

**A CRITICAL EVALUATION OF THE PETROLEUM REGULATORY FRAMEWORK
IN THE CONTEXT OF ENVIRONMENTAL ISSUES OF SOUTH SUDAN:
EFFICACIOUS AND GUARANTEE SAFEGUARDS**

BY

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**A DISSERTATION SUBMITTED TO THE FACULTY OF LAW IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF A MASTER OF LAWS OIL AND GAS INSTITUTE OF
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APRIL 2022

DECLARATION

I, **Gathuoy Pou Lulhok-D**, hereby declare that this dissertation is my work and it has not been submitted before to any other institution of higher learning for fulfilment of any academic award.

SIGNATURE -----

A handwritten signature in blue ink, appearing to be 'Gathuoy Pou Lulhok-D', written in a cursive style.

Date: 3 March 2022

APPROVAL

This is to certify that, this dissertation entitled “**A CRITICAL EVALUATION OF THE PETROLEUM REGULATORY FRAMEWORK IN THE CONTEXT OF ENVIRONMENTAL ISSUES OF SOUTH SUDAN: EFFICACIOUS AND GUARANTEE SAFEGUARDS**” has been done under my supervision and now it is ready for submission

SIGNATURE

Dr. CHRISTOPHER ISAAC LUBOGO

DATE

DEDICATION

I deeply ascribe this writing to my lovely wife –Regina Nyajima Duop Jiek, who, in all material times stood with me through the course of this profession. She was not only a precise campus of my way to the end, but also a confident breadwinner of the family she loves during the times of this study. Without her persistent courage, I would not accomplish this course.

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LIST OF ACRONMS

RSS	Republic of South Sudan
GoSS	Government of South Sudan
SS	South Sudan
TCSS	Transitional Constitutional of the Republic of South Sudan
CPA	Comprehensive Peace Agreement
MoP	Ministry of Petroleum
NP&GC	National Petroleum and Gas Council
NPGC	National Petroleum and Gas Commission
NPGC-NilePet	National Petroleum and Gas Corporation -NilePet
NilePet	Nile Petroleum Corporation Limited
PRF	Petroleum Regulatory Framework
NOC	National Oil Company
IOCs	International Oil Companies
CPA	Comprehensive Peace Agreement
PA	Petroleum Act, 2012

EPA	Environmental Protection Act, 2012
SPLM/A	Sudan People’s Liberation Movement/Army
EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment
GNPOC	Greater Nile Pioneer Operating Company
GPOC	Greater Pioneer Operating Company
SPOC	Sudd Petroleum Operating Company
ICOPPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
WSA/PSA	Wealth/Production Sharing Agreement
IAC	International Accounting Company
UK	United Kingdom
DECC	Department of Energy and Climate Change-UK
SEIA	Social and Environmental Impact Assessment
NGOs	Non-governmental Organisations
CBOs	Community Based Organisations

CSOs	Civil Society Organisations
SDGs	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change
UNCED	United Nations Conference on Environment and Development
CoB	Convention on Biodiversity
CoP	Conference on the Parties
BEP	Best Environmental Practice
NPD	Norwegian Petroleum Directorate
E & P	Exploration and Production
LIRC	Lower income Resource Country
GDP	Gross Domestic Product

ABSTRACT

This research paper makes an in-depth analysis of policy, oil and gas laws. Since South Sudan (SS) is an independence nation whose legal frameworks feature some few international treaties including regional conventions in correlation with regulatory mechanisms for mining sector, the paper attempts to approach petroleum issues in correlation with environmental protection in such context. Against this backdrop, the focus is on identifying and make comparative approach of different petroleum laws that regulate and protect the environment in the course of extracting oil and gas in Unity State of SS. The paper goes ahead to provide an analysis of the existing literature on legislation for environmental regulation in the oil and gas industry of SS. The research paper delves into the challenges being faced in environmental protection given the destruction caused by the oil and gas industry. It looks at the serious impacts oil and gas exploitation in SS has had on the soil, human and animals.

In its narrow sense, the paper is intended to examining factors that contribute to environmental pollution in the process of oil and gas extraction in the youngest nation, SS, and calls upon all involved in petroleum operation to avert such dangers associated with this resource extraction.

This study also makes a comparative analysis of how environmental regulation in the oil and gas industry is being ensured in other oil extracting jurisdictions. The paper concludes with a number of recommendations on how a sustainable environmental regulation in the oil and gas industry of SS can be best achieved.

CHAPTER ONE

1.0 INTRODUCTION

Oil the black gold, black because of its appearance when it comes out of the ground and, gold because it makes everyone involved in the oil industry rich.¹ Oil, as a multipurpose substance, has changed many countries and lives for the better. Notable scholars agreed that it boosts a sustained economic growth either as a country or as individuals who involved in its extraction. Nonetheless, the same scholars and many others believe that, this non-renewable natural resource becomes a recipe for many countries destruction, social and economic development setbacks – especially in developing counties, and it is widely described as a “curse” for the countries it affects negatively.

This resource (oil) became a cause of South Sudanese’ suffering and livelihood destruction in the hands of united Sudan political elites – due to lack of political will to protect the environment. Many South Sudanese, after the independence thought that, the issue of environmental pollution would be resolved by the Government of South Sudan (GoSS) – based on the lessons learned from the Khartoum Government and International Oil Companies (IOCs) devastating negligence towards protecting the environment. To their disappointment, today petroleum activities have inflicted much greater environmental destruction than before SS independence. The inhabitants of oil surrounding areas (Rubkona, Guit and Koch) Counties of Unity State are faced with diseases whose source is unknown; water is no longer safe for human and animals to drink and, this resulted into their displacement. Air has lost its natural quality because of venting and flaring of gas into the air, forests are disappearing, noise created by petroleum activities disturbed some sensitive animals like elephants and Rhinos and, this incentivized their migration to safer places. Availability of firearms in the hands of youth is rampant due to discrepancy in accessing oil wealth in the Country and, oil workers are not safe. All these issues need a well-fashioned environmental protection and regulatory frameworks – enforced by an independent petroleum regulatory body (institution), with petroleum operators that are willing to adhere to the laws and accept their environmental and social responsibilities.

¹<https://www.encyclopedia.com/history/encyclopedias-almanacs-transcripts-and-maps/black-gold>

Petroleum industry is the most complex sector whose value chain need active attention of all persons involved. This keenness is akin to its diverse and expensive nature, which begins with the instruments by which both government and IOCs establish commercial relationships. Awarding licenses to the IOCs and, how such licenses would be operationalized by the Licensee, principally depends on such instruments. The first known license is the exploration, followed by development and production and other subsequence licenses. From the upstream to downstream and, to the closure of the petroleum lifecycle, is sophisticated venture that requires protracted- care for the operators' health, environment and, that of the community near which petroleum is extracted. In the course to harvesting this wealth, human and environmental health is potentially impacted,² if due care is ignored or inadvertently not taken into account.³ The implications is, prosperity of present and future generations dependents⁴ on how the resource operators adhere to the defined operation rules –which are voluminous regulatory frameworks, and the institutions, which are charged with enforcing the same do their part duly.

As applies to all independent countries, every nation has her own legal system – grounded in the historical background and practices of her citizens. However, the mention of this system would not go without acknowledging the influence of the Common Law, which got its legal grip on the legal system of the British colonies. Sudan, from which South Sudan attained independence, was a British colony. As a British colony, Sudan adopted the British Common Law System –in addition to her own domestic legal system. This made Sudan become a legal pluralised nation in Africa. Apart from Common Law, Sudan has its own domestic legal system, which comprisedof: (1) Sharia Law –including formal law (statutory), (2) Customary Law and, (3) cultural practices – influenced by its diverse ethnicities.⁵ The introduction and imposition of Sharia Legal

² United Nations Environment Programme and Environment Centre, “The role of the government in setting and enforcing regulations is also key to minimizing the potentials environmental impacts” (1997)

³ David Manly and Rob Pitman (2016), Natural Resource Charter Benchmarking Framework: 170 Crucial Questions for Resource-Rich Countries; “Natural resources present both opportunities and risks for the countries that choose to extract them. Managed well, they can support greater prosperity for current and future generations; but managed poorly, they can cause economic instability, social conflict, and lasting environmental damage” (2017)

⁴Ibid, “exploitation by one generation carries the opportunity cost that the resource may not be available for future generations. While the extraction process can last decades, the environmental, social, health and economic impacts of extraction can be felt for multiple generations if not longer”

⁵ Sharanjeet Parmar; “historical, social and political factors have largely shaped Sudanese laws in terms of substance and application, including colonial legacies, a historically Arab-dominated central government and the presence of an intricate network of informal laws that are based upon religious, ethnic and/or tribal communities” (2007)

