UGANDA'S OIL AND GAS SECTOR: A CASE STUDY ANALYSIS OF OCCUPATIONAL HEALTH AND SAFETY LEGISLATION IN LIGHT OF THE DEEPWATER HORIZON INCIDENT'S GLOBAL IMPACT

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UGANDA CHRISTIAN UNIVERSITY

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DECLARATION

I, Kalungi Eunice, hereby do declare that this Research is my work and it has not been submitted to any other institution of higher learning for fulfillment of any academic award.

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APPROVAL

This is to certify that this research entitled **"Uganda's Oil And Gas Sector: A Case Study Analysis Of Occupational Health And Safety Legislation In Light Of The Deepwater Horizon Incident's Global Impact"** has been done under my supervision and now it is ready for submission.

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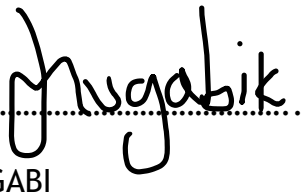
Signature  ..... Date……03/05/2024……

IVAN MUGABI

(Supervisor)

DEDICATION

To the Almighty God, My Lord and Saviour,

In humble gratitude, I dedicate this thesis to the Divine Source of wisdom, guidance, and strength. Your unwavering presence has been a beacon illuminating the path of this academic journey.

To my very special parents and husband,

In the journey of my life, you are the threads of unwavering support, love, and encouragement. Your meticulous efforts in fostering an environment of learning and resilience have shaped the foundation of this academic endeavor. This thesis stands as a testament to the values and lessons you have instilled, and I dedicate its completion to the profound impact of your guidance.

Your sacrifices and belief in my capabilities have been the wind beneath my wings. This work reflects not only my academic pursuits but is also a manifestation of the values and principles you have cultivated within me. May this dedication be a small token of my immense appreciation for your enduring love and the indelible mark you have left on my academic and personal growth.

With heartfelt gratitude,

EUNICE KALUNGI

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derived from their presence. My sincere thanks, and may blessings abound in all their endeavors.

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LIST OF ABBREVIATIONS

BP	British Petroleum
CNOOC	China National Offshore Oil Corporation
CVI	Content Validity Index
HSE	Health Safety and Environment
ILO	International Labour Organisation
MEMD	Ministry of Energy and Mineral Development
MGLSD	Ministry of Gender Labour and Social Development
OHS	Occupational Health and Safety
PAU	Petroleum Authority of Uganda
UN	United Nations
UNOC	Uganda National Oil Company
USD	United States Dollars

ABSTRACT:

The oil and gas sector in Uganda presents a dynamic landscape of opportunities and challenges, particularly concerning occupational health and safety (OHS) legislation. Against the backdrop of the Deepwater Horizon incident's global ramifications, this study delves into the intricacies of OHS regulations within Uganda's burgeoning oil and gas industry. Through a comprehensive case study analysis, it explores the effectiveness and adequacy of existing legislation in mitigating risks, safeguarding workers' well-being, and preventing environmental disasters.

The Deepwater Horizon incident, a catastrophic offshore oil spill in the Gulf of Mexico, serves as a pivotal point of reference for understanding the potential consequences of inadequate OHS measures within the oil and gas sector. Its far-reaching impacts underscore the critical importance of robust regulatory frameworks and proactive risk management practices in preventing and mitigating disasters.

Drawing on legal scholarship, comparative analysis, and empirical research, this study examines Uganda's OHS legislation in relation to international best practices and lessons learned from the Deepwater Horizon incident. It assesses the extent to which current laws and regulations address key OHS concerns, including worker safety, emergency response preparedness, and environmental protection.

Furthermore, the study explores the roles and responsibilities of various stakeholders, including government regulators, industry operators, and civil society organizations, in ensuring compliance with OHS standards and fostering a culture of safety within the oil and gas sector. It also considers the challenges and barriers to effective OHS implementation, such as resource constraints, capacity gaps, and enforcement mechanisms.

By critically analyzing Uganda's OHS legal framework within the context of the Deepwater Horizon incident's global impact, this study seeks to generate insights and recommendations for enhancing OHS regulations, practices, and governance mechanisms in Uganda's oil and gas sector. Ultimately, it aims to contribute to the advancement of occupational health and safety standards, the protection of workers' rights, and the sustainable development of Uganda's emerging oil and gas industry in a globally interconnected world.

CHAPTER ONE:

GENERAL INTRODUCTION

1.1. Introduction

The exploration and extraction of oil and gas resources constitute the currently complex endeavors, often interwoven with multifaceted legal dimensions. In the contemporary global landscape, nations endowed with hydrocarbon reserves engage in a delicate dance between economic development aspirations and the imperative to establish robust legal frameworks that ensure the safety and well-being of workers and protect the environment. Within this intricate tapestry, this Master's thesis embarks on a meticulous analysis, focusing on Uganda's Oil and Gas sector, with a specific lens on Occupational Health and Safety (OHS) legislation.

The inherent challenges and opportunities entwined with oil and gas exploration demand a nuanced understanding of the intricate legal structures governing this sector. Against the backdrop of global incidents, notably the Deepwater Horizon disaster, the imperative to scrutinize and fortify OHS legislation is underscored. This thesis endeavors to navigate through the labyrinth of Uganda's legal landscape concerning OHS in the oil and gas domain, aiming to unravel the existing legal frameworks, assess their efficacy, and provide insights for potential refinements.

This academic exploration is inherently grounded in the pursuit of advancing legal scholarship within the realm of oil and gas law. The complexity of OHS legislation necessitates a comprehensive inquiry that not only dissects the existing legal provisions but also situates Uganda's legal framework in a global context. By undertaking this academic journey, the objective is to contribute to the evolving discourse surrounding the responsible exploitation

of oil and gas resources, ultimately fostering a symbiotic relationship between economic prosperity, legal robustness, and the safeguarding of human lives and the environment.

The echoes of the Deepwater Horizon incident resonate across the global oil and gas industry as a stark reminder of the far-reaching consequences that might unfold when occupational health and safety considerations are inadequately addressed. This catastrophic event, occurring in the Gulf of Mexico, not only resulted in unprecedented environmental devastation but also underscored the critical importance of having stringent and effective legislative frameworks to govern oil and gas operations.

As we delve into the nuanced examination of Uganda's Oil and Gas sector, the specter of Deepwater Horizon looms large, serving as a poignant reference point. While the geographical and contextual differences between the Gulf of Mexico and Uganda's Albertine Graben are undeniable, the fundamental principles of occupational health and safety are universally applicable. The Deepwater Horizon incident becomes a lens through which we scrutinize the resilience and adaptability of Uganda's legal architecture, probing its capacity to absorb and respond to the lessons learned from international catastrophes.

This academic pursuit is not merely a theoretical exploration but an earnest endeavor to distill pragmatic insights from the aftermath of Deepwater Horizon, rendering them applicable to the intricacies of Uganda's evolving oil and gas landscape. By interweaving the global perspective with the specificity of Uganda's circumstances, this thesis aims to contribute to the discourse surrounding the adaptability and efficacy of OHS legislation in mitigating risks inherent in the oil and gas sector. In doing so, it aspires to chart a trajectory for legislative enhancements that resonate with international best practices while addressing the unique challenges posed by Uganda's burgeoning oil and gas industry.

In the wake of the Deepwater Horizon incident in 2010, the global oil and gas industry witnessed a paradigm shift in the understanding and implementation of occupational health and safety measures. This catastrophic event, with its far-reaching consequences, prompted a reevaluation of regulatory frameworks worldwide. This study delves into the intricate interplay between the Deepwater Horizon incident and the evolution of occupational health and safety legislation within Uganda's burgeoning oil and gas sector. By examining the global implications of the Deepwater Horizon incident, this research seeks to elucidate how Uganda has adapted its legal framework, using the incident as a case study to inform and shape its approach to safeguarding the health and safety of workers in the oil and gas industry. Through a meticulous exploration that relates to legislative changes, international standards integration, and revisiting industry practices, this study aims to contribute to a nuanced understanding of the complex interrelationships between a seminal global event and the domestic legal landscape governing occupational health and safety in Uganda's oil and gas sector.

One of the most famous incidents of oil and gas activities occurred in the Gulf of Mexico on April 20th, 2010. That deplorable incident is known as the **Deepwater Horizon oil spill** and remains a symbolic eye-opener to the likelihood of catastrophic consequences resulting from activities of the petroleum industry.[1] The tragedy of the Deepwater Horizon drilling rig claimed the lives of eleven (11) employees in addition to seriously injuring 16 workers.[2] On the evening of April 20, 2010, a well control event allowed hydrocarbons to escape from the

[1] Ina Ruth Makocha, Toyum Ete and Gaurav Saini, "Deepwater Horizon Oil Spill: A Review," (2019) 5(4), International Journal of Technical Innovation in Modern Engineering & Science, 65

[2] David Blackmon, "The Deepwater Horizon Disaster: A Horrible Event That Must Never Happen Again," (*Forbes*, 20 April 2020) <https://www.forbes.com/sites/davidblackmon/2020/04/20/the-deepwater-horizon-disaster-a-horrible-event-that-must-never-happen-again/?sh=5b58ae704c8d> accessed 3rd June 2023

Macondo well onto Transocean's Deepwater Horizon, resulting in explosions and fire on the rig. Eleven people lost their lives, and 17 others were injured. The fire, which was fed by hydrocarbons from the well, continued for 36 hours until the rig sank. Hydrocarbons continued to flow from the reservoir through the wellbore and the blowout preventer for 87 days, causing a spill of national significance. It was later reported that the occurrence of the incident was due to well integrity failure, coupled with a loss of hydrostatic control of the well which ultimately led to failure to control the flow from the well with the blow out preventer equipment, which allowed the release and subsequent ignition of hydrocarbons. Ultimately, the blow out preventer emergency functions failed to seal the well after the initial explosions[3].

There was a continued flow of crude oil in the Gulf of Mexico for nearly 3 months before the well could be completely sealed, during which time, nearly 5 million barrels of oil spilled into the Gulf. As a result, there were significant environmental consequences to the Mexican Gulf and financial repercussions to the companies that were involved in oil drilling operations. Ultimately, the region and its economy were negatively impacted by the above incident.[4]

The workers are also apportioned blame for their failure in correctly following emergency evacuation procedures. Moreover, they also delayed closing the Blowout Preventers until after the drilling mud was already in the rig, thus resulting in an incomplete seal of the well and catastrophic explosions.[5]

[3] DEEPWATER HORIZON ACCIDENT INVESTIGATION REPORT; SEPTEMBER 8TH 2010.
[4] *Ibid*
[5] *Ibid*, p 14

In the aftermath of the Deepwater Horizon incident, injuries and workplace fatalities became a global concern in oil and gas exploration activities. In the context of Uganda's budding oil and gas industry, production is expected to largely come from onshore drilling and exploration from oil platforms in fields that are more complex and technically challenging to extract.[6] The complexity of platforms where oil fields are situated often exposes activities of oil exploration and the workers to challenging environmental conditions in the event of any failures either attributable to human or organizational errors. Without proper occupational health and safety management frameworks, oil companies in Uganda are likely to face an unprecedented health and safety crisis similar to that witnessed in the Deepwater Horizon disaster.

Arguably, the oil and gas industry in Uganda has progressed into the implementation phase. The evolution of the sector has led to the development of an impressive set of technologies and site regulations for enabling the application of safe, healthy, and environmentally sustainable oil and gas exploration methods.[7]

Adopting those technologies and regulations appears a viable solution in addressing various challenges previously faced by the Deepwater Horizon rig. However, the selection and application of suitable procedures for safeguarding against work-related catastrophes will always be subject to human decision-making processes. As a result, errors are bound to occur, resulting in disasters akin to the one of 20th April 2010 in the Gulf of Mexico.

[6] Collin Ward and Artem Marlov, "*Evaluating Uganda's Oil Sector: Estimation of Upstream Projects*," KS-1659-DP53A (The King Abdullah Petroleum Studies and Research Center, 2016)

[7] Ministry of Energy and Mineral Development, Summary Report on the Annual Petroleum Resources and Reserves for 2021/2022 (*MEMD*, 17 October, 2021)
<https://www.petroleum.go.ug/media/attachments/2021/09/17/annualresourcereport20192020.pdf> accessed 3rd June, 2023

Against this background, this chapter introduces the enhanced enforcement and implementation of occupational health and safety as a critical aspect of oil and gas activities in Uganda. The Deepwater Horizon oil spill is referenced as a focal point from which proposed regulatory requirements, and best practices can be adopted in identifying, preventing, and responding to potential exposures to hazards.

These aspects are streamlined through the background of the study which is sectioned into historical, theoretical, conceptual, and contextual backgrounds. The chapter also examines the statement of the problem, purpose, objectives, research questions, scope, significance of the study, justification of the study, and the operational definition of terms and concepts.

1.2. Background of the Study

The background of the study considered the historical, conceptual and theoretical perspectives. Through those perspectives, the study highlights and evaluates the arguments advanced from the available literature on occupational health and safety issues in the exploration of oil and gas products in Uganda's petroleum industry with specific refence to lessons that can be learnt from the spill of the Deepwater Horizon. In the history perspective, concerns about occupational health and safety in workplaces are deeply entrenched in the history of the industrial revolution, from the 17th and 18th centuries.[8] As the economies developed, the health and safety as well as the wellbeing of workers were at risk in different workplaces because of exposure to excessive heat, toxins, and mechanical injuries. Consequently, policies concerning occupational health and safety became a priority for most industries that were categorized as hazardous to human health and the environment

[8] Michael Quinlan (ed.), *The Toll from Toil does matter: Occupational Health and Labour History*, (Liverpool University Press, 1997), 73

including the oil and gas industry.[9] Theoretically, as to whether occupational health and safety in the oil and gas sector are relevant, two fundamental questions should be answered; Are the accidents in oil and gas exploration inevitable? Are these accidents avoidable considering their highly technical and delicately balanced nature combined with the inherent organizational failures associated with human endeavors?

These questions can also be answered by analyzing the "Normal accident" theory. The theory offers a framework through which to view the Deepwater Horizon oil spill and are offering predictive criteria linked to the risks presented by technology and human error in the oil and gas sectors.

The “Normal Accident” theory, posited by Charles Perrow in 1984,[10] takes a unique approach to accident prevention and risk management.[11] He argues that some accidents are inevitable and are in fact, normal. The theory draws this conclusion from human error, equipment failure, and organizational factors as the primary causes of accidents.[12]

The normal accident theory demonstrates that most of these risky mega-projects and enterprises have catastrophic potential, and the ability to cause occupational health and safety disasters. This implies that tightly coupled systems and complexity are highly probable in oil and gas operations. This is because petroleum projects are centralized and rigid with output being closely monitored within specified tolerances.

[9] *Ibid*, p 113

[10] Charles Perrow (ed.), *Normal Accidents: Living with High-Risk Technologies*, (Princeton University Press, 1984), 15

[11] Ibid,

[12] *Ibid*, 16

Oil and gas activities require making rational choices to ensure maximum safety and health in the workplace. This means that production sequences in petroleum development must be strictly followed since equipment breakdowns can bring the entire system to a halt. In the Deepwater Horizon accident, rational choices implied that the operators of the oil rig ought to have ensured that the safety features designed into the work system did not accommodate human or technical error.[13] For example, emergency override features could be built-in, and personnel trained on emergency response procedures.

1.3 **Conceptual frame work**

Conceptual Framework: Enhancing Occupational Health and Safety Legislation in Uganda's Oil and Gas Sector Post-Deepwater Horizon Incident.

1.3.1 Introduction:

The conceptual framework for this study is grounded in the premise that the Deepwater Horizon incident serves as a pivotal case study for understanding the transformative impact of phenomenological discourses in shaping the global occupational health and safety occurrences across the country's oil and gas industry. As Uganda emerges as a player in this sector, it becomes imperative to assess how the lessons learned from the Deepwater Horizon incident influence the evolution of legislative frameworks. This conceptual framework will be guided by a theoretical lens that combines elements of Institutional Theory and the Systems Approach.

[13] Robertua Verdinand and Angel Damayanti, "Rational Choice Theory in the Study of Deepwater Horizon Oil Spill." (2022) 1 (9), Journal of Research of Social Science, Economics, and Management, 2807-6494.

