

**AN ANALYSIS OF THE LEGAL FRAMEWORK RELATING TO RISK  
MANAGEMENT AND PROJECT PERFORMANCE IN MIDSTREAM ACTIVITIES OF  
OIL AND GAS INDUSTRY IN UGANDA**

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AFFILIATION TO UCU.**

**MAY, 2022**

## DECLARATION

I, **Kobugabe Agnes**, declare that this dissertation is my work and it has not been submitted before to any other institution of higher learning for the fulfilment of any academic award whatsoever.

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**APPROVAL**

I certify that this proposal entitled “*An analysis of the legal framework relating to risk management and project performance in midstream activities of oil and gas industry in Uganda*” was done under my guidance in partial fulfilment of the requirements of the award of the Master of Laws Degree (LL.M) in Oil and Gas.

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**University Appointed Supervisor**

Date .....

## **DEDICATION**

I dedicate this thesis to my husband Mr. NuweAbigaba John Patrick and our beloved daughters Daisy, Barones, Lisah and Cerenna without your love and support this masters wouldn't have been possible.

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Above all I praise and thank the Almighty God having enabled me throughout my research work to complete it successfully.

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## DEFINITIONS OF KEY TERMS

**Legal framework:** in this study, legal framework means and includes the laws, policies and the institutions governing the conduct and businesses of risk management in the midstream activities of oil and gas sector in Uganda

**Risk management:** Risk management is the process of identifying, assessing and controlling threats to an organization's capital and earnings

**Project performance:** In this study, project performance means successfully implementing project activities and achieving the desired outcomes from the implementation

**Midstream activities:** One of the three major stages of oil and gas industry operations. Midstream activities include the processing, storing, transporting and marketing of oil, natural gas, and natural gas liquids

**Risk:** in this study, is the degree of uncertainty of an event or condition that, if it occurs will negatively affect the objectives of funding oil and gas midstream activities

**Project:** in this study, is a collaborative enterprise that is carefully planned and approved by government of Uganda to achieve a particular purpose within oil and gas industry in Uganda

**Risk analysis:** in this study, is a review of the risks associated with financing project for undertaking economic and social infrastructure developments in oil and gas industry in Uganda.

**Risk evaluation:** Determination of risk management priorities through establishment of qualitative and/or quantitative relationships between benefits and associated risks

**Risk control:** the set of methods by which firms evaluate potential losses and take action to reduce or eliminate such threats.

## ACRONYMS

CSO:	Civil Society Organisation
EA:	Exploration Area
EIA:	Environmental Impact Assessment
PAU:	Petroleum Authority of Uganda
MFPEd:	Ministry of Finance, Planning and Economic Development
MNC:	Multinational Corporation
NOC:	National Oil Company
NRCs:	National Resource Companies
PEPD:	Petroleum Exploration and Production Department
HSE:	Health Safety and Environment
UCREC:	Uganda Christian University Ethical Review Committee
IOCs:	International oil companies

## ABSTRACT

The existence of oil and gas in many countries play a significant role in developing their economies. This is only possible when oil and gas production process is handled well; ranging from downstream, midstream and upstream project activities. In this study, the researcher focused on midstream project activities specifically focusing on how risk management informs midstream project outcome.

The study was guided by a general objective which focused on critically analysing the efficacy of the legal framework relating to risk management at mid-stream activities and how it informs the desired quality project performance in the oil and gas of industry in Uganda. The researcher used a qualitative research approach while deploying an analytical legal research design. Data was collected using systematic literature review methodology.

The study finding disclosed that Uganda has a comprehensive and relevant legal framework dealing with midstream oil and gas project activities, and observed a number of possible challenges that can frustrate the implementation of the legal directives dealing with risks management in the midstream project activities of oil and gas. The researcher recommends that government takes appropriate actions to mitigate possible challenges that can prejudice implementation of the legal directives relating to risk management

**Key words:** Midstream Risk management, Legal framework, project performance, oil and gas

## CHAPTER ONE

### GENERAL INTRODUCTION

#### 1.1 Introduction

In many countries endowed with oil and gas deposits, the oil and gas minerals play an important role in facilitating progressive economic growth and development of their economies. However, it is important to emphasise that oil and gas activities require heavy capital investments at all the stages of production including the stages of upstream, midstream and downstream activities. Minimizing and mitigating risks at midstream is very instrumental as in the event of an accident, not only major economic losses but also serious environmental pollution will be caused because of the high risk of petroleum operations.

Therefore, risk management is very important for petroleum enterprise. As such this study focused on examining the legal framework relating to risk management mechanisms at midstream activities of oil and gas with special focus on how risks at midstream activities can be consistently and sustainably managed to produce desired project performances. This introductory section captured the historical background of the topic, the problem statement, the research objective with its associated research questions, the justification and significance of pursuing this study.

#### 1.2 Background of the study

##### 1.2.1 Historical Background

The assessment of risk management in oil and gas industry began to be studied after the World War II, in order to protect individuals and companies from various losses associated with accidents<sup>1</sup>. Several scholars<sup>2</sup> date the origin of modern risk management to 1955-1964. After World War II, large companies with diversified portfolios of physical assets began to develop self-insurance against risks, which they covered as effectively as insurers for many small risks<sup>3</sup>; Other

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<sup>1</sup>Dionne, G. (2013). Risk management: History, definition, and critique. *Risk Management and Insurance Review*, 16(2), 147-166.

<sup>2</sup> (Rockford 1982, Harrington and Neihaus 2003, Williams and Heins 1995)

<sup>3</sup>Welbeck, J. N. O. (2015). *Anti-Money Laundering and Enterprise Risk Management* (Doctoral dissertation, University of Ghana)

forms of risk management in the midstream included among others; alternatives to market insurance that surfaced during the 1950s when market insurance was perceived as very costly and incomplete for protection against pure risk. The use of derivatives as risk management instruments arose during the 1970s, and expanded rapidly during the 1980s, as companies intensified their financial risk management. International risk regulation began in the 1980s, and financial firms developed internal risk management models and capital calculation formulas to hedge against unanticipated risks and reduce regulatory capital.<sup>4</sup> Concomitantly, governance of risk management became essential, integrated risk management was introduced and the chief risk officer positions were created. Nonetheless, these regulations, governance rules and risk management methods failed to prevent the financial crisis that began in 2007.

In the 1990s, international oil companies (IOCs) became more financially stringent in regard to their investment decisions in developing countries. Furthermore, the governments of developing countries reduced their financial support for petroleum development and supply; as a result IOCs became much more selective in undertaking investments and sought to share project risks by involving other parties, particularly local partners. These preferences led to more complex financing arrangements addressing the constraints of country limits or weaker (or less creditworthy) partners.<sup>5</sup>

Globally, the project financing of Oil and gas developments is traced through the 1970 in the United Kingdom fields of the continental shelf in the North Sea, then the Danish and the Norwegian continental shelves where the techniques were being borrowed from the United States where bankers had been lending against oil and gas assets for a long time. In the 1990's the growth spurt in project financing with power projects, infrastructure projects, transportation projects and later in telecommunication projects which has spread throughout the world.

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<sup>4</sup>Page 169-178: G.Nell Crock ford. The bibliography and history of risk management: some preliminary observations, *The Geneva papers on risk and insurance* , 7(N0 23, April 1982), 169-178

<sup>5</sup> Georges Dionne: Risk management: History, Definition and critique, September 2013, Interuniversity research centre on enterprises networks, Logistics and transportation (CIRRELT)and department of Finance, HEC Montreal, 3000, co^te-Sainte- Catherine, Mostreal, Canada H3T2A7

### 1.2.3 Conceptual Background

Within the COSO ERM framework, risk assessment is all about measuring and prioritizing risks so that risk levels are managed within defined tolerance thresholds without being over controlled or forging desirable opportunities. Ping & Muthuveloo (2015)<sup>6</sup> emphasized that survival of a firm can be determined by performance which is an indicator of profit or loss. They added that a firm's performance can be improved by a strong risk management system such as enterprise risk management system (ERMS) which create and add value to the success of business through reduction of uncertainties and customer satisfaction.<sup>7</sup> According scholars, the most common risks to the oil and gas industry which raise critical legal repercussions, include: market risks such as changes to the oil price, interest rates and exchange rates<sup>8</sup>. Also credit risks such as default, operational risks such as equipment failure, manpower shortages in critical areas, also geological risks such as dry wells; environmental risks such as pollution; political risks such as change of government; war/terrorism, expropriation and change of regulatory regime; and finally, legal risk such as, contractual, tort and statutory duties, consequential loss, exclusion of negligence, liability and indemnities.<sup>9</sup>

According to (Mandaraka: 2014)<sup>10</sup>, risk management is the systematic approach of taking safety precautions at all levels of business, perhaps intuitively, including the management of financial and commercial risks and the obtaining of insurance cover. Practically, risk management practice usually involves risk identification, risk analysis, risk response, and risk monitoring. Risk identification is usually the logical starting point in a risk due diligence process because it may

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<sup>6</sup>Shad, M. K., Lai, F. W., Fatt, C. L., Klemeš, J. J., & Bokhari, A. (2019). Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner production*, 208, 415-425.

<sup>7</sup>Academy of strategic management Journal (Print ISSN: 1544-1458; online ISSN: 1939-6104) Research Article: 2018 Vol: 17 issue: 4 Literature review on the effectiveness of risk systems on financial performance in public setting. Wadesago Newman & Ongayi, University of Limpopo; Mhaka Charity & Shava Faith, Midlands state University

<sup>8</sup>Meulbroek, L. K. (2008). 4. A Senior Manager's Guide to Integrated Risk Management. In *Corporate Risk Management* (pp. 63-86). Columbia University Press.

<sup>9</sup>Wan M Zulhafiz (2016) On the Contractual Risk Allocation in Oil and Gas Projects, p 169 International Islamic University Malaysia, Kuala Lumpur, on December 8, 2016. Electronic copy available at: <https://ssrn.com/abstract=3052064>

<sup>10</sup>Mandaraka-Sheppard, A. (2014). *Modern maritime law and risk management*. Informa Law from Routledge.

uncover and record any potential risk that might affect the project<sup>11</sup>. After risk is identified, the management of the organization is expected to undertake risk analysis; this is the process of evaluating risks by assessing their probability of occurrence and their impacts on the project. Eventually there must be a stage of risk response which is formulating a management strategy including establishing risk allocation and developing a management plan for resolving the risk in any situation where more than one party is involved in a project.