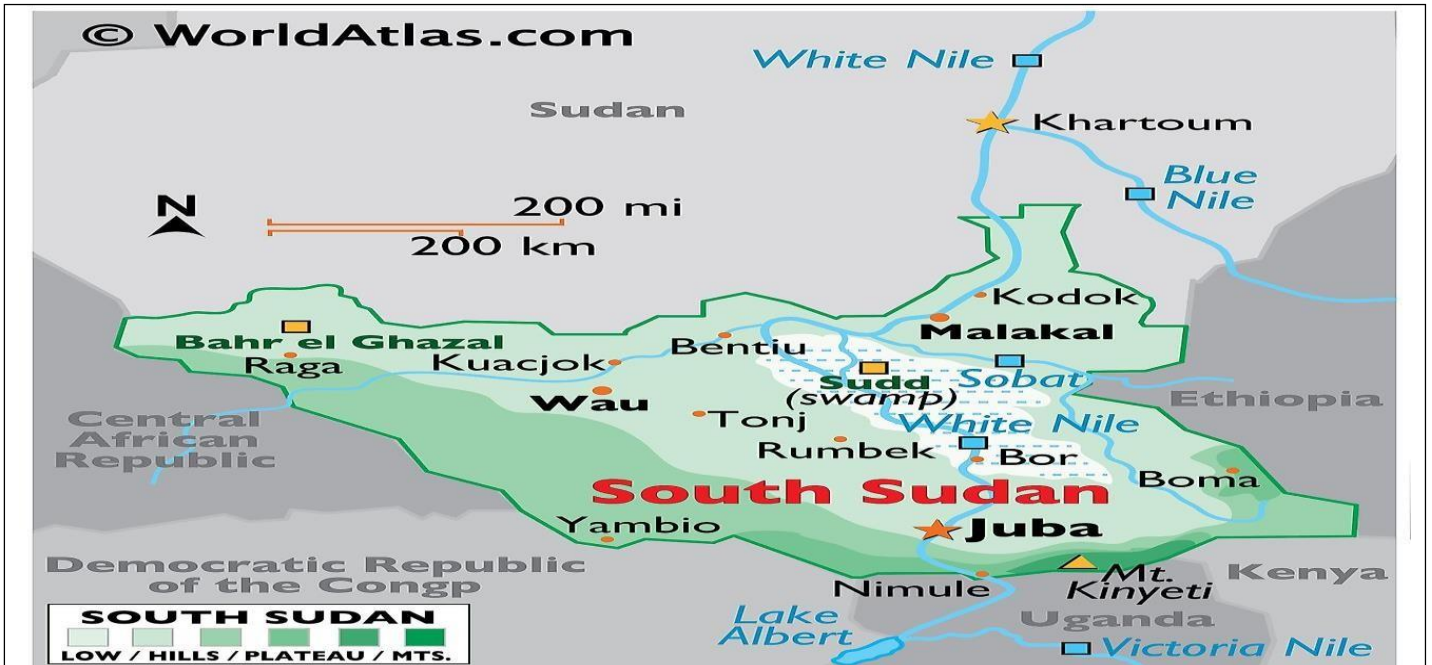
system on Southerners (present SS), who described themselves as true Africans fuelled the social (religious), cultural and political conflict between the North and South Sudan, which begun way back in 1951 and ended in 2005, with the signing of the Comprehensive Peace Agreement (CPA) that secured SS independence in 2011.

During transitional (2005-2011) period and upon independence, SS in its legal instruments, made no mention of Sharia Law –treating it has Arab “tradition” which was imposed on SouthSudanese against their will but, adopted Common Law legal system –adjoined it with herCustomary Law and Statutory legal order. As noted thereon, CPA was the legal reference, substantiated by the Interim Constitution of the united Sudan, 2005. These two instruments (CPA and Interim Constitution), in conjunction with Customs and Practice, formed the legal basis of the Transitional Constitution of the Republic of South Sudan, 2011 as amended. Against this backdrop, it is no legal surprise that, today South Sudan legal system is plural (mixed). The Transitional Constitution of South Sudan article 5,⁶ affirms this Legal System. This Constitution enables SS Legislative Assembly to enact laws that enshrine the ways in which SS legally operates, promotes social welfare in the context of development, devises dispute resolution mechanisms and creates a legal pathway that connects the Country with international community.

In addressing issues that were raised in this paper, the writer goes specifically and looks at the family of laws that were enacted for specific functions, as are briefly discussed in the “Background of the Study” thereafter.

SS borders Sudan in the north, Ethiopia in the east, Kenya in the southeast, Uganda in the south, Democratic of Republic of the Congo in the southwest and Central Africa Republic in the west. The Map below illustrates these borders.

⁶ Art. 5 of Transitional Constitution of SS, 2011, “Sources of Legalisation: the Constitution, written law, customs and traditions of the people, the will of the people, any other relevant source”



Map of South Sudan and its borders

The prime aim of this research is to evaluate and examine the enacted institutional and petroleum frameworks of SS with respect to environmental protection and adopt a sustainable approach while tapping this non-renewable resource. The paper is one of the reminders to the stakeholders in petroleum sector and all involved about the dangers associated with oil and gas extraction. To avert and mitigate such dangers, a host of set priorities to reinforce sustainable development strategies and good practice –in the course of developing oil and gas sector had been formulated, but enormously concentrate in economically advanced jurisdictions and, little of the same kind has been made in the developing countries, especially Africa.

1.1 BACKGROUND OF THE STUDY

Grieved and fatigued due to the devastating decades of civil wars, SS, one of the oil and gas rich African nations, finally attained what its citizens described as “hard won” independence on 9 July 2011 –preceded by the referendum of 9 January 2011, as enabled by the CPA⁷ signed between Sudan People Liberation Movement (SPLM) and Sudan Government in Kenya, 2005.

⁷ Sudan Comprehensive Agreement (CPA) 2005

The first petroleum discovery was struck in 1975,⁸ by the US Oil Company, Chevron in the territory of Sudan and discovered more in the Southern part of the country, presently SS in 1979 in Unity State. Following these discoveries, crude oil in the united Sudan reached market for sale in 1999,⁹ and, as of present, oil and gas proceeds defined the economies of the two nations, Republic of Sudan and Republic of South Sudan (RSS). The environment has long been a factor in violent conflict in SS, especially with respect to control over oil. Albeit SS dominates the confirmed discovered oil deposits, as a landlocked country, it depends on Sudan, which has both oil and gas refineries and export facilities.¹⁰ Despite the agreement between SS and Sudan on SS accessing the oil export pipeline, wrangles over who would own some of the largest oil deposits ensued, especially in Unity State, due to which the central government in the Sudan armed its Arabs ally situated near the borders of RSS and Sudan, with the intention to dislodge the inhabitants of the oil and gas identified locations and, claim the ownership of such areas.

As earlier noted thereof, the researcher evaluates the domestic laws, namely: the Transitional Constitution of SS, 2011, Petroleum Act (PA), 2012 and South Sudan Mining Act, 2012. These laws are evaluated to substantiate the “background of the study” and, to provide answers to the “Problem Statement.” In addition, SS petroleum laws are operationally connected to the Sudan Energy and Mining Laws and, this resemblance influences the researcher to look at two related mining and energy laws of the Sudan that is Land Acquisition Act, 1930 and Mineral Wealth and Mining Development Act, 2015, as discussed in Chapter five (5) page 53-56.

Oil Issues in Secession Negotiations

⁸ <https://fortuneofafrica.com/southsudan/history-of-oil-south-sudan/>, “Onshore petroleum activities began in Sudan in 1975 when US oil giant Chevron was granted a large concession in several provinces of south-central Sudan, including in Western Kordofan and Western Upper Nile. In 1979, Chevron struck oil near abu Jabra and then al Sharaf, on the border between Darfur and Kordofan. They soon went on to make major discoveries in Western Upper Nile in what is now Block 1, near Bentiu, and developed the Muglad Basin where they found two huge oil fields, Unity and Heglig, both in the South.” (2013)

⁹Johcommunicatie and IKV Pax Christi; “Oil was discovered in Sudan in the mid-1970s, but production did not start until 1999” (2008)

¹⁰ Shankleman, J (2011). Oil and State Building in South Sudan: United States Institute of Peace, Washington; <http://www.usip.org/files/resources/OilandStateBuildingSouthSudan>, (16th July 2021)

In a bid to resolve pressing issues surrounding oil and gas during the interim period, Southern Sudan and Sudan embarked on a number of negotiations on a range of concerns, but not limited to: (1) what to do with the oil situated in the disputed points between SS and Sudan, which could result into SS-Sudan joint venture, if agreed, (2) oil share modality, (3), the issue of conflict resolution mechanisms in respect of border-disputes and petroleum relations between SS and Sudan, (4) distribution of State owned Oil Company (Sudapet) Assets between SS and Sudan, (5) continuation of IOCs to operate as a hybrid corporate, (6) and costs for allowing SS exporting its crude oil through Sudan oil export pipeline to the Port Sudan.¹¹ There was no agreement reached on such issues until the period in which the referendum was projected. What was so important, nevertheless, at this time of the disagreement, with the help of international and regional bodies was the successful completion of security arrangement, which prevented the two sides to slip into another war and, guaranteed the continued flow of SS crude oil to Port Sudan. This disagreement, over the contesting issues caused the two sisterly countries to reach the referendum time without formulating a framework on Wealth Sharing Agreement /Production Sharing Agreement (WSA/PSA). Other compensatory provisions contained in CPA that were meant to address environmental degradation and people affected by the oil and gas extraction in their areas were not implemented. Despite lagging behind some CPA key provisions, SS and Sudan continued to try resolving the issue of profit sharing by auditing all the exploration and production costs incurred by the Sudan. International Accounting Company (IAC), the company, which conducted the audit exercise was instructed to avail the result of the same in the month of July 2011, but not achieved as intended and no systematic attempt to advocacy for the release of such result has been inserted. All these are evidences, which indicate that SS failure today, with respect to protecting the people and environment in the petroleum producing States, had long begun on the eve of independence.

Commencement of South Sudan Oil Industry

As earlier noted, until SS and Sudan reached the agreement that enabled the continuation of petroleum operations despite SS being a new independence nation from Sudan, issues were

¹¹Shankleman, J (2011). Oil and State Building in South Sudan: United States Institute of Peace, Washington, <http://www.usip.org/files/resources/OilandStateBuildingSouthSudan>, (16th July 2021)

tough.¹² The new-born nation did not have a blank slate on July 9, 2011 that would ease its efforts in formulating mechanisms to managing her oil sector for the benefits of its citizens. Although faced with lack of legal experts to promulgating sound legislations for resource diversified development, SS managed to reached petroleum contractual agreement with IOCs, which helped it with the development of oil and gas infrastructures, budgetary and banking systems were put in place albeit weak during the interim period as envisioned in CPA.