1.4 Theoretical Framework:

1. Institutional Theory:

The Institutional Theory posts that organizations, including regulatory bodies, conform to established norms and practices which legitimize their actions within a given institutional environment.[14] In the aftermath of the Deepwater Horizon incident, there was a global call for heightened regulatory standards. We will examine how Uganda's oil and gas industry adapts its occupational health and safety legislation in conforming to international norms and expectations.[15]

2. Systems Approach:

The Systems Approach emphasizes the interconnectedness of various components within a system and how changes in one element can impact the entire system.[16] This framework guided our analysis of how changes in global occupational health and safety standards, triggered by the Deepwater Horizon incident, resonate within the intricate system of Uganda's oil and gas sector.[17]

Justification:

The justification for selecting Institutional Theory and the Systems Approach is based on its relevance in understanding organizational behavior and its interaction with systemic changes. Institutional Theory helps in comprehending how regulatory bodies in Uganda may respond to external pressures by adopting international standards with the aim of gaining legitimacy. Simultaneously, the Systems Approach allows in exploring the interconnected

[14] Scott, 2001
[15] Scott, W. R. (2001). Institutions and Organizations: Ideas, Interests, and Identities. Sage Publications.
[16] Checkland, 1999
[17] Systems Thinking, Systems Practice. John Wiley & Sons.

elements of Uganda's oil and gas sector and how changes in legislation can influence the overall occupational health and safety ecosystem.

By employing these theoretical frameworks, this unraveled the intricate dynamics and interdependencies that shape the evolution of Uganda's occupational health and safety legislation.

1.5 Statement of the Problem.

The study addresses the pressing issues surrounding the impact of post-Deepwater Horizon occupational health and safety related legislation on Uganda's oil and gas sector. Central concerns included the extent of integrating the global standards in national regulations, organizational responses to external pressures, systemic impacts on the occupational health and safety ecosystem. It further considers the effectiveness of capacity-building initiatives and regulatory enforcement, and the delicate balance between adopting international norms and accommodating local realities. This research was aimed at uncovering gaps, identifying challenges, and opportunities within Uganda's evolving regulatory landscape, thereby contributing to a nuanced understanding of how the lessons from the Deepwater Horizon incident shape and influence occupational health and safety practices in the country's burgeoning oil and gas industry.

1.6 General Objectives of the Study

The general objective of this study was to comprehensively analyze occupational health and safety legislation as impacted on by the occurrence of the Deepwater Horizon Incident. By exploring the integration of global standards, organizational responses, systemic impacts, and the effectiveness of capacity-building initiatives and regulatory enforcement, the research aims to provide a thorough understanding of how lessons learned from the global

Deepwater Horizon incident have shaped and influenced occupational health and safety practices in Uganda. This overarching objective seeks to contribute to the enhancement of Uganda's legislative framework, promoting a safer and more resilient oil and gas industry that aligns with international best practices and safeguards the well-being of workers.

1.6.1 Specific Objectives

1. To conduct a thorough legal analysis of Uganda's Oil and gas sector's occupational health and safety legislation, assessing its alignment with post Deepwater Horizon international standards.
2. To evaluate Uganda's oil and gas sector's regulatory effectiveness in enforcing occupational health and safety standards.
3. To conduct the comparative analysis of occupational health and safety legislation in Norway and United States with established oil and gas industries, comparing and contrasting them with Uganda's regulatory framework. Additionally, to examine the adaptability of international best practices within Uganda's unique social-economic, cultural and environmental context.
4. To Synthesize the findings from the legal analysis, efficacy assessment, and comparative analysis to provide a comprehensive overview of the current state of occupational health and safety in Uganda's oil and gas sector.
5. To propose practical recommendations for legislative improvements, enforcement strategies, and capacity-building initiatives are based on identified gaps and opportunities.
6. To offer insights into the broader implications of the study's findings and their potential impact on fostering a safer and more resilient oil and gas industry in Uganda.

Through addressing of the above specific objectives the study shall also contribute targeted insights and recommendations for enhancing Uganda's occupational health and safety legislation, fostering an environment that prioritizes the well-being and safety of workers in the oil and gas sector.

1.7 Research Questions

1. How does Uganda's current occupational health and safety legislation in oil and gas sector compare to international standards established post Deepwater Horizon and what are the key areas requiring modification or enhancement?
2. What is the effectiveness of regulatory mechanisms and enforcement practices in ensuring compliance with occupational health and safety standards within Uganda's oil and gas industry and how do they impact workplace hazards and safety culture?
3. What are the key features differences and similarities between Uganda's occupational health and safety legislation and those of United States and Norway with established oil and gas industries, and what best practices can be adapted to enhance Uganda's regulatory framework?
4. What practical recommendations can be proposed for legislative improvements, enforcement strategies and capacity building in Uganda's oil and gas sector to address identified gaps and opportunities?

1.8 Theoretical frame work of the study

1.8.1 Theoretical Framework: Occupational Health and Safety Legislation Evolution

1. Institutional Theory:

The Institutional Theory asserts that organizations, including regulatory bodies, conform to established norms and practices to legitimize their actions within a given institutional

environment[18]. This theory will guide the examination of how Uganda's regulatory bodies respond to external pressures, adapting occupational health and safety legislation to align with international standards post-Deepwater Horizon, thereby gaining legitimacy in the global oil and gas industry.

2. Systems Approach:

The Systems Approach emphasizes the interconnectedness of various components within a system and how changes in one element can impact the entire system.[19]By employing a Systems Approach, the study will explore the systemic impacts of post-Deepwater Horizon regulatory changes within Uganda's oil and gas sector, analyzing how alterations in legislation influence industry practices, corporate behaviors, and overall stakeholder engagement.

3. Diffusion of Innovations Theory:

The Diffusion of Innovations Theory posits that innovations spread through social systems over time, influenced by various factors such as communication channels and social networks[20]. This theory will inform the assessment of the efficacy of regulatory mechanisms and enforcement practices, examining how occupational health and safety innovations disseminate within Uganda's oil and gas sector and contribute to the reduction of workplace hazards.

4. **Legal Transplants Theory:**

[18] Scott, 2001
[19] Checkland, 1999
[20] Rogers, E.M. (2003). Diffusion of innovations (5th ed.). New York: Free Press.

The Legal Transplants Theory suggests that legal systems can adopt elements from other legal systems, adapting them to their own cultural, social, and economic context[21]. The study will utilize this theory in the comparative analysis, exploring how Uganda's occupational health and safety legislation can learn from best practices in other countries, considering the adaptability of these legal transplants within Uganda's unique context.

5. Social Constructionist Perspective:

The Social Constructionist Perspective emphasizes that reality is socially constructed through human interpretation and interaction[22]. This perspective will inform the exploration of how international norms are socially constructed within the occupational health and safety context of Uganda's oil and gas industry, acknowledging the influence of local realities in shaping regulatory responses.

By integrating these theoretical frameworks, the study seeks to provide a holistic understanding of the evolution of occupational health and safety legislation in Uganda's oil and gas sector post-Deepwater Horizon, considering institutional responses, systemic impacts, diffusion of innovations, legal transplants, and the social construction of international norms within the national context.

1.9 Justification of the Study

In the wake of the Deepwater Horizon disaster, practicing work-related health and safety protocols and developing comprehensive occupational health and safety procedures has become an integral part of promoting safe, healthy, and quality oil exploration activities. As the sector moves towards the exploration phase, Uganda's oil and gas industry is likely to

[21] Watson, A. (1974). Legal Transplants: An Approach to Comparative Law. Edinburgh: T & T Clark.
[22] Burr, V. (2003). Social Constructionism (2nd ed.). London: Routledge.

face an unprecedented level of occupational injury and workplace fatalities. However, despite the need for health and safety standards, the benchmark studies for occupational health and safety for Uganda's petroleum industry remain limited.

This study, therefore, comes in a timely to provide an empirical benchmark for occupational health and safety of Uganda's budding oil and gas industry by drawing lessons from the health and safety shortcomings faced in the Deepwater Horizon disaster. Subsequently, the oil and gas sector in Uganda can shape its comprehensive procedures geared towards recognizing, identifying, preventing, and responding to workplace disasters in the wake of petroleum exploitation.

1.10 Significance of the Study

The oil and gas industry is a major employer and has grown significantly over recent years, highlighting the need to implement meaningful changes to maintain workers' health and safety. Creating effective safety policies and enforcing them to achieve ultimate compliance with workplace safety and health can ameliorate the health and safety concerns of oil and gas companies.

Therefore, by exploring pertinent research within the oil and gas industry, the study seeks to fill the knowledge gap in this area. The present study will assess the occupational health and safety vulnerability in Uganda's oil and gas sector by juxtaposing it with the effects of the Deepwater Horizon incident.

The findings of this study will significantly benefit oil and gas project companies in Uganda in developing a safety culture, policy commitment as well as adequate risk assessment. This will be achieved through training of personnel for safety and health competency.

By contrasting the safety management procedures of the Deepwater Horizon incident against established global standards of occupational health and safety, the study will further contribute to the tailor-made framework that can be adopted by the parliament of Uganda. This will ensure that the current legislation and regulatory framework is enforced to ultimately enhance occupational health and safety unique to the budding oil and gas sector.

The study will also add to the body of literature which will inform the policies to be integrated into the safety management systems of project companies to ensure operational efficiency and accident minimization in oil and gas development.

1.11 Scope of the Study

1.11.1 Content scope

This study primarily sought to demystify the influence of the Deepwater Horizon incident in shaping the occupational health and safety practices and laws in Uganda's oil and gas industry. The study draws from the management and operational shortfalls which led to having unfortunate catastrophe in the Deepwater Horizon oil rig. The study focuses on harnessing the interaction of the variables regarding occupational health hazards and how these can affect the overall occupational health and safety practices in the oil and gas sector.

1.11.2 Geographical scope

The study was conducted within Kampala and data shall be gathered from the head offices of oil companies such as Total Energies, MEMD, MGLSD, PAU, CNOOC, and UNOC.

These areas of study are significant and rich with information regarding the status of occupational health and safety in oil and gas exploration.

1.11.3 Time scope

The data was gathered will stem from literature and scholarly material dating from 1995 to 2023. These timelines are significant in conducting qualitative research and analyzing non-numerical data in the available literature on the topic.

1.11.4. Chapter Synopsis

Chapter one covers the general introduction to the topic of study. Chapter two considers the literature on the topic while chapter three is on methodology. Chapter four analyses Occupational Health and Safety Legislation Post-Deepwater Horizon. Chapter five examines compliance horizons of occupational health and safety legislation in Uganda's oil and gas sector with insights from the Deepwater horizon incident's global. and analyses occupational health and safety legislation and environmental impacts in the aftermath of the Deepwater horizon incident. Chapter Six explores findings and recommendations from the study and a conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction.

Occupational health and safety in the oil and gas sector is a subject of utmost relevance following some of the landmark catastrophes like the Deepwater Horizon disaster. This chapter is set out to analyze the literature that comprises an account of the meaning, and context of occupational health and safety. The chapter also demonstrates the relevance and applicability occupational health and safety issues to the functioning and operations of the oil and gas sector.

The chapter further explores the commentaries on the Deepwater Horizon incident, particularly focusing on the occupational health and safety lessons that may be adopted by the emerging oil and gas sector in Uganda. The literature review further demonstrates how lessons from the Deepwater Horizon disaster may shape occupational health and safety laws of Uganda ahead of the highly accident-prone oil and gas exploration activities.

2.2. **The context of occupational health and safety in the oil and gas industry**

Several meanings of the phenomenon in occupational health and safety have been suggested in the attempt to understand the concept, especially in the due course of developing the mineral industry.

Zimolong and Elke,[23] define occupational health and safety as a three-pronged system characterized by safety, health, and risk or occupational hazard. They advance occupational

[23] Bernhard Zimolong and Gabriele Elke, "Occupational health and safety management," *Handbook of human factors and ergonomics* (2006): 673-707.

health and safety as a broad system built by a set of attitudes, roles, and practices evaluated and maintained to prevent the risk of adverse hazards to human wellbeing.

This definition is streamlined deeper by the Joint International Labour Organisation Committee on Occupational Health.[24] The committee maintains that occupational health and safety is the highest degree of physical, mental, and social well-being of workers in all occupations. However, the committee adds that safety, health, and risk are combined within the umbrella of occupational hazard. A hazard is a source of danger that has the potential to cause injury or harm to the safety and human health in a work environment.

The above definitions are relevant because they demonstrate occupational health and safety within three main tenets; health, safety, and hazards. Scholars such as Claxton Hosie and Sharma,[25] seem to agree with this inclination. They theorize that the establishment of occupational health and safety practices starts with a safety culture, which then safeguards the health of workers as the single most important aspect of an oil and gas project.

They define safety culture as attitudes and values of an organization as a whole to protect life and limb in the pursuit of the organization's principal goals, which may not usually be safety itself. This is true because the main aim of oil and gas projects is to make a profit, albeit not at the expense of the lives and health of the workers. Safety issues are prevalent in the oil and gas industry, and identifying these issues to prevent and control them is imperative to the health and well-being of the workers.

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[24] ILO, "Occupational health and Safety-Joint ILO/WHO Committee on Occupational Health Report*," (13th Session of the Joint ILO/WHO Committee on Occupational Health was held at the ILO headquarters in Geneva, from 9th -12th December 2003)*: 5-11

[25] Garry Claxton, Peter Hosie, and Piyush Sharma, "Toward an effective occupational health and safety culture: A multiple stakeholder perspective," *Journal of safety research*, (2022): 12-22

Besides safety, Oppong,[26] demonstrates that occupational health and safety is also directly linked to the physical, psychological, and mental health of workers.

He found that contusions, cuts, and lacerations are the commonest occupational injuries suffered by workers on the oil rigs. However, working onshore is also associated with poorer psychological well-being or health; this is to say that onshore workers tend to experience higher levels of stress, burnout, anxiety, depression, and sleep disorders.

The authors above do not anticipate that the oil and gas sector evolve with the fast-moving technology which requires constant training and knowledge enrichment on the best safety methods to avoid accidents. Indeed, Quaigrain et al,[27] use the example of the Ghanaian oil and gas industry to highlight this pertinent gap in the norm of health and safety culture especially in the oil and gas sector. They argue that the safety culture alone especially in developing oil and gas industries is a fallacy if there is a knowledge gap. They conclude that safety and health in the oil and gas industries is only relevant if the stakeholders can understand and apply it to occupational and health safeguards.

Ratliff,[28] further supplements this argument from the viewpoint that the safety culture changes with the fast-evolving technology in the oil and gas industries. He states that many at times, project managers generate a variety of safety rules to match the evolving technology, but they do not streamline these rules in the daily mainstream training of workers, which leads to the knowledge gap and likelihood of accidents.

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[26] Seth Oppong, "Common health, safety and environmental concerns in upstream oil and gas sector: Implications for HSE management in Ghana," *Academicus International Scientific Journal,* 9 (2014): 93-106.

[27] Rhoda Ansah Quaigrain *et al*. "Occupational health and safety orientation in the oil and gas industry of Ghana: Analysis of knowledge and attitudinal influences on compliance," *Journal of Engineering, Design, and Technology* 2 (2022): 56-69

[28] Matt Ratliff, "Changing Safety Paradigms in the Oil and Gas Industry," *SPE Annual Technical Conference and Exhibition, (*2004): 23

The authors in the literature above seem to comprise an underlying assumption that occupational health and safety in the oil and gas industry is an area of continuing education and training on health and safety in the workplace. However, it is much deeper and difficult even for cultural insiders to perceive and articulate, unless it is reduced to a comprehensible framework.

Workplaces with a strong safety culture will naturally choose to behave in ways that are secure, sustainable, and healthy. This seems to resonate with the assertion by Ludborzs,[29] who correctly recommends never to lose sight of the "cultural super-structure" of safe behavior where safety and health are integral elements.

For this study, the meaning of occupational health and safety is one that points towards the three interdependent themes to the broader concept of occupational health and safety, that is, health, risk, and safety culture. It follows that people who work in places with recognized occupational safety hazards, such as the oil and gas sector, require special training so that they are made aware of the hazards.

Achieving occupational health and safety is, however, a journey, that requires commitment by projects to the set rules, regulations, and safety practices. This study draws from the experience of the Deepwater Horizon incident, which in its aftermath, oil and gas projects became deeply committed to improving the safety culture in oil and gas activities.