#### **1.2.4 Contextual background**

In Uganda, the discovery of oil is traceable far back prior to independence in 1962, however oil exploration activities started in the 1920s by W.J. Wayland, a Colonial Government Geologist of British Protectorate who documented up to 52 seeps of hydrocarbons in the Albertine Graben. This has since culminated into a variety of oil wells in the Albertine Graben region which are subject to oil and gas exploration and production.<sup>12</sup>The national oil and gas policy for Uganda was approved in 2008 to provide general oversight and guidance for the country's emerging oil and gas sector. The policy highlights the key issues, guiding principles, objectives together with strategies and actions, and institutional responsibilities in developing the sector. In line with the policy, two laws were enacted during 2013 to update the legal framework for the sector. These are; the petroleum (exploration, development and production) Act 2013, and the petroleum (refining, conversion, transmission, and midstream storage) Act 2013.

According to the National Oil and gas policy for Uganda, financing infrastructure development of oil and gas sector in the country will require putting in place the necessary infrastructure like refineries, processing plants, pipelines, and others. Financing these infrastructures will be undertaken mainly by the private sector through a public private partnership which shall also be used to put in place some of the required infrastructure. The private sector will also participate in financing the development of social infrastructure especially in the areas where the oil companies will be undertaking oil and gas operations<sup>13</sup>. (Hosseini: 2007) expressed concern by stating that financing oil and gas project in the developing world is considered riskier than in the developed

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<sup>11</sup>Anca, U., Cezar, B., & Adrian, U. (2015). Risk identification in project management. In *International Conference on Economic Sciences and Business Administration* (Vol. 2, No. 1, pp. 259-266). Spiru Haret University.

<sup>12</sup>E. Kasimbazi, "Environmental Regulation of Oil and Gas Exploration and Production in Uganda" in *Journal of Energy and Natural Resources Law* Vol. 30 No.2 of 2010 at p.189

<sup>13</sup>Daudi Migereko, National Oil and Gas Policy for Uganda. Ministry of energy and Mineral Development, February 2008( Foreword) p i-



world because of deficiencies in institutional and organizational structures, lack of clear and transparent legislative and regulatory systems, and economic and political insecurity. These risks endanger the viability and sustainability of the project through excessive construction and operation costs, shortfall<sup>14</sup> in revenue or the margin caused by price and market risks, and uncertainty about safety and transferability of investments and returns<sup>15</sup>. Oil and gas exploitation has from time immemorial been a capital intensive calling for immense funding and need for project financing as prudent investors there is always thus project finance management mechanism that will mitigate the would be risks in implementation of the project. In this study therefore, the researcher endeavoured to establish the risk assessment mechanisms for project financial in the midstream oil and gas sector in Uganda and assessed there possibilities in achieving desired projects performance within the sector.

### **1.3 Statement of the problem**

Across the globe, evidence suggests that the strength of managing risk in oil and gas production industry largely depends among other things the relevance and strength of a country existing legal regime and its implementation capabilities. Poor implementation of the laws poses huge risks that not only impair project performance in the midstream activities of oil and gas but also leads to death. Experiences of risks causing destruction are evident from the literatures.

For instance, reports disclosed that 9 incidents of pipeline fire disasters occurred during a period of 5 years in which a total of 646 victims died at the disaster sites<sup>16</sup>. Additional, a total of 28 pipeline fire disasters occurred in 5 countries in sub Saharan Africa<sup>17</sup>. In addition, in the last 15 years 26 incidents involving transport of fuel have been recorded from 17 countries globally and more than 1,300 people have died, and over 791 severely injured<sup>18</sup>. According a systematic study

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<sup>14</sup>Page 55, National oil and gas policy for Uganda: the policy goal is to use the country's oil and gas resources to contribute to early achievement of poverty eradication and create lasting value to society.

<sup>15</sup>Hossein Razavi; Financing Energy Projects In Developing Countries: The World Bank Washington, Dc October 2007 Pennwell Corporation 1421 South Sheridan Road Tulsa, Oklahoma 74112-6600 USA

<sup>16</sup>Fadeyibi, I. O. Et al (2011). Burns and fire disasters from leaking petroleum pipes in Lagos, Nigeria: an 8-year experience. *Burns*, 37(1), 145-152.

<sup>17</sup>Carlson, L. C. et al (2015). Petroleum pipeline explosions in sub-Saharan Africa: A comprehensive systematic review of the academic and lay literature. *Burns*, 41(3), 497-501.

<sup>18</sup>Sawyer, O. H., & Roberts, A. H. (2018). Fuel tanker fire disaster—South Sudan experience. *Burns*, 44(5), 1235-1239.

review<sup>19</sup>, at least 2909 people died as a result of fuel tank disasters, and almost all deaths occurred in low and middle income countries.

In regards to a fore mention, Uganda developed a legal regime for managing oil and gas activities in Uganda including dealing with risks at midstream activities of oil and gas. However, it is not clear whether the existing legal framework is comprehensive and relevant enough to deal with possibilities of risks arising from midstream activities of oil and gas in Uganda. Hence, this study aimed at analysing efficacy of the legal framework relating to risk management and quality project performance in midstream activities of oil and gas industry in Uganda.

#### **1.4 General Objective**

The main objective of this research is to critically analyse the efficacy of the legal framework relating to risk management at midstream activities and assess whether it's comprehensive to facilitate the desired quality project performance in the oil and gas of industry in Uganda.

##### **1.4.1 Specific Objectives**

1. To examine the efficacy of the legal framework relating to risk management in the midstream activities of oil and gas industry in Uganda
2. To analyse the relevance of risk management methods under the legal regime in midstream activities of oil and gas industry in Uganda.
3. To assess possible impediments to the implementation of the risk management mechanism in midstream activities of oil and gas industry in Uganda.

#### **1.5 Research Questions**

1. How efficient is the legal framework on risk management to produce quality project performances in the midstream activities of oil and gas industry in Uganda?
2. How relevant is the risk management methods under the legal regime to produce quality project performances in midstream activities of oil and gas industry in Uganda?
3. What are some of the possible impediments to the implementation of the risk management mechanism in midstream activities of oil and gas industry in Uganda?

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<sup>19</sup>Ewbank, C., Gupta, S., Stewart, B. T., Kushner, A. L., & Charles, A. (2019). A systematic review of oil tanker truck disasters: identifying prevention targets. *Burns*, 45(4), 905-913.

## **1.6 Scope of the study**

### **1.6.1 Geographical scope**

The study was carried out in Uganda. According to the petroleum authority of Uganda, Approximately 1.4 billion of Uganda's 6.5 billion barrels of proven oil reserves, located mostly on its western border with the Democratic Republic of the Congo, are estimated to be economically recoverable, there are 21 oil and gas discoveries, 88% drilling rate, 6 billion barrels of oil in place, 500 Bcf of gas, 9 production licence. This study covered the whole country of Uganda given the fact that the legal framework under scrutiny applies nationally.

### **1.6.2 Content scope**

In this study, the subject of focus generally was to examine the risk assessment mechanisms within the legal frame work in the midstream activities of oil and gas industry in Uganda. However, the researcher also focused on examining the relevance of the legal framework relating to risk management, analysis of the risk evaluation methods in project financing and exploring the risk control mechanisms; all with a goal of realising quality project performance in the midstream activities of oil and gas industry in Uganda.

### **1.6.3 Time scope**

The content of the study stretched over a period of eight years; from 2013–2021. The researcher chose this time frame because it was within this time period that the national oil and gas policy for Uganda was approved (2008) and consequently the petroleum (exploration, development and production) Act 2013, and the petroleum (refining, conversion, transmission, and midstream storage) Act 2013 enacted and a number of contractual agreements signed with international Oil Company.

## **1.7 Justification of the study**

Historically, midstream activities have been faced with several risks and accident cases that caused huge destructions. According to Chang (2006),<sup>20</sup> in which 242 accidents of storage tanks that occurred in industrial facilities over last 40 years was reviewed, the finding demonstrated that 74% of accidents occurred in petroleum refineries and oil storage. Fire and explosion account for 85% of the accidents. There were 80 accidents (33%) caused by lightning the report further showed

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<sup>20</sup>Chang, J. I., & Lin, C. C. (2006). A study of storage tank accidents. *Journal of loss prevention in the process industries*, 19(1), 51-59.

that 72 (30%) caused by human errors including poor operations and maintenance. Other causes were equipment failure, sabotage, crack and rupture, leak and line rupture, static electricity, open flames among others.

In reference to the above historical facts, the Uganda legal framework regarding management of risks in midstream activities of oil and gas was envisioned under national objective XXVII (iii),<sup>21</sup> which provides that the State shall promote and implement energy policies that will ensure that people's basic needs and those of environmental preservation are met; and Article 244 of the same constitution whose provision is to the effect that Parliament shall make laws for regulating the exploitation of minerals. The above constitutional provision was put in context in the petroleum regulations.<sup>22</sup> The justification for carrying out this study therefore, was to examine the efficacy of the legal regime in managing risks in the midstream activities of oil and gas industry in Uganda since it's the role and mandate of the government of Uganda to ensure that the oil business is done in a secured and safe manner.

### **1.8 Significance of the Study**

This study aimed at producing empirical knowledge on the efficacy of the legal regime on risk management mechanisms in attaining quality project performance in the midstream activities in oil and gas industry in Uganda.

From the empirical knowledge, the researcher therefore makes appropriate recommendations especially to policy makers and practitioners on the best course action that can be adopted in order to minimise risks in the midstream activities of oil and gas business in Uganda

This study finding are a source of knowledge to students who would like to learn widely about the efficacy of the law relating to risk mitigation management mechanisms in attaining quality project performance in the midstream activities of oil and gas sector in Uganda.

The study finding provides a source of information for policy reforms and advocacy especially by activist who wish to ensure that the practice of risk management is secured within the oil and gas industry in Uganda.

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<sup>21</sup>The 1995 Constitution of the Republic of Uganda (As amended)

<sup>22</sup> The petroleum (refining, conversion, transmission and midstream storage) (health, safety and environment) regulations, 2016

The results of the study recommended areas for future researchers especially those who will be interested in a similar line of study on risk management mechanisms in relation to legal policy of the oil and gas sector in Uganda.

Completing this study is important to the researcher as a fulfilment of the requirements for the award of the degree of masters of laws in oil and gas studies.

## CHAPTER TWO

### STUDY METHODOLOGY

#### **2.1 Introduction**

This chapter generally focused on the research methodologies that the researcher adopted to pursue the study. Acknowledging the significance of research methodologies, in this chapter the researcher succinctly describes among other things; the research design, data collection methods, procedure of data collection, data analysis and ethical considerations.