Petroleum activities in SS have inflicted dire conditions on the ordinary citizens –“open waste pits” in most part of the oil producing areas are evident and, soil is polluted with hazardous chemicals.¹³ Overwhelmed by the realities of post-independence, SS met enormous “criticisms” ranges from its negligence of safeguarding the environment –a practice believed to be adopted by Juba elites from their Khartoum counterparts. Failure to establish a well-supported and independence institutions and regulatory frameworks, and agents to oversee petroleum operations. This lack of attention towards protecting environment and the people around oil producing areas is manifested by under budgeting the Ministry of Environment; overlapping of “responsibilities among the petroleum sector –main and subsidiary bodies, causes a major lag in enforcing the existing petroleum laws in the country.¹⁴

Gripped by the post-civil wars tolls, RSS has half of its population believed to be below the poverty marked-line; investments and development projects ignored and graved to shelf; 80% of its citizens remained uneducated.¹⁵ In addition to these worries, many believed that if SS is not inserting efforts to either diversify the economic drivers or making more petroleum exploration activities, the country oil output is aging around 2025 –that means depletion stage, yet tittle has been achieved in terms of development.

¹² Ibid, J (2011). “Improving Natural Resource Management in Sudan,” United States Institute of Peace, Washington, <http://www.operationspaix.net/IMG/pdf/USIP>

¹³ <https://apnews.com/article/united-nations-south-sudan-ap-top-news-international-news-health>, “the oil industry in SS has left a landscape pocked with hundreds of open waste pits, the water and soil contaminated with toxic chemicals and heavy metals including mercury, manganese, and arsenic” (2020)

¹⁴ Ali (2007), Economic Commission for Africa; MOEPD Seminar, 2010.

¹⁵ Shankleman, J (2011). Oil and State Building in South Sudan: United States Institute of Peace, Washington, <http://www.usip.org/files/resources/OilandStateBuildingSouthSudan>, (16th July 2021)

The RSS, born in 2011, has two almost entirely separate economies. The informal sector, in which a large majority of SS's 8 million to 9 million citizens live, is dominated by subsistence agriculture.¹⁶ According to a 2009 household survey, almost 50 percent of households had not used money at all in the previous years. The formal economy, which provides almost all the income of the GoSS as well as a small amount of employment for South Sudanese, is dominated by production and export of crude oil and, to a lesser extent, by multilateral, bilateral, and Nongovernmental Organisations (NGOS) aids. This research sets out the key immediate opportunities and challenges for the newest nation in managing its oil sector and using its oil wealth to bridge the gap between its informal and formal economies, consistent with SS's objective to "strengthen the management of petroleum resources in a way that contributes fully to economic prosperity and economic development." Oil operations within SS are more problematic, given that the then unified Sudan's oil industry was developed against a background of war, international sanctions and political isolation. Since 1997, Sudan has been subjected to economic sanctions from the USA over alleged abuse of human rights and sponsorship of terrorism.¹⁷ In 2011, Sudan was divided into two with the secession of SS; oil plays a key role in the economies of both North and SS. However, most of the oilfields are in SS, the export pipelines, Red Sea export terminal and processing facilities are in the North Sudan.¹⁸

1.2 PROBLEM STATEMENT

This study has become very imperative due to the environmental degradation occasioned by oil extraction in the producing states of SS. As the world major natural resource nations teamed up to tapping their resources for developing their economies, quality of air and environmental protection is compromised due to flaring and venting of gas during oil production; ecological system is at risk and climate change, influenced by greenhouse gas is exacerbated. Due to these, there is drastic decline in the region's biodiversity and ecological resources. Also, there is an aspect of the health hazards posed on the inhabitants as a result of oil pollution of the

¹⁶ Ibid

¹⁷ Ibid

¹⁸ Sullivan, PJ and N Nasrallah (2010). Improving Natural Resource Management in Sudan: United States Institute of Peace, Washington, http://www.operationspaix.net/IMG/pdf/USIP_Improving_Natural_Resource_Management_in_Sudan.pdf.

environment, and hence there are environmental challenges as well as socio- economic problems created by adverse effects of oil mining.

Prior to the independence of SS, the united Sudan mining sector was in a total control of central government in Khartoum, and there was no robust environmental framework, that would offer protection to the Sudan ecological system.¹⁹ Depending from the united Sudan petroleum regulatory approach, SS entered into oil and gas contracts with IOCs, which were equipped with the regulatory circumvention strategies, oil explorations were conducted with no prior Environmental Impact Assessment (EIA) by the IOCs; environmental corrosion continue taking place, displacement of oil areas occupants, with no compensation, no health or educational infrastructures put in place.²⁰ Emboldened by the lack of legal enforcement in correlation with petroleum activities, IOCs, in the present SS have deeply rooted their influence in the way the petroleum laws are enforced. This is a premeditated effort to maintain the status quo as it was in the Sudan before SS independence. In their implementation of efforts to avoid laws, the IOCs devised a confusing strategy –saying that as a consortium, they agreed to pay tuition fees of any students hailing from oil producing states that joined SS tertiary institution, in exclusion of students coming from the same states, who joined higher learning from abroad. This is a clear circumvention of the laws, which demand them to build roads, hospital, schools, and provide water and sanitation for the oil producing areas.²¹

All the petroleum chains pose unavoidable challenge for environmental sustainability. This can be further exacerbated by the lack of a robust regulatory and enforceable framework that is only developing.²² Having a comprehensive and workable regulatory framework is not only good for the citizens in whose land petroleum is extracted, but also a holistic check list for the host state government – on one hand, to fulfil its constitutional obligation for the welfare of its citizens as well as the environment, on the other hand, IOCs would use it to prioritize their social

¹⁹ Johcommunicatie and IKV Pax Christi; “Environmental laws and regulations in Sudan are outdated and extremely poorly enforced. The government does not monitor the environmental performance of the oil industry, even though most companies involved are known to apply very low, if any, environmental standards of their own. Environmental Impact Assessments are legally required, but once completed, they are shelved and kept secret” (2008)

²⁰ The Petroleum Act 2012, section 82

²¹ Ibid

²² Alexander Huurdeman and Anastasiya Rozhkova (2019), *Balancing Petroleum Policy: Towards Value, Sustainability and Security* (The World Bank), “Petroleum frameworks that lack clarity or support from key stakeholders risk creating or exacerbating conflict among interested parties”

responsibilities and operational liabilities. Petroleum value chain require a robust and intensive enforced regulatory framework in South Sudan – short of which gravely compromises national interest.

1.3 OBJECTIVES OFE STUDY

1.3.1 General Objectives

Critically evaluate, examine regulatory and policy frameworks for the petroleum sector in SS, and to scrutinize whether or not these present frameworks are legally sound to protect lives around the oil producing states as well as enabling a sustained development for the welfare of thecitizens of Unity State.

1.3.2 Specific Objectives

1. To investigate the impact of the oil and gas industry on the environment of SS and its people.
2. To examine the existing legal regime with respect to the regulation of environmental sustainability in the oil and gas industry in SS.
3. To make a comparative analysis of the law regulating oil and gas industry in other jurisdictions.
4. To propose workable recommendations for a robust regulatory framework in regulating oil and gas industry in SS.

1.4 RESEARCH QUESTIONS

1. What is the impact of the oil and gas industry on the environment of SS and its people?
2. Are the present petroleum and environmental regulatory frameworks compressive to guide and facilitate a safe petroleum operation for the benefits of South Sudanese – in terms of a sustained environmental protection?
3. What is the practice in other oil mining jurisdictions in ensuring a sustained environmental protection in their oil and gas industry?
4. What are the possible recommendations in solving the challenges faced by the oil and gas industry in relation to sustained human and environmental protection?

1.5 SIGNIFICANCE OF THE RESEARCH

This study contributes to the existing scholarship, on environmental sustainability in the oil and gas industry in SS. It makes an in-depth examination and discussion of the challenges that South Sudan faces in reform and implementation of environmental sustainability consciousness in the oil and gas, given the growing environmental threats. The review of literature that has been undertaken shows that, although a body of literature has emerged in recent years in the area of sustainable environmental considerations in the oil and gas industry, this scholarship has been dominated by scholars from the United States and Europe, writing mostly from the perspective of advanced economies. Accordingly, an insight from the perspective of SS, a developing country, is dearth with respect to the area under study. The existing literature only provides an important theoretical background for examination and discussion of environmental sustainability considerations from the perspective of SS.

1.6 JUSTIFICATION

South Sudan, since independence is only beginning to legislate towards a sound regulatory framework – this informed the interest in the mind of the writer to question how SS has been monitoring petroleum activities. SS is a product of Sudan, which, through contracted IOCs, carried out exploration and discovered petroleum deposit in commercial quantity in 1979 in the Southern part of Sudan – presently South Sudan. This prompted the construction of pipeline, started from the then Southern Sudan oilfields to Port Sudan (Red Sea) followed by the first oil production in 1999.²³ This contract, to which the Sudan entered into with IOCs was negotiated and signed during the raging second civil war between Sudan Government and Sudan People Liberation Army (SPLA), as acknowledged by the then Minister of petroleum.²⁴ This presents that, Sudan was after short term interest of funding its northern development projects and boost its military capabilities by using the oil proceeds against the Southern rebel's movement, SPLA.

²³ John Communicatie and IKV Pax Christi, "The completion of the first pipeline from the Southern oilfields to the Red Sea in 1999, marked the start of oil production" (2008)

²⁴ Yousif Abdelbagi Abdalla, A. K. Siti-Nabiha And Amirulshah Shahbudin (2013), Examining the regulatory frameworks for the oil and gas industry in Sudan; 'The negotiation of oil was taking place during the war, and then the government was forced and under pressure –they will pay less attention to the environment and the social aspects. Because it takes place so far away from the capital and in a place where people are taking up arms and fighting the government, the interest will be on the oil and not the environment and what it will do to the area; the water, the forest, the animals – wildlife and domestic'

The overarching issue is that, due to this short-term interest and desperate need, there was no clear petroleum, environmental and regulatory frameworks. This lack of clear regulatory framework was inherited in SS. PA, 2012 of SS has provisions that attempt to spell general principles and, leave the possible details to the proposed ‘regulation’, which up to date, has not been formulated. This depicts the clear lacuna in the law, as there is no legal document holistically addresses the regulatory issues in SS.²⁵

1.7 SCOPE OF THE STUDY

This part of the chapter explores both the thematic and geographical scopes of the study with justifications for the choices made.

