, including exploration, development, production, and decommissioning. While exploration and production often command attention, decommissioning, though less glamorous, poses significant technical and legal challenges, sometimes surpassing those encountered in earlier phases. The legal framework governing decommissioning, particularly regarding environmental protection, funding, and ongoing liabilities, is deemed crucial for mature oil and gas provinces.

This dissertation examines the potential implications of various global legal frameworks for onshore oil and gas decommissioning on Uganda's emerging sector. Despite Uganda's limited experience in the industry, its ratification of the 1958 Geneva Convention on decommissioning reflects an initial engagement with international standards. Nonetheless, gaps and deficiencies in Uganda's domestic petroleum laws and oil and gas policies underscore the imperative for comprehensive regulatory frameworks.

Drawing on diverse global experiences and legal approaches, this study critically assesses the applicability of international best practices to Uganda's specific context. Through comparative analysis, it evaluates the potential benefits and challenges of adopting elements of global decommissioning regimes in Uganda. While acknowledging the distinctiveness of each regulatory framework, the study highlights opportunities for Uganda to learn from global experiences and tailor international best practices to address its unique challenges effectively.

Ultimately, the research advocates for the development of a robust and contextually appropriate legal framework for onshore oil and gas infrastructure decommissioning in Uganda. By leveraging comparative analysis and international standards, Uganda can establish a framework that ensures environmental protection, financial sustainability, and effective management of decommissioning activities, thereby contributing to the sustainable development of its oil and gas sector.

CHAPTER ONE

INTRODUCTION

1.0 History and Background

Worldwide, the oil and gas industry is advancing and concerns of this industry are changing with time[1]. In the beginning, there was the mad rush for exploration of onshore reservoir, then exploration and production offshore followed which necessarily required transportation of crude and other product for both traditional markets nationally and globally. Thus, the oil and gas sector is not only concerned with upstream activities but also extends to midstream, such as storage and refining activities, as well as marketing of products- which are within the remits of downstream sectors.[2]

There are over 7,300 offshore platforms and production facilities located in 53 countries consisting of different installation sizes, regulatory regimes, marine environment and technical expertise. At the same time, decommissioning costs estimated at $40 billion are needed to remove these structures.[3]There are over 480 installations located off the coast of Africa, and Nigeria as the most important oil and gas producer on the continent is host to over 170 structures with attendant cost implications

The word 'decommissioning' is not well-defined in international and several national legislations, can take on words like 'abandonment', 'disposal' and 'removal', which make up possible processes in decommissioning. It has been mentioned in the UK Petroleum Act (1998) and the 2011 Decommissioning Guidelines[4]that while 'abandonment programme' is referred to in the Petroleum Act, the generally accepted term is 'decommissioning programme'.

[1] Daniel Yergin,(2010) The Prize: the Quest For Oil, Money and Power (Simon Schuster , London 2010) on hydro carbon age pg.371-523

[2]John Seitz, (2008) Global Issues: An Introduction (3rdEdition Black well Publishing 2008) 126 on changing dynamics of the oil and gas industry

[3] Ahmad Kashfi and Wansiti Adibah, `Joint Development Agreement Scheme for Management of World's Largest Shared Oil and Gas Reservoir ` (2015)2 (12) Journal of Scientific Research and Development 70-80

[4] Department for Business Energy and Industrial Strategy UK, 2011

Based on most legislation requirements investigated in this paper[5]and current decommissioning practices[6], it appears that decommissioning is the final stage of the life cycle of an industrial facility and is the process of closing down an industrial facility via methods, which balances the sensitive boundaries of minimizing financial costs, costs to human life and well-being and to the environment. In this paper, the industrial facility refers specifically to offshore production facilities.

Uganda started the journey of oil discovery as early as 1920s, when EJ Wayland, a government geologist led a team that documented the discovery of oil reserves in the Albertine Graben, in his publication entitled"Petroleum in Uganda".[7]This information and research led to the commercial Oil discovery in 2006. According to the reports from the Ugandan ministry of energy and minerals development and the petroleum authority of Uganda (PAU), Uganda is blessed with over 6.5 billion barrels of oil with expected recovery of between 1.4 -1.7 billion barrels of oil.[8]

The oil reserves both onshore and offshore have put Uganda among Africa's oil producers, with multiple benefits to Ugandans, through job creation, capacity building as part of the corporate social responsibility by the international oil companies. However, oil discovery and installations come along with negative impacts and responsibilities, a number of pre-requisite infrastructural arrangements have been installed to enable exploration and production of Oil and Gas resources. However, after the lifecycle of oil exploring and producing such installed infrastructure shall become disused and indeed if not well managed, could cause wanton pollution and damage the environment. Therefore, being mindful of the above problem, it becomes necessary to ensure that, at the cessation of production the disused installation is removed, and the production fields are restored to their normal state, this is called decommissioning.

The term decommissioning refers to a set of activities to be undertaken to manage and dispose off installations and platforms, at the closure and consequential termination of mining activities.[9] Decommissioning may involve complete removal or partial removal of oil and gas installations. In so doing some infrastructure may be abandoned while others reserved for future use. Whatever option chosen,

[5] Department for Business Energy and Industrial Strategy UK, 2011; PETRONAS, 2008
[6] Techera and Chandler, 2015
[7] Petroleum Authority of Uganda, History of Petroleum Exploration in Uganda<https://www.pau.go.ug>
[8] Uganda Ministry of Energy and mineral development, <http: //WWW.pau.go.ug>,
[9] Flavia Kaczelnik, Decommissioning of Upstream Oil and Gas facilities

environmental protection, safety of personnel and other users of the sea and land must be considered as well as the economic implications like costs involved in the decommissioning process.[10]

Most of the infrastructures and installations for oil and gas production in Uganda are onshore, these include among others the East African Crude oil pipeline (EACOP), refinery centers, oil tanks and operations centers which must be decommissioned at the end of the Oil exploration and production.[11] [12]At the time of decommissioning, the productive life of oil installation has ended and there is no revenue recoverable from such fields or installations, therefore the host government, (which is Uganda in this case) must plan and secure finances to cater for the decommissioning process and the planning process ought to start as early as now. Although decommissioning is provided for and regulated upon in Uganda's legal framework, there are many challenges that are associated with decommissioning that were barely considered when drafting the aforesaid framework. Globally the Oil and Gas industry has developed best decommissioning related practices which shall be worthwhile incorporating in the Ugandan law on this aspect.

The discovery of commercially viable quantities of oil in the Albertine Graben in Western Uganda was announced by the Government of Uganda in 2006[13]. By the end of 2017/2018 Uganda had 21 oil and gas discoveries with an estimated accumulation of 6.5 billion barrels of oil equivalent, of which 1.3 billion barrels is recoverable[14]. Uganda's gas reserves are estimated at 672 billion cubic feet of gas, with 499 billion barrels of non-associated gas and 173 of associated gas. There is still considerable potential for discovering more petroleum, given that less than 40 per cent of the total area in Albertine Graben with the potential for petroleum production has been explored[15]

[10] Flavia Kaczelnik, Decommissioning of Upstream Oil and Gas Facilities

[11]Directorate of Petroleum -Uganda, Transportation and storage infrastructure for petroleum commodities and products

[12] Oil in Uganda – Hard bargaining and complex politics in East Africa, The oxford institute for energy studies, <http://WWW.oxfordenergy.org>

[13] Veit, P., C. Excell and A. Zomer (2011), 'Avoiding the Resource Curse: Spotlight on Oil in Uganda'.

[14] Ministry of Energy and Mineral Development (MEMD) (2017), Ministerial Policy Statements.

Retrieved from:www.energyandminerals.go.ug Parliament of Uganda (2016), The Report of the Parliamentary Committee on Natural Resources for the 2016/17. Kampala: Government of Uganda.

[15] Ministry of Energy and Mineral Development (MEMD) (2017), Ministerial Policy Statements.

The development of offshore oil reserves will have multifarious benefits for Uganda. White remarks that 'oil is almost like money'.[16]Tullow has estimated that Uganda could earn up to $ 50 billion dollars from its oil reserves including offshore.[17]The pecuniary benefit that the development of onshore and offshore oil reserves will bring to Uganda is indeed a living testament of White's statement.[18]Yergin, commenting on the significance of oil, remarked that 'it is oil that makes possible where we live, how we live, how we commute to work, how we travel-even where we conduct our courtships…oil are the essential components in the fertilizer on which the world agriculture depends; oil makes it possible to transport food.'[19]Whilst the usefulness enumerated by Yergin are not exclusive to oil, in this context it encapsulates the benefits of the oil that will be extracted offshore Lake Albert in improving energy security[20]and standard of living in the country.[21]In addition, the international oil companies that are operating in Uganda have employed a handful of locals and it is expected that more jobs will be created.[22]As part of their corporate social responsibility under the various production sharing agreements[23]under which they operate, these oil companies are also expected to train capacity in relevant fields in the oil and gas sector.[24]

Retrieved from:www.energyandminerals.go.ug Parliament of Uganda (2016), The Report of the Parliamentary Committee on Natural Resources for the 2016/17. Kampala: Government of Uganda.

[16] Gerald T White, Scientists in conflict: The Beginnings of the Oil Industry in California (Marino 1968) 38. [17] Reuters Ltd, 'UPDATE 2-Uganda Ups Oil Reserves Estimate by 85 pct, finds Natural Gas' (July 1, 2015) <http://www.reuters.com/article/uganda-oil-idUSL5N0QZ1EW20140829 > accessed 5 July 2017.

[18] Lawrence Bategeka and Others, 'Oil Discovery in Uganda: Managing Expectations' (2016) <https://www.mak.ac.ug/documents/EPRCUDICPaper.pdf> accessed 6 July 2017.

[19] Daniel Yergin, The Prize (FreePress 2003) 15.

[20] The term energy security in this paper is defined as 'a condition in which a nation and all or most, of its citizen and businesses have access to sufficient energy resources at reasonable prices for the foreseeable future free from serious risk of disruption'. See Barry Barton and Others, 'Introduction' in Barry Barton and Others(eds), Energy Security (Oxford University Press 2004) 5.

[21] Ezra Sabiti Suruma, Advancing the Ugandan Economy: A Personal Account (The Brookings Institution 2014) 197.

[22] The Oil and Gas Industry in Uganda: Employment trends, vocational education and training, and skills needed'(2013) <embargo.ilo.org/pu blic/libdoc/ilo/2013/113B09_360_engl.pdf> accessed 6 July 2017.

[23] A production Sharing Contract (PSC) is a contractual arrangement used by a state to contract an oil company to assume the financial and operational aspect of petroleum operations.See Tade Oyewunmi, 'Stabilisation and Renegotiation Clauses in Production Sharing Contracts: Examining the Problems and Key Issues' (2011)9(6) OGEL 5,6. For more commentaries on the nature of production sharing contracts, Kim Talus and Others, 'Lex Petrolea and the Internationalization of Petroleum Agreements: Focus on Host Government Contracts' (2012) 5(3) JWELB 181,187-188. For a whole commentary on production sharing contracts see Kirsten Bindemann, Production Sharing Agreements: An Economic Analysis (Oxford Institute of Energy Studies 1999)

However, the benefits from the oil derived from offshore exploration cannot fog the negative environmental ramifications that may result from such offshore oil activities in Lake Albert. Indubitably from exploration to ceasation of production, offshore oil activities result in environmental pollution if not properly managed.[25]A facet of such pollution is the one that can occur from a disused offshore installation after cessation of production.[26]Some authors claim that Lake Albert is one of the richest biodiversity lakes in the world.[27]This is because it is the habitat for diverse species of aquatic flora and fauna.[28]If the offshore oil installations that will be fixed in Lake Albert are not properly managed, remnants of harmful substances can find their way into the Lake destroying such aquatic lives.[29]What is more, the presence of disused offshore installations could also pose hazards to legitimate users of the lake.[30]Hence, there is the need to ensure that such disused installations are taken care of at the cessation of production. This is called decommissioning.

1.1 Statement of the Problem

The proposal of this research is to identify the economic needs of onshore decommissioning, and analyze the challenges and limitations to such needs and whether Uganda's legal regime can effectively provide necessary remedies to the challenges affecting the decommissioning process.

The discovery of oil and gas in Uganda has attracted huge investment in infrastructural installations to enable the commercial production of crude oil, considering those developments, a pipeline, refineries, production and storage centers have been constructed. However, the study shows that Uganda's reserves

---

[25] For a detailed commentary on the pollution that results from offshore activities. See Eric Cordes and Others,'Environmental Impacts of the Deep-Water Oil and Gas Industry: A Review to Guide Management Strategies'(2016)16 Environmental Sci 58.

[26] USAID, 'Uganda Biodiversity and Tropica Forest Assessment: Final Report' (2006) <http://www.vub.ac.be/klimostoolkit/sites/default/files/documents/uganda_biodiversity_assessment_usaid.pdf> accessed 6 July 2017.

[27] Report on the Progress of the Implementation of National Oil and Gas Policy for Uganda February 2017 (n6) [28] Meike Westerkamp and Annabelle Houdret, Peacebuilding Across Lake Albert Reinforcing Environmental Cooperation between Uganda and the Democratic Republic of Congo (Initiative for Peace 2010)13

[29] Jeom Kee Paik and Anil Kumar Thayamballi, Ship-Shaped Offshore Installations: Design, Building, and Operation (Cambridge University Press 2007) 456.

[30] Lake Albert borders Republic of Congo and Uganda,as such is a route within which indignes of both country travel for trade and other purposes. See Ugandan Civil Society, 'Civil Society Coalition on Oil in Uganda', 20 <http://platformlondon.org/wp-content/uploads/2012/01/Contracts-Curse-Uganda-Platform-CSCO.pdf> accessed 14 July 2017. As a result such disused offshore installations if not handled can compromise the safety of lake for transportation purposes. See UK Government 'Foreign Travel Advice: Uganda' (2017) <https://www.gov.uk/foreign-travel-advice/uganda/safety-and-security> accessed 6 July 2017.

in the Albertine Graben can produce commercial oil for only 30 years, this means after 30 years the erected infrastructure shall be disused, abandoned and therefore will need to undergo decommissioning.

In light of the above processes, there is urgency for critical consideration of environmental aspects, sustainable development concerns. Special attention ought to be afforded to the deserving level of preparatory work involved in decommissioning, the complexity of the removal exercise, costs and challenges associated with the regulatory framework and structure. Research from case studies that have spent a much longer duration in this sector are suggesting that the challenges of onshore decommissioning are quite considerable and remain a concern to the entire oil and gas industry to be either underestimated or under looked.

The seriousness of environmental effects from post oil mining activities calls for good practices such as commencing careful planning and preparation as early as the development phase of an onshore field is in its initial stages. A timely and a well-conceived plan is very essential to the success of a decommissioning project.

Uganda has not yet produced even a single barrel of oil; therefore, it still has over 20 years of oil production and the same time to effectively plan for an effective decommissioning process. Decommissioning activities globally are concentrated in the two main regions that is the United States, Gulf of Mexico, and the North Sea, and over 210 installations have been removed, yet 1000 other fixed installations have ceased production and most of these installations are offshore. Uganda oil and gas industry must target a plan for onshore decommissioning through bench making best practices from the United Kingdom.

1.2 Purpose of the Study

This study aims to conduct a comprehensive comparative analysis of global legal frameworks pertaining to onshore oil and gas infrastructure decommissioning, with a specific focus on Uganda. The objectives of the study are as follows:

Firstly, the study seeks to evaluate the existing legal frameworks and practices governing onshore oil and gas decommissioning worldwide. This evaluation will encompass various aspects such as environmental protection, funding mechanisms, and ongoing liabilities associated with decommissioning activities.

Secondly, the study aims to assess the applicability of these global legal frameworks to Uganda's emerging onshore oil and gas sector. This assessment will take into account the country's unique socio-economic and regulatory context, identifying potential challenges and opportunities for the adoption of international best practices.

Thirdly, the study will identify any gaps and deficiencies in Uganda's current domestic petroleum laws and oil and gas policies concerning decommissioning activities. By pinpointing areas for improvement, the study will contribute to the development of a more robust regulatory framework tailored to Uganda's specific needs.

Moreover, the study will explore opportunities for Uganda to learn from international experiences and adapt relevant elements of global decommissioning regimes. By leveraging these insights, Uganda can address its specific challenges effectively and enhance the sustainability of its onshore oil and gas sector.

Ultimately, the study aims to advocate for the development of a contextually appropriate legal framework for onshore oil and gas infrastructure decommissioning in Uganda. Such a framework will be instrumental in ensuring environmental sustainability, financial responsibility, and efficient management of decommissioning processes, thereby contributing to the long-term viability of Uganda's oil and gas industry.

1.3 Justification of the Study

The rationale behind conducting this study lies in several key factors:

Firstly, as Uganda's onshore oil and gas sector continues to develop, the need for a robust legal framework for decommissioning activities becomes increasingly apparent. Given the potential environmental, financial, and social implications of decommissioning, it is imperative to establish comprehensive regulations that ensure responsible and sustainable practices.

Secondly, while there is a wealth of global experience and best practices in onshore oil and gas decommissioning, each country faces unique challenges and contexts. By conducting a comparative

analysis of global legal frameworks, with a specific focus on Uganda, this study seeks to identify relevant lessons and insights that can inform the development of tailored regulations suited to Uganda's needs.

Thirdly, the study aims to address existing gaps and deficiencies in Uganda's current domestic petroleum laws and oil and gas policies concerning decommissioning. By identifying areas for improvement, the study can contribute to the enhancement of Uganda's regulatory framework, ultimately facilitating more effective and efficient decommissioning processes.

Moreover, as Uganda navigates the complexities of its onshore oil and gas sector, there is a growing need for evidence-based decision-making and policy formulation. This study will provide policymakers, industry stakeholders, and regulatory authorities with valuable insights and recommendations informed by international best practices and comparative analysis.