#### **2.2 Research design**

The study adopted analytical legal research design. Analytical Legal Research is a style of qualitative inquiry; it is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted<sup>23</sup>. Legal researchers habitually use an analytical approach to their legal research to find the most relevant information. From analytical research, researchers find out critical details to add new ideas to the material being produced. The reason for adopting this design was that it enabled the researcher to understand the different aspects of the study in depth so as to get corresponding recommendations as solutions to the problems in the area of study.

#### **2.3 Research approach: Qualitative in nature**

The researcher adopted a qualitative research approach in order to be able to collect and analyse the right data in answering the research questions. This research approach enables the researcher to focus on obtaining data that are collected through unrestricted and spoken communication; and in doing so this approach centre attention on gathering data from the “why” as opposed to the “what” responses the potential respondents would give. In other words, Qualitative research involves collecting and analysing non-numerical data to understand concepts, opinions, or

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<sup>23</sup>Bix, B. H. (2009). Philosophy in American Law: Analytical Legal Philosophy. *On Philosophy in American Law*, 99.

experiences<sup>24</sup>. Therefore, in this research the researcher collected qualitative data with the aid of literature review method.

## **2.4 Data collection method: Systematic literature review**

According to scholars<sup>25</sup>, systematic literature review is one of the old methods for collecting data in research especially secondary type of research. In order to attain the information necessary to answer the research questions under this research, the researcher basically adopted systematic literature review method to collect sufficient data. A systematic review identifies, evaluates, and synthesizes research results from authentic study reports to create a summary of current evidence that can contribute to evidence-based practice<sup>26</sup>. Systematic review methodology employs the same principles and rigor required in primary research. This method also facilitated the collection of legal documents such as the laws, policies.

## **2.5 Data Analysis: Thematic Analysis**

In this study, the researcher adopted a thematic analysis technique to be able to validly analyse the collected data. As it is commonly known, thematic analysis is a qualitative data analysis method that involves reading through a data set for instance, transcripts from in depth interviews and thereafter identifying patterns in meaning across the data<sup>27</sup>. This technique helped the researcher to be able to identify common themes in the data collected that are relevant to answer the research questions and fulfil the objective of the study in general. It's important to note that the goal of a thematic analysis is to identify themes in the data that are important and use these themes to address the research or say something about an issue

## **2.6 Ethical Considerations**

Acknowledging the fact that ethics plays a key role in confirming the authenticity of study findings, the researcher endeavoured to follow all the ethical principles and guidelines that were applicable to the study. First, the researcher worked very closely with the assigned university supervisor.

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<sup>24</sup>Mohajan, H. K. (2018). Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*, 7(1), 23-48.

<sup>25</sup>Jindal-Snape, D., Hannah, E. F., Cantali, D., Barlow, W., & MacGillivray, S. (2020). Systematic literature review of primary–secondary transitions: International research. *Review of Education*, 8(2), 526-566.

<sup>26</sup>Mulrow, C. D. (1994). Systematic reviews: rationale for systematic reviews. *Bmj*, 309(6954), 597-599.

<sup>27</sup>Joffe, H. (2012). Thematic analysis. *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners*, 1, 210-223.

Secondly, the complete proposal was cleared and signed by the supervisor. Thirdly, the researcher defended the proposal before the university research committees. Fourthly, the researcher worked on the comments from the proposal defence together with the supervisor's guidance. Fifthly, the researcher will defend the dissertation before clearance for graduation. Important to emphasize, the researcher endeavoured to cite and reference scholarly works used in the study proposal.

## **2.7 Challenges faced**

The researcher encountered some challenges that impaired the completion of the study to some degree. For example, getting scholarly information was challenging as some articles required fees to be paid; in this situation the researcher looked for similar but old data to fill in the gaps were published article required payment. In some context the researcher only collected data from the abstracts

Another challenge was to do with data analysis technique, the thematic analysis model was new to the researcher as such its application was challenging. The researcher had to read more about it and with the support from the supervisor, it was managed and data from different literatures were analysed accordingly.

## **2.8 Dissemination plans**

The researcher acknowledges the significance of dissemination in research undertaking. In this regard, the study findings will be first disseminated during thesis defence forum. After which the researcher intends to share the study findings inform of policy brief to the relevant authorities especial the concerned line ministries. And finally the researcher looks forward to write a complete journal manuscript for journal publication, and finally a copy of the thesis will be share with the University for Library Usage.

## **2.9 Study Limitations**

This study relied on secondary data and collected data with the aid of systematic literature review; no field based primary data was collected. As such the findings shouldn't be generalized to capture contemporary practice related to issues of the study topic.



## CHAPTER THREE

### LEGAL FRAMEWORK ON RISK MANAGEMENT MECHANISMS IN THE MIDSTREAM ACTIVITIES OF OIL AND GAS IN UGANDA

#### 3.1 Introduction

In this chapter, the researcher examined the provisions related to the legal framework on risk management in the midstream activities of oil and gas activities in Uganda. The establishment of the legal framework in any project undertaking is very of the essence in achieving an efficient management, operation and maintenance of a given project activity undertakings.

#### 3.2 Legal framework on risk management

##### 3.2.1 The 1995 Constitution of Uganda<sup>28</sup>

The principle legislation governing the operation of oil and gas activity in Uganda, and specifically in the midstream activities is the 1995 Constitution. The Constitution in its national objectives<sup>29</sup> states that the State shall protect important natural resources within its jurisdiction; in this context among other things the natural resources in Uganda includes oil resource; and further, under Article 244, it emphasizes that parliament shall make laws for regulating the exploitation of minerals. It is upon this background that the parliament has endeavored to make other enabling laws, regulatory policy framework and institutional design to put into context the provision of Article 244 as stated above, but with special focus onto the midstream activities of oil and gas activities in Uganda as seen below.

##### 3.2.2 The Petroleum (Exploration and Production) Act<sup>30</sup>

The above law is one of the Acts of parliament formulated to expound onto the provision of Art 244 of the Constitution regarding midstream activities of oil and gas. Under S.17 of the Act, is to the effect that a licensee to midstream activities shall meet the requirements with respect to work and expenditure set forth in the licence or in a petroleum agreement. Further, the spirit of the above section is made prominent under s. 31 of the same law, which provides that; *A licensee shall carry*

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<sup>28</sup>The 1995 Constitution of the Republic of Uganda (as amended)

<sup>29</sup>Ibid, National Objective XIII.

<sup>30</sup> The Petroleum (Exploration and Production) Act, Chapter 150. Laws of Uganda

*out exploration and development operations in the exploration or development area in a proper, safe and workmanlike manner and in accordance with good oil field practices and take all reasonable steps necessary to secure the safety, health and welfare of persons engaged in those operations in or about the exploration or development area*

The above provision tasks the licensee to pay maximum attention as far as risk management is concerned in the production areas. In other words, the licensee must do all it takes to control and prevent the flow and escape of petroleum, gas, any mixture of water or drilling fluid, and damage to petroleum bearing strata in any area in respect of which the licence is not in force.

As a preventive mechanism of mitigating and managing risks in the midstream activities, the Act further dictates that a licensee shall maintain working environment in fine shape. To this effect the same Act stipulates that<sup>31</sup>; *a) the licensee shall maintain in good condition and repair, all structures, equipment and other property in the area subject to the licence and used in connection with the operations in which he or she is engaged; b) remove from that area all structures, equipment and other property that are not either used or to be used in connection with those operations; and c) take reasonable steps to warn persons who may from time to time be in the vicinity of any such structure, equipment or other property of the presence of the structure equipment or other property and the possible hazards resulting there from.*

The Act also makes it a crime for any person who shall remove oil from the area it is obtained to any other area without written consent of the commissioner. In regards to the above, the law<sup>32</sup> provides that *Petroleum shall not be removed from the area from which it has been obtained to any other area, or disposed of in any manner, except by a licensee, with the written consent of the commissioner, or for the purpose of sampling or analysis.* And sub section 2 penalises such an act by stating that *any person who contravenes subsection (1) commits an offence and is liable on conviction— a) in the case of an individual, to a fine not exceeding ten million shillings or to imprisonment for a term not exceeding five years or to both such fine and imprisonment;*

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<sup>31</sup>Ibid, S. 32

<sup>32</sup>Ibid, s. 63

### 3.2.3 The Petroleum Act, 2013<sup>33</sup>

It is always a best practice that persons intending to take capital business investment ventures must get legal clearance. This is correlated with the provision of the above Act<sup>34</sup> which dictates that all midstream operations must be licensed; this is captured in its provision that states; *A person shall not construct or operate the following without a licence issued by the Minister under this Act; a facility for refining crude oil, a facility for conversion of natural gas, a transmission pipeline and a midstream storage facility or any other facility for the purpose of midstream operations subject to this Act or any regulations prescribed under this Act.* However, a close reading of the Act<sup>35</sup> further discloses that a licensee shall carry out midstream operations in a proper and safe manner and in accordance with the requirements of the applicable law, regulations and conditions stipulated by competent authorities and best petroleum industry practices. However, the section further observes that further steps and action in achieving the spirit of s.26 (1), thus subsection (2) states that; *a licensee shall take all reasonable steps necessary to secure the safety, health and welfare of personnel engaged in midstream operations including.* In essence, the above provision calls for vigilance and prudence by any person carrying out any activity in the midstream to ensure safety guaranteed and risks are carefully managed.

Additional, jurisprudence proposes that best practices as guided by the legal framework are significant in mitigating and managing risk incidences and occurrences within the risky venture of midstream activity of oil and gas. This position is also observed under the laws of Uganda as far as midstream oil and gas activities are concerned. To this effect, the Act<sup>36</sup> states that; a licensee for midstream storage facility shall provide services to duly authorised person without discrimination, services on request for storage and transshipment of petroleum to authorised persons.

Another risk management strategy adopted under that Act above is envisioned under section 63 (2) which provide that; *A licensee shall identify and evaluate hazards and risks associated with any work performed in the course of midstream operations carried out under the licence which constitute a hazard to the health of any person employed for purposes of that work and the steps*

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<sup>33</sup>The Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act, 2013

<sup>34</sup>Ibid, under Section 9

<sup>35</sup> Ibid, under section 26

<sup>36</sup>Ibid, section 34

*that need to be taken to comply with the provisions of this Act and regulations made under this Act; and (b) as far as reasonably practicable, prevent the exposure of the person referred to in paragraph (a) to the hazards concerned or, where prevention is not reasonably practicable, minimise the exposure.* In an attempt to contextualise and operationalize the above said provision, it is strongly re-echoed under s. 65 of the same Act; that a licensee and any other participant in midstream operations shall, at all times maintain efficient emergency preparedness with a view to dealing with accidents and emergencies which may lead to loss of life or personal injury, pollution or major damage to property.