[29] Boris Ludborzs, "Surveying and assessing 'safety culture' within the framework of safety audits," In: Jan Mewis, H.J Pasman, Edward De Rademaecker, (Eds.), *Loss Prevention and Safety Promotion in the Process Industries*. (Proceedings of the 8th International Symposium, Antwerp, Belgium, June 6-9, 1995):16

The study embarks on analyzing the three components of occupational health and safety; safety, health, and risk/hazards which could be introduced in Uganda's legal framework for averting occupational health and safety issues in the oil and gas industry.

2.3. **Relevance of occupational health and safety after the Deepwater Horizon disaster**

The oil and gas sector is among one of many industries characterized by the convergence of numerous hazardous exposures embodied in potentially serious catastrophic work-related accidents. The question however remains as to how the phenomenon of occupational health and safety is relevant in curbing workspace-related disasters in the oil and gas industry in Uganda.

This question is posed at a time when occupational health and safety is often overlooked and projects tend to equate occupational health hazards with more highly industrialized sectors such as mining and nuclear power.[30] Yet, the relevance of occupational health and safety stems from the fact that there is a potential for workplace accidents that befall the global oil and gas sector.

A study by Chizubem, Dimopoulos, Mikellidou and Boustras,[31] found that workers on the oil rigs and platforms face a variety of hazards almost as numerous as the different types of work, including mechanical, chemical, and biological accidents, and adverse ergonomic conditions, which sometimes lead to fatalities.

[30] Timothy Haskell, "How Oil and Gas companies need to prioritize worker safety as the industry recovers," (*Ernest & Young*, 1 March 2023) <https://www.ey.com/en_us/oil-gas/prioritizing-oil-and-gas-workforce-safety> accessed 18 July 2023

[31] Benson Chizubem, Christos Dimopoulos, Cleo Varianou Mikellidou, and Georgios Boustras. "Assessing the common occupational health hazards and their health risks among oil and gas workers." *Safety Science* 140 (2021): 105-284.

The operation of occupational health and safety practices is relevant in understanding the gravity and extent of the unseen problem, which if not tackled would perpetuate disastrous accidents akin to the Deepwater Horizon disaster. The debate on the causes of oil and gas accidents is, therefore, relevant in uncovering the crux of the causation factor of occupational health and safety risk. For instance, benchmarking from Heinrich's Accident Triangle theory, a total of 75,000 industry-related accidents studied revealed that 88% of them were triggered by risky workers' behavior.[32]

This theory seems to underscore that the foundation for the majority of accident causation can be attributed to human errors; hence, the burden of accident prevention lies on both management and employees. This assertion is not any different from the theoretical explanation found in the report on the cause of the Deepwater Horizon disaster.

According to Hunter-MacFarland,[33] the report from the chief investigator for the National Commission on the BP Deepwater Horizon Oil Spill and Offshore provides evidence that preventable engineering and management mistakes, rather than mechanical failings were the primary cause of the Deepwater Horizon rig explosion. Petrochemical workers are exposed to many varied health hazards, accidents, and injuries resulting from heavy tools and equipment, pipeline explosions, fire and transportation accidents, and adverse ergonomic conditions.

The gap in this literature is that it does not consider that other factors that relate to or lead to occupational health and safety issues are very rarely equal, and are not only caused by

[32] *Ibid*, p.265

[33] Pam Hunter MacFarland, "Deepwater Report Shows Human Error, Not Mechanical Failure, Root of Disaster," (*Engineering News Record*, 17 February 2011) <https://www.enr.com/articles/3446-deepwater-report-shows-human-error-not-mechanical-failure-root-of-disaster> accessed 17 July 2023

human error. Indeed, the International Labor Organization,[34] noted that mechanical and environmental risk factors should not be ignored as a major lead to injuries since they are more likely to occur in the petroleum development industry.

Scholars such as Esswein and Retzer,[35] posited that accidents of any form in the oil and gas sector are serious, but may be preventable on a site once good safety planning, management procedures, and cultural practices are rightly placed. Occupational health and safety is an important pillar in the development of oil and gas activities in Uganda, and yet it has been understudied. Risks can be identified from the onset of any operational activity, and this remains the fundamental principle of accident prevention in the oil and gas sector.

Therefore, a lot is left to be desired for Uganda's oil and gas occupational health and safety strategies in the aftermath of the Deepwater Horizon accident. This study, therefore, questions why studies on occupational health and safety have not yet merited any significant research attention in Uganda. The study seeks to identify and assess the health hazards among workers and recommend management protocols that would control and prevent these hazards from impacting the health and well-being of the workers.

2.4. Impact of Deepwater Horizon disaster on occupational health and safety laws in Uganda

Oil and gas activities are hazardous operations and the lessons from accidents such as the Deepwater Horizon perpetuate the expectation for laws embodying safety knowledge,

[34] ILO, "Occupational safety and health in the Oil and Gas production and oil refining sector," (*ILO*, 2 March 2015) <https://www.ilo.org/global/topics/safety-and-health-at-work/industries-sectors/WCMS_219028/lang--en/index.htm> accessed 17 July 2023

[35] Eric J. Esswein and Kyla D. Retzer, Bradley King, and Margaret Cook-Shimanek, (Eds), "Occupational health and safety aspects of oil and gas extraction." In *Environmental and Health Issues in Unconventional Oil and Gas Development*, (Elsevier, 2016): 93-105

compliance, and incident reporting. The fundamental question however, is whether the Deepwater Horizon incident has shaped the current legal framework on occupational health and safety in the oil and gas sector of Uganda.

Scholars such as Sergei,[36] reason that occupational accidents continue to grow in developing oil and gas nations due to the lack of effective implementation of safety management systems. The result of ineffective implementation of laws is non-compliance by workers to safety procedures and regulations. Like it was in the Deepwater Horizon incident, workers who are likely to engage in unsafe work practices are suspected to be workers who ignore safety rules and procedures.

On the other hand, Godwin,[37] maintains that understanding the lessons from unsafe workplaces boosts safety regulation and the role of safety culture. Policy makers are then able to apply these lessons and develop laws against occupational health and safety anomalies in the oil and gas industry.

Indeed, the events of the Deepwater Horizon disaster created the need for new and improved prevention and response laws. The glaringly obvious problems in the BP response plan emphasized this need. Heavier scrutiny is currently placed on oil companies, and organizations that collaborate with oil companies to create prevention and response plans.[38]

[36] Sergei Vinogradov, "The impact of the Deepwater Horizon: The evolving international legal regime for offshore accidental pollution prevention, preparedness, and response," *Ocean Development & international law* 44, no. 4 (2013): 335-362.

[37] Stephen R. Godwin, "Oil and Gas Industry Safety Culture: Implications for Commercial Transportation Safety Regulation," *TRB Special Report 321, Strengthening the Safety Culture of the Oil and Gas Industry*, (2017): 28-36

[38] Katelyn Brennan, "A Stakeholder Analysis of the BP Oil Spill and the Compensation Mechanisms Used to Minimize Damage," (PhD. Thesis, University of Florida, 2013): 25

The literature above seems to suggest that implementation and enforcement of the laws is the mainstay for fully fledged occupational health and safety in workplaces. Perhaps more relevantly reckoned in Uganda's quest for occupational safety in the oil and gas industry is the analysis by Gatkuoth,[39] which surmises a safety case regulatory approach in the oil and gas sector in Uganda. He maintains that the Ugandan approach to safety regulation is a hybrid one, which combines both a performance-based approach such as using risk management systems to avert safety hazards, along with prescriptive aspects such as safety regulation in workplaces. He argues that both the safety case and occupational health regulatory processes address risk management, identification of hazards, and assessment of risks, but the process and format for documentation and regulatory review differ.

While this analysis could prefer some relevance in tackling the basic tenets of oil and gas safety, it is rather speculative and does not address the peculiar occupational health and safety issues in the oil and gas sector. The question then arises as to the effectiveness of these two regulatory regimes in preventing process safety-related incidents in the oil and gas sector.

Uganda established the Occupational Health and Safety Act of 2006, to regulate and safeguard the health and safety of persons employed in all industrial sectors.[40] More specifically, the Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations, 2016 were developed as the instrument to streamline the occupational health and safety culture in oil and gas development.[41]

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[39] Peter Reat Gatkouth, "Analysis of the Safety Case Regulatory Approach in Safeguarding Health and Safety Standards in Oil and Gas Sector in Uganda," *African Studies Quarterly*, 12 (2019): 1-5

[40] *The Occupational Health and Safety Act, 2006*, s.1

[41] *The Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations, 2016,* Reg. 2

While these laws lay down the basic elements that characterize occupational health and safety, they seem to focus on generic health and safety standards, which are not complied with by oil and gas operators. Perhaps more noteworthy is the argument by Sekyewa,[42] as he critically analyses the effectiveness of Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations, 2016. He maintains that no attempt has been made to discover how these laws and regulations can be manifested into proper practice to achieve their nature intended good as protected in Uganda. Ignorance by oil and gas workers, companies and organisations of the safety tasks and procedures is usually the culprit.

The literature obviates Uganda's long way to attain a concrete level of legal implementation of occupational health and safety, especially in the presence of the Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations, 2016. Such a tailor-made law would have embedded a compliance mechanism toward a culture of safety implementation which would significantly reduce work-related injuries. The need for this study to establish the opportunities and challenges arising from occupational health and safety lessons would ultimately inform the shortfalls within Uganda's oil and gas legal framework. To obviate the safety culture in the oil and gas activities, mechanisms for enforcing and complying with safety, health, risk aversion, and identification of hazards should be reflected in the relevant laws.

In the above literature, investment into health and safety issues like the implementation of new safety procedures and regular provision of relevant safety apparatus significantly reduces accident and injury occurrence. However, in Uganda, only a few studies have

[42] Jotham Sekyewa, "Regulating Systematic Occupational Health and Safety Management: An analysis of the Petroleum (Exploration, Development and Production) (Health, Safety and Environment) Regulations, 2016," *Journal of Industrial Relations*, 58 (2021): 33-59

focused on occupational health and safety management systems in the Ugandan oil and gas sector.

Accidents and injuries among organizations remain a probability that is not properly accounted for as there exists no uniform national database to record such incidents at the workplace. The study speculates that the application of the needed safety framework in the Ugandan oil and gas sector will reduce workplace accidents and occupational injuries.

Mukanjishi demonstrates how Rwanda in particular participated in the writing of and negotiation of international human rights treaties and other instruments.[43] Some of the international instruments relevant are the International Labor Organization (ILO) guidelines on the Promotional Framework for occupational health and safety convention No.187, and its accompanying Recommendation No.197. It is therefore not far-fetched to state that the oil and gas sector in Uganda needs to have an effective occupational health and safety framework as it shifts into the implementation phase.

The arguments demonstrated by Mukanjishi and Sekyawa reveal that an occupational health and safety legal framework is the foundation of an effective employment management system. Indeed, one of the main goals of an organization is a commitment to continual improvement and compliance with laws and regulations on the prevention of imminent injury and illness of workers.

2.5. Conclusion

Although there is a lot of literature on legal aspects of health and safety protection, however in the Ugandan context such literature remains limited. Even the literature which is present

[43] Specioza Mukanjishi, "Occupational health and safety framework in the upstream oil and gas sector: A case study of Rwanda." (LLM Thesis, Strathmore University, 2021): 41

is unlikely to remain intelligible due to the novelty as an emerging concept in Uganda. The discussion continues with how Uganda can manage these occupational health issues with lessons from the Deepwater Horizon incident. This study, therefore, draws on what is known already in the literature about occupational health and safety issues and draws lessons on it how Uganda should respond to the challenges in the budding oil and gas sector.

CHAPTER THREE:

RESEARCH METHODOLOGY.

3.1. Introduction

This chapter presents a description of the research methods that will be used in undertaking the study. It is comprising of the research design, population of study, sampling techniques, sample size and selection, data collection techniques, data collection instruments, data analysis, the research procedure and the ethical considerations for the study.

3.2. Research Design

The study was conducted using a multifaceted research methodology to comprehensively investigate the legal framework governing occupational health and safety (OHS) in Uganda's oil and gas sector, particularly in light of the global impact of the Deepwater Horizon incident.

A doctrinal research design with an exploratory approach was adopted to delve into legal sources. This approach involved analyzing primary legal materials such as legislation and case law, along with secondary sources like textbooks, journals, articles, and case digests. By scrutinizing these authoritative texts, the study aimed to systematize, rectify, and clarify legal issues pertaining to OHS regulations. The assumption underlying this approach was that legal scholarship derives from the law itself, making it pertinent for analyzing and interpreting both primary and secondary legal sources.

Furthermore, a qualitative research design, specifically a phenomenological study, was employed to understand the lived experiences and perceptions of various stakeholders regarding OHS hazards in petroleum operations. Through interviews and questionnaires,

workers, experts, and practitioners of oil and gas law described their encounters with health and safety risks. Participants were selected based on their exposure to such issues and expertise in interpreting OHS laws. This approach allowed for a nuanced exploration of the human aspects of OHS concerns within the sector.

In addition to qualitative methods, a quantitative research design, namely descriptive correlational research, was utilized to assess the relationship between variables such as health and safety outcomes from the Deepwater Horizon incident and the provisions of OHS laws in Uganda's oil and gas sector. This involved reviewing previous research on health and safety measurement post-Deepwater Horizon to establish correlations. Statistical analysis, including linear regression models, was employed to determine the predictability of safety and health incident rates, providing insights into trends and patterns for a robust legal framework analysis.

Lastly, desk research was conducted to examine existing literature on the influence of the Deepwater Horizon incident on the development of OHS laws within Uganda's oil and gas sector. This entailed in-depth library research encompassing current legislation, case law, textbooks, journals, articles, and case digests. By synthesizing secondary sources of data, the study gained a comprehensive understanding of the regulatory landscape, thereby complementing primary data collected through qualitative and quantitative methods.

3.3. Study Population

The mapping of occupational health and safety management strategies in the oil and gas legal framework for Uganda covered a population of 20 participants, comprising 10 senior administrative staff from two oil and gas companies, including TOTAL Energies E&P and China National Offshore Oil Corporation (CNOOC), 10 officers from regulatory authorities and policy

making institutions including Petroleum Authority of Uganda (PAU), Uganda National Oil Company (UNOC), Ministry of Energy and Mineral Development (MEMD) and the Ministry of Gender Labour and Social Development (MGLSD).

This population was selected because each of the respondents has knowledge regarding occupational health and safety at least within each stage of the petroleum value chain, that is, the upstream, midstream and downstream phases of the oil and gas industry. The sample population is also selected with regard to their knowledge, expertise and experience with occupational health and safety incidents, management strategies and laws. This population therefore provides the appropriate sample for the study.

3.4. Sampling Techniques

Purposive sampling was used to select a small number of key respondents that provided in depth information and knowledge on the relationship between the safety outcomes arising from the Deepwater Horizon and how they shape the provisions of occupational health and safety laws governing Uganda's budding oil and gas sector.

For this reason, since this study is both quantitative and qualitative, purposive sampling works best to gather background information about the research topic from officers in project companies, administrators in oil and gas regulatory authorities, health and safety specialists, and legal experts who deal directly with the daily operations, and legal strategies related to occupational health and safety issues that arise from oil and gas exploration and production.

3.5. Data Collection Methods

The collection of data for this study involves use of two data collection methods, namely, a questionnaire survey and interviews.

In designing the survey, the study provided a description of workers' knowledge, attitude and practices of occupational health and safety during oil and gas exploration and production. The design also allows for gathering quantitative data from a relatively large number of workers, experts and administrators working in the industry, in line with a descriptive survey design paradigm.

The questionnaire survey is relevant for this study because it is reliable and effective in collecting first hand data from the participants, especially those with knowledge and experience on occupational health Interviews provided comprehensive responses since the respondents provide in depth information necessary for deep exploration and clarity on the occupational health and safety issues that arise from oil and gas exploration and production, particularly for the category of frontline workers.

3.6. Data Collection Instruments

The study used two data collection instruments, namely; a structured questionnaire and semi-structured interview guide. A structured questionnaire had two sections, that is, sections A and B, as referenced in Appendix 5. The questions in sections A will focus on background demographic characteristics of the respondent while the questions in section B will focus in detail, on the main variables under the study. The structured questionnaire has close-ended items.

This instrument will most suitably apply to the administrators, and officers in the selected project companies, regulatory authorities and safety and health experts and legal practitioners.