Furthermore, by advocating for the development of a contextually appropriate legal framework for onshore oil and gas infrastructure decommissioning in Uganda, this study seeks to promote environmental sustainability, financial responsibility, and the long-term viability of the country's oil and gas industry.

In summary, the justification for this study lies in its potential to fill critical knowledge gaps, inform policy development, and contribute to the sustainable development of Uganda's onshore oil and gas sector. Through its rigorous analysis and practical recommendations, the study aims to support informed decision-making and foster responsible practices in oil and gas decommissioning activities.

1.4 Aims and Objectives

Specific Objectives:

1. To conduct an analysis of legal frameworks governing onshore oil and gas infrastructure decommissioning in Uganda

2. To critically examine the challenges faced during decommissioning processes governing onshore oil and gas infrastructure decommissioning in Uganda and compare them with international best practices, aiming to identify areas for improvement and opportunities for alignment with global standards.

3. To present findings, recommendations, and conclusions based on the comparative analysis of legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning, offering actionable insights for policymakers, industry stakeholders, and regulatory authorities in Uganda and beyond.

1.5 Research Questions

1. What are the key components of the legal frameworks governing onshore oil and gas infrastructure decommissioning in Uganda?

2. How do the challenges faced during decommissioning processes of onshore oil and gas infrastructure in Uganda compare with international best practices, and what opportunities exist for improvement and alignment with global standards?

3. What findings, recommendations, and conclusions can be drawn from the comparative analysis of legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning, and how can these insights inform actionable strategies for policymakers, industry stakeholders, and regulatory authorities in Uganda and beyond?

1.6 Scope of the Study

The study focused on the needs, challenges and the legal frame work on decommissioning in Uganda, citing best practices and challenges from the United Kingdom. Specifically, the study analyzed the needs for onshore decommissioning of oil and gas infrastructure; examine the challenges faced during onshore decommissioning of oil and gas infrastructure in Uganda and United Kingdom and examine the legal framework for onshore decommissioning of oil and gas infrastructure.

The study involved review and analysis of ten-year research journal articles on the needs, challenges and the legal frame work on decommissioning in Uganda, citing best practices and challenges from the United Kingdom. The study was carried out for a period of one year (September, 2021 – March, 2022) as the time allocated for research activity at the Department of law of Uganda Christian University.

1.7 Chapter Synopsis

Chapter 1: Introduction

In the introductory chapter, the dissertation sets the stage by providing an overview of the research topic—onshore oil and gas infrastructure decommissioning—and its significance. It delves into the background and context of the study, highlighting the growing importance of decommissioning activities in the oil and gas industry. The chapter outlines the research objectives, emphasizing the need to analyze the legal frameworks, challenges, and needs associated with onshore decommissioning in Uganda. Furthermore, it discusses the research questions that will guide the investigation and provides an overview of the dissertation's structure, laying the foundation for the subsequent chapters.

Chapter 2: Literature Review

The second chapter embarks on a comprehensive review of existing literature related to onshore oil and gas infrastructure decommissioning. It explores the legal frameworks governing decommissioning activities worldwide, with a focus on both Uganda and other countries. The chapter delves into the challenges encountered during decommissioning processes and examines international best practices in this regard. By synthesizing relevant literature, the chapter sets the stage for understanding the broader context within which Uganda's decommissioning activities take place.

Chapter 3: Methodology

In Chapter 3, the dissertation outlines the methodology employed to achieve the research objectives. It discusses the research design, data collection methods, and data analysis techniques utilized in the study. The chapter also addresses the selection of case studies and ethical considerations. By providing a transparent overview of the research methodology, this chapter ensures the rigor and credibility of the study's findings.

Chapter 4: Legal Frameworks Governing Onshore Oil and Gas Infrastructure Decommissioning in Uganda

Chapter 4 focuses on analyzing the legal frameworks governing onshore oil and gas infrastructure decommissioning specifically within the Ugandan context. It examines the key components of Uganda's legal framework, comparing and contrasting them with international standards. The chapter identifies gaps and challenges in the implementation of Uganda's legal framework and offers recommendations for strengthening it to align with global best practices.

Chapter 5: Challenges Faced during Decommissioning Processes in Uganda and Comparison with International Best Practices

Chapter 5 delves into the challenges encountered during onshore oil and gas infrastructure decommissioning in Uganda, drawing comparisons with challenges faced in other countries. Through case studies and practical examples, the chapter highlights opportunities for improvement and alignment with international best practices. It provides recommendations for addressing the identified challenges to enhance the effectiveness of decommissioning processes in Uganda.

Chapter 6: Findings, Recommendations, and Conclusion

In the final chapter, the dissertation presents the key findings of the study, synthesizing the insights gleaned from the analysis of legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning. It offers actionable recommendations for policymakers, industry stakeholders, and regulatory authorities based on the research findings. Finally, the chapter concludes with reflections on the study's contributions to the field and outlines avenues for future research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Literature review is a critical analysis of the available literal materials in the study phenomena so as to come up with a logical conclusion about the research problem. This study shall use literature review in determining what has already been researched or done in relation to the study or the research problem, literature is reviewed to establish and examine the needs, the challenges and the legal framework on the decommissioning process of oil and gas infrastructure. This shall be a comparative study of Uganda and the United Kingdom (UK) with a major purpose of identifying the needs, challenges and best practices for onshore decommissioning, with a view of suggesting recommendations for Uganda's oil and gas industry.

2.1 Summary of the Literature

2.1.1 The needs for onshore decommissioning of oil and gas infrastructure

To support decision-making that considers both the advantages of retaining and removing Oil and Gas subsea infrastructure in the context of a global increase in ocean sprawl,[31] future efforts should address ecological questions beyond just biodiversity. This includes connectivity, ecotoxicology, restoration of historical assemblages and finding out whether collapsing or altered structures will harbor similar

biodiversity. This would enhance the transparency, accountability and legitimacy of current decommissioning policies and regulations. Below, are the highlights of the ecological knowledge gaps which should be addressed alongside considerations for assessing the advantages/disadvantages of *in situ* decommissioning, to reduce uncertainty in decision-making.

a) **Biodiversity:**

[31] Firth, L. B., Knights, A. M., Bridger, D., Evans, A. J., Mieszkowska, N., Moore, P. J., et al. (2016). Ocean sprawl: challenges and opportunities for biodiversity management in a changing world. Oceanogr. Mar. Biol. Annu. Rev. 54, 193–269. doi: 10.1201/9781315368597
CrossRef Full Text | Google Scholara)

This review revealed that most studies focused on biodiversity and more specifically on fish, with an emphasis on those of commercial value, less attention to date has been given to sessile invertebrates or how marine megafauna use and inhabit subsea structures.[32]Although fish studies offer a valuable first step in our knowledge of assemblages on and around subsea structures, it would be highly valuable to broaden the scope and include other organisms, and thus be able to assess diverse trophic levels present on a given structure. The attraction of focusing on fish reflects the perceived social benefits that structures could bring to recreational and commercial fishers.

b) Connectivity:

Research on the effect of offshore infrastructure on the Metapopulations of different marine organisms already exists;[33]however, with the increase of artificial offshore structures (offshore wind, tidal and wave energy devices), assessing the (cumulative) effect of those structures on marine communities is critical.

The value of biological assemblages on subsea structures is likely to be related to whether they are a source of larvae that spreads to natural communities and therefore will be a function of the extent of their connection with other structures and analogous natural assemblages. Sources and sinks of larvae could be modeled by including the main oceanic currents in a region, coupled with population genetic research. Even if a subsea Oil and Gas structure produces larvae of “desirable” species, it might still not be of high ecological interest if the propagules are dispersed by ocean currents to unsuitable locations for their survival. Genetic information about connectivity could be obtained well before decommissioning is necessary, by comparing the genetic structure of organisms on structures to those in analogous natural habitats in the region. If the connectedness of the structures translates into the facilitated spread of invasive species, then connectivity is not conservation-enhancing. When considering the potential for any subsea structures to harbor and spread invasive species by functioning as stepping-stone, larger spatial scales than those researched to date are also important. Oil and gas infrastructure has already initiated several

[32] Fowler, A. M., Jørgensen, A. M., Svendsen, J. C., Macreadie, P. I., Jones, D. O. B., Boon, A. R., et al. (2018). Environmental benefits of leaving offshore infrastructure in the ocean. Front. Ecol. Environ. 16, 571–578. doi: 10.1002/fee.1827

[33] van der Molen, J., García-García, L. M., Whomersley, P., Callaway, A., Posen, P. E., and Hyder, K. (2018). Connectivity of larval stages of sedentary marine communities between hard substrates and offshore structures in the North Sea. Sci. Rep. 8:14772. doi: 10.1038/s41598-018-32912-2

species range extensions. Some of these species have gained pest status at their new location.[34]Noting that current research on invasive species represents only 9% of biodiversity studies for *in situ* decommissioning research, a priority would be to investigate the propensity of invasive species to colonize subsea Oil and Gas structures.

c) Ecotoxicology:

Only two studies on decommissioning relate to the theme of ecotoxicology.[35]Ecotoxicology studies are necessary to uncover whether local pollution poses a health risk to organisms on and around subsea structures. This may have repercussions on whether polluted subsea structures constitute a nurturing environment that is conducive to them acting as a source or sink of larvae. We know that bioaccumulation occurs in some organisms such as mussels but further ecotoxicological tests of contaminants, and organisms' tolerance are necessary. This is especially true for naturally occurring radioactive materials (NORMs) and plastics, to determine with increased certainty their effect on the growth, reproduction and survival of those organisms and the impact on humans through ingestion of fish caught at these locations. Knowledge gaps exist around species' tolerance to contaminants and which level of pollution exposure in water or sediment is deleterious. Laboratory experiments of sediment resuspension and the effect of NORMs would help to ascertain the rate of uptake by organisms and help predict their level across the food chain.

d) Structural Integrity:

No study addressed the theme of structural integrity, but stakeholders are concerned with this issue and have formulated questions on this subject.[36]During operations, Oil and Gas companies fight to retain the structural integrity of infrastructure by carrying out maintenance and treatments, such a cathodic protection (to prevent oxidation of metals). Therefore, there is a poor understanding about

[34] Techera, E. J., and Chandler, J. (2015). Offshore installations, decommissioning and artificial reefs: do current legal frameworks best serve the marine environment? Mar. Policy 59, 53–60. doi: 10.1016/j.marpol.2015.04.021 [35] Henry, L. A., Harries, D., Kingston, P., and Roberts, J. M. (2017). Historic scale and persistence of drill cuttings impacts on North Sea benthos. Mar. Environ. Res. 129, 219–228. doi: 10.1016/j.marenvres.2017.05.008

[36] Shaw, J., Seares, P., and Newman, S. (2018). Decommissioning Offshore Infrastructure: A Review of Stakeholder Views and Science Priorities. June 19, 2020).

how, when left in the water without care, these structures will lose their current structural integrity. Although this could be viewed as an engineering matter only, it is likely to have an effect on biodiversity and on the ecological significance of the assemblages present on and around the structure, especially if degradation of products are toxic or result in the loss of habitat. The current value given to those biological assemblages may differ in the future as a structure degrades.

2.1.2 The challenges faced during onshore decommissioning of oil and gas infrastructure

Although the international community had a late start on discussing the decommissioning legal aspects with the Geneva Convention in 1958, the changes of requirements become more dynamic in the next decades. In 1972, the London Dumping Convention was regulating sea dumping. The UNCLOS of 1982 adopted as the primary requirement for the total installation removal, allowing partial removal for specific cases. Only seven years later, IMO developed guidelines and standards for removals to be applied only to international waters. In the North-East Atlantic, the OSPAR Convention (1992) aspired for the good management and use of the sea. Then, after the Brent Spar decommissioning, the OSPAR Decision 98/3, brought a more rigorous profile to the Commission.

The decommissioning is not only governed by international standards and guidelines. The offshore abandonment project must also comply with local a regulation which commonly designates the liability of offshore abandonment and site rehabilitation. As indicated by,[37]each local government has the responsibility of evaluating and approving the decommissioning options proposed by the companies. In most countries, there are specific laws, regulations, and guidelines concerning the decommissioning of oil and natural gas installations. The legal and regulatory decommissioning issues involve both the industry and the regulatory authorities and unite the desires of these two parties to represent one of the main challenges related to those issues.

[37] Veselis, T., (2018). Global Decommissioning Challenges and Opportunities. Houston, TX: The Society of Naval Architects and Marine Engineers.

One of the objectives of decommissioning is the rehabilitate the field area to a condition equal or close to the original since the field's development and decommissioning of a create impacts on the nature that can last for several years and be difficult to remediate.[38] So, a 'residual liability' was established in many countries to deal with the accountability for the decommissioning activities, the remnants of installations, equipment, or lines on the site, and damages to the environment before and after the decommissioning.

In some countries, like the UK, investors and companies retain ownership of these remaining stumps of platforms, equipment, pipelines, and any residues that were placed during the field's development, as determined by the Petroleum Act 1998. Due to this proprietorship, as indicated by[39] these parties have a permanent liability against any legal or regulatory claim arising from such ownership and are responsible for any damage caused by or as a result of the decommissioning process.

The offshore decommissioning operations can disperse contaminants on the sea because of the structure's severance, installations and equipment cleaning, waste disposal, fuel consumption, or the platforms and equipment degradation and corrosion. Hence, the chosen removal and disposal option will play an important role in marine contamination and in the possibility of revitalizing the field's area and biodiversity, evaluating the platform disposal and site revitalization essential for the company to achieve the BPEO.[40] The analysis of the energy consumption during the offshore decommissioning should also be carried to determine the optimal solution, creating a multi-scenario that will help the stakeholders ponder between the different environmental decom solutions.

[38] ICF Incorporated, (2015). Decommissioning Methodology and Cost Evaluation. Bureau of Safety and Environmental Enforcement. Available at: https://www.bsee.gov/research-record/tap-738-decommissioning-methodology-and-cost-evaluation (Accessed 17 June 2020).

[39] Neilson, J., and Gorman, D.G., (1998). Decommissioning Offshore Structures. London, United Kingdom: Springer. ISBN-13: 978-1-4471-1SS4-0.

[40] Sommer, B., Fowler, A., Macreadie, P., Palandro, D., Aziz, A., and Booth, D. (2019). Decommissioning of offshore oil and gas structures – Environmental opportunities and challenges. Science of The Total Environment, 658, pp. 973-981

The main decommissioning economic challenge is related to the companies developing ways to reduce the operating expenditures (OPEX) with the appliance of new techniques, usage of modern equipment, and improvement of the efficiency or reducing the complexity of the programmed activities.[41]However, there are other challenges derive from the decommissioning planning that concerns the funding of the programmed activities and the cost estimates, and the financial securities which is an economical question that derives from regulatory or legal demands. This section is going to focus on the decommissioning funding, cost estimates and its precision, and financial securities requirements and models which can impact the field's cash flow or the financial strength of a company.

At present, the Uganda National Oil Company makes Uganda's model production-sharing agreement publicly available on its website. Importantly, the Act does not provide any penalties for failure to disclose model production sharing agreements to Parliament and it has been correctly argued that Parliament's role as regards such model agreements is merely advisory[42]. This has created the situation where the Government has consistently refused to make the main agreements on exploration, development and production of oil publicly available, thereby violating the constitutional right of access to information and thus rendering this provision ineffective[43]. Moreover, an attempt to seek disclosure of the contents of these agreements was rejected by a magistrates' court ostensibly because the applicants failed to show that the public benefit in their disclosure outweighed the harm to the third parties, i.e. the Government and the oil companies.

[41] Jahn, F., Cook, M., and Graham, M., (2003). Developments in Petroleum Science 46: Hydrocarbon Exploration and Production, 1st. ed. Elsevier. ISBN: 0-444-82883-4

[42] Mushemeza, E.D., and J. Okiira (2016), 'Local Content Frameworks in the African Oil and Gas Sector: Lessons from Angola and Chad'. ACODE Policy Research Series, No.72. Retrieved from:https://www.acode-u.org/.

[43] Avocats Sans Frontieres (2015), Business, Human Rights and Uganda's Oil and Gas industry: ABriefing of Existing Gaps in the Legal and Policy Framework. Kampala: ASF

2.1.3 The legal framework for onshore decommissioning of oil and gas infrastructure

United Kingdom legal framework

1. London Dumping Convention (1972)

The "Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972), also known as the London Dumping Convention covers the deliberate disposal at sea of wastes or other matter from vessels, aircraft, and platforms[44]. Dumping refers to the intentional disposal at sea of wastes of other materials from vessels, aircraft, platforms or other man-made structures at sea, or the intentional disposal at sea of vessels, aircraft, platforms or other manmade structures at sea. However, the convention provides that dumping does not include placement of matter for a purpose other than the disposal (International Maritime Organization, 2006), and it is through this convention that there can be Reef to Rigs programmes in the Gulf of Mexico or in other parts of the world, as there is a provision in the convention that the state takes the final decision, after a reef-to-rigs assessment is performed. The convention also considers that the state has the authority to grant general permits of dumping of other wastes or matter, and platforms can be considered as "other wastes or matter" for sea disposal[45]

2. London Protocol (1996)

In 1996, the parties to the London Dumping Convention adopted a Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter that entered into force in 2006 (International Maritime Organization, 2006). The London Protocol was developed to in order to update the London Dumping Convention and eventually replace it. There are several new concepts worth noting concerning sea disposal, one of which is the reverse list, which stems from the idea of prohibiting all dumping, except for the possibly acceptable waste on this list, that includes dredged materials, vessels, platforms or other man-made structures at sea[46]. The London Protocol also emphasizes on the Polluter Pays Principle, so that the party responsible for producing the pollution is responsible for the damage done

[44] (International Maritime Organization, 2006)

[45] (International Maritime Organization, 2006).

[46] Techera, E.J., Chandler, J., 2015. Offshore Installations, Decommissioning and Artificial Reefs: Do Current Legal Frameworks Best Serve the Marine Environment? Mar. Policy 59, 53–60. doi:10.1016/j.marpol.2015.04.021

to the environment. The protocol also upholds the precautionary principle, where a lack of full scientific certainty will not be accepted as a good enough reason for postponing cost-effective measures.