1.7.1 Thematic/ subject Scope

This paper evaluates legal and institutional framework, environmental degradation as results of oil extraction and socioeconomic in Unity State, SS.

1.7.2 Geographical Scope

Although other geographical areas in SS are endowed with vast natural resources, which need attention, this study concentrates on western Upper Nile (Unity State) in which evidence of petroleum extraction effects are alleged to have been occurring in its oil producing areas.

1.7.3 Time Scope

This study focuses on the independence year of SS, 2011 to the year 2022 between which SS has made strides to legislate environmental sustainability laws to regulate the oil and gas industry.

1.8 THEORETICAL FRAMEWORK

The study will base its findings and analysis on the principal-agency theory. The principal-agency theory, according to Chiappori and Salanie as cited by Basheka, the underlying principle of the

²⁵ Alexander Huurdeman and Anastasiya Rozhkova,(2019), Balancing Petroleum Poilcy: Towards Value, Sustainability and Security (The World Bank), “Legal and regulatory frameworks that clearly address the key issues that arise in connection with the development of petroleum resources help to reduce the potential for disagreements and conflicts, both with foreign investors and within the country itself” (2019)

principal-agency theory is that there should be a clear understanding of the needs of the principal and ability of the agent to meet these needs competently. Principal must closely monitor agents' performance; create reward structures that reinforce desired performance. Indeed, when petroleum laws are well defined and backed by strong regulations –enforced by experienced and environmentally responsible agents, the principal and agents find it easy to meet needs of each other in an efficient way, resulting into timely execution of their responsibilities.²⁶ The principal-agent theory can be applied to this study, with a case company or government as a principal and contractors or service providers or suppliers as agents. The theory becomes significant to the study as it highlights the need for robust Regulatory Framework that meets the requirements intended to achieve set goals by principal and agents, as well as the objectively process of monitoring the feasibility of oil and gas projects with respect to protecting environment.

1.9 CHAPTER SYNOPSIS

This part of the chapter lays out the road map of the study as broken up into separate chapters with independent themes. The study is structured in seven (7) chapters as follows: The present chapter has laid out a contextual framework of the study.

Chapter two considers the literature review effect that the oil and gas industry has had on the oil-exploited states within SS. It looks at the far-reaching effects of oil exploration and mining on the flora, fauna and public health. The Chapter makes a critical legal analysis of relevant legislation, case law, policies, research studies, multilateral and international institutions' reports, governments' reports, and treaties related to or on the subject under study.

Chapter three focuses on the method and tools of data collection that will be used by the researcher. Qualitative method is appropriate for this research given its descriptive nature.

Chapter four considers the impact of the oil and gas industry activities on the environment. It looks at the far-reaching effects of oil exploration and mining on the flora, fauna and public health in Unity State of SS.

²⁶ Oluka, P & Basheka C, Determinants and constraints to effective procurement contract management in Uganda, a practitioner's perspective 2012

Chapter five looks at the existing legal and institutional frameworks regulating environmental sustainability in the oil and gas industry of SS.

Chapter six makes a comparative analysis of how environmental regulation in the oil and gas industry is being ensured in other oil extracting jurisdictions.

Chapter seven provides a nutshell conclusion and summarises the main insights from the findings of this study based on the chapters from which they emerged.

CHAPTER TWO

LITERATURE REVIEW

In this part of the chapter, the study looks at scholarly materials that discusses the environmental regulation in the oil and gas industry. It is imperative to note that there is little literature on the laws that regulate environment in SS.

Prior to the independence of SS, Petroleum Resources Act, 1976 as amended, was the benchmark for oil and gas operation in the united Sudan. The Act vested all the petroleum ownership in the state and authorised the Ministry of Energy and Mining, on behalf of the government to enter into agreement with oil companies to explore and produce oil,²⁷ subject to the Board of Petroleum Affairs' approval.

SS Petroleum Act (PA), 2012²⁸ does provide some good specifications concerning regulation. The Act further provides responsibilities and liabilities of those responsible for oil and gas operations. The manner in which the Act confers such responsibilities and liabilities features the elements of “Responsive Regulation,” whose intention is, regulatory framework should be designed in a way that permits the regulated firms to regulate themselves and, only warrants the regulatory authorities' intervention when such firms circumvent the regulations and their social responsibilities.²⁹ The views presented by **Ayres and Braithwaite**, in this regulation, would

²⁷Section 25 of the Petroleum Resources Act 1975 (As amended)

²⁸Section 39, Petroleum Act, 2012,

²⁹ Ian Ayres and John Braithwaite, Responsive Regulation: Transcending the Deregulation Debate(1992), “So Braithwaite concluded that in *To Punish or Persuade* that you could not develop a sound regulatory enforcement

command an intended results for countries that have obtained tract regulatory experiences on petroleum activities, but a country like, SS would be faced with overwhelming challenges in dealing with sophisticated IOCs, possessed by sole interest of maximizing benefits and minimizing the costs of operations. This means, it is easier for them to applying “creative compliance” with void detection by SS regulatory authorities, which largely characterised by incompetence knowledge in dealing with such regulatory challenges. Even if SS chooses the “Responsible Regulation” strategy, there must be a compliance mechanism and strong regulatory institutions to deal with any deviating firms.

Some of the notable writers believe that it is better for any regulatory frameworks to gain support from all stakeholders, if the desire regulatory results would be achieved.³⁰ There is a need to clarify this view on the composition of the stakeholders. In the writer’s view, the stakeholders should be the relevant resource state government’s institutions – in the exclusion of the IOCs, when it comes to regulatory process making. This argument is akin to the fact that, if the IOCs, as stakeholders are involved in enacting regulations, it would compromise the country petroleum national vision and objectives, which are treated as the prime paradigm of the regulatory framework.³¹ The fear is that, if the IOCs get their way into the regulatory process making, the possible manipulation and “regulatory capture” from the start is very probable, since they would exaggeratedly prioritize their interest above that of the nationals.

Robert Baldwin, Martin Cave and Martin Lodge authoritatively argued out a host of regulatory strategies – among which is regulatory traditional means, “Command and Control (C & C),” which essentially stresses that government sets rules and backs by imposing standards supported by criminal retributive approach.³² This strategy would not only make the regulatory making and enforcing bodies exaggerate the extent to which regulatory intention is enforced, on

policy unless you understood the fact that sometimes business were powerfully motivated by making money and sometimes they were powerfully motivated by a sense of social responsibility” (1992)

³⁰ Ibid, “Petroleum frameworks that lack clarity or support from key stakeholders’ risks creating or exacerbating conflict among interested parties”

³¹ Ibid, “a consistent, transparent, and stable legal and regulatory framework that reflects a government’s key objectives and principles in developing its hydrocarbon resources and that is enforced transparently and effectively is crucial to a sustainable and efficient petroleum sector”

³² Robert Baldwin, Martin Cave and Martin Lodge, *Understanding Regulation Theory, Strategy, and Practice* Second Edition, P.76 “the essence of common and control (C & C) regulation is the exercise of influence by imposing standards backed by criminal sanctions” (2012)

one hand, but also would, on the other hand, create an exclusive relationship between regulating authorities and regulated firms – a circumstance that would incentivise the emergence of “regulatory capture” by the regulated firms, that renders regulation insufficient.

Tony Addison and Alan Rose had tried to come up with more accommodative petroleum regulatory strategies, which assert that, the concerned petroleum national institution must consider, when enacting regulation, a (1) framework, which addresses issues that may transpire during the life cycle of oil and gas.³³ This argument is comprehensive and worth backing, for it cuts across the whole operations of petroleum activities – from awarding license for exploration to the development, production and closure phases. Each of these chains operation outcomes influence the kind of results, which the other chains would produce in both long and short term impacts. (2) Institution mechanism or approach³⁴ – with its elements of: social, cultural and religious norms whose influence affects the regulatory decisions in correlation with how such decision would affect the economic prosperity of the host country. According to their arguments, these approaches differ from country to the other.³⁵ However, the reality is that, not only from country to country but also from region to region within the same country. SS has ten States – categorised into the historical greater regions of: (1) Equatoria, (2) Upper Nile and (3) Bahr el Ghazal. The current petroleum activities are exclusively taking place in Greater Upper Nile – in the states of Unity and Upper Nile whose inhabitants are historically pastoralists, and is a hometo different kind of species. This needs a special regulatory arrangement and consideration on how harmoniously the petroleum activities would be conducted in such a hybrid ecological region without posing pollution threats on these species. (3) “organizational-responsibility approach”³⁶ – this mechanism entails the linkages of central, state and local governments on how regulatory functions would successfully be coordinated. In SS, there are four government institutions that are tasked with petroleum activities, and these include, Ministry of Petroleum (MoP),³⁷ SS National Petroleum and Gas Commission,³⁸ SS Petroleum Authority under MoP and

³³ Tony Addison and Alan Rose, *Extractive Industries, The Management of Resources as a Driver of Sustainable Development* (Oxford University Press) “life-cycle approach” (2018)

³⁴ *Ibid*, “Institutional approach”

³⁵ Tony Addison and Alan Rose, *Extractive Industries, The Management of Resources as a Driver of Sustainable Development* (Oxford University Press) “life-cycle approach” (2018)

³⁶ *Ibid*, “Organisational-responsibility approach”

³⁷ Section 12, Petroleum Act, 2012

³⁸ Section 11, *Ibid*.

SS Oil and Gas National Corporation (OGNC). All these do concentrate in the national capital and, neither of which has regional or state offices. Nevertheless, the laws in SS do give petroleum regulatory making power, with respect to environmental protection to State Governments Assemblies,³⁹ and Local Government,⁴⁰ but hardly put into substantial practice since independence.