For the interview guide, this will be a face-to-face data collection instrument. The design of the interview items is standardized open-ended interview that allowed the participants to provide detailed information on the variables of the study and the research questions. Interview data will be collected from frontline workers.

3.7. Research Procedure

The researcher will draw a work plan for the research to be conducted as detailed in Appendix 1, and thereafter, draw up a budget from which the research shall be enabled (Appendix 2).

An introductory letter shall be secured from the Faculty of Law at the Institute of Petroleum Studies, Kampala to access the respondents in the field of study. The researcher will present the letter to the front desk officers and personal assistants to the respondents who will introduce the researcher to the respondents themselves.

The researcher will personally distribute the research questionnaires and conduct the interviews. Each questionnaire will be accompanied by a letter explaining the general purpose of the study. In conducting interviews, the researcher may tape record the respondents for clarity only with the consent of the interviewees.

3.8. Data Management and Analysis

Descriptive analysis such as the mean score and standard deviation are normally used to measure the central tendency of the variability of responses from the targeted population.

For this study, this analysis provides the average response regarding knowledge of occupational health hazards and attitudes toward occupational health hazards and compliance with the set rules and procedures against health and safety accidents.

Inferential analysis was also be applied to provide a comparative assessment between workers' attitudes and the compliance behavior regarding health safety practices demonstrating how attitudes and behavior of workers may impact their health and safety during oil and gas exploration activities. Analysis of qualitative data will be done through thematic and content analysis. Thematic analysis ensures that clusters of text with similar meaning were presented together while content analysis will involve interpretation of the underlying context.

3.9. **Ethical considerations**

Throughout the various stages of this research, an attempt will be made to respect the rights of potential respondents. For example, material borrowed from other sources such as journal articles will be acknowledged at the respective spots in the in the study. Before data collection, the respondents will be appropriately informed by the researcher of the purpose of the study, why and how they are selected. They will be further assured of confidentiality of their responses as their responses are anonymous. During data management findings will be associated with the respondents through coding. Honesty will be maintained by ensuring that data presentation, analysis and interpretation will be strictly based on the data collected.

CHAPTER FOUR

4.1 Legal analysis of Uganda's oil and gas sector: A Comprehensive Analysis of Occupational Health and Safety Legislation Post-Deepwater Horizon.

The health and safety legal regime in Uganda is embedded in, among others; the Petroleum Exploration, Development and Production Act 2013 and the Occupational Health and Safety Act 2006. The purpose of the Act (Health and Safety) is to regulate health and safety standards for the health, safety, welfare and appropriate training of persons employed in workplaces. Section 18(1) requires the employer to monitor and control the release of dangerous substances into the environment.

Thus, where there is major handling of chemicals or any dangerous substance that is liable to be airborne or to be released into rivers or lakes or soil and which are a danger to animal and plant life, the employer is required to arrange for equipment and apparatus to monitor air, soil and water pollution and to arrange for the monitoring of these mediums, with a view to rendering them safe. Clause (2) states that the records of monitoring in subsection (1) should be kept and made available to the inspector. These provisions are applicable to all oil exploration companies because of the danger their operations may pose to the environment and human safety.

To capture recent trends in the industry on health, safety and environment standards. The government of Uganda has embarked on the development of the new legal framework law to regulate the development of the Ugandan oil sector in the context of the Oil and Gas Policy, national environmental laws and international standards. The Petroleum Exploration, Development and Production Act of 2013 introduces new aspects in the governance of oil

and gas in Uganda in an attempt to set governance conditions related to Oil and Gas exploration and production. In my opinion, these are to be considered as international best practice.

The Act vests petroleum rights in the government of Uganda. Thus, the entire property in, and control of, petroleum in its natural condition in, on or under any land or waters in Uganda is vested in the government on behalf of the Republic of Uganda. Any person who intends to carry out petroleum exploration must therefore apply for a license from the responsible minister.

The Act introduces environmental principles. It thus requires every licensee and every person exercising or performing functions, duties or powers under it in relation to petroleum activities to take into account, and give effect to, the environmental principles prescribed by the NEA and other applicable laws. This is in line with the provisions of the Rio Declaration such as the one on sustainable development mentioned above.

The Occupational Health and Safety Act requires that petroleum activities are conducted in such a manner as to enable a high level of safety to be maintained and further developed in accordance with technological developments and laws relating to health and safety. A licensee is also required to identify the hazards and evaluate the risks associated with any work performed in the course of petroleum activities carried out under the license that constitute a hazard to the health of an employee for the purpose of that work and the steps that need to be taken in order to comply with the provisions of the Act and regulations made under the Act. The Act requires that necessary safety precautions are taken to ensure the safety of any persons employed or otherwise present or in the vicinity of any installation and

to protect the environment and natural resources, including precautions to prevent pollution.

Other policies applicable include: the National Environment Management Policy, 1994; National Energy Policy, 2002; National Policy for the Conservation and Management of Wetland Resources, 1995; National Water Policy, 1999; Uganda Wildlife Policy, 1999; Uganda Forestry Policy, 2001; National Policy Framework for the Industrial Sector, 2008; Disaster Management and Preparedness Policy and the recent National Oil and Gas Policy, 2008. The major legislative framework is covered by the Constitution of the Republic of Uganda, 1995; the new Petroleum (Exploration, Development and Production) Act, 2013; Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act, 2013; Petroleum Supply Act, 2003 and the Petroleum (Exploration and Production) (Conduct of Exploration Operations) Regulations, 1993.Other relevant laws include the National Environment Act, cap. 153; Land Act, cap.227; Water Act, cap.152; Occupational Safety; Health Act, 2006; National Environment (Waste Management) Regulations, 1999; National Environment (Wetlands, Riverbanks and Lakeshores Management).

These are supplemented by a number of regional and international environmental health and safety law instruments divided into hard and soft law instruments. Soft law standards include the Rio Declaration (2012); Stockholm Declaration, 1972; Johannesburg Declaration, 2002 which advocate for environmental health and safety principles such as sustainable development and also encourage safety and healthy through advocating for healthy working conditions and enforcement of labour laws The United Nations Environmental Programme (UNEP) further expounds on the importance of protecting the environment and using it sustainably such that future generations may also be able to utilize the same resources.

International hard law standards include the International Labour Organisation (ILO) Constitution which sets forth the principle that workers should be protected from sickness, disease and injury arising from their employment; Occupational Health and Safety Convention 1985; Promotional Framework for Occupational Safety and Health Convention 2006; Radiation Protection Convention 1960; Occupational Cancer Convention 1974; Asbestos Convention 1986; Chemicals Convention 1990; Basel Convention on Control of Trans-boundary Movement of Hazardous wastes and their Disposal 1989 which are all geared towards improving working conditions thereby ensuring that workers have a safe and healthy environment in which to work.

The environmental health and safety regulatory framework for oil exploration and production in Uganda is new and still inadequate in some areas, including environmental regulation. This is in addition to limited financial and human resources to implement its provisions and limited public awareness of the principles and provisions of the policy and legal framework. There is a relatively high risk of harm to environmental health and safety during oil exploration and production hence the need for measures to minimize such harm to the ecologically/biodiversity sensitive areas to be put in place. Thus, managing the 'environmental health and safety in oil' requires strategies that address environmental health and safety management sustainability.

4.2 Status of compliance and Enforcement of Environmental policies and legal frameworks

Despite the excellent policies, laws and existing institutional frameworks at national and local levels we note with concern the escalating rate of environmental degradation and declining state of the environment due to inadequate compliance and Enforcement.

This has resulted in;

I) Dwindling Public Trust;

II) Sorry state of the environment and loss of the natural capital has created an additional burden on the state in terms of enforcement costs,

III) As a result of the continued degradation, there are emerging security threats including- loss of livelihood support systems and creation of environmental refugees which is a national security issue; and

IV) Compromises the quality of benefits for future generations and the sustainable development agenda and the future we want that Uganda subscribes to.

4.2.1 Sectoral Issues / Challenges

a) Persistent low funding affecting government capacity and ability to manage and protect the nation's vital natural resources base - ENR is a low priority: it gets less than 1% of government public expenditures.

b) Insufficient staffing in subsectors affecting government capacity effectively implement government policies, programmes and enforcement of legislation;

c) Insufficient community participation in environment and natural resources management;

d) Absence of coordinated central Information management system to generate credible data to guide timely decision making;

e) Failure to provide for coordinated Research and Development that provides for innovativeness for solutions that drive environmental performance • Treatment of ENR as a Crosscutting Issue - Weak mainstreaming of environment management concerns across sectoral plans, projects and programs: Crosscutting environmental

issues are to be mainstreamed into the objectives and activities of other sectors at the planning stage, yet there is often no matching budget allocation – neither in the environment budget line for the ENR sector, nor in the budget of the sectors into which the environmental activities are supposedly mainstreamed

f) Weak enforcement and monitoring mechanisms for ENR compliance.

g) The failure to provide for alternative social livelihoods safety nets and access to justice and remedy for poor and marginalized communities that use the ENR as the fallback position;

h) Linkages between the Central and Local Governments do not foster capacity support and information exchange - The flow of ENR information and support between the center and LG environmental officers is not systematic, prompting concern about the reliability and maintenance of national ENR.

4.2.2 Existing Opportunities

i) New National Environment Act 2019 legislating on new emerging issues and some sections of the law strengthened.

j) Compliance assurance tools that ensures environmental planning, auditing, assessment and improvement programs.

k) Sectoral policies and laws that already provide for environmental sustainability.

l) ENR governance institutions mandated with ensuring compliance and enforcement; MWE, NEMA, EPF, NFA, etc

m) Financing mechanisms that can be targeted for funding.

4.3.3 Efficacy of regulatory compliance and enforcement of Occupational Health and safety Legislation in Uganda's Oil and Gas sector with insights from the Deepwater Horizon Incident's Global Impact.

The efficacy of regulatory compliance in navigating horizons within Uganda's oil and gas sector, particularly concerning occupational health and safety (OHS) legislation, is a critical aspect of sustainable resource extraction and environmental stewardship. This discussion explores the case study of Uganda's regulatory landscape in light of insights gleaned from the global impact of the Deepwater Horizon incident.

The Deepwater Horizon incident in 2010, which resulted in one of the largest environmental disasters in history, serves as a poignant reminder of the catastrophic consequences of regulatory failures in the oil and gas industry. This tragedy prompted global scrutiny of regulatory frameworks, with a focus on enhancing OHS legislation and environmental protection measures to prevent similar incidents in the future. As Uganda embarks on its journey towards oil and gas exploration and production, the lessons learned from the Deepwater Horizon incident are invaluable in shaping its regulatory approach and ensuring responsible resource development.

One of the key challenges facing Uganda's oil and gas sector is the development and enforcement of robust OHS legislation to safeguard the health and safety of workers and mitigate environmental risks. The country's regulatory framework must strike a delicate balance between facilitating industry growth and ensuring adequate protections for workers, communities, and the environment. Drawing insights from the Deepwater Horizon incident, Uganda can learn from best practices and regulatory reforms implemented by other countries to strengthen its OHS legislation and regulatory oversight mechanisms.

Effective regulatory compliance requires a multi-faceted approach that encompasses legislative reforms, institutional capacity building, stakeholder engagement, and enforcement mechanisms. Uganda's regulatory authorities, such as the Ministry of Energy and Mineral Development (MEMD) and relevant regulatory agencies, must collaborate with industry stakeholders, civil society organizations, and international partners to develop and implement comprehensive OHS regulations tailored to the country's unique context.

Furthermore, the Deepwater Horizon incident underscores the importance of proactive risk management and emergency preparedness in the oil and gas sector. Uganda must prioritize the development of risk assessment protocols, contingency plans, and response mechanisms to mitigate the potential impact of accidents and spills on human health, the environment, and local livelihoods. This requires investments in technology, training, and infrastructure to enhance monitoring, surveillance, and response capabilities across the oil and gas value chain.

In the dynamic landscape of Uganda's burgeoning Oil and Gas sector, the critical intersection of occupational health and safety legislation becomes a focal point for scrutiny and enhancement. This chapter embarks on a comprehensive case study analysis, delving into the intricate web of regulations governing health and safety practices in the country's oil and gas exploration and production. Drawing inspiration from the global repercussions of the Deepwater Horizon incident, this exploration seeks not only to evaluate the current state of compliance but also to unveil mechanisms aimed at fortifying adherence to environmental, health, and safety laws in Uganda. As we navigate through this insightful journey, the chapter unravels the complexities, challenges, and potential improvements that are essential for

steering Uganda's oil and gas sector towards a robust and globally respected paradigm of occupational health and safety standards.

4.2.3 Influence of Deepwater Horizon on landscape of Uganda's environmental governance.

In the evolving landscape of Uganda's environmental governance, pivotal developments emerged, and these were significantly influenced by the global impact of incidents like the Deepwater Horizon. The Wildlife Act of 1996 marked a crucial stride, thus leading to the establishment of the Uganda Wildlife Authority. The government's commitment to sustainable environmental management was further underscored in 1995 when the Parliament enacted the National Environment Act (No. 4 of 1995) as a response to the prevailing environmental challenges.

This Act heralded the creation of the National Environment Management Authority (NEMA) in May 1995, positioning NEMA as the principal government agency tasked with coordinating, managing, monitoring, and supervising all environmental activities. Aligned with the National Environment Management Policy (NEMP), the Act played a pivotal role in shaping sectoral policies related to environmental and natural resource management. These policies, developed in harmony with the NEMP, included the Water Policy of 1995, draft National Soil Policy, draft Fisheries Policy of 2000, draft Wildlife Policy of 2000, National Wetlands Management Policy of 1995, Forestry Policy of 2001, and various district Environment Management Policies from 2000 onward.

The momentum towards comprehensive environmental governance received a significant boost with the enactment of the 1995 Constitution in October 1995. This constitutional milestone, enshrining National Objectives and Directive Principles of State Policy,

prominently featured the promotion of sustainable development and public awareness of environmental stewardship. Chapter 4 of the Constitution introduced a detailed Bill of Rights, a historic moment as it articulated the right to a healthy and clean environment as a fundamental human right for the first time in Uganda's history.

Article 39 of the Constitution not only recognized this right but deemed it as enjoyable and enforceable on par with other human rights. The Constitution further established a mechanism for enforcing this right, reflecting the acknowledgment that environmental and health rights are inseparable from broader human rights. The Constitution not only provided for this right but recognized it as inherent and divinely given, underscoring the government's duty to ensure its protection, granting the population the power to enforce it against the government or any other entity. This constitutional framework positioned environmental rights not as mere ideals on paper but as tangible entitlements deserving budgetary allocations and active government policies for their observance.

The trajectory of environmental legislation in Uganda since 1995 constitutes the journey marked by significant milestones, paralleling the profound impact and paradigm shifts witnessed in the wake of the Deepwater Horizon incident. Uganda's legal framework, akin to a series of checks and balances, harbored the potential for effective environmental management. However, the crux lay in establishing the crucial interconnections between environmental management and the existing legal apparatus.

At the apical echelon, the Constitution of Uganda, 1995, emerges as the supreme law, laying the foundation for environmental protection and conservation. Within the National Objectives and Directive Principles of State Policy, the Constitution articulates the

imperative for the State to champion sustainable development and cultivate public awareness regarding the balanced and sustainable management of land, air, and water resources for present and future generations.

Moreover, the Constitution mandates the prudent utilization of Uganda's natural resources, emphasizing a management approach that harmonizes development and environmental needs across generations. The State is entrusted with the responsibility to undertake all conceivable measures to prevent or minimize damage to land, air, and water resources from pollution or other causes. Article 245 specifically empowers Parliament to legislate measures aimed at protecting and preserving the environment, managing it for sustainable development, and fostering environmental awareness.

The constitutional provisions extend beyond the macroscopic perspective, safeguarding property rights and individual entitlements. Article 39 enshrines the right to a clean and healthy environment as an individual right. This constitutional safeguard is complemented by Article 50, affording any person the right to judicial recourse against the breach of fundamental rights, irrespective of whether the violation affects them directly.

The State, in collaboration with local governments, assumes the responsibility to create and develop parks, reserves, and recreation areas, ensuring the conservation of natural resources. The public trusteeship of rivers, lakes, wetlands, national parks, game reserves, and forest reserves is vested in the State, underscoring the collective commitment to safeguard and protect Uganda's rich biodiversity.