3. The OSPAR Commission

The OSPAR Commission mechanism between the EU and fifteen governments was established as a successor to the Oslo and Paris Conventions, where the Oslo Convention (1972) against dumping was broadened to cover land-based sources and the offshore industry by the Paris Convention (1974). In 1998, a new annex was created to cover biodiversity and ecosystems, which includes non-polluting human activities that can adversely affect the sea. The fifteen governments are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. The OSPAR Commission protects and conserves the North-East Atlantic and its resources and now covers 5 main areas: - Hazardous Substances and Eutrophication, the Offshore Industry, Radioactive Substances, Biodiversity and Environmental Impact of Human Activities. The OSPAR Commission has a dedicated work area for the offshore industry and the most applicable instrument is the OSPAR Decision 98/3 that governs the disposal of disused offshore installation.

4. OSPAR Decision 98/3

OSPAR Decision 98/3 is about disposal of disused offshore installation, and only applies to the fifteen countries that have ratified the OSPAR convention.[47]However, many countries drilling in the North Sea has ratified to OSPAR, and hence decommissioning protocol will also include the stricter elements of the OSPAR Decision. Thus it will be noteworthy even for countries not part of the OSPAR Decision to understand the requirements and concessions of this decision. In general, it is prohibited to dump and leave wholly or partly in place of offshore installations. The topsides of all installations must be returned to shore. All installations with a jacket weight less than 10,000 tones must be completely removed for re-use, recycling or final disposal on land[48].

5. Energy Act 2016

[47] OSPAR Commission, 2013. Convention for the Protection of the Marine Environment of the North-East Atlantic 1–3

[48] OSPAR Commission, 2007. Convention for the Protection of the Marine Environment of the North-East Atlantic 1–3

The Act that established the Oil & Gas Authority (OGA) as an independent regulator and with additional powers such as having access to company meetings, data acquisition and imposing sanctions. The Act also enables more comprehensive charging of the offshore oil and gas industry for permits and licenses for environmental and decommissioning activity.[49]This allows the UK Government to continue to recover the costs of its environmental and decommissioning activity in line with the 'polluter pays' principle of environmental law and addressed this gap in legislation[50]. In terms of decommissioning, there is now a particular clause (Part 3, Item 73, subsection (4) (7)) that includes the consideration of alternative measures to abandonment or decommissioning such as re-use or preservation,[51]highlighting that the options for reducing the cost of decommissioning or re-using facilities for some other purposes are to be considered. Licensees will now also have to consult the OGA before submitting the decommissioning programme to the Secretary of State (BEIS), whereby the OGA will opine on two areas – whether alternative uses of the facilities exists or whether the decommissioning programme is carried out at the lowest costs possible.

6. **Petroleum Act 1998:**

The Petroleum Act contains a number of requirements which the operator must satisfy in order to obtain approval and/or permit of the relevant government agencies for decommissioning of such installations/facilities. Part IV of the Act deals with abandonment installations. It provides a framework for the orderly decommissioning of disused installations and pipelines in the UK Continental Shelf of the (UKCS). Amongst other provisions, Part IV of the 1998 Act enables the Secretary of State to make regulations relating to decommissioning. Under the Act, a decommissioning program shall contain an estimate of the cost of the measures to be taken or make provision for determining those cost etc.

The Petroleum Act 1998 provides for decommissioning which is detailed in the DECC Guidance Note on Decommissioning.[52]Section 29 provides that 'the Secretary of State may by written notice require the person (or persons jointly) to whom the notice is given … to submit to the Secretary of State a programme

[49] Government of the United Kingdom, 2016b Energy Act 2016: Chapter 20

[50] Government of the United Kingdom, 2016b

[51] Oil & Gas Authority UK, 2016b. Oil and Gas Authority: Programmes & guidance [WWW Document]. URL https://www.ogauthority.co.uk/decommissioning/programmes-guidance/ (accessed 11.29.16).

[52] Mohammad Alramahi, Oil and Gas Law in the UK (Bloomsbury Professional 2013) 3.27.

setting out the measures proposed to be taken in connection with the abandonment of an offshore installation … (an abandonment programme)'.[53]In practice, this process is initiated after the approval of a field development plan by the BEIS sending a letter of intention to issue the Section 29 Notice to the operator of the offshore facility involved.[54]An opportunity is provided for the person to make representations in relation to such Notice.[55]

Consequently, the Notice will be served on any person requiring them to submit such abandonment programme on a designated date.[56]The Act provides that the abandonment programme shall contain among other things, the estimated cost of such decommissioning.[57]It is salient to add that just like the Ugandan regime, the decommissioning option in United Kingdom is reuse, recycle or removal either partly or wholly.[58]The Act and the DECC Guidance Note are silent on the exact timing that the Notice is issued.[59] This gap is essential for some degree of flexibility that will enable such Notice to be treated on a case-by-case basis.[60]

Remarkably, the potential recipients of such notices are wide, to guard against the possibilities of a default by the licensee in footing the cost of such decommissioning. The Petroleum Act creates a wide option of persons who may receive such notice, including: the operator of such an installation; any person who is a licensee;[61]a person who is a party to a joint operating agreement (JOA) or similar agreements relating to the rights by which a person became a licensee; any person who owns any interest in the installation otherwise as a loan or security; and any associate company.[62]Section 29 Notices will be generally served on the licensees, operators or parties to the JOA. It is only when there is evidence to show that the

[53] The Petroleum Act,UK (n 142) s. 29(1).

[54] John Paterson, 'Decommissioning of Offshore Oil and Gas Installations' in Oil and Gas Law: Current Trend and Emerging Issues(n 31) 314.

[55] The DECC Guidance Note 2011(n 156) para 3.4.

[56] John Pickston, 'Investing in UK Regeneration Projects' in Jonathan Reuvid(eds), Investment Opportunity in the United Kingdom (Legend Press Ltd 2014)

[57] The Petroleum Act, UK (n 142) s.29(4)(a).

[58] Zhiguo Gao, 'Current issues of International Law on Offshore Abandonment, with Special Reference to the United Kingdom' (1997) 28(1) Ocean Development & International Law 59.

[59] Marc Hammerson,Upstream Oil and Gas: Cases, Materials, Commentaries (Globe Law and Business)455.

[60] Paterson(n 162)

[61] The Energy Act of 2008 amends this provision and broadens the horizon of who a licensee is to include 'licensees who have transferred an interest in a licence to another party without the prior approval of the Secretary of State'. See The Energy Act 2008 (UK)s 72.

[62] The Petroleum Act(UK) (n 142) s.30(1)(e).

licensees, operator or parties to the JOA will not meet the requirements of such decommissioning including financial that other parties may be served too.[63]

7. **Energy Act 2008: Oil and Gas Decommissioning**

Chapter 3 of Part 3 of the Energy Act 2008 (the 2008 Act) amends Part IV of the Petroleum Act 1998. The 2008 Act amends the regime by:

i). Enabling the Secretary of State to make all relevant parties liable for the decommissioning of an installation or pipeline and where a license covers multiple sub-areas, clarifying which licensee will be liable.

ii). Giving the Secretary of State power to require decommissioning security at any time during the lifetime of an oil and gas field if the risks to the taxpayer are assessed as unacceptable.

iii) Protecting the funds put aside for decommissioning, so that in the event of insolvency of the relevant party, the funds remain available to pay for decommissioning and the tax payer's exposure is minimized.

The Ugandan National Oil and Gas Policy 2008 recognize the need to protect the environment from the negative impact of oil activities. Hence it provides that it is the responsibility of licensed oil companies to protect the environment where they work or any areas in the country impacted by their operations while Government shall legislate, regulate and monitor compliance'.[64]This means that the role of government in this context is to enact adequate laws that will ensure that licensed oil companies in Uganda will have sufficient funding at the time of decommissioning.[65]

The Ugandan Constitution vests on the Parliament the power to make 'laws regulating the exploitation of minerals and petroleum'.[66] The Parliament pursuant to their power to make laws has enacted the Petroleum (Exploration, Development and Production) Act, 2013 which reinvigorates the tenets of the Oil and Gas Policy.[67]It is not surprising that the Act provides that its purpose is to 'operationalize the National Oil and Gas Policy of Uganda by… regulating petroleum activities, including… cessation of petroleum

[63] Marc Hammerson and Anthony Martinez, 'Introduction to UK Petroleum Law and Practice' in Marc Hammerson(eds) in Oil and Gas Decommissioning (Globe Law Pub 2013)23
[64] The National Oil and Gas Policy for Uganda 2008, 41.
[65] Report on the Progress of the Implementation of National Oil and Gas Policy for Uganda February 2017 (n 6)
[66] The Constitution of Uganda 1995, articles 79 and 244(2)(a).
[67] The Petroleum (Exploration, Development and Production) Act, 2013(Uganda).

activities or *decommissioning*'.[68]This paper examines the relevant provisions of the Act in the light of the extent that it can protect the environment by guaranteeing availability of funds for decommissioning. It finds that its provisions are not adequate and comprehensive enough. Furthermore, it is argued that the provisions of the Act on ownership of petroleum means that government would have to bear the eventual liability to fund such decommissioning.

The Petroleum (Exploration, Development and Production) Act, 2013 governs every spectrum of oil operations including those appurtenant to offshore.[69]It vests ownership of all the petroleum in Ugandan waters on the Government by providing that 'the entire property in, and the control of, petroleum in its natural condition in, on or under any… waters in Uganda is vested in the Government on behalf of the Republic of Uganda'.[70]As a result, it criminalizes any interference with any petroleum in Ugandan waters which includes the Ugandan part of Lake Albert without any authorization, permit or license from the Government.[71]The Act vests on in the Minister for energy and mineral development, the general powers to issue such authorizations in the form of license or permits for offshore petroleum activities in Uganda.[72]He has the powers to revoke such authorization under certain conditions[73]and approve the voluntary surrender of any of such license by a licensee.[74]The Minister also has the power to make policies[75]and regulations[76] on every aspect of offshore oil activities including decommissioning.

The Act creates an obligation on the licensee to submit a decommissioning plan at the earliest four years of the grant of a license or two years before the time when the offshore oil facility shall become redundant, with the consent of the Petroleum Authority.[77]In the case of a voluntary surrender by the licensee, it shall

[68] Ibid, s.1(c).

[69] International Business Publication, Uganda: Business Law Handbook (Global Publications 2013) 225.

[70] Ibid,(n41) s. 4(1).See Deana Silverstone, 'Ethical Dilemmas in the Oil Field: is Legislation the Answer' in Daniel Evans(eds), 2(1)Journal of International Relations and Affairs Group (2015) 107.

[71] Ibid, s. 5(1) and (2).

[72] Ibid, s. 8(a). See Stephen Isabalaja, 'Commercialisation of Ugandan Oil and Gas Sector' (2017) <https://www.afrra.org/sites/default/files/newsletter/2.Uganda%20Ministry_Commercialisation%20of%20Uganda%20oil%20sector_ARAWeek2017.pdf> accessed 10 July 2017.

[73] Ibid, s.8(a)

[74] Ibid, s. 89.

[75] Ibid, s.8(b). Government of Uganda, Energy Policy of Uganda 2012, 7-12.

[76] Ibid, s.8(d).

[77] Ibid, s.112(1) and (2).

be submitted at least two years before the licensee eventually surrenders his or her license.[78]The decommissioning plan is expected to contain the preferred option for decommissioning which can be an option to reuse;[79]or remove completely or partly; or abandonment.[80]It is on the basis of such plan that the Petroleum Authority will issue a direction to the licensee or the owner of the offshore oil facility (where there is a transfer of ownership) on how and when it will be conducted.[81]The Act provides that the licensee and the owner of an offshore facility shall ensure that such a direction from the Petroleum Authority is carried out.[82]

It provides for the establishment of a decommissioning fund which shall be used to implement the decommissioning plan for the offshore oil facilities.[83]

The Petroleum Authority will determine the amount of cost that will be charged every subsequent calendar quarter to cover a portion of the estimated future cost for decommissioning of facilities to be deposited in the fund.[84]The licensee shall recover such decommissioning cost subject to the cost recovery limitations stipulated in petroleum agreements or as may be provided by regulations.[85]The Act vests the management of the fund on a committee made of representatives of the government and the licensee. The ratio of such representation shall be prescribed by subsequent regulations made pursuant to the Act.[86]

The Constitution of the Republic of Uganda of 1995 under Article 27 section (3)[87]identifies the need to utilize and manage the natural resources in a way that meets the development and environmental needs of the present and future generations of Uganda. The state is to take up all possible measures to prevent or

---

[78] 1bid.This option of decommissioning is the trend in some African countries like Ghana and Nigeria. See O. Boateng Newman, 'Environmental Regulation in the Upstream Oil and Gas Industry: Is Ghana Prepared for Offshore Oil Pollution?' (2017) 15(1) OGEL 15 , Ngozi Chinwa Ole(n 36) 1.

[79] There is a growing emphasis on the reuse of offshore oil installations as a preferable method of decommissioning particularly because of its ecological benefit. See M. Adedayo Ayoade, 'Offshore Decommissioning - A Comment' (2003)1(2) OGEL 3. See also Rachael E. Salcido, 'Enduring Optimism: Examining the Rig-to-Reef Bargain' (2005)32 Ecological Law Quaterly 863.

[80] Ibid, s.112(3).

[81] Ibid, s.112(1) and s.115(1).

[82] Ibid, s.115(4),(5).

[83] Ibid, s.113(2).

[84] Ibid, s.113(4).

[85] Ibid, s.113(5).

[87] The Constitution of the Republic of Uganda, 1995. Article 27 Section 3 Available at http://www.statehouse.go.ug/sites/default/files/attachments/Constitution_1995.pdf

minimize the damage and destruction of land, air and water resources as a result of pollution or other causes.

The National Environmental Management Authority (NEMA) further is mandated under the 1995 National Environmental Act, Chapter 153, to promote and ensure compliance with sound management practices as the competent authority. Expounding on the mandate, is the requirement under Part V of the same Act, Section 19, for NEMA to ensure that all projects which may have, are likely to have or have significant impacts on the environment undergo the process of EIA.A detailed list of the projects to be considered is found Schedule 3 of the same Act and includes oil and gas related projects i.e. exploration for the production of petroleum, oil refineries and petrochemical works.

To enable smooth Implementation of approved EIAs by the developer, mitigation measures are identified with the help of other applicable laws. Other applicable laws that are related to EIAs and applicable in the areas of operation of oil and gas activities include; the Uganda wildlife Act Cap 200, sections 16 and 17; The National forestry and tree planting Act, section 38; The Mining Act 2003; Investment code, 15 section 19. All these send a signal for EIAs to be carried out before any oil exploration or production activities[88]

The National Oil and Gas policy of 2008 that sets out all operations of the petroleum activities in Uganda does not explicitly talk about EIAs but it gives an over view of the need to protect the environment and conserve biodiversity under principle 5.1-5. On the same note, the Petroleum (Exploration, Development and Production) Act, 2013 Section 3 gives a wealth of environmental principles to be complied with by the licensee or anyone responsible for any petroleum activities.

2008 National Oil and Gas policy of Uganda principle 5.1.5

2013 Petroleum (Exploration, Development and Production) Act, Section 3

8. **The PFM (Amendment) Act 2021**

The Public Finance Management (Amendment) Act 2021 on the other hand seeks to ensure that the UNOC as Government of Uganda's nominated state participant for oil activities across the upstream and midstream sectors of the value chain can meet the related obligations. The PFMA amendment therefore

[88] Kasimbazi, E.B., 2012. Environmental Regulation of Oil and Gas Exploration and Production in Uganda. Journal of Energy & Natural Resources Law, 30(2), pp.185-221

seeks to allow UNOC to have access to the proceeds from the sale of interest from the crude oil due to it to meet its various financial obligations in relation to its participation in the upstream and midstream projects. These include obligations in the Production Sharing Agreements, the Joint Operating Agreements, the Host Government Agreement and the Tariff and Transportation Agreement among others.

The passing of this enabling legislation will therefore ensure the lawful implementation of the EACOP project in Uganda, give re-assurance to the investors of government's commitment to fulfill its obligations under the HGA, and give confidence to the Government of the United Republic of Tanzania of Uganda's commitment to the project. The Act once passed will most importantly unlock the Uganda oil industry with a projected investment of US $ 10-15 Billion over five years.

The enabling legislation will also ensure alignment of the work schedule between the Upstream (Tilenga and Kingfisher projects) and Midstream (EACOP project) to spur Uganda's oil and gas industry. This will, in turn, facilitate the achievement of the First Oil target of 2025.

2.2 Conclusion

Most of the literature concentrates on offshore decommissioning and fails to recognize the exploration and production of oil onshore, whose infrastructure must also be decommissioned. The authors advice on the need for financial security and the robust legal framework, forgetting that the decommissioning agreements determine the effectiveness of the decommissioning process, the agreements can easily remedy the challenges of delay claims, can also provide for indemnity, targeting property, pollution and indemnity claims. The literature also ignores the sale and purchase agreements, who takes the responsibility during the buy- out, (farm in and farm out) instances all such challenges shall be discussed in this study and recommendations suggested.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This Chapter discussed various legal instruments that provided for an analysis of the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure: a comparative study of Uganda and United Kingdom. It presented the study design, legal context of the study, data collection strategies, documentary review checklist, documentary review, data analysis plan, ethics consideration and anticipated methodological constraints/limitations.

3.1 Research Setting

The research methodology employed in this study is designed to facilitate a comprehensive and rigorous investigation into the legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning, with a specific focus on Uganda. The methodology encompasses various research approaches, data collection methods, and analytical techniques to ensure the reliability and validity of the study's findings.

Research Design:

Comparative Analysis: The study adopts a comparative approach to analyze the legal frameworks governing onshore oil and gas infrastructure decommissioning in Uganda and other countries. This approach allows for the identification of similarities, differences, and best practices across different regulatory contexts.