### **3.2.4 The Petroleum Regulations, 2016<sup>37</sup>**

In Uganda, the Petroleum regulation as cited above forms part of the legal framework within which risk management in the midstream activities of oil and gas is ensued. Emphatically, its provision<sup>38</sup> describes the general duties of a licensee which includes among others; to prevent incidents, accidents and hazards and limit their consequences to human health and the environment, to prevent and reduce the number of accidents among employees that are likely to result into loss of time for work, disability or fatality to the employees and to ensure that occupational safety and health in all midstream operations is satisfactory for the health and safety of employees and the environment;

Still in the confine of the above provision, the Act<sup>39</sup> states that; *(1) the licensee shall define safety objectives applicable to the implementation of midstream operations in a facility. (2) The licensee shall ensure that process and auxiliary facilities are free from failure during operation that is likely to lead to hazardous situations, incidents or accidents.*

One of the ways through which risks and incidental occurrences in the midstream activity of oil and gas can be dealt with is by having an efficient and effective risk management design. This means that licensees should ensure that risks must be assessed and planned, this includes the element of likely accidents and incidents must all envisioned and also be spelt out in a detailed report. In this context, the purpose of risk assessment is to ascertain the likely consequences of failures connected to the operation of midstream activities in the oil and gas. In contextualizing

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<sup>37</sup>The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (Health, Safety and Environment) Regulations, 2016

<sup>38</sup>Ibid, section 4

<sup>39</sup>Ibid, section 5

the aforesaid, the Act<sup>40</sup> provides that; *the licensee shall, in reducing risk select technical, operational and organizational solutions that reduce the probability of harm, errors, hazard, incidents or accident situations that may occur;* and further subsection (c) is to the effect that; *the licensee shall choose solutions and barriers with the greatest risk-reducing effect based on an individual as well as an overall evaluation;* as such its critically necessary that collective protective measures are taken as far as managing such risks is concerned.

One of the risks that can be anticipated has to do with fire outbreak arising from electric cables, thus its prudent that licensee takes all the necessary and due process in ensuring that wiring is done well preferably by a professional, but also electric spots are periodically monitored. The Act<sup>41</sup> under surveillance speaks to this assertion by stating that; *the licensee shall implement the necessary measures to prevent injury to persons and minimize hazards, incidents and accidents during work near live installations, in or near earthed and short-circuited installations and during operation of low and high voltage installations.* In the same veil, the law<sup>42</sup> further states that; *the licensee shall ensure that before an employee isolates any electrical equipment or changes or terminates the isolation of electrical equipment, the person-in-charge issues written instructions with respect to the procedures to be followed for the safe performance of that work.*

It's prudent to affirm that fire out breaks is one of the foreseeable incidents within the midstream activities of oil and gas activities given the fragile nature of the fuel storage and transportation in the midstream activities. Therefore, it's obvious that firefighting equipment and systems must be installed. The law<sup>43</sup> acknowledges this by stating that; *a facility shall be equipped with sufficient fire-fighting equipment to efficiently combat near-fires and prevent escalation in case of fire; subsection (2) observes that installation of fixed fire-fighting installations shall be based on the risk assessment undertaken by the licensee, and subsection, (3) points out that; the licensee shall provide firefighter equipment to enable safe and effective fire- fighting to be carried out efficiently and that the equipment is kept on the installation and stored in a cautious and suitable manner ready for immediate use.* As such it's a necessary evil that the licensee must put in place measures

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<sup>40</sup>Ibid, section 16

<sup>41</sup>Ibid, section 51

<sup>42</sup>Ibid, section 55

<sup>43</sup>Ibid, section 93

to control fire and explosion hazards generated by process operations within the midstream activities.

The other area that requires risk assessment, planning and implementation in the midstream activities has to do with oil and gas transportation. The common methods of transportation include use of tanks and pipe lines. It is necessary that additional safety requirements for pipelines are put in place. In association with the above, the Act<sup>44</sup> states that; *(1) a pipeline licensee shall ensure that fluids are not conveyed in a pipeline system unless adequate arrangements have been made for dealing with— (a) accidental loss of fluid from the pipeline;*

*(b) Discovery of a defect in or damage to the pipeline or other emergency affecting the pipeline; or (c) failure of the pipeline or crude oil heating system. (2) The licensee shall ensure that adequate arrangements are in place to deal with incidents, hazards, accidents or emergency relating to the pipeline system.* Some of the critical practices to ensure pipeline safety are by periodically inspecting the situations of the pipes for possibilities of defects and damages. It's also prudent that pipeline warning signs are mounted in accordance with standards approved by an authority and best petroleum industry practices.

For the tanks travelling on the road, it should be ensured that smoking and the use of naked lights should not be permitted within a reasonable range from and within the vicinity of the tank vehicles. To this the law recognizes that the tank vehicle shall not be halted within thirty seven meters of a fire or open flame and also that the mechanical cigarette lighters or other means of making fire shall not be carried. In mitigating risks associated with tank vehicle, the Act<sup>45</sup> notes that; *(s. 142); except during the filling or discharging into the tank, the filling pipe, manhole and dipping pipe of a tank vehicle shall at all times be kept securely closed. (s.143); (1) a tank vehicle carrying bulk petroleum commodities or petroleum products shall not be parked on the highway.* Where a mechanical breakdown or other cause prevents a vehicle from leaving a highway, the driver shall remain with the vehicle and take all reasonable precautions to prevent any possible risks incidents and accidents to the vehicle.

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<sup>44</sup>Ibid, section 134

<sup>45</sup>Ibid, section 42, 43 and 44

### **3.3 Institutional for implementing the law on risk management in oil and gas in Uganda**

#### **3.3.1 The Parliament of the republic of Uganda**

The parliament is a body created under chapter six (Article 77) as the legislative arm of the government of the republic of Uganda established in the Constitution; in regards to oil and gas management, the role of Parliament stresses across the Oil and Gas value chain, beginning right from Upstream activities of exploration, development and production; to Midstream activities, of refining, storage and conveyance through pipelines, to Downstream activities of processing, marketing and distribution. In brief, the Constitution places considerable responsibility over the Parliament to provide oversight task in the management and exploitation of natural resources in of Uganda. Consequently, it is the peak institution mandated to make regulatory laws for the management and exploitation of the minerals and natural resources including oil and gas in the Uganda.

#### **3.3.2 The Cabinet of the government of the republic of Uganda**

The cabinet is provided for under chapter seven (Article 111) and it forms the core section of the executive arm of government in Uganda. In regards to oil and gas management, the Cabinet directly supervises the Ministry of Energy and Mineral Development. It carries a lot of administrative responsibilities including the responsibility for approving policies and administrative mechanism to guide government operations; it is further tasked with the role of approving draft legislation that is submitted to parliament. As one of its mandate, the Cabinet approved the National Oil and Gas policy and model production sharing agreement that have been used in the negotiation by Ministry of Energy and Mineral Development with potential investors.

#### **3.3.3 The Ministry of Energy and Mineral Development**

The Ministry of Energy and Mineral Development is the parent ministry under which the oil sector is managed and regulated. Under Section 8<sup>46</sup>, the functions and powers of the Minister which among other things include; issuing and revoking licenses, submitting draft legislation to Parliament; developing policies and regulations; negotiating and approving agreements and field development plans; and promoting and sustaining transparency in the petroleum sector. The Act gives the Minister of Energy unlimited powers to negotiate grant and revoke oil licenses. Under

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<sup>46</sup> The Upstream Act, 2013 Law so of Uganda

the Act above, the Minister is also mandated to develop a model Production Sharing Agreement, which has to be approved by Parliament. Once approved, this model is supposed to guide future agreements.

### **3.3.4 The Petroleum Authority of Uganda**

The authority is more of a regulatory arm of oil and gas management in Uganda and it is one of the key institutions put in place to regulate Uganda's Oil sector is the Petroleum Authority of Uganda (PAU). Section 9 of the Act<sup>47</sup> provides for the establishment of PAU. The Authority was established in 2015 as an independent body corporate with the following major functions of advising the Minister over the negotiation of petroleum agreements and in the granting and revoking of licenses; ensuring that licenses uphold laws, regulations, rules and contract terms; and overseeing compliance by oil licensees with the provisions of the Act and regulations made under it. The PAU had its Board of Directors approved by the Parliament in September 2015, so work begun 2016 mainly to organize the company and recruit personnel.

### **3.3.5 Uganda National Oil Company (UNOC)**

Apparently the UNOC is the business arm as far as oil and gas administration in Uganda is concerned. The law under section 42<sup>48</sup> also provides for the establishment of a National Oil Company, which is supposed to handle the state's commercial interests and manage the business aspects of state participation in oil. According to Section 43 of the Act<sup>49</sup>, the role of the National Oil Company (UNOC) chiefly include handling Government commercial and business interests and participation in the Oil and Gas sector. UNOC was officially incorporated on June 12, 2016 as a company limited by shares, and has two shareholders namely; the Minister of Energy and Mineral Development who holds 51% shares and the Minister of Finance, Planning and Economic Development who owns 49% shares on behalf of the Ministry. The company is expected to boost energy security, improve revenue generation, and help reinvest profits in economic development and job creation.

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<sup>47</sup>The Petroleum Authority Act, Laws of Uganda

<sup>48</sup> The Petroleum Act (2013) laws of Uganda

<sup>49</sup>Ibid Note 45



### **3.3.6 The Investment Advisory Committee**

The law under Section 66<sup>50</sup> of the provides for the establishment of the Investment Advisory Committee, which is mandated to advise the Minister of Energy on the Investments to be made under the Petroleum Revenue Investment Reserve (PRIR). Although this investment committee is not yet in place, it is supposed to be composed of seven members with representatives from the Ministry of Finance; the Ministry for Petroleum Activities; and the National Planning Authority (NPA) as well as four persons who are not public officers but appointed by the Minister of Energy (MEMD, 2017).

### **3.4 Conclusion**

From the above discussion, it can be observed there are several laws, policy directive and institutional framework for identifying, planning, monitoring and implementing risks incidents and accident occurrences in the midstream activities of oil and gas industry in Uganda. This study will endeavour to examine the comprehensiveness and relevance of the above discussed legal provision in attaining their intended objectives.

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<sup>50</sup> Public Finance Management Act (PFMA) laws of Uganda

## CHAPTER FOUR

### LITERATURE REVIEW: DEALING WITH THE NON LEGAL ASPECTS

#### 4.1 Introduction

This chapter presents related literature for the purposes of getting a comprehensive interpretation relevant to the need for understanding the relationship between risk management mechanisms and the activities in the midstream oil and gas industry in Uganda. The literature review will be guided by the second and third specific objective of the study.