In essence, the post-1995 legal landscape in Uganda, like the profound aftermath of the Deepwater Horizon incident, reflects a conscientious effort to intertwine environmental

protection with legal tenets, envisioning a sustainable and harmonious coexistence between development imperatives and ecological preservation.

In the intricate tapestry of Uganda's legal framework, the Local Governments Act emerges as a pivotal thread, weaving a decentralized system of governance that resonates with the nuanced intricacies of environmental management. This legislative edifice establishes a tiered structure based on districts, each tier endowed with elected councils and executive committees that hold the reins of policy initiation, formulation, and execution.

At the zenith of this structure lies the District Council, wielding both legislative and executive powers in consonance with the Constitution and the Local Government Act of 1997. The composition and functions of the District Council are meticulously outlined, and within its purview are critical responsibilities relevant to natural resource management, including land surveying, administration, physical planning, forests and wetlands oversight, environmental and sanitation matters, and the protection of streams, lakeshores, wetlands, and forests.

Beneath the district tier, the Local Governments Act delineates lower local government councils, encompassing Sub-County Councils, City Division Councils, Municipal Councils, Municipal Divisions, and Town Councils. These councils are vested with the authority to enact laws, with District Councils possessing the prerogative to promulgate district laws (Ordinances). Concurrently, urban, sub-county, division, or village councils may formulate bye-laws within their defined powers, creating a legislative framework that complements national laws and the Constitution.

The Act further introduces Administrative Units categorized into rural and urban settings. In rural areas, these units span county, parish, and village levels, while urban areas encompass parish or ward and village levels. Each administrative unit level establishes an executive committee, including the Secretary for Production and Environment Protection, charged with the responsibility of monitoring projects and other activities.

Urban Councils, as outlined by the Local Governments Act, are entrusted with specific functions relevant to natural resource management, such as overseeing botanical and zoological gardens, managing camping and grazing grounds, and regulating the burning of rubbish and grassland.

Crucially, the Act empowers District Councils to devolve services and functions to Lower Local Councils, including control over soil erosion, protection of local wetlands, measures to combat grass, forest, or bush fires, management of local hunting and fishing, and the protection and maintenance of local water resources. This devolution mechanism aims to empower local councils in effective control and management of their natural resources and environment.

In essence, the Local Governments Act epitomizes the decentralized governance structure that endeavours to imbue local entities with the autonomy and authority required for judicious and context-specific management of Uganda's rich natural resources. The legislative design seeks to harmonize national imperatives with the unique environmental contexts of localities, fostering a dynamic framework for sustainable development and resource conservation.

In the context of the Deepwater Horizon incident and its global impact, the applicability of the Seeds and Plants Act[44] and the Uganda Wildlife Act can be drawn to underscore the importance of robust legislative frameworks in mitigating environmental risks and promoting sustainable practices.

The Seeds and Plants Act, with its focus on plant breeding, variety release, and quality assurance, highlights the need for stringent regulations in the exploration and extraction of natural resources, akin to the oil industry. Much like the oil sector's requirement for meticulous testing and adherence to safety standards, the Act's emphasis on variety testing becomes analogous to the rigorous checks and balances needed in offshore drilling operations to prevent catastrophic incidents.

The Uganda Wildlife Act's relevance in the Deepwater Horizon context lies in its transformative approach to wildlife management. The Act introduces wildlife use rights, which can be compared to the regulatory frameworks required in the oil and gas industry. The Act's provision for transferable and revocable wildlife use rights aligns with the idea of licenses and permits essential in offshore drilling. Moreover, the Act's establishment of a wildlife appeal tribunal serves as a model for ensuring swift and impartial adjudication, a lesson that can be applied to regulatory bodies overseeing the oil and gas sector to address environmental concerns effectively.

In summary, these Acts provide a regulatory framework that, when adapted to the context of oil exploration and production, could contribute to minimizing environmental risks, ensuring sustainable resource management, and establishing effective mechanisms for

[44] The Seeds and Plants Act, 2006

oversight and accountability, lessons that are particularly pertinent in the aftermath of incidents like the Deepwater Horizon.

The National Environment Act [45]establishes the National Environment Management Authority (NEMA) as the central governing body tasked with coordinating, supervising, and monitoring all facets of environmental management in Uganda. Drawing parallels with the Deepwater Horizon case, where effective oversight was crucial, NEMA is empowered to issue guidelines and set standards for the conservation of natural resources and the environment, emphasizing the need for stringent regulatory measures in resource management industries.

At the apex of NEMA is the Policy Committee on the Environment, comprising 10 ministers responsible for various environmental sectors. This mirrors the importance of collaborative decision-making witnessed in the Deepwater Horizon aftermath, highlighting the significance of cross-agency coordination. The Act establishes the Board of Directors to oversee NEMA's operation, policy formulation, and staff management, underscoring the administrative role required for effective environmental governance.

The Act facilitates community involvement through the creation of District Environment Committees, ensuring local participation in environmental decision-making. This institutional framework echoes the importance of community engagement in resource control and management, aligning with lessons learned from the Deepwater Horizon incident.

Sustainable development measures embedded in the Act include Environmental Impact Assessment (EIA) requirements, akin to the imperative need for risk assessments in offshore

[45] National Environment Act, 2019

projects. Collaboration with local authorities underscores the Act's emphasis on involving communities in the management of critical environmental areas, mirroring the need for regional collaboration in mitigating global environmental risks like those observed in the Deepwater Horizon incident.

The Act's provisions for controlling pollution, formulating environmental standards, and introducing mechanisms for enforcement, such as environmental easements and restoration orders, align with the Deepwater Horizon case's focus on preventing and addressing environmental damage. The Act's multifaceted approach to enforcement, beyond traditional criminal law, draws parallels to the diverse strategies needed for comprehensive oversight in complex environmental scenarios.

In summary, the National Environment Act presents a comprehensive framework for environmental management in Uganda, drawing essential lessons from global incidents like the Deepwater Horizon. The Act not only establishes a central authority, NEMA, for effective coordination but also recognizes the importance of collaborative decision-making through committees and local involvement. This aligns with the necessity observed in cases like Deepwater Horizon, where a collective approach was crucial for effective risk management and response.

The Act's focus on sustainable development measures, including Environmental Impact Assessment and collaboration with local authorities, mirrors the need for thorough risk assessments and regional cooperation, especially in industries with potential environmental impact. The provisions Acts on pollution control and formulation of environmental standards

demonstrate a commitment to preventing harm, reflecting the imperative need for robust regulations in the wake of environmental disasters.

Moreover, the Act's innovative enforcement mechanisms, such as environmental easements and restoration orders, indicate a forward-thinking approach to addressing environmental issues beyond traditional legal avenues. This adaptability is crucial, as witnessed in cases like Deepwater Horizon, where unconventional strategies were needed for effective enforcement and environmental restoration.

In essence, National Environment Act positions Uganda to navigate the complexities of environmental management by incorporating lessons learned from global incidents, thus emphasizing the importance of proactive and multifaceted approaches to safeguarding the environment and natural resources.

Creating awareness is paramount for the effective implementation of environmental legislation. NEMA, acknowledging this crucial aspect, is tasked with spearheading educational and awareness campaigns to ensure public engagement in environmental decision-making and enforcement. This aligns with the imperative witnessed in cases like the Deepwater Horizon, where public awareness played a pivotal role in understanding and responding to the environmental consequences.

In the context of licensing and registration, pollution permits have been discussed previously. Beyond that, the law mandates specific permits for activities like the import, manufacture, and disposal of hazardous substances, emphasizing the importance of controlling their environmental impact through proper classification and labelling. Drawing parallels with

incidents like Deepwater Horizon, stringent regulation and oversight on hazardous materials are imperative to prevent catastrophic environmental events.

The Act advocates for the utilization of economic and social incentives in conjunction with management measures. This includes having taxation measures and environmental performance bonds, reflecting a recognition that a balanced approach is needed to align economic interests with environmental conservation goals. This approach resonates with some lessons learned from incidents like Deepwater Horizon, where economic incentives and penalties were integral to shaping corporate behavior. While criminal law is acknowledged as a tool for behavioural control, the Act emphasizes that it cannot be the sole enforcement mechanism. This aligns with the understanding that a multifaceted approach, including economic incentives and public awareness, is vital for effective environmental governance. Such a perspective is crucial, especially when reflecting on incidents like Deepwater Horizon, where legal consequences served as a deterrent but were not the exclusive solution.

The Land Act, focusing on land tenure and management, recognizes the vital role of citizens in environmental conservation. It protects bona fide occupants and their security of tenure, emphasizing their responsibility to adhere to environmental laws. This resonates with the notion that even customary tenants must observe environmental regulations, mirroring the interconnectedness of land ownership and environmental stewardship.

Furthermore, the Act ensures that the government safeguards environmentally sensitive areas for the common good. This aligns with the global imperative to protect ecologically crucial regions, as witnessed in the aftermath of incidents like Deepwater Horizon, where environmental preservation became a shared responsibility. The Act's provisions act as a

proactive measure, encouraging public interest in natural resource conservation, even if it means limiting exclusive ownership, echoing the lessons learned from incidents that underscore the collective responsibility in environmental protection.

The Water Act stands as a pivotal component of Uganda's environmental legislation, embodying crucial provisions geared towards fostering the sustainable development of water resources. It meticulously addresses the utilization, safeguarding, and administration of water resources with a pronounced emphasis on environmental protection.

Central to the Act is the vesting of rights in water with the government, signifying its paramount role in overseeing and ensuring the sustainable utilization of water resources. This approach aligns with the need for stringent governance observed in cases such as the Deepwater Horizon incident, underscoring the significance of central authority in regulating vital resources.

A noteworthy feature of the Act is the establishment of the water policy committee, an inter-sectoral entity charged with coordinating comprehensive action plans for water resource management. This proactive planning approach, specifying activities requiring approval, mirrors the need for strategic oversight seen in responses to environmental incidents such as Deepwater Horizon.

Control over the use of water resources is a key focus, as reflected in the Act's provision for water permits. These permits are mandated for the construction or operation of water works, ensuring environmentally friendly practices and promoting sustainable development. This resonates with the economic valuation of water, emphasizing its worth and the need to pay

for its use, akin to lessons learned from environmental disasters that highlight the true value of resources.

The Act also introduces the concept of water easements, allowing holders of permits to navigate water over lands owned by others. This reflects a balanced approach to resource utilization, emphasizing maintenance and repair to comply with sustainable development. Such measures are crucial to prevent over-extraction and environmental degradation, as seen in instances like Deepwater Horizon where resource misuse had profound consequences.

Control mechanisms over water works and use are firmly established, empowering authorized personnel to inspect, sample, and test water-related works. Non-compliance is expressly deemed an offense, highlighting the seriousness attached to adherence. These control measures echo the imperative witnessed in responses to environmental crises, emphasizing the need for strict enforcement and accountability.

In its entirety, the Water Act is meticulously designed to foster the sustainable use of water resources, vehemently prohibiting waste, misuse, and pollution. This comprehensive approach draws parallels with the global imperative to safeguard vital resources, exemplified by lessons learned from environmental incidents such as Deepwater Horizon, where sustainable practices are paramount to prevent catastrophic consequences.

Raising awareness is recognized as a crucial aspect within the Water Act, echoing the need for public engagement in environmental decision-making and enforcement. This parallels the lessons learned from the Deepwater Horizon incident, emphasizing the importance of involving the public to ensure a broader understanding and commitment to environmental protection measures.

The Act delves into the licensing and registration of activities and substances related to water, extending beyond pollution licensing. It necessitates specific permits for the import, manufacture, and disposal of hazardous chemicals, wastes, and substances. This regulatory framework aligns with the imperative observed post-Deepwater Horizon, emphasizing stringent controls over substances that could pose risks to water resources.

Economic and social incentives are integrated into the Act's framework, advocating for the use of taxation measures and environmental performance bonds in conjunction with management measures. This multifaceted approach recognizes the role of economic incentives in promoting responsible resource use, echoing global efforts to align economic activities with environmental sustainability in the aftermath of environmental disasters.

Criminal law is acknowledged as a supplementary measure within the Act, emphasizing penalties for infractions. While criminal law is not the primary enforcement tool, its inclusion underscores the recognition of legal consequences to deter non-compliance. This aligns with the broader understanding that a combination of legal measures is essential in addressing environmental offenses, as seen in responses to incidents like Deepwater Horizon.

The Land Act is intricately connected with the Water Act, shaping the tenure, ownership, and management of land. It upholds the principle that land is vested in the citizens of Uganda and owned in accordance with various land tenure systems. Notably, it safeguards the rights of bona fide occupants, recognizing their historical occupancy, which resonates with the protection of local communities seen in environmental management post-Deepwater Horizon.

The Land Act emphasizes the government's trust in protecting environmentally sensitive areas, echoing the imperative witnessed globally in the wake of environmental disasters to preserve critical ecological zones. It restricts the government from leasing or alienating certain natural resources, aligning with lessons learned from incidents like Deepwater Horizon, where strict controls over resource use are essential.

In conclusion, the Water Act, complemented by the Land Act, outlines a comprehensive and interconnected framework for the sustainable management of water resources in Uganda. Its provisions align with global strategies to prevent environmental disasters, drawing lessons from incidents like Deepwater Horizon to integrate awareness, regulation, economic incentives, and legal measures into a holistic approach to environmental governance.

The Fisheries Act governs various aspects of fishing, fish conservation, and the trade of specific wildlife products, including crocodile skins, through the issuance of licenses. Notably, an amendment brought about by Section 92(3) of the Wildlife Statute shifted the oversight of crocodile management to the Wildlife Statute, underscoring a broader approach to wildlife regulation.

Within the Fisheries Act, measures are implemented to safeguard fish populations. This involves regulating net sizes, prohibiting certain fishing methods, and instituting conservation practices such as the prohibition of catching immature fish and declaring closed seasons. Moreover, the Act seeks to protect fish diversity by prohibiting the introduction of non-indigenous fish species or their eggs into Ugandan waters without the consent of the Chief Game Warden. This multifaceted approach reflects a commitment to sustainable

fisheries management, drawing parallels with global efforts post-Deepwater Horizon to ensure the responsible exploitation of natural resources.

While the Act addresses conservation at a national level, it currently lacks explicit provisions for the regulation of international trade in fish species. This presents an opportunity for amendment to align with contemporary conservation and management trends in fisheries resources. Such amendments would bring the Act in line with evolving global strategies aimed at preventing over-exploitation and illegal trade, drawing lessons from incidents like Deepwater Horizon, where comprehensive and adaptive regulatory frameworks are essential for effective environmental protection.

In summary, the Fisheries Act, post-amendment, is a key component of Uganda's regulatory framework, managing fishing activities, conserving fish populations, and overseeing the trade of specific wildlife products. Its focus on national conservation efforts mirrors global initiatives, and potential amendments can further enhance its capacity to address emerging challenges and align with evolving international standards, much in the way global responses to incidents like Deepwater Horizon emphasize the need for adaptive and comprehensive regulatory measures.

In the period from the 1990s to the present, the Ugandan government has actively pursued the implementation of sustainable development principles by enacting legislation aimed at effectively managing the environment and natural resources. These laws have established institutional frameworks to oversee and facilitate this endeavour. The primary focus of these legal measures has been to foster institutional coordination and leverage synergies within the government to ensure the sustainable management of resources.

A key objective of these laws has been to promote public participation in achieving management goals, and accordingly, the legal framework has placed significant emphasis on creating avenues for public involvement, notably through awareness-raising initiatives. Another noteworthy trend in these legal developments has been the orientation towards attributing value to natural resources and the environment. This has been achieved by emphasizing the incorporation of economic and social instruments into the legal framework.

Drawing parallels with incidents such as the Deepwater Horizon case, these legal efforts reflect a commitment to proactive and comprehensive resource management, considering not only ecological factors but also the active engagement of the public and the integration of economic and social considerations. This holistic approach aligns with the global recognition of the need for multifaceted and adaptive legal frameworks to address contemporary environmental challenges and ensure sustainable development.

5.0 Comparative Analysis of Occupational Health and Safety Legislation and Environmental Impacts in the Aftermath of the Deepwater Horizon Incident.