David Manley and Rob Pitman argued that, it is very hard to realize the enforcement of local content, as regulatory mechanism, especially for any low income resource countries (LIRC), on the basis that, petroleum sector is capital intensive, managed and run by technical staff, that may not be found in the LIRC, like Africa.⁴¹ Central to this argument are: (1) local companies would not be able to compete technologically and financially with sophisticated IOCs in oil and gas sector; and (2) the relevancy of local workforce would be so imbalance. However, it is not an absolute trend that may exist for so long before getting addressed by the resource country. If the resource state has a well-fashioned constitution, with clear petroleum vision and objectives upon which the regulatory framework develops, and enforce by well-equipped regulatory institutions, the issue of local companies and workers would be resolved, by directing IOCs to capacitate these local companies and workforce within a specific period legally set as mandatory obligation.⁴²

Transitional Constitution of South Sudan (TCSS) 2011,⁴³ as amended, spells out environmental principles for anyone involved in any projects, including petroleum. The same stress the need to use petroleum for sustainable development – with a sustained care for ecological and biodiversity resources. This need is also echoed in Environmental Protection Act (EPA) 2012,⁴⁴ that lays out comprehensive principles on how holistically the exploitation of natural resources should not have any alternative aims than benefiting the national interest of SS.

³⁹ TCSS, Art. 164

⁴⁰ Art. 166 (6), Ibid

⁴¹David Manley and Rob Pitman, Natural Resource Charter Benchmarking Framework: 170 Crucial Questions for Resource-Rich Countries(2016); "... Local workers and businesses can also be exposed to globally competitive working practices. However, realizing these opportunities is difficult. The resource sector is capital intensive and employs technologically advanced processes resulting in few opportunities for low-skilled employment or for business that provide basic goods and services" (2017)

⁴² Petroleum Act 2012, section 65 (5)

⁴³ Articles 41 and 173, Transitional Constitution of South Sudan, (TCSS) 2011

⁴⁴ Section 3, Environmental Protection Act.

That means public participation, as a gauge by which regulatory framework compliance is checked is the key in any successful natural resources engagement.⁴⁵ In addition, the upstream regime Act, PA 2012,⁴⁶ sets conditions that have to be adhered to during petroleum life, till its cessation. The compliance of these qualifying provisions by those engaged in petroleum business would be vigorously supplemented by a robust regulatory regime – as such regulatory making power is conferred on the Minister of Petroleum as stipulated in Petroleum Act.⁴⁷ All these provisions set a guide upon which regulations, including local content that cut across all petroleum streams would be built.⁴⁸ However, it is worth noting that, absence of a robust petroleum regulatory framework left many to guess that SS has been depending on other resource countries regulations, which contradicts the views that, regulatory strategies that work well in one country may not yield the desired regulatory outcomes in other country.⁴⁹

Some reliable resource states' government selected bodies are strong proponents of petroleum 'Contingency Plan', as part of regulatory mechanism that enables both operators-regulated firms and regulatory authorities to effectively respond to any petroleum emergencies.⁵⁰ They, as well acknowledged that, safeguarding of any petroleum infrastructures legally remains with the operator.⁵¹ Such strategy is applicable in a country, which has regulatory framework from which all other oriented regulatory mechanisms emanate. A country like SS, with no petroleum

⁴⁵ Mohammed A. Behechi and Jean-Roger Mercier,(2002) The legal and regulatory framework for environmental impact assessments : a study of selected countries in sub-Saharan; “public participation in decision-making processes for development helps meet public needs, enhances access to information, leads to better development decisions, results in fewer courts challenges, and ultimately reduces conflicts between developers and the affected public” (2002)

⁴⁶Sections 18 to 98Petroleum Act, 2012

⁴⁷ Ibid, section 99

⁴⁸ Silvana Tordo, Michael Warner, Osmel E. Manzano, and Yahya Annouti, “the oil and gas sector is spread along a value chain of recognisable different stages, some of which may even act as separate subsectors” (2013)

⁴⁹ Tony Addison and Alan Rose, Extractive Industries, The Management of Resources as a Driver of Sustainable Development, Oxford University Press, (2018) “transplanting a regulatory system that works well in one country context into another does not automatically result in success” (2018)

⁵⁰ Geoffrey Maitland Freng (2011), Independent review of the UK Offshore Oil and Gas Regulatory Regime ('The Maitland Report') “Panel recognise that an approved and fit for purpose contingency plan is a key foundation for successful and coordination during incidents”

⁵¹ Ibid, “Ultimately, legal responsibility for the safe operation of an installation and connected activities rests with the owner or operator”

regulations, left such emergency plans to the operators whose response to any emergencies would only be guided by the international environmental best Practice Principles only.⁵²

Tina Hunter advocates for a well-balanced regulatory framework, which on equal gauge, balances host state interest with that of IOCs and other stakeholders.⁵³ The means by which such competing interests can be realized obviously includes, but not limited to curtailing the legal capacity of a sovereign state to freely enact her policies and laws in managing the resources of the country (stabilization clause). There is a need to delimitate two regulatory lines in which resource state and IOCs meet in one and, do not, however do so in another. These lines are: (1) commercial interests of state and IOCs, as matter of resource rents, which is the subject of tax gains by the state and tax pay by the IOCs – such process needs negotiation between state and IOCs. (2) Workforce and ecological – including environmental safety and health is a matter of law and, as such, IOCs has no business to negotiate their interest in the name of achieving a balanced interest.

The World Bank put emphasizes on what they ‘termed as technical regulation’, with special particulars that detailed out the ‘operational processes’ for the purposes of maintaining environmental best practices, and standards.⁵⁴ This is especially done during petroleum production phase – mostly when to flare and vent gas and when not to do so. This argument of setting technical details by the government pertaining when to flare and vent and when not to do so the associated gas is another saying of ‘let us opt for’ ‘command and control’ regulatory mechanism. The likely outcomes of such regulation is the compromised regulatory compliance – in that, the regulatory agency’s susceptibility to the regulated firms influence is high.

‘Safety Case;’ the proponents of ‘safety case’ stress the needs for petroleum operators topiloting and produce a detailed document, which contains the components of regulatory targets that include: (1) identified hazards, (2) risks assessment, (3) means to implement measures in

⁵² International Finance Corporation and World Bank Group (2007), “preparing workers and nearby communities to respond to accidents, including providing technical and financial resources to effectively and safely control such events, and restoring workplace and community environments to a safe and healthy condition”

⁵³Tina Hunter, Regulation of the Upstream Petroleum Sector: A Comparative Study of Licensing and Concession Systems (2015) ‘in regulating petroleum extraction a state is required to balance the needs of the participants, ...’

⁵⁴ The World Bank, ‘a main function of technical regulation is to specify operational processes to ensure that environmental, health, and safety standards are being met when operators flare and vent associated gas’

mitigating risks, (4); review and continuously improve the efforts of risk control – monitor and audit the suspected hazardous actions and, (5) ensure that safety of workforce at facilities is guaranteed.⁵⁵ ‘Safety Case’ has been categorized as a tool by which the described standards, procedures, methods identified ‘for managing the health and safety risks on a facility become a legal requirement’. Their assertion worth seconding, but this should be informed by a well-tailored regulation whose enforcement and compliance requirements serve as benchmark for the regulated firms.

Professors Bronwen Morgan and Karen Yeung had discussed a host of regulatory strategies – among which is the economic regulatory approach (1), which is the interest of the researcher about which to talk. The heart of this mechanism is that, regulatees are left free in conducting their business; with the regulatory agencies moving among them with flaring “stick” that “strikes” on any one found infringing the regulation by imposing heavy tax on such deviants and reward subsidies to the well-behaved regulatees.⁵⁶ Insofar as this strategy produces some desired regulatory intentions, its vantages cannot last in a crippled economy, if the country opts to adopt this strategy. The instant grounds for this strategy being irrelevant in SS are: a) the country has got no expertise to deal with complex petroleum operators and, the technical ‘know how’ to detect the regulatory deviants would be very uneasy. This suffices that it would not be a challenge for operators to circumvent (creative compliance) the regulations unnoticed. b) The inexperience regulatory agencies would be susceptible to regulatees ‘capture’ that would heavily undermine the regulatory intentions. c) The incentives, as the strategy suggests would land in wrong hands and, in long term jeopardises and distorts the country’s economic growth.

As the aforementioned Professors done, had, at length discussed tripartite regulatory approaches, a) Punish or Persuade – a strategy that says, regulatory agencies have arrays of discretionary

⁵⁵ Kym Bills and David Agostini, An investigation report into major pipeline explosions in June 2008 on Vananus Island off North West of Western Australia; ‘the identification of hazards, and assessment of risks; the implementation of measures to eliminate the hazards, or otherwise control the risks; a comprehensive and integrated system for management of the hazards and risks; monitoring, audit, review and continuous improvement; and assurance that the risks to the health and safety of persons at the facilities are reduced to a level that is as low as reasonably practicable’

⁵⁶Professors Bronwen Morgan and Karen Yeung (2007), An Introduction to Law and Regulation: Text and Materials, Cambridge University Press; ‘the most widely used economic instruments (EI) form involves the imposition of a charge or tax on individuals or firms. To correct misallocations arising from externalities, the amount set should be equal to the marginal damage which the individual or firm inflicts on others’

powers to elect, among channels of regulatory enforcement styles the best options by which regulations can be enforced and, non-compliance is detected, on which proportionate punishment is imposed, to deter the founded wrong doers and those who would, in future commit the same regulatory wrong.⁵⁷ b) Meta-regulation. Under this regulation, the regulatory compliance assessment by the regulator depends on the regulatees inter-self-regulation (Regulatory Compliance Reports) on demand and, devise mechanisms to verify the accuracy of the Regulatory Compliance Report.⁵⁸ c) Smart Regulation affords the bodies for whose operation theregulations are formulated, to set their own inter-regulation as well as co-regulation – which area combination of commercial and non-governmental organisations (NGOs), with a surrogate that operates as regulator on behalf of the government.⁵⁹