Case Study Analysis: Case studies are utilized to provide in-depth insights into specific decommissioning projects, challenges, and regulatory responses, enhancing the richness and depth of the research findings.

Data Collection Methods:

Document Analysis: Existing literature, including academic papers, government reports, policy documents, and legal statutes, is reviewed to gather information on the legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning.

Interviews: Semi-structured interviews are conducted with key stakeholders involved in the oil and gas industry, including policymakers, regulatory authorities, industry experts, and environmental advocates. These interviews provide valuable qualitative data on stakeholders' perspectives, experiences, and opinions regarding decommissioning practices and regulatory frameworks.

Case Study Analysis: Relevant case studies of onshore oil and gas decommissioning projects, both within Uganda and internationally, are examined to gain insights into practical challenges and regulatory responses.

Data Analysis Techniques:

Thematic Analysis: Qualitative data obtained from document analysis and interviews are analyzed thematically to identify recurring themes, patterns, and discrepancies related to legal frameworks, challenges, and needs for decommissioning.

Comparative Analysis: The legal frameworks and regulatory practices governing onshore oil and gas infrastructure decommissioning in Uganda are compared with those of selected countries to assess similarities, differences, and opportunities for alignment with global standards.

Case Study Analysis: Case studies are analyzed qualitatively to identify common challenges, regulatory responses, and lessons learned from decommissioning projects, contributing to the development of recommendations and conclusions.

Ethical Considerations:

Informed Consent: Prior informed consent is obtained from all participants involved in interviews, ensuring voluntary participation and confidentiality of information.

Data Confidentiality: Measures are taken to ensure the confidentiality and anonymity of participants' responses and sensitive data obtained during the study.

Research Ethics: The research adheres to ethical guidelines and principles of integrity, transparency, and respect for participants' rights throughout the data collection and analysis process.

Limitations of the Methodology:

The study encountered limitations related to the availability and reliability of data, particularly in accessing relevant documents and conducting interviews with key stakeholders.

The comparative analysis was constrained by differences in data availability, regulatory contexts, and cultural factors across different countries.

The generalizability of findings may be limited by the specific focus on Uganda and selected countries, as well as the qualitative nature of the research.

The research methodology adopted in this study is designed to provide a rigorous and systematic analysis of the legal frameworks, challenges, and needs for onshore oil and gas infrastructure decommissioning. By integrating qualitative data collection methods, comparative analysis, and case study analysis, the study aims to generate valuable insights and recommendations for policymakers, industry stakeholders, and regulatory authorities in Uganda and beyond.

3.1.1 Study design

The study considered descriptive survey design while using qualitative research approach. In this case, literature review was performed to provide a descriptive analysis of the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure: a comparative study of Uganda and United Kingdom. Descriptive research aimed at accurately and systematically describing a population, situation or phenomenon. It can answer what, where, when and how questions, but not why questions. These helped the researcher to extensively study and deeply review the study problem by looking at the existing literature done by different scholars related to the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure. A qualitative methodology was employed as it is appropriate for this study that involved collecting and analyzing non-numerical data to understand concepts, opinions or experiences.

3.1.2 Data Collection Strategy/methods

Data was obtained from secondary sources which included journals, articles, magazines and documents from the ministry of energy for the case of Uganda. It is from these documents the required information

about the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure will be obtained.

3.1.3 Documentary review

Documents from the Ministry of Energy from Uganda in line with oil and gas were reviewed; legal documents were also review to obtain information needed for the study

3.1.4 Documentary review checklist

This is a qualitative research data collection method for document review. The document review check-list helped the researcher in remembering the most relevant documents with information pertinent to this research, for example the strategic plan, reports, and minutes of meetings. A document review checklist was useful in clarifying and cross-checking data found in documents. For example, in relation to the background and significance of the study, literatures review, research problem, references and methodology. The checklist contained information like is the problem researchable, ethical, manageable and achievable? Does the literature review justify the problem being studied? was the proposal easily understandable and coherent?

3.1.5 Data Analysis Plan

Data analysis was broadly a qualitative analysis of literature from legal instruments and scholarly articles. The researcher used desktop research to come up with the literature concerning the study. This involved an understanding of the existing legal framework for both Uganda and United Kingdom, that is the 1995 Constitution of Uganda (as Amended), the petroleum (exploration, Development and Production) Act 2013, the Petroleum (refining, conversion Transmission and midstream storage) Act, 2013, the Public Finance Management Act 2015, the National Environment Act 2019 and the National Oil and Gas Policy for Uganda 2008, London Dumping Convention (1972), the OSPAR Commission, OSPAR Decision 98/3, Petroleum Act 1998 and Energy Act 2008: Oil and Gas Decommissioning.

3.1.6 Ethics consideration

Ethical standards prevent against the fabrication or falsifying of data and therefore, promote the pursuit of knowledge and truth which is the primary goal of research.

Ethical behavior is also critical for collaborative work because it encourages an environment of trust, accountability, and mutual respect among researchers. The handling of these ethical issues greatly impacts

the integrity of the research results. Honesty, objectivity, respect for intellectual property, social responsibility, confidentiality, non-discrimination and many others

Voluntary participation and informed consent was catered for. The purpose of the survey was fully explained and the respondents politely requested to participate in the study. It is very important that the participants have the option to refuse to participate in the study and the researcher has to provide this option.

Appreciation was ensured to the respondents after participation for ethical considerations. The researcher will share the findings of the study with the respondents since these findings may be useful to the entity where the study is carried out.

3.1.7 Anticipated methodological constraints/limitations

Time constraints, this research was conducted and concluded not later than March 2022, given the scope, the time is limited for such a research project.

The research also has cost implications, internet costs; it needed engagement with experts which called for consultation costs, stationary costs among other relevant costs.

Not so many oil and gas jurisdictions have implemented decommissioning processes; therefore, most policies and regulation are still on paper not yet tested.

CHAPTER FOUR

ANALYSIS OF LEGAL FRAMEWORKS FOR ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING IN UGANDA

4.0 Introduction

In this chapter, we delve into a detailed analysis of the legal frameworks governing onshore oil and gas infrastructure decommissioning in Uganda. As the regulatory landscape plays a pivotal role in shaping decommissioning processes and practices, it is essential to examine the key components, strengths, and weaknesses of Uganda's legal framework in this context. By conducting this analysis, we aim to gain a comprehensive understanding of the existing regulatory framework and identify areas for improvement to enhance the effectiveness and efficiency of decommissioning activities.

Throughout this chapter, we will scrutinize Uganda's legal framework for onshore oil and gas infrastructure decommissioning, focusing on its alignment with international standards, its adaptability to emerging challenges, and its capacity to address the unique needs of the Ugandan context. Drawing upon existing literature, legal statutes, policy documents, and expert insights, we will critically evaluate the regulatory mechanisms in place, assess their efficacy, and identify potential gaps or deficiencies.

Furthermore, we will undertake a comparative analysis, juxtaposing Uganda's legal framework with those of selected countries to discern commonalities, differences, and best practices. By examining diverse regulatory approaches and experiences, we seek to distill valuable lessons and insights that can inform the enhancement of Uganda's decommissioning regulatory regime.

Ultimately, this chapter serves as a foundational exploration into the legal underpinnings of onshore oil and gas infrastructure decommissioning in Uganda. By shedding light on the regulatory landscape, we aim to contribute to the ongoing discourse surrounding decommissioning practices, policy development, and regulatory reform in the Ugandan oil and gas sector. Through a thorough analysis of the legal frameworks, we endeavor to provide actionable recommendations for policymakers, industry stakeholders, and regulatory authorities to strengthen the regulatory framework and promote sustainable decommissioning practices.

This chapter contains an analysis of needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure: that is founded on a comparative study of Uganda and United Kingdom. Specifically considering onshore legal frame work that is needed for decommissioning the oil and gas infrastructure and overcoming the challenges faced during the onshore of such decommissioning infrastructure in Uganda and United Kingdom.

4.1 The needs for onshore decommissioning of oil and gas infrastructure

One of the objectives of decommissioning is the rehabilitate the field area to a condition equal or close to the original. Field development and decommissioning create significant impacts on to nature that can last for years and be difficult to remediate.[89]So, a 'residual liability' was established in many countries to deal with the accountability for the decommissioning activities, the remnants of installations, equipment, or lines on site, and damage to the environment before and after the decommissioning. To support decision-making that considers both the advantages of retaining and removing Oil and Gas subsea infrastructure in the context of a global increase in ocean sprawl,[90]future efforts should address ecological questions beyond just biodiversity. This includes connectivity, ecotoxicology, restoration of historical assemblages and finding out whether collapsing or altered structures will harbor similar biodiversity. This would enhance the transparency, accountability and legitimacy of current decommissioning policies and regulations.

I. **Biodiversity**

[89] ICF Incorporated, (2015). Decommissioning Methodology and Cost Evaluation. Bureau of Safety and Environmental Enforcement. Available at: https://www.bsee.gov/research-record/tap-738-decommissioning-methodology-and-cost-evaluation (Accessed 17 June 2020).

[90] Firth, L. B., Knights, A. M., Bridger, D., Evans, A. J., Mieszkowska, N., Moore, P. J., et al. (2016). Ocean sprawl: challenges and opportunities for biodiversity management in a changing world. Oceanogr. Mar. Biol. Annu. Rev. 54, 193–269. doi: 10.1201/9781315368597
CrossRef Full Text | Google Scholar

The study findings revealed that most studies focused on biodiversity and more specifically on fish, with an emphasis on those of commercial value, less attention to date has been given to sessile invertebrates or how marine megafauna use and inhabit subsea structures.[91]Although fish studies offer a valuable first step in our knowledge of assemblages on and around subsea structures, it would be highly valuable to broaden the scope and include other organisms, and thus be able to assess diverse trophic levels present on a given structure. The attraction of focusing on fish reflects the perceived social benefits that structures could bring to recreational and commercial fishers. In future, when discussing the value of subsea structures as a habitat for marine organisms, we suggest paying attention to the following points:

On pipelines, biodiversity is higher at spans, and where structural complexity is enhanced due to sessile invertebrates.[92]Therefore, not all parts of a subsea structure have the same habitat value dependent on location. The value of biological assemblages on subsea structures was formulated according to different scenarios: retaining the whole structure; retaining most of the structure except for the portion closest to the sea surface (platform jacket cut 50 m below the surface, or a pipeline cut 1–10 km from the shore); removing most of the structure (cut 1–10 m above sediment). Thought should also be given to how the structural integrity of the structure will affect biodiversity in the future of other countries like Uganda.

II. **Connectivity:**

Findings from research on the effect of offshore infrastructure on the Meta populations of different marine organisms already exists;[93]however, with the increase of artificial offshore structures (offshore wind, tidal and wave energy devices), assessing the (cumulative) effect of those structures on marine communities is critical.

[91] Fowler, A. M., Jørgensen, A. M., Svendsen, J. C., Macreadie, P. I., Jones, D. O. B., Boon, A. R., et al. (2018). Environmental benefits of leaving offshore infrastructure in the ocean. Front. Ecol. Environ. 16, 571–578. doi: 10.1002/fee.1827

[92] McLean, D., Cure, K., Abdul Wahab, M. A., Galaiduk, R., Birt, M., Vaughan, B., et al. (2021). A comparison of marine communities along a subsea pipeline with those in surrounding seabed areas. Cont. Shelf Res. 219:104394. doi: 10.1016/j.csr.2021.104394

[93] van der Molen, J., García-García, L. M., Whomersley, P., Callaway, A., Posen, P. E., and Hyder, K. (2018). Connectivity of larval stages of sedentary marine communities between hard substrates and offshore structures in the North Sea. Sci. Rep. 8:14772. doi: 10.1038/s41598-018-32912-2

The value of biological assemblages on subsea structures is likely to be related to whether they are a source of larvae that spreads to natural communities and therefore will be a function of the extent of their connection with other structures and analogous natural assemblages. Sources and sinks of larvae could be modeled by including the main oceanic currents in a region, coupled with population genetic research.

Even if a subsea Oil and Gas structure produces larvae of "desirable" species, it might still not be of high ecological interest if the propagules are dispersed by ocean currents to unsuitable locations for their survival. Genetic information about connectivity could be obtained well before decommissioning is necessary, by comparing the genetic structure of organisms on structures to those in analogous natural habitats in the region.

If the connectedness of the structures translates into the facilitated spread of invasive species, then connectivity is not conservation-enhancing. When considering the potential for any subsea structures to harbor and spread invasive species by functioning as stepping-stone, larger spatial scales than those researched to date are also important.

Oil & Gas infrastructure has already initiated several species range extensions. Some of these species have gained pest status at their new location.[94]Noting that current research on invasive species represents only 9% of biodiversity studies for *in situ* decommissioning research, a priority would be to investigate the propensity of invasive species to colonize subsea Oil & Gas structures.

III. **Ecotoxicology:**

Only two studies on decommissioning relate to the theme of ecotoxicology.[95]

Ecotoxicology studies are necessary to uncover whether local pollution poses a health risk to organisms on and around subsea structures. This has repercussions on whether polluted subsea structures constitute a nurturing environment that is conducive to them acting as a source or sink of larvae. Bioaccumulation occurs in some organisms such as mussels but further ecotoxicological tests of contaminants, and

[94] Techera, E. J., and Chandler, J. (2015). Offshore installations, decommissioning and artificial reefs: do current legal frameworks best serve the marine environment? Mar. Policy 59, 53–60. doi: 10.1016/j.marpol.2015.04.021 [95] Henry, L. A., Harries, D., Kingston, P., and Roberts, J. M. (2017). Historic scale and persistence of drill cuttings impacts on North Sea benthos. Mar. Environ. Res. 129, 219–228. doi: 10.1016/j.marenvres.2017.05.008

organisms' tolerance are necessary. This is especially true for naturally occurring radioactive materials (NORMs) and plastics, to determine with increased certainty their effect on the growth, reproduction and survival of those organisms and the impact on humans through ingestion of fish caught at these locations. Knowledge gaps exist around species' tolerance to contaminants and which level of pollution exposure in water or sediment is deleterious. Laboratory experiments of sediment resuspension and the effect of NORMs would help to ascertain the rate of uptake by organisms and help predict their level across the food chain.

IV. **Structural Integrity:**

No study addressed the theme of structural integrity, but stakeholders are concerned with this issue and have formulated questions on this subject.[96]During operations, Oil & Gas companies fight to retain the structural integrity of infrastructure by carrying out maintenance and treatments, such a cathodic protection (to prevent oxidation of metals). Therefore, there is a poor understanding about how, when left in the water without care, these structures will lose their current structural integrity. Although this could be viewed as an engineering matter only, it is likely to have an effect on biodiversity and on the ecological significance of the assemblages present on and around the structure, especially if degradation of products is toxic or result in the loss of habitat. The current value given to those biological assemblages may differ in the future as a structure degrades.

The study findings also established that literature on stakeholder management in oil and gas decommissioning tends to focus on the use of multi-criteria decision-making tools, which suggests that using multi-criteria decision-making tools is current best practice to manage stakeholders of an oil and gas decommissioning project. Whereas identifying and engaging stakeholders is still necessary to obtain information to use multi-criteria decision-making tools, the area of stakeholder identification and engagement in the context of oil and gas decommissioning has not yet been explicitly explored in

[96] Shaw, J., Seares, P., and Newman, S. (2018). Decommissioning Offshore Infrastructure: A Review of Stakeholder Views and Science Priorities. June 19, 2020).

stakeholder management literature. Hence, there is still a knowledge gap regarding issues of stakeholder identification and engagement in the decommissioning context of the oil and gas.

4.2 The challenges faced during onshore decommissioning of oil and gas infrastructure

Lack of information leads to ineffective stakeholders' participation, which in turn leads to poor public policy in the development for a public and sustainability issue such as decommissioning of petroleum fields. Therefore, these issues are important to matter of sustainable decommissioning of petroleum fields, particularly in Uganda. While Uganda may rely on the international regulatory and legal frameworks governing international water bodies for decommissioning of offshore fields do not have that privilege. A simple method to determine the cost of decommissioning liabilities and evaluate government's vulnerability to risk of an operator's failure to properly complete decommissioning of its fields, will be helpful to public stakeholders in developing nations in particular and the petroleum industry in general.

Decommissioning is related to oil depletion and can significantly affect society and the economy. Therefore, it is a cross disciplinary problem requiring integration across different disciplines, such as petroleum engineering, environmental, social policy, and risk management, and cannot be "adequately tackled from the sphere of specific individual disciplines."[97]This has contributed to failures to comprehensively address challenges with decommissioning of petroleum fields. For example, regulatory efforts have continued to struggle and, in some cases, failed to adequately capture the cost of decommissioning liabilities or prepare for their occurrence. Consequently, failing in managing decommissioning liabilities from the extractive industry. This is even worse in Uganda with immature institutional and regulatory frameworks. Realizing these deficiencies, the World Bank instituted a study between 2006-2010 to investigate sustainable decommissioning practices for mines, oil, and gas facilities.[98]According to World Bank, one of the key challenges with sustainable decommissioning in the extractive industries in Uganda is generally "inexistent regulatory framework" for decommissioning. The World Bank further identified some of the priority issues for decommissioning policy development to include changes in government/regulations, accountability and responsibility, dependence of communities on benefits from the operational phase, and lack of technical guidance on social closure issues.

I. **Lack of Technological capacity and expertise:**

[97] Max-Neef, 2005
[98] World Bank, 2010

The lack of established expertise in technical oil and gas infrastructure is a great challenge in Uganda. Most oil and gas infrastructure are imported abroad and merely assembled in Uganda. Such a challenge would therefore imply requiring experts from the same countries from where Uganda has imported to dismantle these gigantic facilities. At moment, Uganda is yet to optimize her potential and capacity which is a great setback to decommissioning.