5.1 Introduction

The Deepwater Horizon incident in 2010, one of the largest environmental disasters in history, prompted significant regulatory responses worldwide to enhance occupational health and safety (OHS) legislation and mitigate environmental impacts within the oil and gas industry. This comparative analysis examines the post-Deepwater Horizon OHS legislation and environmental impacts in five diverse countries: the United States, Canada, Norway, Australia, and Nigeria. By analyzing the approaches taken by these countries, this study aims to identify lessons learned and best practices for improving OHS regulations and environmental protection measures in the oil and gas sector.

5.1.1 United States:

The occupational health and safety legislation in United States was a prescriptive approach for regulation of offshore drilling whereby specific requirements for equipment and operations were developed and compliance with the regulations was monitored through auditing[46]. After the incident, it was established that the Minerals Management Service (MMS) regulations were not adequate to address the risks of Deepwater drilling and as a matter of fact did not adequately assess the full set of risks presented by the temporary abandonment procedure used at the well. In summary, the regulatory regime was found to be ineffective in addressing the risks presented by the Deepwater Horizon incident. Following the Deepwater Horizon disaster, the United States implemented comprehensive regulatory reforms, including the enactment of the Oil Pollution Act of 1990 (OPA) and the creation of the Bureau of Safety and Environmental Enforcement (BSEE).

[46] https://nap.nationalacademies.org/read/13273/chapter/9#112

These reforms aimed to strengthen OHS regulations and improve response mechanisms to oil spills. Additionally, the U.S. Environmental Protection Agency (EPA) introduced stricter environmental standards, emphasizing pollution prevention and mitigation measures. United States adopted a proactive, goal oriented risk management system that required companies to be responsible for compliance and hence should put in place measures to achieve explicit stated safety goals to prevent and respond effectively to all conceivable accidents.[47]

5.1.2 Norway:

Norway, renowned for its robust regulatory framework and proactive approach to OHS and environmental protection, strengthened its regulations post-Deepwater Horizon. The Norwegian Petroleum Safety Authority (PSA) implemented stricter safety requirements for offshore installations, focusing on risk management and emergency preparedness. Moreover, Norway introduced the Petroleum Act and the Pollution Control Act to minimize environmental risks and ensure sustainable resource extraction practices.

Norway after the Deepwater incident adopted the performance based regulatory system which requires that the regulatory sets quantifiable goals for achievement by the oil companies/operators. This performance based regulatory system depends on a dialogue and trust between the regulatory authority and the industry players. Industry players are expected to aim for good safety culture. Transparency and openness with regard to failures and noncompliance is expected and encourages a high degree of knowledge and compliance. Needless to add is the fact that the safety and health regulations in Norway are also supplemented by prescriptive requirements through established norms and standards.

[47] See footnote 46.

5.1.3 Uganda.

OHS regulations in Uganda are governed by the Occupational Safety and Health Act of 2006, which outlines the duties and responsibilities of employers and employees in relation to workplace safety. This act requires employers to identify potential hazards in the workplace and take steps to eliminate or mitigate them. It also requires employees to follow safe work practices and use protective equipment when necessary. These regulations are not for any specific industry.

OHS regulations in the oil and gas sector are enshrined in the Upstream and Downstream Acts 2006. The laws in Uganda are more of a combination of what should be done by the industry in safeguarding health and safety of Uganda's oil and gas players as well as punitive in nature for noncompliance. These laws were adopted from the United Kingdom and are believed that they will serve the purpose of minimizing risks and ensuring compliance with the regulatory regime.

Furthermore, Uganda through its laws adopts the international standards of good industry practice to ensure the safety and health of workers in the oil and gas sector is well catered for.

In the context of the above, the acknowledgment of the imperative for environmental protection in the course of oil and gas operations has prompted the continual evolution of environmental management and control mechanisms globally. These mechanisms often include Environmental Impact Assessments (EIAs), incorporating considerations of social and cultural aspects. Uganda, having identified commercially viable oil deposits in a region of ecological sensitivity, grapples with the challenge of resource development while ensuring environmental safeguarding. This study assesses Uganda's readiness to undertake EIAs in the

oil and gas sector, examining the legal and institutional framework, public participation, and the quality of EIAs and their implementation. The conclusion drawn is that Uganda is not fully equipped to manage EIAs effectively in this sector, creating opportunities for oil companies to exploit identified loopholes. Nevertheless, there is potential for improvement in the EIA system if the National Environment Management Authority (NEMA) recognizes its authority under the legal mandate and continues engaging with the public.

The Energy Sector has emerged as a pivotal driver of the economy, bringing forth diverse issues such as macroeconomic considerations, geopolitical influences, and environmental impacts.[48] Environmental concerns, especially within the oil and gas sector, have gained prominence due to the intricate and delicate nature of the operational environment.[49]

Historically, traditional principles like good oil practice and sound technical engineering formed the basis for national legislations and contractual arrangements in the petroleum sector for environmental protection. However, these conventional notions have gradually given way to more sophisticated environmental management and control mechanisms. Central to this shift is the utilization of tools such as Environmental Impact Assessments (EIAs).

The global acceptance of EIAs has been evident since the 1970s, although their implementation is not uniform across all countries.[50] According to the International Impact Assessment, an EIA is defined as "a process of identifying, predicting, evaluating, and

[48] Bhattacharyya, S.C. (2011) Energy Economics: Concepts, Issues, Markets and Governance. 1st Edition, Springer, New York.
https://doi.org/10.1007/978-0-85729-268-1
[49] Borthwick 1997
[50] Abaza, H. et al. (2004). Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. New York: UNDP.

mitigating the biophysical, social, and other relevant effects of proposed development proposals prior to major decisions being taken and commitments made"[51]

In the pursuit of safeguarding the environment during oil and gas operations, nations worldwide have continually evolved environmental management strategies, incorporating mechanisms like Environmental Impact Assessments (EIAs) that encompass social and cultural considerations. The discovery of commercially viable oil deposits in Uganda, situated in a region of ecological sensitivity, presents the nation with the intricate task of balancing resource development with environmental protection. This analysis specifically investigates Uganda's readiness to conduct EIAs within the oil and gas sector, delving into the legal and institutional framework, public involvement, and the efficacy of EIAs and their subsequent implementation. The overarching finding suggests that Uganda currently lacks comprehensive readiness for effective EIA management in this sector, potentially allowing oil companies to exploit identified loopholes. Nonetheless, the study proposes that substantial improvements can be achieved in the EIA system by empowering the National Environment Management Authority (NEMA) to recognize and utilize its authoritative position as mandated by law, coupled with sustained engagement with the public.

The Energy Sector, recognized as a pivotal economic driver, introduces a myriad of issues ranging from macroeconomic considerations to geopolitical influences and environmental impacts[52]. The focus on environmental concerns within this sector, particularly in oil and gas, stems from the intricate and delicate nature of the operational environments[53].

[51] Glasson J et al. (2013) Introduction to Environmental Impact Assessment, 4th Ed.
[52] Bhattacharyya, S.C. (2011) Energy Economics: Concepts, Issues, Markets and Governance. 1st Edition, Springer, New York.
[53] Borthwick- Duffy et al. 1997

Traditionally, environmental protection in the petroleum sector relied on principles like good oil practice and sound technical engineering, forming the basis of national legislations and contractual arrangements. Over time, these conventional principles have given way to more sophisticated environmental management strategies, prominently featuring tools such as Environmental Impact Assessments (EIAs).[54]

The global acceptance of EIAs dates back to the 1970s, although their consistent implementation varies across countries[55]. According to the International Impact Assessment definition, an EIA is characterized as "a process of identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of proposed development proposals prior to major decisions being taken and commitments made".[56]

In the realm of emerging natural resource-rich nations, Uganda stands out with its diverse array of natural resources. The year 2006 marked a pivotal moment when commercially viable oil deposits were confirmed in the Albertine Graben, situated in the Western arm of the East African Rift Valley.[57] Since then, oil-related activities have been underway in the Albertine Graben, spearheaded by Joint Venture Partners: Total E&P Uganda (TEP), and China National Offshore Oil Corporation (CNOOC).

Presently, seventeen (17) out of twenty-one (21) discoveries have been appraised, with only the Kingfisher Field under the operation of CNOOC being issued a production license; negotiations are ongoing for other fields. Additionally, the Government of Uganda has inked

[54] Vinogradov, undated
[55] Abaza, H. et al. (2004). Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. New York: UNDP.
[56] See footnote 53
[57] Ministry of Energy and Mineral Development (MEMD), 2008

a Memorandum of Understanding with licensed companies to facilitate the commercialization of discovered resources, with expectations of commencing commercial production in 2018. Plans for a refinery have been finalized, with Russian company RT Global Resource leading the project[58].

While these developments signal progress in the sector, the overarching concern for policy makers remains environmental protection for sustainable development, aligning with the Strategic Development Goals.[59] This concern becomes even more pronounced in the petroleum sector, given the heightened sensitivity of the Albertine Graben (AG).

The AG holds unique significance due to its ecological and biodiversity value, coupled with being the primary repository of the majority of oil and gas resources.[60]In navigating the delicate balance between resource exploitation and environmental preservation, policymakers face the challenge of ensuring sustainable development in this critical region.

Identifying and comprehending the key potential environmental impacts associated with Oil and Gas (O&G) activities is imperative due to the inherent environmental risks posed by this industry. Assessing these impacts involves predicting their magnitude, extent, duration, significance, and the feasibility of reversibility or mitigation. This analysis relies on the environmental baseline data available for the project area[61]. The Environmental Sensitivity Atlas of the Albertine Graben by NEMA in 2010 provides a comprehensive overview of

[58] MEMD, 2015
[59] Ministry of Finance, Planning & Economic Development, 2015
[60] MEMD, 2013
[61] Ogola, P. F. A. (2007). Environmental Impact Assessment General Procedures. KenGen, 2-17

potential environmental impacts, reflecting a proactive acknowledgment of the imperative to balance resource development with environmental protection.

The petroleum cycle encompasses various stages, each with its set of potential environmental impacts, with notable emphasis during Exploration, production, and transportation phases.[62] Potential impact sources encompass activities such as site selection and preparations, access (including constructing access roads and vegetation removal), camps and operations, and decommissioning with subsequent restoration and aftercare.[63]

In the context of the title "Oil and Gas Sector in Uganda: An Integrated Analysis of Occupational Health and Safety Legislation and Environmental Impacts in the Aftermath of the Deepwater Horizon Incident," this discussion underscores the critical need to evaluate and address environmental impacts comprehensively. By integrating the analysis with occupational health and safety legislation, the focus is on creating a holistic understanding that incorporates both the immediate and long-term consequences of O&G activities. The aftermath of the Deepwater Horizon Incident serves as a poignant reminder of the potential ramifications, emphasizing the urgency to proactively manage environmental impacts and uphold occupational health and safety standards in Uganda's oil and gas sector.

Assessing the impacts on wildlife and ecosystems is crucial, particularly in the context of the Albertine Rift, renowned as one of Africa's most biodiverse regions and home to numerous delicate ecosystems. This area boasts a remarkable concentration of vertebrate species, surpassing other African regions, with 40% of mammals, 14% of reptiles, 50% of birds, and

[62] Vinogradov, undated
[63] Borthwick et al. 1997

19% of amphibians found on the continent[64]. Despite this richness, the biodiversity is primarily situated in protected areas such as Forest reserves, Wildlife reserves, and National parks.

However, the oil blocks, including Murchison Falls National Park, Bugungu, Kabwoya, and Semliki Wildlife reserves, overlap with these conservation areas, subjecting them to potential impacts from ongoing or future oil activities.[65]The recent exploration bidding round for new oil blocks, notably the Ngagi block within Lake Edward and part of Queen Elizabeth National Park, raises concerns as Lake Edward extends to Virunga National Park, a UNESCO world heritage site for mountain gorillas. Even prior to active operations, apprehensions about severe environmental impacts in this region have been voiced.[66]

Additionally, Kasimbazi[67] highlights that the Albertine Rift area provides essential ecosystem services, including tourism and aesthetic values. However, the escalating activities associated with oil and gas exploration pose potential threats not only to wildlife but also to the disruption of tourism activities, thereby impacting the overall integrity of the ecosystems. In light of the title "Oil and Gas Sector in Uganda: An Integrated Analysis of Occupational Health and Safety Legislation and Environmental Impacts in the Aftermath of the Deepwater Horizon Incident," this underscores the need for a comprehensive evaluation that encompasses the environmental impacts on wildlife and ecosystems in Uganda's oil and gas sector.

[64] Plumptre, A.J., et al. (2007) The Biodiversity of the Albertine Rift. Biological Conservation, 134, 178-194
[65] Kityo Sempanda and 2 Others v U- Turn serves Limited and Another (Civil Suit No. 397 of 2011)
[66] Offshore technology.com, 2016
[67] Kasimbazi, E.B. (2012) Environmental Regulation of Oil and Gas Exploration and Production in Uganda. Energy Natural Resources Law, 30, 185-221.

5.2 Assessing Aquatic and Atmospheric Impacts in the Context of Uganda's Oil and Gas Sector

It is imperative to comprehensively evaluate the potential aquatic and atmospheric impacts, taking into account the unique characteristics of Uganda's Albertine Graben and the international implications of shared water bodies.

5.2.1 Aquatic Impacts:

Potential adverse effects on aquatic ecosystems are prevalent at various stages, particularly during exploration and production in Uganda's oil and gas sector. Water bodies, encompassing lakes, rivers, and channels, harbor diverse wildlife, including reptiles, mammals, amphibians, and birds. Additionally, these ecosystems host essential but less visible species such as insects and invertebrates, integral to the overall ecological balance. The activities of exploration and production, generating aqueous waste streams like produced water, cutting and well treatment chemicals, drilling fluids, domestic water, and sewage, pose a risk to these aquatic ecosystems.[68]

Complicating matters, Uganda's Albertine Graben (AG) features a complex water system with rift valley lakes, including Lake Albert, Lake Edward, and Lake George. The interconnectedness of these lakes through the Kazinga Channel and the presence of the River Nile, flowing through Lake Albert and River Kafu and draining into other lakes, contribute to the complexity of the region.[69] Notably, Lakes Albert and Edward are shared by both Uganda and the Democratic Republic of Congo, raising questions about implementing effective

[68] Borthwick et al., 1997

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

Environmental Impact Assessments (EIAs) for the management of these international waters, necessitating consideration of the UN Watercourses Convention.

5.2.2 Atmospheric Impacts:

Oil and gas activities exhibit significant atmospheric impacts, especially in the surrounding areas, with repercussions that may extend across national boundaries.[70] The intensity of these impacts is contingent on the stage of development, with the production stage being more substantial. Emission gases, including carbon dioxide, nitrogen dioxide, volatile organic carbons, methane, and carbon monoxide, emanate from various sources such as flaring and combustion.[71]

5.3 Analyzing Terrestrial Impacts in the Context of Uganda's Oil and Gas Sector

It is crucial to comprehensively assess terrestrial impacts, focusing on the onshore nature of Uganda's oil operations and addressing the challenges related to waste management and contamination identified in specific areas like the Kisinja Waste Consolidation Area and Bugungu WCA.

5.3.1 Terrestrial Impacts:

The terrestrial impacts associated with Uganda's oil and gas sector primarily stem from three fundamental sources: potential physical disturbance due to construction activities, contamination resulting from spillage, leakage, or improper solid waste disposal, and indirect

[70] Thompson et al., 2014

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

impacts arising from the opening of access routes and social changes.[72] Given that oil operations in Uganda are onshore, the potential for terrestrial impacts is significant.

1. **Physical Disturbance:** Construction activities in the oil and gas sector have the potential to cause physical disturbances to the terrestrial environment. These disturbances may manifest as habitat disruption, alterations to the landscape, and changes to the natural terrain.
2. **Contamination:** Contamination is a major concern, primarily resulting from spillage, leakage, and improper disposal of solid waste. The management of drilling waste poses challenges, with waste often stored before undergoing proper treatment. This issue is likely to escalate during the production phase, raising concerns about soil contamination. Notably, potential contamination of the soil has already been identified at specific sites, such as the Kisinja Waste Consolidation Area (WCA) operated by Tullow Uganda Operations Pty (TUOP) and the Bugungu WCA operated by Total E&P Uganda (TEP) (Office of the Auditor General (OAG), 2014).
3. **Indirect Impacts:** The opening of access routes and associated social changes can lead to indirect impacts on the terrestrial environment. These changes may include altered land use patterns, population movements, and shifts in socio-economic dynamics.