SS government is in a preparation phase to takeover petroleum operations from IOCs in 2027,⁶⁰ according to the Ministry of Petroleum (MoP) in the Report containing petroleum operation data of 2016 to May 2020. The target of the MoP reflects the views, which believe that petroleum assets are to be surrendered to the National Oil Company (NOC) at a certain stage of petroleum life and, it is this company upon whose shoulder the control of the petroleum activities are rested. This will be an uphill endeavour for the GoSS – given the absence of robust regulatory framework and the lack of preparation to take over the new lead of the sector. The implications are perceived to be so dire in a sense that, if the takeover occurs before building a strong regulatory institution, NOC, the Nile Petroleum Corporation Limited (NILEPET) is likely to

⁵⁷ Robert Baldwin, Martin Cave and Martin Lodge, Understanding Regulation Theory, Strategy, and Practice, Second Edition (2011); the deterrence strategy emphasises a confrontational style of enforcement and the sanctioning of rule-breaking behaviour. It assures that those regulated are rational actors capable of responding to incentives, and that if offenders are detected with sufficient frequency and punished with sufficient severity, then they, and other potential violators, will be deterred from violations in the future’

⁵⁸ Robert Baldwin, Martin Cave and Martin Lodge, Understanding Regulation Theory, Strategy, and Practice, Second Edition (2011), under such an approach, the role of regulation ceases to be primarily about inspectors checking compliance with rules, and becomes more about encouraging the industry to put in place its own systems of internal control and management which are then scrutinized by regulators. Rather than regulating prescriptively, mega-regulation seeks by law to stipulate modes of self-organisation within the firm in such a way to encourage internal self-critical reflection about its regulatory performance.’

⁵⁹ Ibid, ‘it is concerned with self-regulation and co-regulation, with using both commercial interests and NGOs (non-governmental organisation) and with finding surrogates for direct government regulation, as well as with improving the effectiveness and efficiency of more conventional forms of direct government regulation’

⁶⁰ www.aa.com.tr, “the SS government is beginning plans to take full control of its oil sector by introducing a training facility and controlling data storage ... this training facility will help equip S. Sudanese ahead of 2027 when the government plans to phase out foreigner investors from the oil sector.” (accessed on 12/1/2021 at 10: 30AM)

monopolize the whole of petroleum operations, with high likelihood of “regulatory capture”. The side effects of this capture are likely than not on the ecological composition – including humans.

Ann M. Eisenberg & Elizabeth Kronk Warner, argued that securing a sustained energy and advocating for environmental and climate justice is a social responsibility of all informed citizens, as the need for living in a healthy environment competes with that of securing a reliable energy. The two fundamental interests (need for healthy environment and reliable energy) gained progressive momentum in recent years. In a broader sense, the issues at hand, in these writers’ argument are three, namely: (1) environmental protection, (2) securing reliable energy and, (3) Climate Change, which is chiefly connected to petroleum extraction. Their argument was principally triggered by the exclusive manner in which poor and people of colour in whose area petroleum is extracted in India, bear the tolls of petroleum effects, yet they have no access to employment opportunities afforded by the extraction of this resource.⁶¹ In recent years, United Nations and many countries around the globe advocate and called for environmental and climate justice. Such advocacy and call, informed legal frameworks that is cognitive of protecting the environment in a bid of minimizing climate change while tapping natural resources for the welfare of respective nations’ citizens.

South Sudan does not only suffer from weak laws with respect to protecting the environment and promote climate justice, but also from lacking environmental experts, institutions and unwillingness to enforce its own enacted petroleum related laws. Environmental and Climate Justice is interrelated and can be described interchangeably. The issue would be, whether SS has holistic environmental and climate justice system, as it struggles to tap its own natural resources to full potential. The answer is no. Many available environmental and climate change literature concentrates on the developed countries whose national legal frameworks incorporate the need to shifting away from fossil fuel based energy to an environmentally friend energy (solar energy) that promotes a green world. The relevant issue in SS oil and gas extraction now is: producing

⁶¹ **Ann M. Eisenberg & Elizabeth Kronk Warner**, “Marginalized communities risk continuing to bear disproportionate environmental burdens while facing barriers to equitable access to new opportunities, such as “green” jobs ... Some environmental justice communities have also grown to depend economically on the very industries that have caused them such harm, prompting calls for just transitions—or equity for workers and communities who depend economically on fossil fuels—to ward off and mitigate regional fiscal collapse and individual hardship” (2021)

reliable energy, but while doing so, environmental and human health must not be compromised. Against this background, the writer believes that if the environmental laws are fully enforced in the course of exploiting natural resources, SS will gradually understand the intricacies of petroleum extraction on the climate change and, consider migrating from relying on fossil fuel energy to solar energy based. That means legislation of climatically legal regime and adopting the advanced technology that enables the use of solar energy would be the next target for SS.

Greenwatch –an environmental advocacy body in Uganda argues that, as the advancing technology gains its inseparable place in the human economic developmental projects, it is great to know the shortcoming of using such technology without paying attention to how it interferes with the integrity of the natural environment including atmosphere.⁶² That all involved in natural resource development need to appreciate the dangers associated with such development –bearing in mind that climate change, as a result of extracting this resource, is a growing threat to the natural world. SS as the world newest nation is infests with the need of exploiting natural resources as much as possible, but ignore to juxtapose the pursue of this need with that of protecting and promoting environmental and climate justice.

The notion of juxtaposing a meaningful resource exploitation with the steady environmental legal protection, together with encouraging fully pledged establishment of climate justice is worth talking about. Frankly speaking, at the current petroleum affairs of SS, climate justice is not seriously taken into account and, rarely attracts attention of anyone in the country –including government institutions. This does not mean that it worth no such attention and legal recognition, but lack of appreciating the fact that achieving oil and gas development is not sustainable if such development disfigures the natural environment and exacerbates climate change.

⁶² Greenwatch, “the concept of an international law of the environment is relatively new. It is principally a result of twentieth century technological advances and a corresponding increased understanding of the environmental consequences of those advances. In the past two decades, this area of international law has developed rapidly as problems such as oil and chemical spills, acid rain; stratospheric ozone depletion and polluted waterways have clearly demonstrated that environmental degradation does not respect man-made boundaries. There has been a growing recognition that "pollution and other sorts of environmental harm are propagated regardless of state sovereignty and its limits" and that accordingly, "the struggle against it must be international" (2009)

CHAPTER THREE

3.1 METHODOLOGY

The study is doctrinal in nature. A traditional doctrinal legal scholarship that involves analysis of primary and secondary sources of law. It will be used in this study to address the focus and aim of this study as it has been overwhelmingly used in similar legal studies. Upon the guidance of this methodology, a critical legal analysis of relevant legislations, case law, policies, research studies, multilateral and international institutions' reports, governments' reports, treaties, international insolvency standards, and protocols related to, or on the subject under study has been undertaken.

The researcher has analysed the regulatory and policy frameworks and evaluated the effects of these frameworks on petroleum sector in SS. The data used in this paper are obtained from both primary and secondary sources. Most notably, SS laws and international conventions and treaties. On the part of secondary data –books, internet sources and journal articles will be important for this research.

This part of the study will focus on the method and tools of data collection that will be used by the researcher. The doctrinal method (qualitative) is appropriate for this research given its descriptive nature. It enables the researcher to analyse host of legal instruments –ranges from domestic, regional and international. The researcher critically examined Petroleum and environmental protection laws from both SS and the Republic of Sudan, and identified the loopholes in them that exacerbate the negligence on the part of IOCs and the RSS. This methodology is important as it deals with in-depth legal analysis in a bid to address the challenges that face mineral resource sector in SS. Bearing in mind that this legal research, with respect to environmental issues, looks at the petroleum regulatory enforcement strategy.

Comparative Analysis as an integral part of this methodology will be used to compare SS petroleum related legal regimes with that of other petroleum producing Countries. The Countries in questions are Norway, Nigeria and United Kingdom. The analysis will look at the successes and failures brought about by the petroleum legal framework in the context oil and gas exploitation and, the ways in which such legal framework is enforced (government oversight) for the purposes of minimising the dangers – associated with its extraction and maximizing the benefits for the citizens in whose locality this resource is extracted. The results derived from the analysis together with other relevant findings therein, will be used to inform the recommendations, which is meant to influence good policy and petroleum regulatory regimes making in SS.

At this stage, I will, nevertheless need to look at the tools for collecting data, which comprises of questionnaires, interviewing oil producing areas residents, operational managers and workers in different oil companies, institutions, and policy makers.

However, due to the out-break of covid-19, there are constrains for one to go to the field to collect data and as such, I will explore the available tools like relying on online interview, incentive questionnaires, cases of categories of people in companies.

3.2 RESEARCH DESIGN

The researcher will use desk review by looking at existing literatures, laws and statistics of SS pillars and energy. As earlier noted, with the outbreak of the covid-19, which has constrained the interactions with people and fieldwork, desk review as a tool will greatly be considered in collecting data for this research.

3.3 Data collection methods

3.4 Interviewing

Semi structured interviews will be used to get information by using closed and open ended questions, direct and leading questions. For example, conduct online interviews with the company directors and institutional heads in energy sector.

3.5 Desk review

The researcher will use desk review by looking at existing literatures, laws and statistics of SS pillars and energy sector. As earlier noted, with the outbreak of the covid-19, which has constrained the interactions with people and fieldwork, desk review as a tool will greatly be considered in collecting data for this research.

3.6 Data analysis

The collected data will be read thoroughly, edited and complied by the researcher to accuracy and completeness. In this instance, I will consider the information from the data bank of the energy institutions like the Ministry of Petroleum and mineral development in SS and other private companies on energy production project in SS.