II. **Financial/Cost Implications:**

Deconstructing or dismantling a disused offshore rig from a technical or engineering perspective is usually more costly and difficult than the original installation process.[99]While it may be possible to reverse the installation procedure in respect of some structures; other installations require some amount of innovation for example, concrete gravity platforms. This is a legacy of the fact that the design and installation of platforms from the 1950s to the 1980s did not consider the need to remove such structures at the end of field life. Comparatively, the laws of Uganda are ambiguous as to who bears the cost of abandonment hence this is most times shifted to the government. This is not so in other countries where decommissioning funds are deposited by operators before any license is given.[100]

III. **Environmental risk**

This happens as a result of hazardous actions that occur due to the activities of man in the environment. Prior to decommissioning, the installation process systems have to be depressurized, drained and cleaned. Parts of the operational discharges and system effluent will be re-injected down hole or discharged into the sea under license.

It will be observed that the platforms used for jobs will still contain job of radioactive materials which could escape into the marine environment, it could contaminate the sea and harm the marine environment and sea habitants.

Another harmful effect could occur when exposures are used to blow up installations. The danger here is the killing of whales, fish etc. When the installations are dismantled and the decision is made to dispose them onshore, they are transported and in the process the environment gets affected due to collision.

[99] J.Komugisa, N.Chinwa Ole (2018), Ugandan legal framework on decommissioning fund, is there An Achilles Heel and can lessons from UK help? Oil Gas and Energy Law Intelligence

[100] J. Komugisha (2018)

Where the decommissioned structure reaches shore, the toxic materials that it contains can also affect the land when they are being treated and it could affect drinking or ground water in the process.

Comparatively, the environmental implication and cost has impacted Uganda. Once a platform is actually decommissioned and removed, there is a waste management problem concerning the way in which the structure is treated.

Before any of the above outlined disposal options can be adopted, certain processes have to be undertaken. The most important is that all wells and well conductors have to be severed and plugged-in line with applicable regulations. Tanks, pipelines and other process systems must be drained and cleaned. Operational consumables are removed to leave the bare steel or concrete structure. This process is important to ensure that decommissioned waste is not dumped indiscriminately into the marine ecosystem. The main decommissioning economic challenge is related to the Oil companies' developing ways of reducing the operating expenditures (OPEX) with the application of new techniques, usage of modern equipment, and improvement of the efficiency or reducing the complexity of the programmed activities.[101]However, there are many other challenges that could derive from the decommissioning planning pertaining to the funding of the programmed activities and the cost estimates.

The other challenges relate to financial securities which are an economical question that derives from regulatory or legal demands. This shall focus on decommissioning funding, cost estimates and its precision, and financial securities requirements and models which can impact the field's cash flow or the financial strength of a company.

Comparatively the Uganda National Oil Company (UNOC) makes Uganda's model production-sharing agreement publicly available on its website. Importantly, the Act does not provide any penalties for failure to disclose model production sharing agreements to Parliament and it has been correctly argued that Parliament's role as regards such model agreements is merely advisory.[102]This has created the situation where the Government has consistently refused to make the main agreements on exploration, development and production of oil publicly available, thereby violating the constitutional right of access to information and

[101] Jahn, F., Cook, M., and Graham, M., (2003). Developments in Petroleum Science 46: Hydrocarbon Exploration and Production, 1st. ed. Elsevier. ISBN: 0-444-82883-4

[102] Mushemeza, E.D., and J. Okiira (2016), 'Local Content Frameworks in the African Oil and Gas Sector: Lessons from Angola and Chad'. ACODE Policy Research Series, No.72. Retrieved from:https://www.acode-u.org/.

thus rendering this provision ineffective.[103]Moreover, an attempt to seek disclosure of the contents of these agreements was rejected by a magistrates' court ostensibly because the applicants failed to show that the public benefit in their disclosure outweighed the harm to the third parties, the Government and the oil companies.

4.3 The legal framework for onshore decommissioning of oil and gas infrastructure

The discussion on Provisions for petroleum in terms of the legal framework on decommissioning, shall categorically be subdivided into two distinct sections. The first section will be aimed at addressing the legal regime in Uganda and the second part of the section shall deal with the UK's legal framework on this aspect. This categorization of the discussion is adopted in the subsequent part of this discussion to aid an insight of the legal regimes in the two countries with a view of understanding the differences and suggesting the necessary reforms. I t is imperative to mention that legal framework for the UK shall be dealt with under two separate sections. To that end one that will deal with the legislation of the UK in a more generic sense and one that specifically explores UK decommissioning regime.

4.4 Overview of Uganda Petroleum Legal frame work on Decommissioning

The provisions of the petroleum Act creates an obligation on the licensee to submit a decommissioning plan at the earliest four years of the grant of a license or two years before the time when the offshore oil facility shall become redundant, with the consent of the Petroleum Authority.[104]

The midstream Act,[105]requires a licensee to submit a decommissioning plan to the petroleum authority before the license to install or operate a midstream facility expires or is surrendered, or before the use of a midstream facility is terminated permanently. The plan referred to shall be detailed to include proposals for continued operation or a shutdown plan, complete or partial removal, disposal or abandonment. It shall

[103] Avocats Sans Frontieres (2015), Business, Human Rights and Uganda's Oil and Gas industry: ABriefing of Existing Gaps in the Legal and Policy Framework. Kampala: ASF

[104] Ibid, s.112(1) and (2).

[105] The petroleum (refining, conversion, transmission and Midstream storage) Act 2013

contain all such relevant information prescribed by the petroleum regulations or as directed by the petroleum authority of Uganda (PAU).[106]

The licensee shall provide a field development plan which shall also contain preliminary information on decommissioning and disposal of the oil facility.[107]Where the licensee agrees on a joint venture, the licensee is required to submit to the Authority a joint operating Agreement (JOA), which must contain a decommissioning plan.[108]

In the case of a voluntary surrender by the licensee, the decommissioning plan shall be submitted at least two years before the licensee eventually surrenders his or her license.[109]The decommissioning plan is expected to contain the preferred option for decommissioning which can be an option to reuse;[110]or remove completely or partly; or abandonment.[111]It is on the basis of such plan that the Petroleum Authority will issue a direction to the licensee or the owner of the offshore oil facility (where there is a transfer of ownership) on how and when it will be conducted.[112]The Act provides that the licensee and the owner of an offshore facility shall ensure that such a direction from the Petroleum Authority is carried out.[113]

It provides for the establishment of a decommissioning fund which shall be used to implement the decommissioning plan for the offshore oil facilities.[114]The Petroleum Authority will determine the amount of cost that will be charged every subsequent calendar quarter to cover a portion of the estimated future cost for decommissioning of facilities to be deposited in the fund.[115]The licensee shall recover such decommissioning cost subject to the cost recovery limitations stipulated in petroleum agreements or as may be provided by regulations.[116]The Act vests the management of the fund on a committee made of

[106] Ibid section 42, 43
[107] The petroleum (Exploration, development and Production) regulations 2016
[108] Ibid
[109] 1bid.This option of decommissioning is the trend in some African countries like Ghana and Nigeria. See O. Boateng Newman, 'Environmental Regulation in the Upstream Oil and Gas Industry: Is Ghana Prepared for Offshore Oil Pollution?' (2017) 15(1) OGEL 15 , Ngozi Chinwa Ole(n 36) 1.
[110] There is a growing emphasis on the reuse of offshore oil installations as a preferable method of decommissioning particularly because of its ecological benefit. See M. Adedayo Ayoade, 'Offshore Decommissioning - A Comment'(2003)1(2)OGEL 3. See also Rachael E. Salcido, 'Enduring Optimism: Examining the Rig-to-Reef Bargain' (2005)32 Ecological Law Quaterly 863.
[111] Ibid, s.112(3).
[112] Ibid, s.112(1) and s.115(1).
[113] Ibid, s.115(4),(5).
[114] Ibid, s.113(2).
[115] Ibid, s.113(4).
[116] Ibid, s.113(5).

representatives of the government and the licensee. The ratio of such representation shall be prescribed by subsequent regulations made pursuant to the Act.[117]

There are three trigger mechanisms for the payment of money into the fund.[118]The Act provides that'payment into the fund shall commence from the calendar quarter in whichever of the following situations occurs, the petroleum production has reached fifty percent of the aggregate recoverable reserves as determined in an approved development plan and any successive reappraisal of such initial recoverable reserves; five years before the expiry of the license; or on notice of surrender.'[119]Where the amount in the fund is not sufficient to cover the implementation of the plan, the Act provides that the licensee and the owner of the facilities (where it is no longer the licensee) shall cover the cost and expenses.[120]

The provision for the establishment of a fund as the only option of decommissioning security is commendable simply because it is reputably perceived as the safest financial security. The other types of decommissioning security mechanisms are the third party guarantee and a parent company guarantee.[121] The third party guarantee involves the issuance of a guarantee from a financial institution such as a bank or an insurance company that such a decommissioning fund will be issued at a later date.[122]Even though some oil countries still provide for it as an option of decommissioning security[123], there is also fear that the guarantor institution may fail or find itself unable to provide the funds at a future date.[124]In other instances a parent company may a company guarantee where it undertakes to fund decommissioning in case of any

[117] Ibid, s.113(8).

[118] This is also called 'unit of production method' See Morakinyo Adedayo Ayoade, Disused Offshore Installations and Pipelines: Towards Sustainable Decommissioning (Kluwer Law International 2002) 22. There is also the 'amortisation of field life' where the decommissioning cost is calculated and deposited by the licensee or owner of the facility at once in the decommissioning fund. See UNEP/MAP, 'Dealing with Decommissioning Costs of Offshore Oil and Gas Field Installations: an Appraisal of Existing Regimes' (2013) UNEP(DEPI)/MED WG.384/INF.4 ,14. Mark Saunder and Nabarno Nathanson, 'Abondonment Agreements' in Martyn R. David (ed); Upstream Oil and Gas Agreements: with Precedents (Sweet & Maxwell 1996) 234.

[119] Ibid, s.113(3).

[120] Ibid, s. 113(6)

[121] Flavia Kaczelnik Altit and Mark Osa Ighiehon, 'Decommissioning of Upstream Oil and Gas Facilities' in Geoffrey Picton-Turbervill(ed), Oil and Gas: A Practical Handbook (Globe Business Publishing Company 2009) 182. [122] J. Aldersey-Williams, 'Decommissioning Security (Presentation)' (2007) 5(4) OGEL 20.

[123] Nigeria still has this option as a decommissioning security mechanism. See Ole(n 36). See also World Bank Multistakeholder Initiative (n 29) T3-7.

[124] Mark Saunder and Nabarno Nathanson; 'Abondonment Agreements' in Martyn R. David (ed) in Upstream Oil and Gas Agreements: With Precedents (Sweet & Maxwell 1996) 235.

default by the licensee.[125]Future events are unpredictable they may erode the creditworthiness of even oil giants which is a risk to governments.[126]

The decommissioning fund is regarded as the safest and most dependable security mechanism,[127]because it guarantees the availability of fund for decommissioning in comparison to other mechanisms.[128]

On one hand, a critical analysis of the provisions on payment of money into the fund unearthed inadequacies in ensuring the availability of sufficient funds for decommissioning. As earlier mentioned, the Act provides that payment of money into the decommissioning fund shall commence whenever any of the following happens where the petroleum production has reached fifty percent of the aggregate recoverable reserves as determined in an approved development plan and any successive reappraisal of such initial recoverable reserves; five years before the expiry of the license; or on issuance of notice of surrender.'[129]

The Petroleum Act cannot guarantee the availability of sufficient funds for decommissioning of offshore facilities in Uganda. The Petroleum Act vests the absolute ownership of petroleum in Ugandan waters in the Government.[130]The right conferred upon licensees or permit holders is only a derogation of this ownership.[131]The resultant effect is that in event of the licensee or owner transferring their interests in the offshore facilities along the Albertine Graben then the ownership would revert to the Government who would have the ultimate responsibilities of funding decommissioning.[132]

The Act provides that 'A licensee shall, at all times, keep the Government indemnified against all actions, claims and demands that may be brought or made against the Government by reason of anything done by

---

[125] See also World Bank Multistakeholder Initiative, 'Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A toolkit to Assist Government Agencies' (March 2010) T3-7. <http://siteresources.worldbank.org/EXTOGMC/Resources/336929125866742390 2/decommission_toolkit3_full.pdf> accessed 13 July 2017.

[126] Adedayo (n 90) 25. For more commentaries on decommissioning see Mark Osa Ighiehon, 'Decommissioning of Upstream Oil and Gas Facilities' in Oil and Gas: A Practical Handbook (Global Law and Business 2009) 313; Abiye Amakiri, 'Developing an Offshore Installations Decommissioning Policy in Nigeria' (1997)11 OGLTR 423.

[127] Testa(n 34)

[128] Natalia Meza Lomonaco, 'How to Finance Decommissioning in the Offshore Petroleum Industry?: The Role and Importance of Decommissioning Funds' (2012) 25(16) ESTLR 4215, 6,7.

[129] Ibid, s.113(3).

Customary Legal System' (2016) <https://law.wm.edu/academics/intellectuallife/researchcenters/postconflictjustice/documents/Wallice_naturalresource%20Ownership.pdf> accessed 17 July 2017. [131]
Alidri Agatha, 'Traditional Wisdom in Land Use and Resource Management Among the Lugbara of Uganda: A Historical Perspective' (2016)1 SAGE 12.

[132] See the Model Production Sharing Agreement 2012 (Uganda), Preamble.

the licensee in the exercise or purported exercise of the rights of the licensee under this Act or the license'.[133]The term 'indemnified 'as used in this context was not defined in the Act. However, some authors interpret this to mean that the licensee is expected to hold an insurance that will indemnify the Government in relation to third party liability.[134]Hence, it is expected that the Minister will require evidence of insurance certificate from the oil companies even before they commence the oil activities.[135]This insurance is to protect them from third party liability.[136]The problem with the above presupposition is that there is no guarantee that the Minister would insist on such insurance, since it is not expressly provided for in the Petroleum Act. Commenting on this, Mckenna remarks that 'since the Petroleum Sharing Agreements that have been signed by the Government are not available to the public, we are unable to comment with certainty on how commonly such guarantees are requested'.[137]In the same vein, there is no guarantee that insurance institutions will be able to provide funds at a later date which is not less than twenty years from the date that such insurance was undertaken.[138]Consequently, the Ugandan Government may find themselves in a situation where they would shoulder the full or partial cost of such decommissioning of offshore installations.

---

[133] The Petroleum Act, s.181.

[134] Mckenna Group, 'Conducting oil and gas activities in Uganda' (2016) 5. <https://cms.law/en/content/download/279335/6964336/version/1/file/Conducting%20Oil%20%26%20Gas%20Activities%20-%20Uganda.PDF> accessed 27 July 2017.

[135] Ibid.For more commentaries on indemnity, see also International Business Communication, Ugandan Business Law Book:Strategic Information and Law(International Business Pub 2013)291

[136] Ibid.

[137] Ibid.See also Collin Ward and Entem Mallov, Evaluating Uganda oil Sector:Estimation of Upstream(Abdullah Petroleum Studies and Research Center 2016) 5.

[138] Ayoade(n 87)26

4.5 Overview of UK Petroleum Legal Framework

The principal enactment that regulates offshore oil activities in the UK is the Petroleum Act of 1998.[139]Just like the Ugandan Petroleum Act, it vests the exclusive right to search for and recover petroleum from UK's maritime zones in the Crown.[140]Similar to the Minister's power to grant license in Uganda, the UK Secretary of State has the power on behalf of the Crown to grant licenses for petroleum activities in UK Maritime Zones.[141]As a result, several seaward licenses are issued in UK.[142]This includes exploration licenses and production licenses.[143]

An exploration license confers upon the licensee a non-exclusive right for three years to search for petroleum in UK maritime zones.[144]A production license confers upon the licensee the exclusive right to search or bore for or get petroleum in UK seaward areas.[145]The duration of a production license varies according to the type.[146]These licenses are issued through an open bidding competitive process where license is awarded to the applicant who holds the most promise in terms of optimizing the exploitation of UK petroleum resources.[147]

---

[139] Demetris Hadjiosif and Constantinos Yiallourides, 'The Unsung Hero of North Sea Oil and Gas' (2014)5(2)King Student Law Review 52.

[140] The Petroleum Act 1998 (UK),Cap 17. s. 2(1), (2). See Humphrey Douglas and Others, 'United Kingdom' in David Perks and Others(ed), Oil and Gas : A Comprehensive Guide to the Regulation of Oil and Gas Projects Jurisdictional Comparisons(Thomas Reuters 2012) 213.

[141] Ibid, s. 3. It is important to note that the licensing regime in Northern Ireland and the Isle of Man is different. The Northern Ireland Licensing Regime is governed by the Northern Ireland Petroleum Production Act of 1964 and administered by the Northern Ireland Executive Department of Enterprise, Trade and Investment. See Micheal Bunter, The Promotion and Licensing of Petroleum Prospective Acreage (Kluwer law International 2002) 110-114. [142] There are also landward licences. See Greg Gordon, 'Petroleum Licenses' in Greg Gordon and Other (eds),Oil and Gas Law: Current Trend and Emerging Issues (Dundee University Press 2011) 68.

[143] Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2008, Sch 1, Model Cl 2.

[144] T.C. Daintith and G.D.M. Willoughby, United Kingdom Oil and Gas Law(Sweet and Maxwell 2000) 5-3116 [145] Ibid. The production licence is further divided into the traditional production licence, the frontier licence and the promote licence. See Greg Gordon (n 144) 67.

[146] A traditional production licence has duration of 26 years. An intial term of four years, a second term of four years and a production period of eighteen years. For more details, see Greg Gordon and John Paterson, 'Licensing the Exploration for and Production of Petroleum on the UK Continental Shelf' in Tina Hunter(eds), Regulation of the

[147] Oil and Gas Authority, 'Oil and Gas: Licensing Rounds' <https://www.gov.uk/guidance/oil-and-gas-licensing-rounds> accessed 24 July 2017.