5.4 Analyzing Human, Socio-economic, and Cultural Implications in the Context of Uganda's Oil and Gas Sector

5.4.1 Human, Socio-economic, and Cultural Implications:

[72] Borthwick et al., 1997

Oil and gas operations in Uganda bring about significant economic and social changes, encompassing shifts in land use patterns, alterations to population dynamics, and impacts on socio-economic and cultural systems. The multifaceted implications raise concerns about the delicate balance between resource development and environmental preservation.[73]

1. Land Use Patterns: Oil and gas activities prompt changes in land use patterns, potentially leading to alterations in the natural landscape and habitat disruption. The acquisition of land for these activities, as highlighted by Kuteesa[74] has implications for local communities and may exacerbate issues related to food security.
2. Population Changes: The influx of oil and gas activities is linked to changes in the population. Increased migration, driven by expectations of employment opportunities in the sector, poses challenges related to managing population growth and associated socio-economic dynamics.
3. Socio-economic and Cultural Systems: The socio-economic and cultural systems of communities in the oil-rich regions undergo transformation. These changes may be positive if proper consultation with locals is prioritized, as suggested by Borthwick et al. (1997). However, challenges arise, as outlined by Kuteesa[75], who raises concerns about land acquisition issues, potential food insecurity, and the shift from agriculture to seeking employment in the oil and gas sector.
4. Expectations Management: Balancing the expectations of the local population, particularly in oil-rich regions like Bunyoro, becomes crucial. Managing these expectations is essential to prevent negative consequences such as environmental issues,

[73] Borthwick et al., 1997
[74] Kuteesa, A. (2014) Local Communities and Oil Discoveries: A Study in Uganda's Albertine Graben Region. Brookings-Africa in Focus.
[75] ibid

including the possibility of oil spills resulting from attacks on pipelines, reminiscent of situations in other regions like Nigeria.

5.5 Global Outlook of Environmental Impact Assessments (EIAs) in the Petroleum Sector: An Analysis in Light of Occupational Health and Safety Legislation and Environmental Impacts Following the Deepwater Horizon Incident.

The acceptance and integration of the EIA culture have shown a consistent upward trend globally. International conventions, such as the Espoo Convention of 1991 and the 1992 Convention on Biological Diversity (CBD), have imposed obligations on states to promote EIAs. While the Espoo Convention emphasizes transboundary projects impacting the marine environment, the CBD stresses the need for EIAs as a national instrument for activities with adverse environmental impacts, backed by competent authorities.

Moreover, the 1992 Rio Declaration on Environment and Development underscores the role of EIAs as a national instrument for projects with adverse environmental impacts, advocating for competent authorities. This signifies that EIAs are now a requirement under general international law.

Within the European Union, directives issued in 2011 emphasized the necessity of EIAs, highlighting the concept of public participation. The International Petroleum Industry Environmental Conservation Association (IPIECA) has also issued guidelines concerning biodiversity and ecosystems in the oil and gas industry.

Disparities in legal requirements and compliance levels between developed and developing countries are evident, with more advanced EIA practices in the former. Gaps in the legal framework and EIA execution primarily revolve around regulating and enforcing public

participation and measuring cumulative impacts. Even countries with robust EIA practices face challenges in incorporating indirect impacts, interaction of impacts, and addressing the uncertainty of predicted impacts.

In Africa, deficiencies in the EIA process begin with the legal framework, extending to insufficient skills among practitioners and regulators, and a lack of necessary equipment for data collection and analysis. Variances exist in the EIA regimes of Southern Africa Development Cooperation (SADC) member countries. Differences range from developers drafting Terms of Reference (ToR) independently, as seen in Angola, Madagascar, and Swaziland, to regulators developing ToR in Tanzania, Malawi, and Mauritius.

Public participation in the EIA process varies across SADC countries, with weaknesses noted in Lesotho, Angola, Mauritius, and Madagascar, where public input is limited to the review/public hearing stage. The absence of Environmental Management Plans (EMPs) in most SADC countries, except for four, including the Democratic Republic of Congo and Swaziland, further weakens the EIA process.

In addition to legal framework deficiencies, reported weaknesses include inadequate post-EIA follow-up, compliance monitoring, and auditing due to financial and technical resource constraints. The unregulated nature and lack of required competence among EIA practitioners further contribute to vulnerabilities in the system. In the context of oil and gas operations, companies may exploit these loopholes, especially legislative gaps, to advance their interests.

CHAPTER FIVE:

6.0 FINDINGS AND RECOMENDATIONS

6.1 Global Outlook of Environmental Impact Assessments (EIAs) in the Petroleum Sector: An Integrated Analysis of Occupational Health and Safety Legislation and Environmental Impacts Following the Deepwater Horizon Incident.

6.1.1 Findings and Recommendations:

The global landscape for Environmental Impact Assessments (EIAs) in the petroleum sector reveals a progressive adoption of the EIA culture, driven by international conventions such as the Espoo Convention and the Convention on Biological Diversity. While acknowledging the positive shift, it is evident that disparities exist in legal frameworks and compliance levels between developed and developing nations.

6.1.1.1 Key Findings:

1. International Obligations: The Espoo Convention of 1991 and the 1992 Convention on Biological Diversity impose obligations on states to promote EIAs. However, disparities in adherence and implementation persist globally.
2. European Union Directives: Directives issued by the European Union in 2011 underscore the importance of EIAs, emphasizing public participation. This reflects a concerted effort to align practices across member states.
3. IPIECA Guidelines: The International Petroleum Industry Environmental Conservation Association (IPIECA) provides guidelines related to biodiversity and ecosystems in the oil and gas industry. These guidelines contribute to shaping industry practices.
4. Disparities in Legal Frameworks: Developed countries exhibit more advanced EIA practices, with standardized components in their assessments. Developing nations often

lack comprehensive legal frameworks, resulting in variations in EIA structures and practices.

5. Public Participation Challenges: Public participation in the EIA process varies, with shortcomings noted in some countries. Limited public input in Lesotho, Angola, Mauritius, and Madagascar raises concerns about inclusivity and transparency.
6. Absence of Environmental Management Plans (EMPs): Most Southern Africa Development Cooperation (SADC) countries lack a requirement for developers to submit Environmental Management Plans. This deficiency weakens the comprehensive evaluation of potential environmental impacts.
7. Resource and Regulatory Challenges: Weaknesses in post-EIA follow-up, compliance monitoring, and auditing are prevalent due to financial and technical resource constraints. The unregulated nature and lack of competence among EIA practitioners further contribute to vulnerabilities.

6.1.1.2 Recommendations:

1. Continuous updating of regulations to ensure that international standards are met as the industry is dynamic and keep on changing with technology advancement.
2. Encourage trainings and education of workers and employees on occupational health and safety to ensure that certain accidents are minimised.
3. Workplaces should be well maintained as regards hazard identification and risks. Risks should always be assessed regularly and strategies developed to mitigate them.
4. Harmonization of Legal Frameworks: Encourage the harmonization of legal frameworks across nations to promote consistent EIA practices globally, with an emphasis on robust regulatory oversight.

5. Enhanced Public Participation: Advocate for enhanced public participation throughout the EIA process, addressing challenges in accessing information and fostering inclusivity.
6. Global Collaboration: Foster global collaboration in refining EIA practices, sharing best practices, and building the capacity of practitioners in developing nations.
7. Standardization of Components: Encourage standardization of EIA components globally, ensuring that even developing countries incorporate essential elements in their assessments.
8. Empowerment of Regulatory Bodies: Strengthen regulatory bodies in developing nations, providing them with the necessary resources and expertise to oversee effective EIA processes.
9. Incorporation of EMPs: Promote the incorporation of Environmental Management Plans (EMPs) as an integral part of the EIA process, ensuring comprehensive management of potential environmental impacts.

In conclusion, addressing the identified findings and implementing these recommendations will contribute to a more robust and globally aligned approach to EIAs in the petroleum sector, mitigating environmental impacts and enhancing occupational health and safety practices.

In alignment with the recommendations and conclusions drawn from the global outlook of Environmental Impact Assessments (EIAs) in the petroleum sector, Uganda, like many other nations, has incorporated the concept of EIAs into its domestic legal framework. The constitution of the Republic of Uganda, particularly under Article 27 section (3), emphasizes the imperative to manage natural resources in a manner that meets both developmental and environmental needs for present and future generations. The state is mandated to undertake

all possible measures to prevent or minimize damage to land, air, and water resources resulting from pollution or other causes.

The National Environmental Management Authority (NEMA), in accordance with the 1995 National Environmental Act, Chapter 153, holds the responsibility to promote and ensure compliance with sound management practices. Part V of the same Act, Section 19, specifically directs NEMA to oversee the Environmental Impact Assessment (EIA) process for projects, including those related to oil and gas, that may have significant impacts on the environment.

To facilitate the implementation of EIAs, NEMA has established the Environmental Impact Assessment Regulations, 1998, outlining the necessary requirements for conducting, reviewing, and approving EIAs. Mitigation measures identified during the EIA process are incorporated into the implementation of approved projects, aligning with other applicable laws.

In the context of oil and gas activities, various laws, including the Uganda Wildlife Act, National Forestry and Tree Planting Act, Mining Act 2003, and Investment Code, reinforce the signal for conducting EIAs before commencing exploration or production activities. While the National Oil and Gas Policy of 2008 and the Petroleum (Exploration, Development and Production) Act of 2013 do not explicitly mention EIAs, they underscore the importance of protecting the environment and conserving biodiversity, aligning with the broader environmental principles outlined by NEMA.

Moreover, the 1999 Model Petroleum Sharing Agreement (PSA) explicitly addresses EIAs under Article 22, requiring licensees to conduct comprehensive Environmental Impact Studies.

These studies encompass considerations for marine life, wildlife, human life impacts, and potential effects on neighbouring areas. Environmental impact statements, outlining progress and proposed mitigation measures, are mandated to be included in the work programs and budgets submitted by licensees.

In light of the global outlook, these national regulations and provisions in Uganda demonstrate a commitment to integrating EIAs into the decision-making processes of oil and gas activities, aligning with the need for standardized practices and comprehensive environmental management.

The potential controversy surrounding Environmental Impact Assessments (EIAs) in Uganda, particularly in the context of oil and gas activities, is likely to stem from specific clauses within the Model Petroleum Sharing Agreement (PSA). Article 30 of the PSA mandates that PSAs be governed and interpreted according to other applicable laws, while Article 33 underscores the confidentiality of the agreement and associated information. This emphasis on confidentiality may pose challenges to the smooth operations of the National Environmental Management Authority (NEMA) since the EIA process involves public participation. The lack of a clear definition for the term "applicable law" in both the Petroleum (EDP) Act and the model PSA adds to this risk.

NEMA initiated a revision of its existing laws to address emerging issues related to environmental concerns in the oil and gas sector starting in 2012. While significant progress has been made, the prolonged duration of the revision process, as reported by the Office of the Auditor General (OAG) in 2015, has impacted the EIA process. Notably, critical gaps in standards, such as the absence of air quality standards, comprehensive waste management

guidelines for the petroleum sector, and guidelines for monitoring groundwater quality, hinder the mitigation efforts outlined in EIAs and Environmental Audits (EAs).

This delay in the review process has had tangible effects during EIA reviews and EAs, as there are no established standards against which assessments can be measured. Stakeholder participation, acknowledged as vital for sustainable management and development of natural resources, becomes a crucial aspect in navigating these challenges. According to NEMA[76], stakeholders are individuals or groups who play a role in achieving project goals and can be positively or negatively impacted by the project. Undertaking stakeholder analysis, becomes essential in understanding the system, assessing the impact of change, and identifying key actors or stakeholders and their level of interest in the system[77]. The three phases and six steps of stakeholder analysis involve defining the context, identifying stakeholders, categorizing them, investigating relationships, and determining required actions for future engagement and activities. Stakeholder participation, when well-managed, can contribute to overcoming challenges posed by confidentiality concerns and gaps in regulatory standards, fostering a more inclusive and effective EIA process in the petroleum sector.

In Uganda, the stakeholders in the EIA process comprise of Government Agencies, the Oil Companies, NGOs and Civil Society Organisations, and the public.

In Uganda, an environmental management pillar, led by NEMA as part of the three pillars formulated in the management of oil and gas in Uganda was established. This pillar involves

[76] NEMA 2012,
[77] Reed et al. (2009),

key players/institutions who are mandated to manage any impacts related to O&G activities on the environment and biodiversity.

Key stakeholders and their roles within the Environmental Impact Assessment (EIA) framework in Uganda, especially in the context of oil and gas activities, form a critical aspect of the overall governance structure. The National Environment Authority (NEMA) plays a pivotal role in developing legislation to govern EIAs and guiding the entire process, ensuring appropriate actions are taken after identifying potential impacts. The Ministry of Energy and Mineral Development (MEMD), as a Lead Agency, monitors and ensures compliance with environmental laws and regulations by oil companies, providing feedback during various stages of the EIA process.

Other Lead Agencies include the Uganda Wildlife Authority (UWA), Ministry of Water and Environment (MWE), Ministry of Gender, Labour, and Social Development (MGLSD), and District Local Governments (DLG). UWA guides oil operations in national parks or reserves, MWE reviews projects in wetlands, and MGLSD assesses Occupational Health and Safety measures proposed in EIAs. DLGs, especially through District Environment Officers (DEOs), conduct day-to-day monitoring of projects and have the authority to discontinue any environmentally disruptive projects. Environmental Audit practitioners (EAP) and the public, including NGOs and local residents, also play crucial roles in the EIA process.

NEMA and MEMD, with their primary mandates on the environment and oil and gas activities, hold high interest and power. Oil companies, EIA practitioners, and the public are stakeholders in this matrix. While oil companies are obligated to adhere to EIA conditions,

concerns exist regarding their commitment to best environmental practices. The independence and quality of work by EIA practitioners have also been questioned.

Government agencies, including UWA, MWE, and DLG, show considerable interest in mitigating oil and gas impacts but face limitations in effective reviews and monitoring due to financial constraints, lack of testing equipment, and inadequate skills. Despite public participation being allowed by law, NEMA rarely engages in detailed consultations, primarily intervening if the developer's consultation is deemed inadequate or to verify stakeholder complaints. However, the law lacks measures to assess the quality of public involvement, leading to challenges in ensuring meaningful participation.

The public, especially NGOs and local residents, faces constraints in accessing information and participating in decision-making, contributing to a significant information gap. Oil companies' attempts to engage NGOs and local communities are hindered by local politicians who disseminate false expectations, further complicating efforts to educate affected communities. Overall, challenges persist in achieving effective stakeholder engagement and ensuring transparent and participatory EIAs in the oil and gas sector in Uganda.

6.2 In light of the findings, several key challenges and areas for improvement within Uganda's EIA framework for the oil and gas sector become evident. The primary concerns revolve around stakeholder engagement, the role of Lead Agencies, and the effectiveness of the EIA process.

1. Stakeholder Engagement:

Limited public participation and inadequate consultation hinder the effectiveness of the EIA process. There is a lack of clarity on when public consultation is considered inadequate.

It is recommended that there should be development of clear criteria and guidelines to assess the quality of public involvement in EIAs. Encourage proactive engagement by NEMA to ensure meaningful consultations, especially in areas where developers fall short.

2. Lead Agencies:

   While Lead Agencies like UWA, MWE, and DLG express interest in mitigating impacts, their influence is constrained, primarily due to financial limitations and inadequate resources.

   It is therefore recommended to strengthen the capacities of Lead Agencies through increased funding, provision of testing equipment, and training to enhance their ability to conduct effective reviews and monitoring. Address financial constraints to ensure timely submission of review comments.

3. EIA Practitioners and Oil Companies.

   Concerns have been raised about the independence and commitment of EIA practitioners and oil companies to best environmental practices, potentially compromising the quality of assessments.

   To correct this, there should be an enhancement of regulations and oversight mechanisms to ensure the independence and competence of EIA practitioners. Encourage oil companies to demonstrate a stronger commitment to best environmental practices through increased transparency and self-monitoring.

4. Delays in Legal Revisions:

Lengthy periods for revising existing laws impact the efficiency of the EIA process, causing delays during reviews and audits.

The government should expedite the review of laws related to environmental management, especially those concerning oil and gas activities. Timely legal updates are crucial for providing clear guidelines and standards for the EIA process.