#### 4.2 Risk management methods in midstream activities of oil and gas industry

##### 4.2. 1 Risk analysis

Generally, risk analysis is a whole process that helps government, oil and gas companies to identify and manage potential dangers that could undermine key project initiatives within the midstream activities in the oil and gas industry. However, in order to successfully carry out risk analysis, one must first identify the possible threats which are likely to face the business of midstream activities, and then estimate the likelihood that these threats will materialize into.<sup>51</sup>

As a common practice, risk management practice usually involves risk identification, risk analysis, risk response, and risk monitoring. By and large, risk identification is usually the logical starting point because it may uncover and record any potential hazard that might affect the project.<sup>52</sup> According to (Bigliani: 2013)<sup>53</sup>, risk management is an integral part of day-to-day business activities in the energy industry. He further observed that oil and gas companies face risks ranging from volatile commodity prices to increased health, safety, and environmental pressures resulting from past and recent major accidents negatively impacting the environment, industry image, and its social lease. Nonetheless, risks related to asset damage, business interruption, pollution, injuries to people, and damage to properties are intrinsic in normal oil and gas activities.

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<sup>51</sup>Grimsey, D., & Lewis, M. K. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International journal of project management*, 20(2), 107-118.

<sup>52</sup>Walewski, et al, *International Project Risk Assessment: Methods, Procedures, and Critical Factors*, vol 31 (Center for Construction Industry Studies, University of Texas at Austin, Report 2003).

<sup>53</sup>Bigliani, R. (2013). Reducing risk in oil and gas operations. *IDC Energy Insights*, (May), 1-15.

### **4.2.2 Risk identification**

This is a very crucial stage in risks management in the midstream activities of oil and gas. In fact risk identification should be performed early starting with the project planning even before the preliminary concept is approved and should continue until the project is completed.<sup>54</sup> It is therefore important to note that effective risk management can bring greater rewards to project performance by enhancing productivity. A lack of knowledge and the associated costs of risk management application are the main reasons given by local contractors who lag behind in implementing risk management in their practices<sup>55</sup>. Conventionally it can be construed that risk management stems from the ability to correctly identify the potential threats that manifest.

### **4.2.3 Risk assessment**

This is the second stage in carrying out risk management in the midstream activities of oil and gas, it is often performed as a two stage process; an initial screening of the risks and opportunities is performed using qualitative techniques followed by a more quantitative treatment of the most important risks and opportunities. Qualitative assessment consists of assessing each risk and opportunity according to descriptive scales, while quantitative analysis requires numerical values for both impact and likelihood using data from a variety of sources<sup>56</sup>.

The 1992 COSO framework analyses the four principle of risk assessment component to include; firstly the principle of specifying objectives with clarity; under this principle, a company ordinarily need to describe its operational, reporting (external financial, external non-financial, internal) and compliance objectives. Secondly, identify and analyze risks across the entity, this principle considers the risks of achieving objects identified, what is the likelihood of specific risk occurring, how severe could it be, how quickly will it affect the company and for how long. In the event of occurrence, how should the management respond? Thirdly, consider potential of fraud in assessing risks to the achievement of objectives. Under this principle, the company should consider likelihood of fraudulent reporting, possible loss of asset and corruption resulting from various ways that fraud and misconduct can occur- conduct a fraud risk assessment to identify the ways

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<sup>54</sup>Page 24, The owners role in project risk management (2005) chapter 4: Risk identification and analysis. The national academy of sciences engineering medicine( NAP)-

<sup>55</sup>Goh, C. S., & Abdul-Rahman, H. (2013). The identification and management of major risks in the Malaysian construction industry. *Journal of Construction in Developing Countries*, 18(1), 19

<sup>56</sup> COSO. Enterprise risk management-integrated framework (2004) p 8

fraud risk can occur. And fourthly, identify and assess changes that could significantly impact the system of internal control. This principle requires assessment of change on an ongoing basis both externally and internally that could affect risk.<sup>57</sup>

#### **4.2.4 Risk evaluation mechanisms**

This is an important element in risk management cycle in the midstream activities of oil and gas; risk evaluation is all about measuring and prioritizing risks so that risk levels are managed within defined tolerance thresholds without being over controlled or forgoing desirable opportunities. Events that may trigger risk assessment include human errors arising out of failure to follow guidelines set forth to minimise chances of risks occurring<sup>58</sup>. Some risks are dynamic and require continual ongoing monitoring and assessment, such as certain market and production risks. Other risks are more static and require assessment on a periodic basis with ongoing monitoring triggering an alert to reasons sooner should circumstances change.<sup>59</sup> The first activity within the risk assessment process is to develop common set of risk assessment criteria to be deployed across large and risky capital projects. Assessing risks consist of evaluating values to each risk and opportunity using the defined criteria.

According to the suggested risk response process, risks should be ranked according to severity and consequences. The probability of risks should be reviewed and classified as high probability events, medium probability events, low probability events<sup>60</sup>. Recommend risks to be considered for action, develop risk response options for the recommended risks, considering risk acceptance criteria and determine a benefit/cost ratio. Confirm the action in the risk register and approve actions by authorizing the recommended action by the “risk owner”, implement the risk response action, Monitor and manage the risk response plan, update as necessary.<sup>61</sup>

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<sup>57</sup>Warren W. Stippich, March 2015: Corporate compliance insights.4 COSO Risk Assessment Principles of the 2013 framework

<sup>58</sup>Alkhalidi, M., et al (2017, September). The role of human error in accidents within oil and gas industry in Bahrain. In *13th International Postgraduate Research Conference (IPGRC): conference proceedings* (pp. 822-834). University of Salford.

<sup>59</sup>Risk assessment in practice; research commissioned by committee of sponsoring organizations of the Treadway Commission (COSO) October 2012 P 2.

<sup>60</sup>Priyanta, D., et al (2019). The Implementation of Norsok Z-008 for Equipment Criticality Analysis of Gas Central Processing Plant. *International Journal of Marine Engineering Innovation and Research*, 4(1).

<sup>61</sup>Slide 31 : John Reilly, P.E., C.P.Eng. “A Short History of Risk Management” Washington DC November 28, 2017.

#### **4.2.5 Risk control mechanisms**

Control activities are the actions established through policies and procedures that help to ensure that management directives to mitigate risks to the achievement of objectives are carried out. Control activities are performed at all levels of the entity, at various stages within business processes, and over the technology environment. They may be preventive or detective in nature and may encompass a range of manual and automated activities such as authorization and approvals, verifications, reconciliations, and business performance reviews.

Control activities are the policies, procedures, techniques, and mechanisms that help ensure that management's response to reduce risks identified during the risk assessment process is carried out. When assessment identifies a significant risk to the achievement of an agency's objective, a corresponding control activity or activities is determined and implemented. Control activities can be preventive or detective.<sup>62</sup>Risk response is the process of formulating a management strategy including establishing risk allocation and developing a management plan for resolving the risk<sup>63</sup> in any situation where more than one party is involved in a project.<sup>64</sup>

#### **4.3 Project risk management and project performance**

Obviously a well-managed risk and risky factors automatically contributes towards the successful implementation of projects of any nature and magnitude. As such several scholars have severally discussed the relationship between performing project risk management processes and project success. Most of them arrived at a conclusion that informed their confidence that applying these practices relates strongly and positively to desirable project outcomes. For example, Dandage, R. V. Et al (2018)<sup>65</sup>stressed the significance of earlier project risk management practices to the success of projects and concluded that the amount of project risk management used increases the level of project success. In the same veil, a recent comprehensive study conducted by Zwikael and

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<sup>62</sup>[www.ofm.wa.gov](http://www.ofm.wa.gov). Jul 2008

<sup>63</sup>26 Lam Ka Chi et al, "Modelling Risk Allocation Decision in Construction Contracts", (2007) 25 International Journal Project Management, page 485.

<sup>64</sup>Zaghloul, et al, "Construction Contracts: The Cost of Mistrust", (2003) 21 Int J Project Mgmt 419.

<sup>65</sup>Dandage, R. V., Mantha, S. S., Rane, S. B., & Bhoola, V. (2018). Analysis of interactions among barriers in project risk management. *Journal of Industrial Engineering International*, 14(1), 153-169.

Ahn (2011)<sup>66</sup> examined the effectiveness of existing risk management practices to reduce project risk. Their study used a multi-industry, multinational survey during the period from 2002 to 2007, covering 701 project managers in seven industries in three countries, including Japan, New Zealand and Israel. They found that the country and industry of the project had an important impact on the level of the perceived project risk and on the risk management process adopted. The authors concluded that even a reasonable quantity of risk management helps minimise project risks, increasing the project's level of success.

In regards the above, De Bakker, Boonstra, and Wortmann (2012)<sup>67</sup> concurred to the fact that project risk management has a significant positive influence on project success, emphasising the risk identification stage as the most important factor in project success. In the same vein; Zou, Zhang, and Wang (2007)<sup>68</sup> also found a strong relationship between project risk management and project success.

However, contrary to what is discussed above, Bannerman (2008)<sup>69</sup> asserted that, in practice, risk management methods lag behind the understanding and recommendations of the literature. The author maintains that, even if a project is successful, it can be challenging to relate the successful result to project management practices, believing instead that success is often credited to good luck or the efforts and specific skills of individuals involved in the project. From this observation, it still remains obvious that a carefully and intentional use of relevant risk management methods contributes towards the success of capital projects undertaking including the midstream activities of oil and gas. Therefore, it remains crystal clear that many capital projects, including oil and gas projects are very likely to fail due to poor project risk management methods and mechanisms.

#### **4.4 Challenges affecting the implementation of risk management in midstream activities**

In the desire to design legal and policy framework, it is not enough to have an excellent and comprehensive legal, policy and practice framework regarding the management of risks especially

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<sup>66</sup>Zwikael, O. & Ahn, M. (2011), the effectiveness of risk management: an analysis of project risk planning across industries and countries. *Risk Analysis: An International Journal*, 31(1), 25-37.

<sup>67</sup>de Bakker, K., Boonstra, A., & Wortmann, H. (2012). Risk managements' communicative effects influencing IT project success. *International Journal of Project Management*, 30(4), 444-457.

<sup>68</sup>Zou, P. X., Zhang, G., & Wang, J. (2007). Understanding the key risks in construction projects in China. *International journal of project management*, 25(6), 601-614.