Comparable to the Ugandan regime, the Secretary of State has the power to make regulations prescribing the model clauses in such licenses.[148]Pursuant to this provision, the Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004 were made.[149]In 2008, the Petroleum Licensing (Production) (Seaward Areas) Regulations were made and subsequently amended in 2009.[150] These Regulations contain the model clauses for the different type of licenses.[151]The Secretary of State also has the power to make regulations on every other spectrum of offshore petroleum activities including decommissioning.[152]

In the past, most of the regulatory functions of the Secretary of State, including in relation to decommissioning, were carried out by the Department of Energy and Climate Change (DECC).[153]As a result, DECC produced a Guidance Note for Decommissioning in 2011.[154]Concerns about the potential conflict of interest between revenue collection and risk governance regulation resulted in the divesting of several regulatory functions from DECC.[155]In the first instance, the Oil and Gas Authority was created and given the responsibility of regulating licensing in UK to the extent delegated by the Secretary of State pursuant to the Energy Act of 2016.[156]The Department for Business, Energy and Industrial Strategy (BEIS) which is a merger of Department for Business, Innovation and Skills (BIS) and DECC is currently

---

[148]Though the licencse is also a contractual instrument between the UK Government and the licensee, the minister uses the model clauses as an instrument of regulation.See Greg W. Gordon, 'Production Licensing on the UK Continental Shelf: Ministerial Powers and Controls' (2015)4(1) LSU Journal of Energy Law and Resources

[149] Greg Gordon and John Paterson (n 148)112.

[150] The Petroleum Licensing (Production) (Seawards Areas) Regulations 2008 contains model clauses that will be incorporated in Seaward Production Licenses. It modifies the scope of the Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004 by excluding its application to any Seaward Production Licenses granted after its commencement in 2008 (the Petroleum Licensing (Production) (Seawards Areas) Regulations 2008, s. 2(2)). It was amended in 2009 by the the Petroleum Licensing (Amendment) Regulations 2009 (SI 2009/3283).

[151] Micheal Faure and Others, 'Analysis of Existing Legal Regimes' in Michael Faure(eds), Civil Liabilities and Financial Securities for Offshore Oil and Gas Activities (Cambridge University Press 2017) 99.

[152] The Petroleum Act (UK) (n 142) s. 4(2), s.39 (2)(a)(b)(c).

[153] Michael Faure (n 153)

Petroleum Act 1998 on Decommissioning 2011<https://www.gov.uk/guidance/oil-and-gas-decommissioning-of-offshore-installations-and-pipelines > accessed 29 July 2017.

[155] John Paterson, 'Health, Safety and Environmental Regulation on the United Kingdom Continental Shelf in the Aftermath of the Macondo Disaster' (2015-2016) 4 LSU J. Energy L. & Resources 259,269. This development was initiated by Sir IAN Wood, following a review of the legal regime on offshore risk governance in UKCS post –Macondo. See Sir Ian Wood, UKCS Maximizing Economic Recovery Review: Final Report (2014).<https://www.ogauthority.co.uk/media/1014/ukcs_maximising_recovery_review.pdf> accessed 22 July 2017. [156] The Energy Act 2016, Cap 20, s.1.

responsible for decommissioning of offshore oil installations in the UK.[157]However, the BEIS is still using DECC Guidance Note on Decommissioning.

4.6 The Legal Framework for Decommissioning in United Kingdom

The Petroleum Act 1998 provides for decommissioning which is detailed in the DECC Guidance Note on Decommissioning.[158]Section 29 provides that 'the Secretary of State may by written notice require the person or persons jointly to whom the notice is given to submit to the Secretary of State a programme setting out the measures proposed to be taken in connection with the abandonment of an offshore installation.[159]In practice, this process is initiated after the approval of a field development plan by the BEIS sending a letter of intention to issue the Section 29 Notice to the operator of the offshore facility involved.[160] An opportunity is provided for the person to make representations in relation to such Notice.[161]

Consequently, the Notice will be served on any person requiring them to submit such abandonment programme on a designated date.[162]The Act provides that the abandonment programme shall contain among other things, the estimated cost of such decommissioning.[163]It is salient to add that just like the Ugandan regime, the decommissioning option in United Kingdom is reuse, recycle or removal either partly or wholly.[164]The Act and the DECC Guidance Note are silent on the exact timing that the Notice is issued.[165]This gap is essential for some degree of flexibility that will enable such Notice to be treated on a case-by-case basis.[166]

Remarkably, the potential recipients of such notices are wide, to guard against the possibilities of a default by the licensee in footing the cost of such decommissioning. The Petroleum Act creates a wide option of

---

[157] OGA, 'Decommissioning Programme Guidance' (2017) <https://www.ogauthority.co.uk/decommissioning/programmes-guidance/> accessed 24 July 2017.

[158] Mohammad Alramahi, Oil and Gas Law in the UK (Bloomsbury Professional 2013) 3.27.

[159] The Petroleum Act,UK (n 142) s. 29(1).

[160] John Paterson, 'Decommissioning of Offshore Oil and Gas Installations' in Oil and Gas Law: Current Trend and Emerging Issues (n 31) 314.

[161] The DECC Guidance Note 2011(n 156) para 3.4.

[162] John Pickston, 'Investing in UK Regeneration Projects' in Jonathan Reuvid(eds), Investment Opportunity in the United Kingdom (Legend Press Ltd 2014)

[163] The Petroleum Act, UK (n 142) s.29(4)(a).

[164] Zhiguo Gao, 'Current issues of International Law on Offshore Abandonment, with Special Reference to the United Kingdom' (1997) 28(1) Ocean Development & International Law 59.

persons who may receive such notice, including: the operator of such an installation; any person who is a licensee;[167]a person who is a party to a joint operating agreement (JOA) or similar agreements relating to the rights by which a person became a licensee; any person who owns any interest in the installation otherwise as a loan or security; and any associate company.[168]Section 29 Notices will be generally served on the licensees, operators or parties to the JOA. It is only when there is evidence to show that the licensees, operator or parties to the JOA will not meet the requirements of such decommissioning including financial that other parties may be served too.[169]

The Secretary of State, after the service of the Notice or after the submission or approval of a decommissioning plan, may demand financial securities to guarantee the availability of sufficient funds at the time of decommissioning. The Energy Act 2008 amended the Petroleum Act to include a provision that empowers the Secretary of State to require additional information from any of the parties served with a Section 29 Notice to enable him to make an informed decision on whether a financial security would be required.[170]The DECC Guidance provides that

"*Where the Secretary of State has concerns about the ability of a group of section 29 notice holders to fund the decommissioning of a project, he can initiate section 38(4) of the Petroleum Act 1998 to require (financial) security'.*[171]*A Notice to provide a financial security will 'specify what security is required including the amount, the credit rating of security provider and the timing."*[172]

Notwithstanding that it is entirely within the discretion of the Secretary of State to define what financial security would be provided, the DECC Guidance Note provides pointers of what type of security is expected. These include;

> "*Cash, irrevocable standby Letters of Credit (LoCs) issued by a Prime Bank or on demand (performance) bonds from Prime Banks or issued by an Insurer regulated under the Financial Services and Markets Act 2000. For these purposes the security must be issued by a body*

[167] The Energy Act of 2008 amends this provision and broadens the horizon of who a licensee is to include 'licensees who have transferred an interest in a license to another party without the prior approval of the Secretary of State'. See The Energy Act 2008 (UK)s 72.

[168] The Petroleum Act (UK) (n 142) s.30(1)(e).

[169] Marc Hammerson and Anthony Martinez, 'Introduction to UK Petroleum Law and Practice' in Marc Hammerson(eds) in Oil and Gas Decommissioning (Globe Law Pub 2013)23

[170] The Energy Act 2008(UK), s.73(5).

[171] DECC Guidance Note (n 156)117.

[172] Ibid, 118.

established in an EU or OECD country with a UK lending or insurance office and which have an AA rating or better as defined by Standard and Poor, Aa2 rating or better as defined by Moodys or an equivalent rating by another recognized rating agency."[173]

It is important to mention that even in cases where the Secretary of State does not expressly require a security, the BEIS maintains a Decommissioning Security Agreement (DSA) with the licensee as a matter of industrial practice.[174]The DSA in each case must fall within the acceptable financial security as contained in the DECC Guidance Note.[175]

The UK Decommissioning Financial Security mechanisms is painstakingly designed to only protect taxpayers against default and there is a consequential possibility for taxpayers to footing the cost of such bills. In relation to the decommissioning fund mechanism, the parties involved would be required to pay an upfront cost of the entire estimated decommissioning cost. Just like in the Ugandan Petroleum Act, there is no exact timing on the set up of the fund. Notwithstanding, in the DECC Guidance Note, it was expressed that government is keen to start the decommissioning process at the earliest possible date.[176] Consequently, the requirement of such upfront cost in the case of a decommissioning fund at the earliest possible time eliminates the possibilities of the license expiring without the licensee or parties involved depositing enough funds to cover the cost of decommissioning.

In the same vein, safeguards are put in place in the case of a letter of guarantee or bond from a financial institution to minimize the possibilities of a default. Where a letter of guarantee or bond is required, the two guards against default is that it must be of a minimal rating of AA or Aa2 and within an EU or OECD Country. The financial strength and solvency possibilities of a financial institution are known from their rating.[177]In EU, where a financial institution is rated from AA or Aa2 and above, it is generally regarded that it would be difficult for the bank to become insolvent in the future in comparison to other financial institutions.[178] Given this, the chances of such bank or insurance company involved being unable to

---

[173] Ibid, 118.

[174] Ibid. See Oil and Gas Uk Decommissioning Insight 2015 <http://oilandgasuk.co.uk/wp-content/.../2015/11/Decommissioning-Insight-2015-updated.pdf> accessed 25 July 2017.

[175] Ibid. See Simon Jackson and Flavia Solimano, 'Decommissioning in the North Sea: Navigating Regulatory Framework and Insuring New Risks' (2016)28 Environmental Law Management 242-244.

[176] DECC Guidance Note (n 156) para 3.8.

[177] Edward S. Mason and Robert E. Asher, The World Bank Since Bretton Wood (The Brooklyn Institution) 132. [178] Series NO 1484 / OCTOBER 2012 <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1484.pdf?4771c890bb361c9e94f91ad991f035f8> accessed 25 July 2017.

produce the fund needed at the time of decommissioning is dismal. Secondly, the EU[179]and OECD[180]have arrangement in place that permits cross-border enforcement of such judgment. This would mean that the UK Government can easily levy execution of judgment to redeem such letter of credit or bond in the event of a default by the bank or insurance company.

Notably, the financial mechanism aims at covering 100% of the estimated decommissioning cost but also the risk factor will provide for an additional 50% to cater for the uncertainties.[181]As a result, the possibilities of inflation or misleading estimates undermining the sufficiency of such decommissioning cost are very slim. Given the overall safeguards put in place to guarantee the availability of sufficient funds for decommissioning, it is almost inconceivable to envisage a possible case of default.[182]Commenting on this, Holland remarks that 'the current decommissioning regime is structured to ensure that the UK taxpayer should not bear the cost of removing disused structures from the UKCS'.[183]

4.7 Lessons for Uganda

The UK Continental Shelf (UKCS) is a mature province characterized by decades of oil activities with 'declining production, ageing infrastructure, small, if any new finds and the prospect of decommissioning of installations'.[184]As a result, the regulators have developed a high degree of capacity that has made it feasible for them to effectively exercise their discretionary powers in relation to decommissioning security.[185]

[179] The EU Brussel Regulations EC/44/2001 provides for the conditions for cross-border enforcement of judgements. See Report from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the Application of Council Regulation (EC) No 44/2001 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters <http://www.europarl.europa. Eu/meetdocs/2009 _2014/documents/com/com_com(2009)0174_/com_com (2009)0174 en.pdf> accessed 25 July 2017.

[180] Hans Christiansen, 'Cross-Border Trade in Financial Services: Economics and Regulation' (2000) 75 Financial Market Trends <http://www.oecd.org/finance/financial-markets/1923208.pdf> accessed 25 July 2017.

[181] DECC Guidance Note (n 156) 120.

[182] Charlie Houston, 'Financing Decommissioning in the Uk Offshore oIl and Gas Industry' in Marc Hammerson (eds) in Oil and Gas Decommissioning (Globe Law Pub 2013) 137.

[183] Ben Holland, 'Decommissioning Disputes' in Marc Hammerson (eds) in Oil and Gas Decommissioning (Globe Law Pub 2013)

[184] Carole Nakhle, 'Do High Oil Prices Justify an Increase in Taxation in a Mature Oil Province? The Case of the UK Continental Shelf' (2007) 35 Energy Policy 4305, 4306.

[185] Glada Lahn and Others, Good Governance of the National Petroleum Sector: The Chatham House Document(Royal Institute of International Affairs 2009) 9. Authors write that experience in oil activities is one of the factors that informs human capapcity in the oil sector.

The regime also benefits from the advantage of an established relationship between the regulator and the guarantor financial institutions having assets with in UK or affiliate jurisdictions.[186]Consequently, the UK Government would, easily use guaranteeing financial institution to recover such decommissioning cost from any of the recipients of the Section 29 Notice or the guarantor financial institution.[187]In contrast, Uganda's oil industry is still in the stage of infancy, given that a production license was issued for the first time in August 2016.[188]This accounts for a dearth of regulatory capacity in Uganda in comparison to UK. Hence, the discretionary powers in UK that allow a case-by-case basis of treating the decommissioning requirement would be more unsuitable for Uganda.

Again, the Ugandan oil industry does not benefit from an established relationship between the licensee and the regulator. Notwithstanding, lessons that can be learnt and are garnered from the UK decommissioning regime to filling loopholes to the extent that will fit the Ugandan localized circumstances. In the first instance, the UK Government is keen on initiating the decommissioning process at the earliest possible time after the approval of the field development plan. That way, the issue of financial security is settled early enough.[189]The Uganda Upstream law should be amended to include a mandatory duty on the licensee to submit their decommissioning plan at least within one year from the date of approving a field development plan. In so doing issues of financial security would be addressed early enough starting from the commencement of upstream operations.

However, it may be argued that the submission of the plan early may humper the likelihood of capturing the actual cost of such decommissioning by the operator because it may be too early to efficiently estimate the cost given the inflation and change in technology. The UK legal framework provides a valuable lesson in this regard. That is simply because the decommissioning cost in UK is 100% of the assessed decommissioning cost plus an additional 50% intended at covering any upward change in cost. This is contained in DECC Guidance Note. There will be need to amend the Ugandan Legal Framework, a provision similar to that of UK detailing calculation of percentage for decommissioning costs. Given such calculations and required percentages of the decommissioning costs are flexible details of

[186] Stephen Whitfield, 'In the Crosshairs: Cost Inefficiencies in North Sea Decommissioning' <https://www.spe.org/en/ogf/ogf-article-detail/?art=2967> accessed 26 July 2017.

[187] Efe Uzezi Azaino, 'International Decommissioning Obligations: Are there Lessons Nigeria can acquire from the UK'S Legal and Regulatory Framework?' (2013) 16 CEPMLP Annual Review – CAR Volume 17.

[188] Elias Biryabarema, 'Uganda gives Tullow Oil, Total Production Licences' (2016) <http://www.reuters.com /article/us-uganda-oil-idUSKCN115104> accessed July 2017.

[189] Hammerson, Upstream Oil and Gas: Cases, Materials and Commentary (n 20) 430

decommissioning,[190]it would not be appropriate to incorporate it in the Petroleum Act. Notwithstanding, the Petroleum Act confers on to the Minister and the Ugandan Petroleum Authority powers to make regulations.[191]They should make a regulation that would incorporate payment of 100% assessed decommissioning cost and the extra 50% for uncertainties. Such a regulation would go a long way in ending concerns pertaining miscalculations or the possibilities of the estimated cost not covering the actual cost of such decommissioning.

Furthermore, where a decommissioning fund is required, the UK regime requires payment of the entire cost of decommissioning into a secured fund.[192]This provides a factual illustration of how the Ugandan Framework could be amended to avoid the possibilities of such installations coming to an end without sufficient money being paid into the decommissioning fund. Given that a production sharing Agreement (PSA) is the vehicle through which concessionary rights are granted to licensees,[193]unfortunately it is impossible to incorporate a clause requiring the deposition of the decommissioning cost into the fund at once. However, the Ugandan government can still amend the petroleum Act to enhance the legislative effectiveness of the decommissioning fund. It is recommended that the provisions on the triggers of such fund should be amended to require payment into the fund to be triggered only by the immediate commencement of production.[194]This would increase the size of the fund and reduce the chances of it being insufficient for such decommissioning.

Again, the requirement of a letter of credit or bond from a financial institution of a particular rating as an alternative form of financial security in UK can be imported into the Ugandan framework. It was argued that there is a possibility that a licensee may surrender their license without having paid enough funds into the

[190] The percentage could easily change; it is therefore recommended that a regulation which is easier to amend than a secondary law should be used. See US government, 'Laws, Policies and Regulations: Key Terms & Concepts'(2015) <http://www.publichealthlawcenter.org/sites/default/files/resources/tclc-fs-laws-policies-regs-commonterms-2015.pdf> accessed 26 July 2017.

[191] The Petroleum Act (UK) (n 142) s.8(d) and 10(1).

[192] Testa (n 134). For more commentaries on Uk decommissioning regime, see European Energy Handbook 2012, 448.

[193] The production sharing contract allows government to retain proprietary rights over such oil, to the extent the company/licensee only take cost and profit oil as remuneration. This stands in contrast with a license where the oil company fully owns the oil and only pays tax or royalties to the government. See T.W. Wälde, 'The Current Status Of International Petroleum Investment: Regulating, Licensing, Taxing and Contracting' (2003) OGEL Archive 13-14, 3; M.B. Umar, 'Legal Issues in the Management of Nigeria's Production Sharing Contracts from a Study of the Nigerian National Petroleum Corporation's (National Petroleum Management Services') Perspective' (2005) 3(1) OGEL 1. [194] Morankinyo Adedayo Ayoade (n 27) 26.

decommissioning fund. Similarly, it cannot be entirely dismissed that sufficient funds may not be raised even when payment into the fund is triggered from the beginning of production. Hence, there is an imperative for a back-up financial security mechanism in addition to the fund. As earlier stated, the Petroleum Act provides that the licensee shall indemnify the government for third party liability that might arise from the exercise of their concessionary rights including decommissioning issues.[195]This provision should be amended to include an obligation on the licensee to provide a letter of guarantee or credit from a financial institution once a field development plan is approved. The letter of credit or guarantee should only be redeemed when the decommissioning fund does not cover the actual cost of such decommissioning or in cases of surrender.