5. Enforcement and Compliance:

   Concerns exist about the enforcement of environmental regulations, particularly in ensuring oil companies comply with EIA conditions and best practices.

   It is recommended that there should be strengthening mechanisms for enforcing EIA conditions, including regular monitoring and audits. Ensure that oil companies adhere to established standards and that non-compliance is met with appropriate penalties.

In conclusion, these recommendations aim to fortify Uganda's EIA framework for the oil and gas sector, fostering a more transparent, participatory, and effective process. By addressing these key areas, Uganda can enhance its capacity for sustainable development while minimizing environmental impacts in the petroleum sector.

6.3 CONCLUSION

Towards Comprehensive Occupational Health and Safety in Uganda's Oil and Gas Sector

In the culmination of this master thesis, the intricate landscape of Uganda's Oil and Gas sector has been meticulously examined through the lens of Occupational Health and Safety (OHS) legislation, drawing parallels with the profound global impact of the Deepwater Horizon incident. The exploration into Uganda's regulatory framework has illuminated both

strengths and gaps, providing a comprehensive understanding of the nation's preparedness and responsiveness to potential occupational hazards in this vital industry.

The comparative analysis with the Deepwater Horizon incident has served as a cautionary tale, emphasizing the critical need for stringent OHS measures. Uganda's commitment to addressing the legislative landscape governing OHS is evident, yet challenges persist, echoing the complexities faced globally in maintaining a delicate balance between industrial progress and environmental preservation.

As Uganda moves forward in developing its Oil and Gas sector, the findings underscore the urgency of bolstering existing legislation, ensuring that it not only aligns with international best practices but also anticipates and mitigates potential risks. Recommendations emerge, urging policymakers to enhance regulatory clarity, fortify enforcement mechanisms, and cultivate a culture of proactive risk management. The global repercussions of past incidents emphasize the imperative nature of continuous improvement and vigilance.

In conclusion, this thesis contributes to the ongoing discourse surrounding Uganda's Oil and Gas sector, weaving a narrative that intertwines the nation's legislative ambitions with the broader global context. It is an exploration that beckons stakeholders to a collective responsibility for safeguarding the well-being of those involved in this burgeoning sector and ensuring that Uganda's journey into Oil and Gas is marked not only by prosperity but, more importantly, by a commitment to occupational health and safety that resonates on the international stage.

6.4 Future Directions and Implications

Looking ahead, it is imperative to recognize that the analysis presented in this thesis is a snapshot in a dynamic process. The evolution of Uganda's Oil and Gas sector will inevitably unfold, shaped by changing global dynamics, technological advancements, and emerging challenges. Future research endeavours should delve into the real-time implementation of OHS regulations in the sector, assessing their effectiveness and identifying areas for refinement.

The implications of this study extend beyond academia to the realms of policy formulation and industry practice. Policymakers can leverage the insights gained here to fine-tune existing regulations, addressing identified gaps and fortifying Uganda's regulatory framework. Industry practitioners, cognizant of the potential pitfalls highlighted by global incidents, are encouraged to embrace a proactive OHS culture, integrating lessons learned from the Deepwater Horizon incident into their risk management strategies.

Moreover, as Uganda navigates its journey into becoming a significant player in the global Oil and Gas arena, collaboration with international partners becomes paramount. Drawing on the experiences and expertise of nations with established OHS frameworks can catalyze the development of robust regulations and practices tailored to Uganda's context.

6.5 Closing Reflection

In conclusion, the exploration of Uganda's Oil and Gas sector within the context of Occupational Health and Safety legislation has been a nuanced endeavour. It underscores the intricate balance required to foster economic growth while safeguarding the well-being of workers and the environment. As Uganda takes measured steps towards harnessing its oil wealth, the importance of proactive and comprehensive OHS measures cannot be overstated.

This thesis stands as a testament to the ongoing dialogue surrounding the responsible development of Uganda's Oil and Gas resources and the imperative to learn from global incidents to ensure a sustainable and secure future for all stakeholders involved.

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APPENDICES

Appendix 1: Informed consent form for data collection

INFORMED CONSENT OF THE RESPONDENT

Introduction

This is to humbly request you to participate in the research study titled "The Impact of the Deepwater Horizon Incident in Shaping Occupational Health and Safety Laws in Uganda's Oil and Gas industry". I will describe this study to you and answer any of your questions. This research is being led and conducted by Ms. Kalungi Eunice, at Uganda Christian University, Institute of Petroleum Studies, Kampala (IPSK) and supervised by the Mr. Mugabi K. Ivan at the School of Law at Uganda Christian University.

Scope of the research

The purpose of this research is to analyse the influence of major oil and gas disasters such as the deep water horizon on shaping the legal and regulatory framework on occupational health and safety in Uganda. The research further uncovers the effectiveness of the current legal framework on occupational health and safety and how it may be applied to the budding oil and gas activities in Uganda.

Scope of the interviews and data collection

During the data collection process, I will ask you to answer some questions relating to your understanding of occupational health and safety and the current legal framework can provide legal protection to workers against occupational risks during oil and gas exploration activities in Uganda.

I will require you to give a brief descriptive answer where it requires description and a yes or No answer where the question is direct and closed ended. For each question you will be required to use only 1 minute to give your answer and your total participation time will be limited to only 30 minutes. At the end of the interview you will receive incentives/compensation or extra credit for being in the study as a participant

Anticipated risks and discomforts

Please note that during the course of data collection, there is a possibility of discovering activities that may require reporting to authorities such as violations and infringements of intellectual property of other parties. The data collection process may also touch sensitive aspects of oil and gas activities that may require disclosure of confidential and classified information. Other than the above, I do not anticipate any risks from participating in this research. However, if the risks and discomfort outweigh your intention to participate in this study, you may freely opt out of the interview and decline to answer any of the questions posed to you.

Benefits of participating in the research

Your experience of the occupational health and risks involved in oil and gas exploration may lead to a better understanding of how the laws may be shaped to curb injuries and unforeseen incidents akin to the deep water horizon. Similarly, the information from this research may benefit other people now or in the future and I hope to learn more about your experience with safety and health in order to better describe them to future studies.

Privacy/Confidentiality/Data Security and anonymity

All the responses and any accompanying documents, your name, age, gender and economic status and all information belonging to you as a participant which may be confidential and legally privileged shall not be divulged to any other party. I will completely de-identify data, or keep identifying information separate from research data (e.g. signed consent forms kept separate from the survey data and the two will not be connected. The de-identified data shall not be shared to any party except the audience to which this information is intended for the use and publication.

There will be no audio/visual recording in which your name, likeness, image, and/or voice will be included, unless you the participant grant me the right to make, use and publish recordings in whole or in part in media forms such as film, slides, and digital audio. This includes the right to edit or duplicate any images/recordings. The participant will not receive any financial compensation for commercial and/or non-commercial (as appropriate) uses of the images/recordings.

In case of any questions, queries or suggestions you may contact me through my email: eunicekalungi@gmail.com

Statement of Consent

I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Participant signature_____ Date_____

Participant name_____

Signature of person obtaining consent_____ Date_____

Name of person obtaining consent_____

_____

This consent form will be kept by the researcher for one year beyond the end of the study.

Appendix 2: Proposed Work plan

TASKS TO BE PERFORMED	PERFORMANCE TIMEFRAME	COMPLETION STATUS
Literature Review and Proposal writing	August 2023	Complete
Submission of Research Proposal for Defense	August 2023	Complete
Prepare questionnaires and interview guide	September 2023	Complete
Pre-test study and finalise procedures and research tools	October 2023	———
Distribute introductory letter and questionnaires to respondents (Post defense)	November, 2023	———

Collection of data (interviews and questionnaire responses)	January-February 2024	——
Analyse and interpret data	March 2024	——
Prepare preliminary report on data collected	March 2024	——
Presentation of final findings, conclusions and recommendations	March 2024	——
Proof reading, editing, peer review and compilation of final thesis/dissertation	March 2024	——
Printing final hard copies	April 2024	——
Final submission for review and approval by supervisors and examiners	April 2024	——
Final conclusion of thesis	April 2024	——

Appendix 3: Proposed work budget

Description	Unit Cost	Number	Cost

Data Collection and transport costs	500,000	1	500,000
Data Processing and Analysis	500,000	1	500,000
Typing, Photocopying and binding	50,000	6 (Spiral bound Books)	300,000
Total cost			1,300,000

Appendix 4: List of study areas

The head offices and operational premises of the following corporations shall be visited;

1. Petroleum Authority of Uganda (PAU)
2. Uganda National Oil Company (UNOC)
3. Ministry of Energy and Mineral Development (MEMD)
4. Ministry of Gender Labour and Social Development (MGLSD)
5. TOTAL Energies E&P Limited
6. CNOOC Uganda Limited

Appendix 5: Semi structured Interview guide

Oil and gas disasters and their influence in shaping the current occupational health and safety legal framework in Uganda's oil and gas sector.

INTERVIEW GUIDE

SECTION A: Preliminary considerations

A. Introduction

My name is Eunice Kalungi. I am a student of the Institute of Petroleum Studies Kampala (IPSK) pursuing the award of master of Laws Degree (LLM) in Oil and Gas.

B. Purpose of the interview

I am conducting research on the impact of the Deepwater Horizon incident in shaping occupational health and safety laws in Uganda's oil and gas industry.

With this interview, I hope to obtain data from the opinions, view, experiences and expertise of the respondents who have directly interfaced occupational health and safety issues akin to those encountered in the Deepwater Horizon incident.

The information gathered from the interview will enrich the study as it seeks to answer the pertinent issues surrounding the causal effect of oil and gas incidents, and how they shape the current legal and regulatory framework against occupational health and safety accidents in the wake of oil and gas exploration in Uganda.

C. Interview Scope

During this interview, the participants shall be asked questions that aim to source their views, opinions and experiences with occupational health and safety incidents in their line of work as Oil and gas professionals. The questions shall be open ended and the identities of the participants shall not be divulged except with their consent.

D. Timeframe

The interview should take about 30 minutes for each participant.

SECTION B: Interview questions

1. How long have you worked in the oil and gas sector in Uganda?
2. What are some of the more common Occupational Health and Safety risks and hazards you normally encounter in you line of work?
3. How often do these Occupational Health and Safety issues occur?
4. How do the Occupational Health and Safety issues affect your output in terms of productivity and performance?
5. Which phase of the petroleum value chain is more prone to Occupational Health and Safety issues
6. How are the Occupational Health and Safety issues addressed at your place of work?
7. How do you apply the Occupational Health and Safety laws in your line of duty?
8. What have you done to prevent the Occupational Health and Safety issues for occurring or reoccurring at your place of work
9. What do you think about the laws governing Occupational Health and Safety in Uganda's oil and gas sector?
10. What do you think should be done to improve the strength of Occupational Health and Safety laws to safeguard against occurrence of oil and gas catastrophes in Uganda?

Closing remarks: It has been a pleasure interacting with you. Let me briefly summarize the information that I have recorded during our interview.

Appendix 6: Questionnaire survey document

The Impact of the Deepwater Horizon Incident in Shaping Occupational Health and Safety Laws in Uganda's Oil and Gas industry

SURVEY QUESTIONNAIRE

SECTION A:

Demographic Background

The questions in this Section are designed to collect information on your education, your expertise, exposure and knowledge on Occupational Health and Safety Laws in Uganda's Oil and Gas Industry. Place an "X" mark in the box beside your answer.

Qn. 1. Please indicate your highest achieved academic qualification.

a. Doctorate Degree	
b. Masters Degree	
c. Bachelors Degree	
d. Vocational/Tertiary Certificate	
e. Uneducated	

Qn. 2 Please record your primary area of specialization

a. Oil and gas Engineering	
b. Oil and gas Legal advisory	

c. Workers' administration	
d. Health and safety	

Please indicate any other/additional areas of specialization you currently have in the space provided below;

Qn. 3. Please indicate your level of knowledge/expertise on occupational health and safety in oil and gas exploration and production

a. Highly Proficient/knowledgeable	
b. Average	
c. Satisfactory	
d. Bad	

Qn. 4. How often do you encounter Occupational Health and Safety incidents/reports in your line of work?

a. Daily basis	
b. Once in a while	
c. Unlikely	

d. Not at all	

Qn. 5. How do you rate the gravity of occupational health and safety incidents arising in your line of work?

a. Catastrophic	
b. Mild/manageable accidents	
c. Near misses	
d. None	

SECTION B:

Opinions on Occupational Health and Safety Legal Framework

The questions in this Section are designed to collect information on your experiences and views on Occupational Health and Safety Laws in Uganda's Oil and Gas Industry. Place an "X" mark in the box beside your answer.

Qn. 1. The Oil and gas sector in Uganda is highly prone to Occupational Health and safety incidents

a. Strongly Agree	
b. Strongly disagree	
c. Not quite	
d. Not sure	

Qn. 2. Describe the state of Occupational Health and Safety in Uganda's oil and gas exploration and production activities

a. Excellent	
b. Good	
c. Satisfactory	
d. Poor	

Qn. 3. Occupational Health and Safety issues are more likely to occur in the absence of implementation of the oil and gas management laws on Occupational Health and Safety

a. Strongly Agree	
b. Strongly disagree	
c. Not quite	
d. Not sure	

Qn. 4. The Occupational Health and Safety Act, 2006 is sufficient to address Occupational Health and Safety issues

a. Strongly Agree	
b. Strongly disagree	
c. Not quite	
d. Not sure	

Qn.4. In addition to the Occupational Health and Safety Act, 2006, Uganda needs a fully-fledged oil and gas legal framework addressing Occupational Health and Safety issues

a. Strongly Agree	
b. Strongly disagree	
c. Not quite	
d. Not sure	

Please indicate any comments, suggestions, remarks and recommendations on reforms to the Occupational Health and Safety Laws in Uganda's Oil and Gas Industry (Optional)

---

*This questionnaire shall be used for academic purposes only and the identity of the respondent shall be kept confidential at all times.

Thank you for sharing your thoughts on this study

UGANDA CHRISTIAN UNIVERSITY

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SCHOOL OF RESEARCH & POSTGRADUATE STUDIES

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

Date: 3RD MAY 2024.

Name of Candidate: KALUNGI EUNICE **Reg. No:** S22M23/008.

Title of Dissertation: UGANDA'S OIL AND GAS SECTOR: A CASE STUDY ANALYSIS OF OCCUPATIONAL HEALTH AND SAFETY LEGISLATION IN LIGHT OF THE DEEPWATER HORIZON INCIDENT'S GLOBAL IMPACT.

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Add an abstract	Abstract added	Page 2
2	Sub-Section 1.2 should be summarised.	Sub-Section 1.2 summarised.	Page 8
3	Use OSCOLA for referencing throughout the dissertation.	OSCOLA used for referencing throughout the dissertation.	Whole document
4	Under section 1.6.1, you mention about a	Countries specified as United States and Norway	Page 12

	comparative analysis. You should consider specifying the exact countries you will be looking at regarding this comparative analysis.		
5	The research questions are clear. However, no need to have sub-headings for research questions.	sub-headings for research questions removed	Page 13-14
6	Chapter three on methodology is good. However, it should simply illustrate the methods used in the research. No need to define a particular method.	Definitions removed	Pages 30-35
7	Chapter 4 and 5 should be combined. Make it precise and simply analyse the effectiveness of the relevant laws.	Chapter 4 and 5 combined and made precise.	Corrected and combined chapter 4 and 5 into chapter 4 only
8	identify the exact aspects to be compared. Additionally, there is no need to refer to many countries. You could consider analysing two countries, to ensure that the work is analytical and not merely descriptive.	2 countries selected for analysis and the same have been analysed as opposed to merely descriptive	From page 57

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	Relevancy of the study	Relevancy of study explained in justification and significancy	Page 16 and 17 – clause 1.9 and 1.10.
2	Recommendations Uganda can do to improve its self.	Recommendations stated	Page 71
3	Give a detailed information on the Deep-Water Horizon so that anybody reading through this work can know what it entails	Description of Deepwater horizon added.	Page 6-7
4	Point out countries with high legislation on the accuracy of Deep-water Horizon.	Countries United States and Norway added	Page 12, 57-58
5	No comparative analysis captured in the work.	Comparative analysis added in the thesis.	Page 57-58

KALUNGI EUNICE  **Mr. Mugabi Ivan** 

Candidate's Name Signature Supervisor's Name Signature