<sup>69</sup>Bannerman, P. L. (2008). Risk and risk management in software projects: A reassessment. *Journal of systems and software*, 81(12), 2118-2133.

in the midstream activities of oil and gas for Uganda's oil industry. However, what is important to emphasize is the distinction with which those legal and principle frameworks are put to practice in order to realise their intended set goals and objects which in this study the guaranteed quality performance in the midstream project performance in the oil and gas industry. On the other hand, implementation of legal and policy provisions may not be successful due to various reasons, as such this section of the research focused on examining the challenges that impair the successful implementation of legal and policy guidelines on risk management in oil and gas within the midstream activities.

#### **4.4.1 In adequate capital finance**

It is apparent that in any project undertaking, adequate and sustainable financing plays a vital role in determining the outcome of the project undertaken. Poor financing inevitably leads to miserable outcome in project performance especially in the midstream stage of oil and gas production as it is capital intensive. Experience about inadequate funds to finance oil and gas midstream projects was observed in Libya, according to Elhoush, R. (2017),<sup>70</sup> the lack of financial resources coupled with other factors like the shortage of experienced and qualified personnel within the oil and gas industry played a huge role in frustrating the implementation of effective project risk management in the. The lack of funds in financing midstream projects was also observed in Nigeria; according to Giwa-Osagie, O. (2015)<sup>71</sup>, he noted that the various challenges that affected oil and gas financing in Nigeria included the technicalities and the substantial capital cost required for such financing, the damage of oil and gas equipment which endanger the guaranteed securities taken by financiers. Due to these numerous challenges, this forced foreign banks to become reluctant in funding oil and gas projects in Nigeria due to apparently the attendant high risk.

#### **4.4.2 Economic disaster**

In any given economy, the malfunctioning of the entire economic system automatically plays a role in frustrating implementation of several projects undertaken. This is very true in a situation of an economic collapse which literally is the collapse of a national, regional, or territorial

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<sup>70</sup>Elhoush, R. A. E. I. F. (2017). *Investigation into the current project risk management practices within the Libyan oil and gas industry* (Doctoral dissertation, University of Salford).

<sup>71</sup>Giwa-Osagie, O., & Ehigiato, E. (2015). Financing options in the oil and gas sector in Nigeria. *Journal of Energy & Natural Resources Law*, 33(3), 218-240.

economy that in general follows a time of crisis. This takes the shape of hyperinflation, economic depression, bankruptcy, recession-inflation, stock exchange crash and others. As such financing of capital projects such as midstream activities in the oil and gas sector in a struggling economy is nearly impossible. The above position was envisaged by Florio, C., & Leoni, G. (2017),<sup>72</sup> who investigated the relationship between the extent of implementation of enterprise risk management (ERM) systems and the performance of Italian oil and gas listed companies. The study disclosed that firms that had advanced levels of ERM implementation presented higher project performance both as financial performance and market evaluation. Inversely, another study found positive effects of oil price shocks and economic policy uncertainty on the stock returns of oil and gas companies.<sup>73</sup> In brief, economic disasters by all parameters negatively affect the operations and execution of midstream project activities in the oil and gas industry.

#### **4.4.3 Force majeure risks**

Legally speaking, the expression *force majeure* has been defined in Black's Law Dictionary<sup>74</sup> as an event or effect that can be neither anticipated nor controlled. Generally noting, it is a contractual provision allocating the risk of loss if performance becomes impracticable especially as a result of an event that the parties could not have anticipated by any means. In an occurrence that this force majeure happens, they automatically frustrate the implementation midstream oil and gas project activities. One of the factors associated with the force majeure is the occurrence of political unrest especially wars. The existence of war in any place destabilizes every activity including livelihoods, according to Chen, C. et al (2021),<sup>75</sup> who observed that terrorist attack on the Abqaiq oil plant in Saudi Arabia on September 14, 2019 attracted global attention to the significant role of safety and security in the sustainable oil and gas supply chain and the vulnerability of supply infrastructures subject to intentional and unintentional damages. The above observation was further indicated by Kraidi, L. Et al (2019)<sup>76</sup> who disclosed that acts such as terrorism, sabotage, oleum product

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<sup>72</sup>Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review*, 49(1), 56-74.

<sup>73</sup>Kang, W, et al, (2017). Oil price shocks, policy uncertainty, and stock returns of oil and gas corporations. *Journal of International Money and Finance*, 70, 344-359.

<sup>74</sup>Garner, B. A., & Black, H. C. (2009). *Black's law dictionary*. 9th ed. St. Paul, MN: West.

<sup>75</sup>Chen, C. et al (2021). Safety and security of oil and gas pipeline transportation: A systematic analysis of research trends and future needs, WoS. *Journal of Cleaner Production*, 279,

<sup>76</sup>Kraidi, L. Et al (2019). Analyzing the critical risk factors associated with oil and gas pipeline projects in Iraq. *International Journal of Critical Infrastructure Protection*, 24, 14-22.



transportation are the critical safety risks factors affecting pipeline locations which in turn pose a serious impact on the failure of oil and gas transportation.

#### **4.4.4 Safety and social risks**

As noted above, there are several factors that in one way or the other negatively affect the implementation of oil and gas project activities, notably in the midstream thereby leading to poor project performances. One of the safety and social risk incidents is the occurrences of accidents which occur either due to some human error or due to circumstances beyond human ability. A detailed report was presented by Nwankwo, C. D. Et al (2021)<sup>77</sup> about the different types of enabling factors that perpetuate accident occurrences within the oil and gas industry, the study observed that oil and gas accidents occurred in various geographical regions globally caused by preconditions for unsafe acts such as the physical, contractor's, technological environments. Other factors such as adverse mental state, adverse physiological state, and personal readiness were responsible for various and several midstream oil and gas related accidents. The study further indicated that those accidents negatively affected the performances of midstream activities of oil and gas projects undertakings. According to Hirschberg, S., et al (2003)<sup>78</sup>, for the period 1969 to 1999, a total of severe accidents with cumulated 201 fatalities in the Chinese natural gas chain were identified, according to the researcher that roughly corresponds to 17% of all accidents and 18% of all fatalities in severe accidents that occurred in the natural gas chain in non-OECD countries in the period considered.

#### **4.4.5 Labor and equipment productivity**

There is no doubt that the entire midstream activities of project under taking in the oil and gas industry is facilitated successfully or otherwise basing on the availability of necessary technology and the expertise to run and manage it. In reference to the afore mentioned, Choi, J. O, et al. (2020),<sup>79</sup>revealed that, in general, factors such as availability of technical expertise have a significant motivational influence on employee performance in which knowledge technical skills

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<sup>77</sup>Nwankwo, C. D. Et al (2021). Analysis of accidents caused by human factors in the oil and gas industry using the HFACS-OGI framework. *International journal of occupational safety and ergonomics*, 1-13.

<sup>78</sup>Hirschberg, S., et al Burgherr, P., Spiekerman, G., Cazzoli, E., Vitazek, J., & Cheng, L. (2003). Comparative assessment of severe accidents in the Chinese energy sector.

<sup>79</sup>Nasr, A. H., Piya, S., & Al-Wardi, K. (2020). Analysis of factors affecting motivation in projects: A case study in oil and gas industry in Oman. *The Journal of Engineering Research [TJER]*, 17(2), 112-125.

are considered as a powerful motivator. Furthermore, Choi, J. O. et al (2020),<sup>80</sup> reaffirmed that the emergence of new technologies over the years has renewed interest in modularization and facility design standardization especially in capital and labour intensive projects. However, the study notes that the application of both facility design standardization and modularization is still limited in capital projects, especially in upstream, midstream, and mining sector projects such as natural gas processing and compressor station projects or well sites projects. The above finding presupposes that technical expertise and improved technology for running capital projects like in the midstream project activities of oil and gas go hand in hand and they are inseparable.

In brief, it is very important to appreciate the fact that having the best legal and policy framework for governing project activities in the midstream of oil and gas is not in itself as much as necessary. Practical issues like the challenges mentioned and discussed above are of immense magnitude as far as determining the fate of oil and gas midstream projects are concerned; ultimately if the challenges are not attended to, they will invariably negatively impact on to such capital projects like in the midstream of oil and gas.

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<sup>80</sup>Choi, J. O., Shrestha, B. K., Kwak, Y. H., & Shane, J. S. (2020). Innovative technologies and management approaches for facility design standardization and modularization of capital projects. *Journal of Management in Engineering*, 36(5), 04020042.

## CHAPTER FIVE

### DATA PRESENTATION, DISCUSSION AND ANALYSIS

#### 5.1 Introduction

This chapter focused on presenting study findings from data that was collected through systematic review methods, the researcher further analyses the study findings with the view of selective comparison techniques using experiences from other countries that are pursuing the same oil and gas midstream project activities.

#### Presentation of Key Study Findings

The study findings presented below are logically informed and guided by the research three research objectives. The findings are presented are concurrently discussed and analysed.

#### 5.2 Efficacy of the Legal Framework on Risk Management in the Midstream Activities

The study findings disclosed that Uganda has a comprehensive legal framework regarding the management of risks in the oil and gas industry generally, but also laws specific to the risks in the midstream activities. It was found out that the principle legislation governing the operation of oil and gas activity in Uganda is the 1995 Constitution. The Constitution in its national objectives XIII observes that the government shall protect important natural resources within its jurisdiction, and Article 244 of emphasizes that parliament shall make laws for regulating the exploitation of minerals. Given the fact that the Constitution is the grand law of the country, its provision on minerals management offers a vital starting point for any issues concerning management risk management in the midstream activities in the oil and gas sector.

In contrast, just like other oil and gas producing countries, the Constitution of Nigeria<sup>81</sup> under section 44 (3) vests ownership of mineral resources, including oil and gas, exclusively in the federal government and further confers on the federal government the exclusive power to make laws and regulations for the governance of the industry.

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<sup>81</sup>The 1999 Constitution of the federal republic of Nigeria

### 5.2.1 The law provides for preventive safety mechanism

Under S. 31<sup>82</sup> a licensee shall carry out exploration and development operations in the exploration area in a proper, safe and workmanlike manner and in accordance with good oil field practices and take all reasonable steps necessary to secure the safety, health and welfare of persons engaged in those operations. In comparison regulation 29 and 32<sup>83</sup> of the Nigerian law provides for the safety of working environments at oil production cities. The dictation of the law is re-echoed by Chapman, C., & Ward, S. (2004),<sup>84</sup> who noted that good and consistent field oil practices plays a vital role in minimising risks likely to end into hazardous situation and thus improve efficiency in management and operations. The study findings further notes that human and environment safety and health protection remains the number one priority for the oil and gas industry operations. This was further stressed by Bigliani, R. (2013)<sup>85</sup> who noted that oil companies are used to dealing with stringent regulations across the entire span of their activity ranging from exploration through to marketing.