CHAPTER FOUR

THE IMPACT OF OIL AND GAS INDUSTRY ON THE ENVIRONMENT IN SOUTH SUDAN

4.0 INTRODUCTION

“Environment is one of the facets of life that requires utmost attention. The relationship between man (human being) and the environment is one that is reciprocal, in a sense that man cannot live without the environment and the environment needs a man to adhere to its conditions so as to

have a sustainable environment to live in.”⁶³ Awareness of the importance of environmental issues has become more and more central to the thinking of the oil industry and regulators in the last decades. Integration of development and environment, approached in partnership between stakeholders, was the theme of the United Nations Conference on Environment and Development (UNCED) in Rio, 1992. This Conference touches, especially “Principle 4” vast issues, which associated with man’s activities that either inadvertently or premeditatedly disfigure the natural environment. Environment needs to be understood as a “life” enabling for man and the ecological composition, which makes man’s life comfortable. With such understanding, any investment or development projects holders should prioritize putting in place measures that conform with environmental and all other relevant laws in order to treat the environment as an inseparable factor of man’s life and not just a “let not go friend.”⁶⁴ The rationale behind this argument is that man can hardly afford to be put to test by the quest of creating a decent life and creating conditions that deny the consideration of respecting, that which makes decent life real, and conform to live.⁶⁵

RSS, like many oil dependent African countries, exports all its crude oil to the international market through Port Sudan –given the fact that 40 per cent of its GDP derives from oil production. SS oil contributes to 90 per cent of environmental concerns. Nonetheless, because of oil, the country is believed, in 2013 to have reaped around 1 billion⁶⁶ USD annually from oil sales, as its main foreign exchange. This figure was gravely affected by the Covid-19 Pandemic, which caused the slump of crude oil prices worldwide in late 2019 through 2020.

⁶³ Goodland, R. (2006). Oil and gas pipelines social and environmental impact assessment: State of the art. *Oil, Gas & Energy Law Journal (OGEL)*, 4(4).

⁶⁴J. P. (Koos) Visser Chairman, E&P Forum Environmental Quality Committee (1993–6); Jacqueline Aloisi de Larderel Director, UNEP, Industry and Environment Centre (UNEP/IE) E & P. Forum, *Environmental Management in Oil & Gas Exploration and Production. An overview of Issues and Management Approaches*, (1997).

⁶⁵ Goodland, R. (2006). Oil and gas pipelines social and environmental impact assessment: State of the art. *Oil, Gas & Energy Law Journal (OGEL)*, 4(4).

⁶⁶ <https://www.reuters.com › article › us-southsudan-oil-id..>

South Sudan made almost \$1 billion from oil sales since resuming production in April, of which it had to pass on a quarter to arch foe Sudan for exporting crude through its territory

4.1 ENVIRONMENTAL DEGRADATION IN MINING STATES OF SOUTH SUDAN.

The TCSS emphasizes the importance of a healthy environment for human life and ecological components as indispensable legal requirement that has to be enforced by all involved in petroleum operation under all circumstances.⁶⁷ Nevertheless, as observed by a number of researchers and South Sudanese, the IOCs have been bending this right in the course of oil extraction, especially in Unity State. The effects of oil exploration and production include deforestation, loss of wildlife habitat and biodiversity, loss of grazing land, soil and water contamination especially of critical wetlands due to oil spills.⁶⁸ The present mood of the people of Unity State reveals that, risks of oil extraction in their areas outweighed the much-expected benefits that this resource would afford to the people of this State before the independence.

In Unity State, the population resides in towns is minimal compare to those living in Stateside. The economy in the Unity State is more dependent on subsistence farming, cattle herding, and fishing. Small-scale business is also practiced in the area. As a State punctuated with these farming and livelihood activities, oil extraction has imposed hard conditions on these lives due to great threats inflicted on the environment, which is the main enabling factor of human and other lives. These concerns are observed mostly in communities near oilfields in Koch, Guit and Rubkona Counties where oil activities concentrate.

Weak or completely absent regulations affected environmental conditions prior to independence.⁶⁹ Waste water was not processed and drilling chemicals were disposed in unprotected areas. Indirect environmental effects such as deforestation, poaching, and looting added to the misery. Though the full findings of their research have yet to be published, a report in March by a German NGO, Sign of Hope, estimated that 180,000 people face life-threatening risks from oil-related water pollution.⁷⁰ Heavy metals, from leaking pipelines and refineries and damage from fighting, have leaked into the groundwater. The continuous intake of metals can lead to dramatic consequences, for example, anaemia and kidney failure. Lead poisoning can

⁶⁷ Article 96, Transitional Constitution of South Sudan, 2011

⁶⁸<https://wedocs.unep.org/bitstream/handle/20.500.11822/27920/Foresight%20150419.pdf?sequence=1&isAllowed=y>

⁶⁹Wim Zwijnenburg (2016), South Sudan's Broken Oil Industry Increasingly Becoming a Hazard, <https://www.newsecuritybeat.org/2016/05/south-sudans-broken-oil-industry-hazard/>

⁷⁰<https://www.dw.com/en/ngo-blames-water-pollution-in-ssudan-on-oil-company/a-38906882>

also affect the nervous system. “It can lead to serious symptoms like intelligence deficiency, paralysis and psychological problems,” said toxicologist Prangst. The hair samples, nevertheless, do not prove that people around the oil fields constantly consume metals. This would require blood tests, Prangst professed.⁷¹

4.2 IMPACTS OF THE PIPELINE FIRES

Pipelines are complex set of connected tubes that have capacity to carry variety of different compounds of crude oil at divergent of degree Celsius. They are flammable-long tubes as well as sensitive to any external interferences with their normal function. As evidenced in the following figure *I*, the 2013 civil war has caused much damage in these pipelines central facility in Unity Oilfields, Unity State. The water like seen in the vicinity of this facility is oil leaked from the pipelines that might be tempered with by the war participants. There is no doubt that the effects of this oil is hazardous on: (1) people, (2) environment , (3) water, both underground and surface waters, (4) animals, (5) atmosphere and (6) all ecological species in both long and short terms.



This is the meeting point of all the networks of pipelines in Unity Oilfields coming from Tharjiath oilfields and other areas of Unity oilfields. From here, the main pipeline takes the oil to Heglig oilfields from which it proceeds to Port Sudan (Red Sea)

⁷¹<https://www.dw.com/en/ngo-blames-water-pollution-in-ssudan-on-oil-company/a-38906882>Ibid

This may affect a huge of area of land, as many subsidiary pipelines –coming from various sites of oilfields, are connected to the main Pipeline that runs from Tharjiath Oilfields through a number of villages of Koch, Guit and Rubkona Counties.

In 2019, explosion occurred in Unity oilfields for which the occupants of the area expressed worries that their lives and that of their animals are at imminent threat,⁷² as they directed their blame to Greater Pioneer Operating Company (GPOC) for failing to mitigate the dangerous incidents, as they allowed some coal makers to burn charcoals near oil facilities.⁷³

This “explosion” is associated with so many threatening impacts: for example, the smoke sent into air compromises the oxygen on which human and surrounding lives dependent. In this incident, the air quality is lost, bad perfume is smelled and inhaled in, and the more intake of such perfume the more it causes respiratory of both lower and upper tract infection. The environment elemental nutrients are eroded, and causes the soil becomes so infertile for farming activities and other complications are probable for both human and lives in this area. Due to these, more efforts to rescue lives in the Unity State producing areas are badly needed.

Although “the leakage of the pipeline does not hit the residential area, the people can still be exposed to polluted food and polluted water and such diseases are not easily treated” –given the fact that Unity State health service are very poor. “This is particularly problematic as residents of other adjacent areas might be exposed to oil contamination, especially when they eat food coming from the oil affected locations despite “living far from the oil spill site.”⁷⁴ As the pipelines run through large areas of livelihood activities, the grave ramifications of petroleum explosions are so enormous and hard to bear by the affected communities, which has no reliable health facilities in the area. Unlike the past, the people of Unity State, in the recent years understand the magnitude of impacts of petroleum extraction, but have not yet appreciated their rights through which they could seek redress to these effects, as provided for in several laws of SS with respect to the petroleum activities.

⁷² Richardson, Matthew L., Benjamin A. Wilson, Daniel AS Aiuto, Jonquil E. Crosby, Alfonso Alonso, Francisco Dallmeier, and G. Karen Golinski. "A review of the impact of pipelines and power lines on biodiversity and strategies for mitigation." *Biodiversity and Conservation* 26, no. 8 (2017): 1801-1815.

⁷³Ibid

⁷⁴Beyer, J., Trannum, H. C., Bakke, T., Hodson, P. V., & Collier, T. K. (2016). Environmental effects of the Deepwater Horizon oil spill: a review. *Marine Pollution Bulletin*, 110(1), 28-51.

Unity State environmental composition is diverse and complex –an ecological system that needs a high level of understanding the impacts of not putting measures that would reinforce petroleum regulatory framework, which protect such ecosystem. It is of no excuse to failing to foresee the possibility of spills explosion if certain mitigating measures are not in place, owing to the sensitivity of the oil site.⁷⁵ Now the Unity State citizens are gradually learning the implications of oil incidents as they affect them in different dimensions –some of these effects could be both long and short-term life threatening on animals, plants, human and animals’ organs, organisms, since oil contains variety of toxic chemicals with concentration of poisonous elements.⁷⁶

Beginning from Tharjiath oilfields in Koch County to Male Oilfields in Guit County, (subsidiary wells) connected to Tharjiath –under Sudd Petroleum Operating Company (SPOC) then to Unity Oilfields in Rubkona County –under GPOC is a vast area of Savannah land. A combination of wetland, rich swamp of River Nile and its tributaries that cut across large residential villages of the people of these Counties. Needless to mention the countless ponds of rainwaters, which characterize this vast area upon which many lives depend being animals, humans and other environmental composition. Given this rich habitat, any mishandling of petroleum elements may cause an irreversible effect of ecological system including human being in this area.

4.3 EFFECTS OF PETROLEUM PRODUCTION ON UNITY STATE ENVIRONMENT

Petroleum extraction effects are not one-off in nature. They are persisting, as they range from all chains of petroleum, namely: exploration, production, midstream and decommissioning. In all these stages, displacement occurs, noise that affects habitat happens, mishandling of wastes, flaring and venting of gas. All these and other elements equality contribute to enormous environmental challenges that renders human life miserable.⁷⁷ The following discussions reflect magnitude of the aforementioned impacts in details.