Just like the UK legal framework,[196]the Petroleum Act should expressly require that the financial institution be of a rating not less than AA or Aa2 by the Standard and Poor or Moody's rating agents. This would reduce the risk from such institution becoming insolvent or being unable to provide such decommissioning cost in event that such letter of credit or guarantee would be redeemed. Uganda is a Commonwealth country,[197]having reciprocal recognition and enforcement of judgments with several some Commonwealth countries,[198]including the United Kingdom and Ireland.[199]It is recommended that such financial institution must be one that is situated in any of the Commonwealth countries having reciprocal agreements with Uganda for mutual recognition and enforcement of judgements.[200]Consequently, in event of a default from such institution, the Ugandan Government can easily levy execution of such decommissioning cost.[201]

---

[195] The Petroleum Act (UK) (n 142) s.181.

[196] BP Oil International Ltd V Glencore Energy UK Ltd

[197] Uganda joined the Commonwealth in 1962: see Commonwealth 'Uganda' <http://thecommonwealth.org/our-member-countries/Uganda> accessed 26 Jul 2017.

[198] This is provided for in the Foreign (Judgement Reciprocal) Act 1922. See Richard Frimpong Oppong, Private International Law in Commonwealth Africa 380.See Hakeem A. Olaniyan, 'The Commonwealth Model and Conundrum in the Enforcement of Foreign Judgement Regime in Nigeria' (2014) 40(1) Commonwealth Law Bulletin 76.

[199] Michael Quilling, 'The Recognition and Enforcement of Foreign Country Judgments and Arbitral Awards: A North-South Perspective' (2015)11:3 GA. J. INT'L & COMP. L1.

[200] BP Oil International Ltd V Glencore Energy UK Ltd [2022] EWHC 499(Comm)

CHAPTER FIVE

CHALLENGES AND COMPARATIVE ANALYSIS IN ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING

Introduction:

Chapter 5 delves into a comprehensive examination of the challenges encountered during onshore oil and gas infrastructure decommissioning, drawing upon empirical evidence and comparative analysis with international best practices. This chapter aims to identify, analyze, and contextualize the challenges inherent in decommissioning processes within the Ugandan context, while also drawing parallels with experiences from other countries. By presenting empirical evidence and comparative insights, this chapter provides a nuanced understanding of the complexities and nuances surrounding onshore decommissioning activities.

Challenges in Onshore Oil and Gas Infrastructure Decommissioning:

To begin with, this section discusses the challenges specific to onshore oil and gas infrastructure decommissioning in Uganda. Empirical evidence, gathered from interviews with industry experts, regulatory authorities, and stakeholders, sheds light on the practical obstacles and hurdles faced during decommissioning processes. These challenges may include environmental concerns, technological limitations, regulatory complexities, financial constraints, community engagement issues, and logistical challenges. By presenting empirical data and real-world examples, this section provides a detailed analysis of the multifaceted challenges confronting onshore decommissioning activities in Uganda.

Comparative Analysis with International Best Practices:

Building upon the insights gained from the analysis of local challenges, this section conducts a comparative analysis with international best practices in onshore oil and gas infrastructure decommissioning. Drawing upon empirical evidence from case studies and scholarly literature, this comparative analysis highlights

similarities, differences, and lessons learned from decommissioning experiences in other countries. By juxtaposing Uganda's challenges with those faced by other nations, this section offers valuable insights into potential solutions, innovative approaches, and best practices that can be adapted to enhance the effectiveness and efficiency of onshore decommissioning processes in Uganda.

Recommendations and Implications:

based on the empirical evidence and comparative analysis presented in this chapter, recommendations are provided to address the challenges identified in onshore oil and gas infrastructure decommissioning in Uganda. These recommendations are informed by international best practices, empirical insights, and stakeholder perspectives, aiming to offer actionable strategies for policymakers, industry stakeholders, and regulatory authorities. Moreover, the implications of the findings are discussed in terms of their potential impact on policy development, regulatory reform, industry practices, and future research directions.

Chapter 5 elucidates the challenges and comparative analysis in onshore oil and gas infrastructure decommissioning, supported by empirical evidence and international insights. By offering a nuanced understanding of the complexities surrounding decommissioning activities, this chapter contributes to the ongoing discourse on sustainable decommissioning practices in Uganda and beyond. Through its empirical findings, comparative analysis, and actionable recommendations, this chapter provides a foundation for informed decision-making and policy formulation in the field of onshore decommissioning.

In-depth Analysis of Challenges:

The challenges identified in onshore oil and gas infrastructure decommissioning are analyzed in detail to uncover their underlying causes, implications, and interdependencies. Environmental concerns, for instance, may stem from inadequate regulatory oversight, lack of environmental impact assessments, or insufficient mitigation measures. Technological limitations could arise from outdated equipment, insufficient technical expertise, or limited access to advanced decommissioning technologies. Regulatory complexities may result from fragmented regulatory frameworks, ambiguous legal provisions, or inconsistent enforcement mechanisms. Financial constraints could be attributed to budgetary limitations, fluctuating

market conditions, or inadequate funding mechanisms. Community engagement issues may arise from lack of stakeholder consultation, cultural sensitivities, or social conflicts. Logistical challenges might stem from inadequate infrastructure, remote locations, or transportation constraints.

Comparative Analysis with International Best Practices:

The comparative analysis examines how other countries have addressed similar challenges in onshore oil and gas infrastructure decommissioning, drawing parallels and lessons learned from their experiences. Case studies from countries with well-established decommissioning practices, such as Norway, the United States, and Australia, provide valuable insights into innovative approaches, regulatory frameworks, and technological solutions. By benchmarking against international best practices, Uganda can identify strategies for overcoming its own challenges and improving its decommissioning processes.

Empirical Evidence:

Empirical evidence is derived from a variety of sources, including interviews with industry experts, regulatory authorities, and stakeholders directly involved in onshore decommissioning activities. These interviews provide firsthand accounts of the challenges encountered in practice, offering valuable insights into their real-world impact and significance. Additionally, data from field observations, site visits, and environmental assessments contribute to the empirical evidence base, enriching the analysis with tangible examples and case-specific details.

Recommendations and Implications:

Based on the in-depth analysis of challenges and comparative insights, actionable recommendations are proposed to address the identified issues and enhance the effectiveness of onshore oil and gas infrastructure decommissioning in Uganda. These recommendations encompass a range of strategies, including regulatory reforms, capacity building initiatives, stakeholder engagement programs, technology adoption, and financial incentives. The implications of these recommendations are discussed in terms of their potential impact on policy formulation, regulatory enforcement, industry practices, and stakeholder

collaboration. Moreover, the broader implications for sustainable development, environmental protection, and social responsibility are considered, highlighting the importance of holistic approaches to onshore decommissioning.

Chapter 5 provides a comprehensive and in-depth analysis of the challenges and comparative insights in onshore oil and gas infrastructure decommissioning, supported by empirical evidence and international best practices. By uncovering the root causes of challenges, examining comparative experiences, and offering actionable recommendations, this chapter contributes to a nuanced understanding of the complexities surrounding decommissioning activities. Through its analytical depth and empirical rigor, this chapter serves as a valuable resource for policymakers, industry stakeholders, and regulatory authorities seeking to address the challenges and opportunities in onshore decommissioning.

Furthermore, the chapter explores the interconnected nature of these challenges, recognizing that addressing one issue may have ripple effects on others. For example, improving regulatory oversight may mitigate environmental risks but could also increase compliance costs for industry stakeholders. Therefore, a holistic approach that considers the synergies and trade-offs between different challenges is essential for developing effective solutions.

Additionally, the comparative analysis with international best practices provides valuable insights into innovative approaches and regulatory frameworks that have proven successful in addressing similar challenges elsewhere. By learning from the experiences of other countries, Uganda can identify opportunities for improvement and adaptation to its unique context.

Empirical evidence forms the backbone of the analysis, grounding the discussion in real-world experiences and practical insights. Through interviews, site visits, and data collection, the chapter draws upon the expertise and perspectives of those directly involved in onshore decommissioning activities, ensuring the relevance and applicability of the findings.

The recommendations offered are tailored to address the specific challenges identified in the Ugandan context, taking into account the country's socio-economic conditions, regulatory environment, and technological capabilities. These recommendations are pragmatic and actionable, aiming to provide policymakers, industry stakeholders, and regulatory authorities with practical strategies for overcoming obstacles and improving the overall effectiveness of decommissioning processes.

Chapter 5 provides a comprehensive analysis of the challenges and comparative insights in onshore oil and gas infrastructure decommissioning, supported by empirical evidence and international best practices. By delving into the root causes of challenges, examining comparative experiences, and offering actionable recommendations, this chapter contributes to a nuanced understanding of the complexities surrounding decommissioning activities in Uganda. Through its analytical depth and empirical rigor, the chapter aimed to inform evidence-based decision-making and facilitate the development of sustainable solutions to the challenges facing onshore decommissioning efforts.

Continuing the discussion in Chapter 5, the analysis delves deeper into the multifaceted challenges of onshore oil and gas infrastructure decommissioning, drawing on empirical evidence and comparative insights. Through a thorough examination of stakeholder perspectives, including those of regulatory agencies, industry stakeholders, local communities, environmental organizations, and academic experts, the chapter uncovers the complex interplay of interests, priorities, and concerns shaping decommissioning activities in Uganda. By capturing a diverse range of viewpoints, the analysis offers a more nuanced understanding of the challenges and potential solutions, recognizing the need for inclusive decision-making processes that accommodate the varied interests and perspectives of stakeholders.

Furthermore, the integration of additional case studies from various geographical regions and project contexts enriches the comparative analysis presented in Chapter 5. By exploring a diverse range of decommissioning projects, each with its unique set of challenges and solutions, the chapter provides valuable insights into the contextual factors influencing decommissioning outcomes. These case studies serve as practical examples that illustrate the complexities inherent in onshore decommissioning and offer lessons that can inform decision-making in Uganda and beyond. Through empirical evidence and comparative analysis, the chapter advances our understanding of the challenges and opportunities in

onshore oil and gas infrastructure decommissioning, providing a foundation for evidence-based decision-making and policy formulation.

Moreover, Chapter 5 explores potential avenues for future research to build upon the findings and recommendations presented. By identifying emerging topics and research gaps, such as the adoption of innovative technologies, socio-economic impacts, regulatory innovations, and long-term environmental considerations, the chapter sets the stage for ongoing inquiry and knowledge advancement in the field of onshore decommissioning. This forward-looking approach underscores the dynamic nature of the decommissioning landscape and the need for continued research and innovation to address evolving challenges and opportunities.

Additionally, the chapter examines the policy implications arising from the identified challenges and recommendations, offering insights into the broader implications for regulatory reform and institutional capacity building. Through an analysis of the feasibility and feasibility of implementing specific policy measures, Chapter 5 provides guidance on how regulatory frameworks can be adapted to address the unique challenges of onshore oil and gas infrastructure decommissioning in Uganda. By considering the potential trade-offs and opportunities associated with different policy approaches, the chapter informs evidence-based decision-making and policy formulation, contributing to the development of sustainable solutions in Uganda's oil and gas sector.

Finally, Chapter 5 considers strategies for enhancing stakeholder engagement and participation in the decommissioning process, recognizing the importance of inclusive decision-making processes that accommodate the varied interests and concerns of stakeholders. By exploring innovative approaches to stakeholder consultation, public outreach, and community empowerment, the chapter identifies practical strategies for fostering collaboration, transparency, and accountability in the decommissioning process. Through these analytical insights, Chapter 5 contributes to a more comprehensive and nuanced understanding of the challenges and comparative insights in onshore oil and gas infrastructure decommissioning, providing a roadmap for informed decision-making and policy formulation in Uganda and beyond.

CHAPTER SIX

INSIGHTS, RECOMMENDATIONS, AND CONCLUDING PERSPECTIVES ON ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING

6.0 Introduction

This chapter contains various conclusions made after analyzing various text and legislations concerned with an analysis of the needs, challenges and legal framework, for onshore decommissioning of oil and gas infrastructure: a comparative study of Uganda and United Kingdom.

Chapter 6 serves as the culmination of the dissertation, synthesizing the insights gleaned from the preceding chapters and offering actionable recommendations for policymakers, industry stakeholders, and regulatory authorities involved in onshore oil and gas infrastructure decommissioning. This chapter provides a comprehensive analysis of the findings, presents practical recommendations based on empirical evidence and comparative analysis, and offers concluding perspectives on the future of decommissioning efforts in Uganda.

Key Findings:

The chapter begins by summarizing the key findings derived from the empirical research and comparative analysis conducted throughout the dissertation. It highlights the challenges identified in onshore oil and gas infrastructure decommissioning in Uganda, such as environmental concerns, technological limitations, regulatory complexities, financial constraints, community engagement issues, and logistical challenges. Additionally, the chapter outlines the comparative insights gained from analyzing international best practices, showcasing innovative approaches and regulatory frameworks that have proven successful in addressing similar challenges elsewhere.

Recommendations:

Building upon the key findings, Chapter 6 provides a set of actionable recommendations aimed at addressing the identified challenges and improving the effectiveness of onshore decommissioning processes in Uganda. These recommendations are tailored to the specific context of Uganda's regulatory environment, socio-economic conditions, and technological capabilities. They encompass a range of strategies, including regulatory reforms, capacity building initiatives, stakeholder engagement programs, technology adoption, and financial incentives. Each recommendation is supported by empirical evidence, comparative analysis, and stakeholder input, ensuring its practicality and relevance to the Ugandan context.

Policy Implications:

The chapter explores the policy implications arising from the recommendations, considering their potential impact on regulatory frameworks, institutional arrangements, industry practices, and stakeholder collaboration. By analyzing the feasibility and feasibility of implementing specific policy measures, Chapter 6 offers insights into how regulatory frameworks can be adapted to address the unique challenges of onshore oil and gas infrastructure decommissioning in Uganda. It also discusses the broader implications for sustainable development, environmental protection, and social responsibility, highlighting the importance of holistic approaches to onshore decommissioning.

Concluding Perspectives:

In concluding the dissertation, Chapter 6 offers reflections on the overall significance of the research findings and their implications for the future of onshore oil and gas infrastructure decommissioning in Uganda. It emphasizes the importance of evidence-based decision-making, stakeholder collaboration, and continuous learning and adaptation in addressing the complex challenges of decommissioning activities. The chapter also discusses avenues for future research and knowledge exchange, encouraging ongoing dialogue and collaboration among policymakers, industry stakeholders, researchers, and communities. Ultimately, Chapter 6 underscores the importance of sustainable decommissioning practices in ensuring the long-term viability and environmental integrity of Uganda's oil and gas sector.

Overall, Chapter 6 provides a comprehensive analysis of the insights, recommendations, and concluding perspectives on onshore oil and gas infrastructure decommissioning in Uganda. By synthesizing empirical evidence, comparative analysis, and stakeholder input, the chapter offers a roadmap for informed decision-making and policy formulation, contributing to the development of sustainable solutions in Uganda's oil and gas sector. Through its detailed analysis and practical recommendations, Chapter 6 aims to guide stakeholders towards effective and socially responsible decommissioning practices that safeguard the environment, protect communities, and promote sustainable development.

6.1 Conclusions

Decommissioning is the process related to the removal, disposal, scrapping, re-use/repurpose of installations and equipment, and to the revitalization of the field's area. The operator must comply with international and local regulations set by each country, involving requirements about the technical application, health and safety, environmental impacts, waste management, and post-decommissioning site monitoring. The Oil and Gas industry faces its biggest challenges of decommissioning in the offshore environment, a process that calls various considerations which include legal requirements, multidisciplinary studies, licensees and regulator's involvement, and proper technical application. Three different offshore decommissioning regions with different decommissioning stages were analyzed focusing on legal, environmental, and economic aspects.

The findings started out with a consideration of the question: to what extent is the Ugandan legal framework adequate and comprehensive to guarantee the availability of sufficient funding for decommissioning of prospective offshore installations in Albertine Graben? In addressing this question, the Ugandan Petroleum Act was examined and it was found that it establishes a decommissioning fund as the only option of decommissioning financial security. It is also identified that the three triggers for the payment of money into the Ugandan decommissioning fund are where the petroleum production has reached fifty percent of the aggregate recoverable reserves as determined in an approved development plan and any successive reappraisal of such initial recoverable reserves; five years before the expiry of the license; or on issuance of

notice of surrender. The establishment of a decommissioning fund was commended as the best security for decommissioning.[202]

Notwithstanding, argument was adduced to show that the provisions are not adequate and comprehensive enough to protect the government from shouldering some or all of the costs of such decommissioning. There is the possibility that the fund realized at the end of the estimated recovery after production has reached fifty percent, may not be enough to cover the cost of such decommissioning. Secondly, five years may likely not be adequate to raise sufficient funds for decommissioning. In relation to the third trigger, there is also the inherent risk that the fund raised within the one-year incubating period between the submission of an application for surrender and the actual surrender of a license would not be sufficient to cover the actual cost of such decommissioning.

The implications of these gaps were examined in the light of the concept of government ownership of such offshore installations. It was established that the Ugandan Government may bear eventual liability for the cost of the decommissioning. The UK legal regime on decommissioning was examined and lessons were recommended for importation to remedy the identified gaps in the Ugandan framework. Karuhanga writes that Uganda hopes to avoid the experiences of other African petroleum producers who started off with bad governance in the sector.[203]Fortunately, the Ugandan oil industry is still at infancy stage. As such, adopting these recommendations would go a long way in achieving effective governance in the Ugandan oil sector.