It's important to emphasise that laws and regulations concerning the operations of oil and gas activities must be periodically revised in order for them to capture developing and more extreme conditions in which oil and gas companies operate. In summary, the law makes it a top priority that for any licensee to carry out any activities relating to implementation of oil and gas activities, such a licensee must have been cleared by the minister and in accordance with the law<sup>86</sup>. The wording of the law<sup>87</sup> clearly pre-empt a lot of precautionous mechanisms to avoid any possibilities of risks occurring; for instance that the licensee shall, select technical and organizational solutions that reduce the probability of harm, errors, hazard, incidents or accident situations that may occur.

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<sup>82</sup> The Petroleum (Exploration and Production) Act, Chapter 150 Laws of Uganda

<sup>83</sup> Petroleum Regulatory Authority, 2003. Laws of the federal republic of Nigeria

<sup>84</sup>Chapman, C., & Ward, S. (2004). Why risk efficiency is a key aspect of best practice projects. *International Journal of Project Management*, 22(8), 619-632.

<sup>85</sup>Bigliani, R. (2013). Reducing risk in oil and gas operations. *IDC Energy Insights*, (May), 1-15.

<sup>86</sup> S. 9 and 26 of the Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act, 2013

<sup>87</sup>The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (Health, Safety and Environment) Regulations, 2016

### **5.2.2 The law provides for vigilance in risk management**

In regards to the legal directives<sup>88</sup>, a facility shall be equipped with sufficient fire-fighting equipment to efficiently combat near fires and prevent escalation in case of fire. In south Africa, together with several provision of the Act, section 11 (1) of the law<sup>89</sup>tasks every employer in the mines industries to ably identify any hazards to health or safety to which employees may be exposed while they are at work. In essence the welfare of employees is paramount in as far as exploration and production of minerals including oil and gas in those work places are concerned.

Oil and gas industry has one of the highest risks values for fire outbreaks as such a lot of due diligence and precautions must be taken to ensure that the safety of the oil activities is minimized. According to Rao, R. S et al, (2014),<sup>90</sup>in 2013, oil and gas industry reportedly had the highest number of explosions and fires of any private industry in the United States. Due to such incidents, over the years there has been an improvement in regulations involving the control of fugitive emissions from leaking piping and fittings; a continuous program of checking and making of repairs to the millions of piping joints in service were also adopted. However, reports suggest that even these new improvements can expose many workers in danger by exposing them to flammable gas.

### **5.2.3 The Law Criminalizes Non Compliance to the law**

In regards to the law<sup>91</sup>, the licensee is tasked with the responsibility on maintaining in good condition and repair, all structures, equipment and other property in the area where the operations of oil and gas activities is taking place. Good maintenance practices coupled with effective management significantly minimizes the chances of risks translating into destructions Narayan, V. (2004)<sup>92</sup>. S. 63 of the same Act exhaustively discourages the improper handling of petroleum products by stating that removal of petroleum from the area from which it has been obtained to

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<sup>88</sup>Section 93, The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (Health, Safety and Environment) Regulations, 2016

<sup>89</sup> Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and Regulations, laws of South Africa

<sup>90</sup>Rao, R. S., MKVSG, K., & Subrahmanyam, A. (2014). Challenges in oil and gas industry for major fire and gas leaks-risk reduction methods. *Int J Res Eng Technol*, 3, 16.

<sup>91</sup>Section 32 and 63 of The Petroleum (Refining, Conversion, Transmission and Midstream Storage) (Health, Safety and Environment) Regulations, 2016

<sup>92</sup>Narayan, V. (2004). *Effective maintenance management: risk and reliability strategies for optimizing performance*. Industrial Press Inc.

any other area must be done with the written consent of the commissioner. And any person breaches this legal and regulatory provision commits an offence and is liable on conviction.

According to International Labour Organisation<sup>93</sup> acknowledges that several sub Saharan African countries engaged in oil and gas production have strong laws penalizing the violation of rules and regulations put in place to safe guard the exercise of oil and gas production but also the rights of the workers within the working premises. In a study<sup>94</sup> that reviewed 242 published papers, it was found out that 74% of accidents that occurred in petroleum refineries, oil terminals or storage. This study reports with several others point to the fact that extreme cautions must be taken when dealing petroleum at any stage of production including mainstream.

#### **5.2.4 The Law Carters for Identification and Evaluation of Hazards**

The law under S. 63 (2)<sup>95</sup> categorically acknowledges the fact that identification of risk in the activities of oil and gas is a key factor in the stages of risks management in the midstream activities. The law thus, tasks the licensee to ably identify and evaluate hazards and risks associated with any work performed in the course of midstream. In comparison, section 51 through 53 of the laws of Ghana<sup>96</sup> provides a detailed and comprehensive measure that must be taken at midstream activities of oil and gas production to minimise the risks of fire out breaks and other associated risky factors. In regard to the above, several scholars allude to the fact the risks management within the midstream activities of oil and gas entirely depends on the ability of the company's management to correctly identify and measure the nature and magnitude of the risks in order to design a corresponding response mechanisms to deal with it. For instance, Kasap, D et al, (2007)<sup>97</sup> observed that the risk identification process is premeditated to congregate information, analyse it, and make a precise and correct identification of the anticipated risks. Despite of the law providing for this process, the acts in practice remains a point of desire to be ascertained.

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<sup>93</sup>International Labour Organisation, 17–18 May 2017, Occupational safety and health in the oil and gas industry in selected sub-Saharan African countries, Maputo, Mozambique.

<sup>94</sup>Chang, J. I., & Lin, C. C. (2006). A study of storage tank accidents. *Journal of loss prevention in the process industries*, 19(1), 51-59.

<sup>95</sup>The Petroleum (Refining, Conversion, Transmission and Midstream Storage) Act, 2013

<sup>96</sup>The Petroleum (Exploration and Production) (Health, Safety and Environment) Regulations 2017. Laws of Ghana

<sup>97</sup>Kasap, D., & Kaymak, M. (2007, August). Risk identification step of the project risk management. In *PICMET'07-2007 Portland International Conference on Management of Engineering & Technology* (pp. 2116-2120). IEEE.

### 5.2.5 The Law Carters for Risks through Oil and gas transportation

The law stipulates that pipeline licensee shall ensure that fluids are not conveyed in a pipeline system unless adequate arrangements have been made for dealing with accidental loss of fluid from the pipeline. Similarly, Section 45<sup>98</sup> of the Ghanaian law provides for detailed measures to be taken in connection to establishing, management and monitoring of pipeline oil and gas transport runways. In a paper<sup>99</sup> that analysed a sample of 1063 accidents that occurred in onshore pipelines, the findings illustrated the risks associated to the systems and their significance in handling pipe line oil and gas transportation. The practice of pipe line transportation has taught practitioners that any discovery of a defect or damage to the pipeline or other emergency affecting the pipeline, adequate arrangements are in place to deal with incidents, hazards, accidents or emergency relating to the pipeline system.

To this the law recognizes that the tank vehicle shall not be halted within 37 meters of a fire or open flame and also that the mechanical cigarette lighters or other means of making fire shall not be carried. The wording of the law clearly demonstrate that previous experiences associated with such incidents were common and such the law attempts to remedy it through its provision. For example, Bariha, N.et al, (2016)<sup>100</sup> observed in the study that during a truck tanker accident, a crack in the bottom pipe that caused leakage of liquefied petroleum got ignited and subsequently fire and explosion pooped out causing many fatalities and injuries both on humans and their environmental surroundings.

The law further cautions companies and tanker drivers from parking tank vehicle carrying bulk petroleum products not to park on the highway. This is because the chances of incidents of accidents that may likely to lead to explosion is high, as such the law dictates that where a mechanical breakdown or other cause prevents a vehicle from leaving a highway, the driver shall

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<sup>98</sup>The Petroleum (Exploration and Production) (Health, Safety and Environment) Regulations 2017. Laws of Ghana

<sup>99</sup>Ramírez-Camacho, J. G., Carbone, F., Pastor, E., Bubbico, R., & Casal, J. (2017). Assessing the consequences of pipeline accidents to support land-use planning. *Safety science*, 97, 34-42.

<sup>100</sup>Bariha, N., Mishra, I. M., & Srivastava, V. C. (2016). Fire and explosion hazard analysis during surface transport of liquefied petroleum gas (LPG): a case study of LPG truck tanker accident in Kannur, Kerala, India. *Journal of loss prevention in the process industries*, 40, 449-460.

remain with the vehicle and take all reasonable precautions to prevent any possible risks incidents and accidents to the vehicle.

In a nutshell, from the discussion above it is very clear that the legal framework relating risk management in the midstream activities of oil and gas in Uganda is very comprehensive in nature as it tackles and carters for all possible types of risks known to the midstream activities. The researcher believes that the drafting of the law was possibly informed by previous experiences from other jurisdictions. However, what is left to desire is whether the implementation mechanisms designed to facilitate the operation of the provision and dictates of the law is volatile enough to realize valuable outcome.

### **5.3 Relevance of risk management methods under the legal regime in midstream activities**

It is not unusual to find that in many business entities of capital nature including public corporations to realize that they are governed by excellent laws, rules and regulations. And yet those legalities do not help them achieve their desired goals and objectives through having successful business projects. In order to cure such a mismatch, the legal regime of such businesses like handling the midstream project activities in the oil and gas sector must not only be comprehensive but relevant. Thus this section of the study focuses on examining the relevance of the provision of the legal framework in managing risks in the midstream activities of oil and gas in Uganda.

#### **5.3.1 The law provides for risk analysis:**

In the chapter dealing with legal aspects above, the researcher found out that the law in its several provisions carters for situations to do with risk analysis as far as midstream activities projects of oil and gas is concerned. This aspect is further elaborated on by several scholars, for instance (Bigliani: 2013), stressed that risk management is a basic part of a normal business activities in the energy industry. However, the researcher remains sceptical of the law assigning such responsibility to the licensee with no known and apparent monitoring design; this may lead to abuse of such legal commands by the licensee thereby frustrating the intended spirit of the law.

#### **5.3.2 The law provides for risk identification**



In reference to the chapter on legal aspects above, the researcher also found that the law ably provides for risk identification capabilities. However, this responsibility is also left in the hands of the licensee. But what is clear is that risk identification requires licensee to have competent knowledge about its existence and the ability to figure the risks out and prioritise them for actions. Obviously, lack of knowledge and the associated costs of risk management application are the main reasons given by local contractors who lag behind in implementing risk management in their practices (Goh, C. S., et al: 2013). Conventionally it can be construed that risk management stems from the ability to correctly identify the potential threats that manifest.