5.2 Recommendations

Domestication of international Laws: This research reveals that laws on decommissioning started at the international level, and international laws have better provisions on decommissioning issues. I therefore recommend that such international laws be domesticated in other to get a more effective legal regime on decommissioning.

Transparency of the process and host communities' involvement: Uganda's laws are archaic and ambiguous and do not meet modern realities in the industry. Our laws are too clandestine, the host communities and the public are entirely shaded from the process, whereas the effects are more on them.

[202] Altit and Ighiehon (n 93) 261

[203] Elison Karuhanga, 'Uganda', in Eduardo Pereira and Kim Talus (eds), African upstream Oil and Gas: A practical Guide to Law and Regulation (Globe Bus Pub Ltd 2015) 555.

The process of decommissioning should be open to the public as was in the case of Brent spar in Britain where public opinion helped in arriving at a more generally acceptable decommissioning process.

Creation of a special agency for decommissioning: The Uganda petroleum Authority/ regulator is overburdened with exploration and production matters while the licensees and or a joint venture partners cannot regulate themselves. Therefore, there is need for a special agency or department in the Ministry of Petroleum to manage these processes as decommissioning of Assets have turned out to be a huge and special area in the industry requiring specialized technology, with specialized agency. The Brazilian and Norway are classic examples as, several Government Departments or Agencies whose functions relate to Decommissioning activity came together to form a specialized committee on the development of processes and standards for handling decommissioning issues.

Enforcement of Laws: there must be imposition of heavy fines and sanctions on companies that fail to adhere strictly to legal provisions on the decommission process and such fines and sanctions should be provided for in Uganda's legal regime and ultimately implemented when the need arises.

Host Community Engagement: Since most of these facilities affect the economic life of the host communities, any decommissioning processes should involve the host communities as stake holders. It is in this way that various acts of sabotage and obstruction of decommissioning plans, would be obviated. The author hopes that if these recommendations are followed along the established best practices, Uganda would have prepared for a robust decommissioning law for the sustainable development of the country.

1. Key Findings:

Environmental Concerns: The chapter highlights the significant environmental risks associated with onshore oil and gas infrastructure decommissioning, such as soil and water contamination, habitat disruption, and air pollution. These findings underscore the importance of robust environmental management practices and mitigation measures throughout the decommissioning process to minimize negative impacts on ecosystems and human health.

Technological Limitations: The analysis reveals the challenges posed by outdated equipment, limited technical expertise, and inadequate access to advanced decommissioning technologies. This highlights the need for investment in research and development to enhance technological capabilities and facilitate the adoption of innovative solutions tailored to the Ugandan context.

Regulatory Complexities: The chapter identifies the fragmented regulatory framework, ambiguous legal provisions, and inconsistent enforcement mechanisms as key impediments to effective decommissioning regulation in Uganda. To address these challenges, the recommendations emphasize the need for regulatory reforms aimed at streamlining procedures, clarifying responsibilities, and enhancing oversight to ensure compliance with international standards and best practices.

2. Recommendations:

Regulatory Reforms: The chapter recommends comprehensive regulatory reforms to address the identified gaps and deficiencies in the decommissioning regulatory framework. This includes the development of clear and enforceable decommissioning regulations, establishment of regulatory bodies with sufficient resources and expertise, and implementation of mechanisms for monitoring and enforcement to ensure compliance with environmental and safety standards.

Capacity Building Initiatives: To overcome technological limitations and enhance institutional capacity, the recommendations call for investment in capacity building initiatives aimed at training and skill development for regulatory agencies, industry professionals, and local communities. This includes the provision of technical assistance, knowledge exchange programs, and collaborative research initiatives to build technical expertise and foster innovation in onshore decommissioning practices.

Stakeholder Engagement Programs: Recognizing the importance of stakeholder participation in decision-making processes, the chapter advocates for the development of stakeholder engagement programs to facilitate transparent and inclusive dialogue among government agencies, industry stakeholders, civil society organizations, and affected communities. This involves the establishment of multi-stakeholder platforms, public consultations, and community outreach initiatives to ensure that diverse perspectives are considered in decision-making and implementation processes.

3. Policy Implications:

The policy implications of the recommendations are far-reaching, affecting regulatory frameworks, institutional arrangements, industry practices, and stakeholder collaboration. By addressing the identified

challenges and implementing the recommended reforms, policymakers can create an enabling environment for sustainable decommissioning practices that promote environmental protection, social responsibility, and economic development in Uganda's oil and gas sector.

Moreover, the policy implications extend beyond Uganda's borders, with lessons learned from the country's experiences in onshore decommissioning offering valuable insights for other countries facing similar challenges. By sharing knowledge, best practices, and lessons learned, Uganda can contribute to global efforts to promote sustainable development and environmental stewardship in the oil and gas industry.

In conclusion, Chapter 6 provides a roadmap for advancing sustainable decommissioning practices in Uganda's onshore oil and gas sector. Through its detailed analysis, practical recommendations, and policy implications, the chapter offers a blueprint for stakeholders to navigate the complex challenges of decommissioning activities, promote environmental integrity, and foster inclusive and sustainable development in Uganda and beyond. By implementing the recommendations and embracing the concluding perspectives, policymakers, industry stakeholders, and regulatory authorities can contribute to a future where onshore oil and gas infrastructure decommissioning is conducted in a socially responsible, environmentally sustainable, and economically viable manner.

REFFERENCES

Books:

1. Daniel Yergin, The Prize: The Quest For Oil, Money and Power* (Simon Schuster, London, 2010).

2. John Seitz, *Global Issues: An Introduction (3rd Edition, Blackwell Publishing, 2008).

3. Gerald T. White, Scientists in Conflict: The Beginnings of the Oil Industry in California* (Marino, 1968).

4. Jeom Kee Paik and Anil Kumar Thayamballi, Ship-Shaped Offshore Installations: Design, Building, and Operation* (Cambridge University Press, 2007).

Journal Articles:

1. Flavia Kaczelnik, 'Decommissioning of Upstream Oil and Gas Facilities'.

2. Ahmad Kashfi and Wansiti Adibah, 'Joint Development Agreement Scheme for Management of World's Largest Shared Oil and Gas Reservoir' (2015) 2(12) Journal of Scientific Research and Development, pp. 70-80.

3. Techera, E. J., and Chandler, J. (2015), 'Offshore installations, decommissioning and artificial reefs: do current legal frameworks best serve the marine environment?' Mar. Policy 59, pp. 53–60.

4. Lawrence A. Bategeka and Others, 'Oil Discovery in Uganda: Managing Expectations' (2016).

5. Reuters Ltd, 'UPDATE 2-Uganda Ups Oil Reserves Estimate by 85 pct, finds Natural Gas' (July 1, 2015).

6. USAID, 'Uganda Biodiversity and Tropical Forest Assessment: Final Report' (2006).

7. Meike Westerkamp and Annabelle Houdret, 'Peacebuilding Across Lake Albert Reinforcing Environmental Cooperation between Uganda and the Democratic Republic of Congo' (Initiative for Peace, 2010).

8. Henry, L. A., Harries, D., Kingston, P., and Roberts, J. M. (2017), 'Historic scale and persistence of drill cuttings impacts on North Sea benthos' *Mar. Environ. Res.* 129, pp. 219–228.

9. Shaw, J., Seares, P., and Newman, S. (2018), 'Decommissioning Offshore Infrastructure: A Review of Stakeholder Views and Science Priorities'.

10. Max-Neef (2005).

11. World Bank (2010).

12. Mushemeza, E.D., and J. Okiira (2016), 'Local Content Frameworks in the African Oil and Gas Sector: Lessons from Angola and Chad'.

13. Avocats Sans Frontieres (2015), 'Business, Human Rights and Uganda's Oil and Gas industry: A Briefing of Existing Gaps in the Legal and Policy Framework'.

14. Sommer, B., Fowler, A., Macreadie, P., Palandro, D., Aziz, A., and Booth, D. (2019), 'Decommissioning of offshore oil and gas structures – Environmental opportunities and challenges'. *Science of The Total Environment*, 658, pp. 973-981.

Government Publications:

1. Department for Business Energy and Industrial Strategy UK. 2011.

2. PETRONAS. 2008.

3. Directorate of Petroleum - Uganda. *Transportation and Storage Infrastructure for Petroleum Commodities and Products.*

4. Ministry of Energy and Mineral Development (MEMD). 2017. *Ministerial Policy Statements.* Retrieved from www.energyandminerals.go.ug

5. Parliament of Uganda. 2016. *The Report of the Parliamentary Committee on Natural Resources for the 2016/17.* Kampala: Government of Uganda.

6. Government of the United Kingdom. 2016. *Energy Act 2016: Chapter 20.*

7. Oil & Gas Authority UK. 2016. *Oil and Gas Authority: Programmes & Guidance.* URL: https://www.ogauthority.co.uk/decommissioning/programmes-guidance/

Websites:

1. Petroleum Authority of Uganda, *History of Petroleum Exploration in Uganda* <https://www.pau.go.ug>.

2. Uganda Ministry of Energy and Mineral Development, <http://WWW.pau.go.ug>.

3. Oil in Uganda – Hard bargaining and complex politics in East Africa, The oxford institute for energy studies, <http://WWW.oxfordenergy.org>.

4. Lake Albert borders Republic of Congo and Uganda, <http://platformlondon.org/wp-content/uploads/2012/01/Contracts-Curse-Uganda-Platform-CSCO.pdf>.

5. UK Government, 'Foreign Travel Advice: Uganda' (2017) <https://www.gov.uk/foreign-travel-advice/uganda/safety-and-security>.

6. Brent Spar Dossier-Shell, <http://WWW.shell.co.Uk>.

7. ICF Incorporated, (2015), 'Decommissioning Methodology and Cost Evaluation'. Bureau of Safety and Environmental Enforcement. Available at: https://www.bsee.gov/research-record/tap-738-decommissioning-methodology-and-cost-evaluation.

8. Firth, L. B., Knights, A. M., Bridger, D., Evans, A. J., Mieszkowska, N., Moore, P. J., et al. (2016), 'Maintenance of Biodiversity in Coastal Ecosystems'.

9. UNCTAD, (2015), 'UNCTAD Investment Policy Framework for Sustainable Development'.

10. OEDC, (2016), 'The Challenges of Decommissioning Offshore Oil and Gas Platforms'.

APPENDICES

INTERVIEW GUIDE FOCUSING ON THE TOPIC OF OIL AND GAS EXPLORATION, PRODUCTION, AND DECOMMISSIONING IN UGANDA:

Interview Guide: Exploring Oil and Gas in Uganda

Introduction:

- Start with introductions and a brief overview of the interview purpose.

- Explain the confidentiality and voluntary nature of participation.

- Ensure the interviewee understands that they can skip any question they are uncomfortable answering.

Section 1: Background Information

1. Can you provide a brief overview of your role and responsibilities in the oil and gas industry in Uganda?

2. How long have you been involved in the oil and gas sector, and what motivated you to join?

Section 2: Oil and Gas Exploration and Production

3. Can you describe the current state of oil and gas exploration and production activities in Uganda?

4. What are some of the key challenges faced during the exploration and production phases?

5. How do you ensure environmental sustainability and community engagement during exploration and production activities?

6. What regulatory frameworks govern oil and gas exploration and production in Uganda, and how effective are they?

7. Can you discuss any recent developments or discoveries in the Ugandan oil and gas sector?

Section 3: Decommissioning and Environmental Impact

8. What is the process for decommissioning oil and gas infrastructure in Uganda?

9. How do you address environmental concerns and mitigate the impact of decommissioning activities? 10. What are the main challenges encountered during the decommissioning phase, and how do you overcome them?

11. Can you discuss any successful case studies or best practices related to decommissioning in Uganda?

Section 4: Community Engagement and Social Responsibility

12. How does your company engage with local communities affected by oil and gas activities? 13. What social responsibility initiatives does your company undertake to benefit local communities?

14. How do you ensure transparency and accountability in community engagement efforts?

Section 5: Future Outlook and Opportunities

15. What do you see as the future of the oil and gas industry in Uganda?

16. Are there any emerging trends or opportunities that stakeholders should be aware of?

17. How do you envision balancing economic development with environmental conservation in the long term?

Conclusion:

- Thank the interviewee for their time and insights.

- Offer an opportunity for the interviewee to add any final comments or thoughts.

- Reiterate the confidentiality of the interview and how their input will contribute to research in the field.

QUESTIONNAIRE GUIDE WITH SAMPLE ANSWERS, FOCUSING ON THE TOPIC OF OIL AND GAS EXPLORATION, PRODUCTION, AND DECOMMISSIONING IN UGANDA:

Questionnaire Guide: Understanding Oil and Gas in Uganda

Section 1: Background Information

1. Role and Experience

- Question: Please provide a brief overview of your role and experience in the oil and gas industry in Uganda.

- Sample Answer: I am currently serving as the Operations Manager for an oil exploration company operating in Uganda. I have been in this role for the past five years and have been actively involved in various exploration and production projects across the country.

2. Motivation and Interest

- Question: What motivated you to pursue a career in the oil and gas sector, specifically in Uganda?

- Sample Answer: I was drawn to the oil and gas industry due to its potential to drive economic growth and development in Uganda. Being part of a sector that plays a crucial role in the country's energy security and revenue generation has always been a motivating factor for me.

Section 2: Oil and Gas Exploration and Production

3. Current State and Challenges

- Question: Can you describe the current state of oil and gas exploration and production activities in Uganda, as per your observation?

- Sample Answer: Currently, Uganda is in the early stages of oil and gas production. Exploration activities have led to significant discoveries, particularly in the Albertine Graben region. However, there are challenges such as regulatory uncertainties, infrastructure development, and environmental concerns that need to be addressed.

4. Environmental Sustainability and Regulatory Frameworks

- Question: How does your company ensure environmental sustainability and compliance with regulatory frameworks during oil and gas exploration and production activities?

- Sample Answer: Our company adheres to strict environmental management practices and complies with all relevant regulations set forth by the Ugandan government and international bodies such as the Environmental Protection Agency. We conduct thorough environmental impact assessments before commencing any operations and implement mitigation measures to minimize our ecological footprint.

Section 3: Decommissioning and Environmental Impact

5. Decommissioning Process and Challenges

- Question: Can you explain the process for decommissioning oil and gas infrastructure in Uganda, and what are the main challenges encountered during this phase?

- Sample Answer: Decommissioning involves the safe removal and disposal of oil and gas facilities once they reach the end of their productive life. Challenges include regulatory compliance, cost management, and stakeholder engagement. It's essential to ensure that decommissioning activities do not harm the environment and surrounding communities.

6. Community Engagement and Social Responsibility

- Question: How does your company engage with local communities affected by oil and gas activities, and what social responsibility initiatives do you undertake?

- Sample Answer: We prioritize community engagement and collaborate closely with local stakeholders to address their concerns and needs. Our social responsibility initiatives include capacity building programs, infrastructure development projects, and environmental conservation efforts aimed at benefiting the communities in which we operate.

Section 4: Future Outlook and Opportunities

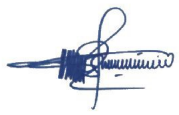
7. Future of the Industry

- Question: What do you envision as the future of the oil and gas industry in Uganda, and are there any emerging trends or opportunities that stakeholders should be aware of?

- Sample Answer: The future of the industry in Uganda holds tremendous potential for growth and development. With ongoing discoveries and investments in infrastructure, Uganda is poised to become a significant player in the global oil and gas market. Emerging trends such as renewable energy integration and digitalization present new opportunities for innovation and sustainability.

Conclusion:

Thank the respondent for their valuable insights and participation.



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

UGANDA CHRISTIAN UNIVERSITY

SCHOOL OF RESEARCH & POSTGRADUATE STUDIES

DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date: 17TH APRIL 2024

Name of Candidate: SSENTONGO RONALD **Reg. No:** S20M23/010

Title of Dissertation

ONSHORE OIL AND GAS INFRASTRUCTURE DECOMMISSIONING -A COMPARATIVE ANALYSIS WITH GLOBAL LEGAL FRAMEWORKS, FOCUSING ON UGANDA

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	The title should be rephrased to be made precise	The title was rephrased, UK was dropped and it was made precise	Title of the Dissertation
2	Under section 1.2 rephrase the last part	The entire paragraph rephrased	Section 1.2 corrected

3	Research questions under 1.5 to be made clear, to bring out a clear meaning	Research questions rephrased and made clearer	Research questions rephrased on page 10
4	No need to define literature review	Definition of literature review dropped	Under chapter two
5	Chapter two to focus on only scholarly work no legal frame work	Chapter two edited and restricted on scholarly works and writings	Chapter two literature review edited and amended
6	Compare Uganda and UK, give further analysis on issues pertaining Decommissioning	Further analysis made, and the concluding chapters answer research questions	Final dissertation
7	Overall, the thesis is good but requires re organization of chapters	The entire dissertation is re organized	Final dissertation

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Make corrections in the highlighted sections of the dissertation.	Corrections and amendments done as per the examiner's guidance	Final dissertation presented and approved
2			
3			
4			
5			

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	UK cannot be compared to Uganda since they are both different one is landlocked another is and island. Topic to be changed and referenced	Topic was rephrased to consider other countries in the petroleum sector	The topic was rephrased
2	Literature review no Ugandan authors reviewed	The chapter on literature review was amended and re done to consider Ugandan scholarly work	Chapter 2 of the final dissertation
3	Page 32 should shift to page 50	Page 32 has been shifted to page 50	Page 49, 50 and 51
4	Reference – Total redo and should be done rightly in accordance with the institute format	The Referencing has Been totally done following the institute Guidelines	Final dissertation pages 68, 69 70

5			

SSENTONGO RONALD …… **……MUGABI…IVAN…….……** ……

Candidate's Name Signature Supervisor's Name Signature