### **5.3.3 Risk assessment: the law implicitly tasks licensees**

Apparently risk assessment is the third stage within the risk management circle; it largely involves screening of the risks identified and an evaluation is performed using both qualitative and quantitative techniques and thereafter the most important risks and opportunities is focused on for further actions. However, in the chapter dealing with the legal aspect above, the research did not find the direct provision of the law regarding this aspect but from the readings of various sections of the law related to this topic, the researcher concluded that the law impliedly carter for risk assessment but also this responsibility is fully designated to the licensee.

### **5.3.4 Risk evaluation and control mechanisms**

The study findings on the legal provision also proposes that the law in itself doesn't directly provides for risk evaluation rather the general reading of the law regarding risk management suggest that the law implicitly tasks the licensee to perform the responsibility of risk evaluation. One important fact to reckon is that some risks are very dynamic in nature and require a continual and consistent ongoing monitoring and assessment. For example, certain market and production risks are very variable and difficult to predict or figure out, on the other hand some risks are more static and require assessment on a periodic basis with ongoing monitoring triggering an alert to reasons sooner should circumstances change.<sup>101</sup> On other hand, control activities are very important as they are the actions that are established through policies and procedures that help to

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<sup>101</sup>Risk assessment in practice; research commissioned by committee of sponsoring organizations of the Tread way Commission (COSO) October 2012 P 2.

ensure that management directives to mitigate risks to the achievement of objectives are carried out. As such the law should have captured this in its several and various provisions.

#### **5.4 Project risk management and project performance**

In this study, the key focus has been to appreciate the relevance of the legal framework regarding risks management and how that informs project performance within the midstream activities of oil and gas in Uganda. From the literatures reviewed and the examination of the laws performed, the research arrived at a conclusion that indeed the relationship between performing project risk management in accordance with the legal provisions has a huge positive bearing as far as midstream project success in oil and gas is concerned. This positions where supported by many evidences including Elkington and Smallman (2002) who stressed that the importance of earlier project risk management practices in return leads to the project success. In a detailed study by Zwikael and Ahn (2011), they also affirmed the position that effective risk management practices in capital projects undertaking reduces on the entire project risk, thus quality project performance in the midstream.

#### **5.5 Impediments affecting the implementation of risk management in midstream activities**

Firstly, the study disclosed that inadequate funds is one of the challenges that in one way or the other affects the implementation of risks management mechanisms within the midstream activities. This finding was echoed by several scholars including Elhoush, R. (2017) that lack of financial resources coupled with other factors within the oil and gas industry played a huge role in frustrating the implementation of effective project risk management in the. This finding presupposes that the government of Uganda needs to do a lot in securing huge capitals for implementing the provisions of the laws it enacted on risk management in the midstream activities within the oil and gas industry.

Secondly, the study finding disclosed that economic disasters in any given economy heavily affects the implementation of several projects undertaking especially those associated with midstream project activities. According to literatures, Florio, C., & Leoni, G. (2017), the study disclosed that firms that had advanced levels of risk implementation presented higher project performance both as financial performance and market evaluation. In conclusion, therefore, economic disasters by

all parameters negatively affect the operations and execution of midstream project activities in the oil and gas industry.

Thirdly, the study found that in the occurrence of force majeure, the effect is huge and obvious as far as the implementation of midstream oil and gas project activities are concerned. The study also found that one of the factors associated with the force majeure is the occurrence of political unrest especially wars. The existence of war in any place destabilizes every activity including livelihoods, according to Chen, C. et al (2021), who observed that terrorist attack on the Abqaiq oil plant in Saudi Arabia on September 14, 2019 attracted global attention to the significant role of safety and security in the sustainable oil and gas supply chain and the vulnerability of supply infrastructures subject to intentional and unintentional damages. In the context of Uganda, there has been relative peace since 1986 when the current ruling NRM government took over power. This implies that the government must do all it takes to maintaining political peace and avoid political unrests such that the provisions of the laws relating to risks management in the oil and gas midstream sector is achieved, thus better project performance.

The study also found out that one of the safety and social risk incidents is the occurrences of accidents which take place either due to some human error or due to circumstances beyond human ability. Other factors such as adverse mental state, adverse physiological state, and personal readiness where responsible for various and several midstream oil and gas related accidents. Accordingly, several studies Hirschberg, S., et al (2003) confirms the occurrences and fatality of accidents in the midstream activities of oil and gas. This implies that while undertaking huge capital projects, the licensees in the midstream projects must follow the law, rules and regulations governing the operations of oil and gas very carefully in order to minimise risk occurrences and their associated effect.

The researcher also found out that the lack of competent and skilful human recourse contributed in the unsuccessful implementation of midstream project activities in the oil and gas sector. This is because the entire midstream activities of project under taking in the oil and gas industry is facilitated successfully or otherwise basing on the availability of necessary technology and the expertise to run and manage it. What this means to Ugandan situation is that a lot skilled human resource in the area of risk management needs to be trained and a lot of investment needs to be put

in the oil and gas industry. In addition, another challenge related to the above has to do with corruption. The appointment of unqualified personnel based on favouritism is considered to be a factor affecting the oil and gas industry in other countries and specifically Libya and Nigeria. These unqualified personnel lack the knowledge and experience needed to manage capital projects in the midstream.

In a nut shell, for any country attempting to carry out the business of undertaking huge capital investments like in the midstream in oil and gas, the existence of the law alone is not enough. The country together with the investors must put into consideration the factors discussed above as they play a key role in identifying and implementing risks that otherwise would strangle the project undertaking and thereby failing it from attaining positive quality performance.

## **CHAPTER SIX**

### **SUMMARY OF FINDING, RECOMMENDATION AND CONCLUSION**

#### **6.1 Introduction**

In this chapter, the researcher presents summary of key study findings; this study finding are informed by the research objectives, and make logical recommendations based on the findings, and finally make a general conclusion regarding the purpose of the study.

#### **6.2 Summary of research findings**

It is important to note that there were several findings in this study undertaking, however in this section the researcher will focus on dealing with the key findings. The presentation of the summary of findings is guided by the frame research objectives in chapter one in their logical order as seen below;

##### **6.2.1 Efficiency of the legal framework on risk management**

In this study, the first objective was to examine the efficiency of the legal framework on risk management to produce quality project performances in the midstream activities of oil and gas industry in Uganda. To this the researcher examined the existing legal framework as guided by the study objective and the following were the key findings;

The researcher found that there is an existing and detailed legal framework governing the operation of oil and gas in Uganda generally, the legal framework is considered to be comprehensive as far as capturing and dealing with instances to do with midstream oil and gas project activities is concerned. However, the researcher noticed the wide span of power that the law gave to the licensee especially on issues concerning the management of risks within the different stages of oil production including midstream. In the alternative the institutional design attempts to cover this loophole by tasking the responsible minister to carry out a supervisory role; be that as it may, the exercise of power by both the minister and the licensee can easily be abused thus facilitating risks that ultimately will occasion harm and destruction within the mid-stream activity of oil and gas.

### **6.2.2 Relevance of the risk management methods under the legal regime**

In this study, the second objective dealt with examining the relevance of the various risk management methods under the legal regime to produce quality project performances in midstream activities of oil and gas industry in Uganda. The researcher answered this question by analysing the relevant laws under study with evidence from scientific literatures published mainly in the journal articles.

The researcher found out that most of the issues concerning risk management in the midstream activities that were categorically provided for under the legal regime were correlating with issues presented in the various literature that were reviewed as source of data to inform the study. The issues included risk analysis, risk identification, risk evaluation, risk control; these had to be continuously done.

The research concluded that the legal frame work is relevant to handle issues of risk within the oil sector; and perhaps, the drafting of the Ugandan laws on risk management in oil and gas industry was informed by previous experiences from other countries that have been dealing in oil for decades. This therefore, implies that if the provisions of the law are followed to the dot, Uganda will reap massively from its oil and gas deposits.

### **6.2.3 Challenges facing implementation of risk management**

In this study, the third study objective that the researcher dealt with concerned the possible impediments that may impair the successful implementation of the risk management mechanism in midstream activities of oil and gas industry in Uganda. In order to answer the associated research question, the researcher entirely relied on data collected through literature review depicting historical and contemporary experiences from other jurisdictions.

The researcher found out that there are many challenges that are likely to face anybody including public corporations and private companies from implementing risks management mechanism as provided for under the law. They include; inadequate funds, economic disasters, the occurrence of force majeure, accidents, incompetent and unskilful human recourse, and corruption practices.

### **6.3 Study recommendations**

In this section the researcher makes recommendations as possible line of actions to deal with issues associated risk management within midstream activities of oil and gas in Uganda

Due to excessive power given to the licensee to operate business on risk management, the research recommends that government shift some of those powers to existing institutional frame to usurp some of those responsibilities of closely monitoring the activities of licensees regarding risks management

Secondly, evidence suggests that lack of fund also affects implementation of risk management policy directives; the research recommends that the government finds a favourable mechanism to attract investors in the business since the businesses are capital intensive

Thirdly, in case of the occurrences of majeure which is unforeseeable, the researcher recommends to the government to invent options of tasking a corresponding backups like getting insurance cover to minimise the magnitude of risk when they occurs

The researcher recommends that the government to carry up a close monitoring of implementation mechanisms by the licensees, the minister is given a lot of powers to deal in the activities of oil and gas; other institutions should jointly play the monitoring role on the activities of the licensee

The government should adopt a total corruption free method of handling issues of oil and gas especially in areas of risk management; corruption and employing skilful human resources to deal with risks management issues. Also the licensee together with the government should organise periodic trainings on issues of risk management practices to oil and gas employees

### **6.4 Area for future research**

The researcher recommends a study needs to be undertaken in the following areas;

- To analyse the mitigation mechanism adopted or recommended by the law in managing risks in midstream activity project in oil and gas industry in Uganda
- A study measuring government performance as far as managing risks is concerned within the oil and gas industry in Uganda
- A study to analyse how key stakeholders especially the citizens are involved in the business of risk management in the midstream activities oil and gas in Uganda

## **6.5 General conclusion**

In general the study achieved its intended objective of analysing the law, practice and practical challenges encountered by government and licensees in managing risks within the midstream activities project of oil and gas, the study findings clearly demonstrated that having excellent law alone is not enough, other factors associated with managing risks also should be taken into consideration will carrying out the business of oil and gas especially in the midstream, thereby realising quality project performance.



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