⁷⁵Beyer, J., Trannum, H. C., Bakke, T., Hodson, P. V., & Collier, T. K. (2016). Environmental effects of the Deepwater Horizon oil spill: a review. *Marine Pollution Bulletin*, 110(1), 28-51.

⁷⁶Wim ZwijnenburgSouth Sudan’s Broken Oil Industry Increasingly Becoming a Hazard, May 2, 2016 <https://www.newsecuritybeat.org/2016/05/south-sudans-broken-oil-industry-hazard/>

⁷⁷ E & P. Forum, *Environmental Management in Oil & Gas Exploration and Production. An overview of Issues and Management Approaches*, (1997).

4.3.1 NOISE

Modern oil and gas development techniques such as directional drilling and hydraulic fracturing, or “fracking;” nosing during, causes all lives in the area uncomfortable, due to heavy machines that are employed to break all kind of barriers, “pumping station” oil production, flaring, “compressors stations;” all these produce high level of noise,⁷⁸ which affects human, domestic and wildlife.⁷⁹

Studies⁸⁰ show that noise from fracking operations may contribute to adverse health outcomes in three categories; Annoyance: Sustained noise may produce a host of negative responses such as feelings of anger, anxiety, helplessness, distraction, and exhaustion, may predict future psychological distress; sleep disturbance. Awakening and changes in sleep state have after- effects that include drowsiness, cognitive impairment and long-term chronic sleep disturbance and cardiovascular health. Studies have found positive correlations between chronic noise exposure and elevated blood pressure, hypertension and heart disease.

Environmental noise is a well-documented public health hazard. Numerous large-scale epidemiological studies have linked noise to adverse health outcomes including diabetes, depression, birth complications and cognitive impairment in children. Noise exposure, like other health threats, may disproportionately affect vulnerable populations such as children, the elderly and people with chronic illnesses.

2.3.2 SOIL

Another source of oil related pollution is the discharge of effluents into the surrounding environment, sometimes into the water, by the oil companies. Oil production has a significant impact on the landscape and local environment. Contamination of soil and water is a major common consequence of oil production, particularly in areas with nonexistence or not enforced environmental regulation. For instance, during exploration or seismic surveys by oil companies, drill cuttings, drilling mud, and fluids are used for stimulating production. There is also the use

⁷⁸Davorin Matanovic, Risk Analysis for Prevention of Hazardous Situations in Petroleum and Natural Gas Engineering, in: IGI, Global (Eds.), 2013.

⁷⁹Frank R. Spellman, Environmental Impacts of Renewable Energy, 1st edition, 2014

⁸⁰Ann Brody Guy, PSE Healthy Energy, <https://wvutoday.wvu.edu/stories/2016/12/22/noise-pollution-from-oil-and-gas-development-may-harm-human-health>

of chemicals during seismic activities. The major constituents of drill cuttings such as barytes and bentonitic clays and the production of unusually high total acid values when dumped on the ground prevent local plant growth until natural processes develop new topsoil.⁸¹

As earlier noted, all lives depend on healthy environment. Anything that grows out of soil needs rich nutrients that offer necessary supply for that matter. For example, wild and agricultural plants, fruits vegetables and other organisms need that which makes them grow healthy and maintains their lives adequately. If such environment is tempered with, especially by petroleum activities, it affects their biological nature and causes them impotent.⁸² “Oil effects reduce the soil’s fertility such that most of the essential nutrients are no longer available for plants and crops utilization.”⁸³ Consequently, in the areas of Tharjiath, Male and Unity oilfields, certain plants, crops and vegetables could no longer produce the way they had so prior to oil discovery in these areas.⁸⁴ Due to its nature, oil is ‘denser’ than water and once it spilled on soil, it changes its biological composition and renders it a no-good for “plants roots” and its moisture that fills the air becomes worthless for the nature that depends on it the most.⁸⁵ “Soil properties involved in soil-plant-water relationship are degradable and include texture, infiltration, hydraulic conductivity, moisture content and density, which affect root and leaf development and plant growth and yield.”⁸⁶ All these denote the indispensability of the environment and ecological chains.

4.3.4 IMPACTS OF OIL AND NATURAL GAS ON AIR QUALITY

As the name “air” sounds, little is appreciated about relationship between the environmental compositions and the air upon which all lives depend. Precisely, human cannot do without air, neither other creatures can –being the waters and land dwellers. Yet, with human’s irresponsible interferences with quality of air, as a result of petroleum activities, the following are the potential

⁸¹Dou, L. R.; Cheng, D. S.; Li, M. W.; Mao, K. Y.; Shi, B. Q.; Li, Z., Unusual high acidity oils from the Great Palogue Field, Melut Basin, Sudan. *Organic Geochemistry* 2008, 39 (2), 210-231.

⁸²Simon Garang Kuch & Jean Pierre Bavumiragira(2019) Impacts of crude oil exploration and production on environment and its implications on human health: South Sudan Review.

⁸³T.A.N. Abii, P. C Nwonsu (2009), The Effect of Oil-Spillage on the Soil of Eleme in Rivers State of the Niger Delta Area of Nigeria, *Res J Environ Sci*, 3 316 –320.

⁸⁴ J.G.H. Henry(2005), *G W Environmental Science and Engineering*, Res J, 64 –84.

⁸⁵ K. Brian, *Soil Processes*. 1st Edition. Allen George Unwin. London. , (1977)

⁸⁶ A.M. Michael, *Irrigation: Theory and Practice* Vikas Publishing House, New Delhi,801p., Vikas Publishing House, New Delhi, (1978) 801p

causes of air changing agents: “toluene, ethylbenzene, xylenes, polycyclic aromatic hydrocarbons (PAHs), hydrogen sulphide, particulates, ozone, and methane.”⁸⁷ All these occur during different phases of oil and natural gas production.

4.3.5 EFFECTS OF PETROLEUM EXTRACTION ON WILDLIFE AND ECOSYSTEM

Petroleum extraction has enormous effects to all lives that exist where this activity occurs. Pursuing this endeavour for economic prosperity, human selfishness reveals itself by not considering the grave repercussions of their petroleum activities on other ecological chains in the area of interest. They do not pay much attention to the “disturbances” they inflict on wildlife given the fact that some of the animals, like elephants and rhinos, etcetera are very sensitive to noise; “exposure of biota to contaminants; and mortality of biota from colliding with aboveground facilities or vehicles.” Depending on the current observation by the people around the oil and gas producing areas, elephants, Rhinos and Hippopotamus are no longer frequently seen as they used to be in the past. This is because wildlife is always “prone to contact with petroleum-based products and other contaminants in reserve pits and water management facilities.”⁸⁸ In addition, a combination of wildlife “become entrapped in the oil and drown, ingest toxic quantities of oil by nearby birds or licking their fur (mammals); or succumb to cold stress if the oil damages the insulation provided by feathers or fur.” This activity generates radioactive material containing toxic liquid (water) and solid wastes are, and mismanagement of such wastes results in radiological disfiguration of “soils or surface water bodies.”⁸⁹

4.3.6 EFFECTS OF OIL AND GAS ON PLANTS

Petroleum components have, as foresaid host of worrying effects on seed plants germinations as described below: as oil pollution concentrates at high level of magnitude on, and underground surface, seed germination is effected due to oil “soaking through the outer integument of the seeds.” There is no minimal effects at different level of oil pollution, because as soon as it leaked

⁸⁷ L.L. Macdonal C, Gilman A Effects of Oil and Gas Activities on the Environment and Human Health., (2007)

⁸⁸ P.L. Jones NF, Kiesecker JM The Energy foot print: How Oil, Natural Gas, and Wind Energy Affect Land for Biodiversity and the Flow of Ecosystem Services, Oxford Journals: Bioscience vol. 65 (2015) pp.

⁸⁹ B.N. Burton GA, Ellis BR, Kapo KE, Entrekin S, Nadelhoffer K Hydraulic “Fracking”: Are Surface Water Impacts an Ecological Concern? , Environmental Toxicology & Chemistry Journal, vol. 33, No 8 August, 2014., 33 (2014).

into unprotected area, regardless of the volume of drops, it reduces the germination quality and health that finally jeopardize their growing pace and maturity.⁹⁰ Due to this, citizens of Unity State are losing so much of their livelihood activities and there is no any plans on the part of petroleum stakeholders to compensate the victims, and this, in long term, will continue contributing for the staggering economic growth of this state.⁹¹ One of the scholars, with whom I intent to agree, in his findings, asserts that, "... that reduction in photosynthetic rate resulted in the decreased rate of growth, which led to the reduction of leaf sizes." The people in central, east and northern part of Unity State are in a full square danger of all sorts of oil and gas impacts.

The latest oil leak followed by explosion in 2019 in Unity Oilfields explains the magnitude to which the citizens of this State are exposed. As earlier noted, "exploration, pipeline transportation" including oil transition from one point to the other by tankers involves high-risk of explosion in case something goes wrong to the tanker or pipeline.⁹² As argued by most researchers, "oil-related pollution affect both surface and underground waters; especially if the oil spills happened, and when there is an effluent discharge, it seeps into the ground and becomes mixed in the underground water system."⁹³ It is of no doubt that underground oil pollution lasts for a number of years before redressing it, as the underground water moves into streams and wells, which are the main sources of local water supply on which the communities around these areas depend. These conditions cause a reasonable, "fear that rather than being the source of life, these water systems have become sources of misery, disease and death." "There are big volumes of produced water stagnant in ponds with apparently inadequate treatment such as skimming which is less effective." In Unity State, especially during the four (4) to five (5) months of dry season, cattle keepers take their animals towards the swamp areas of River Nile, in the areas of Tharjiath and Male Oilfields for grazing. These movements expose them and their animals to oils leaked trenches.

⁹⁰ E.J.a.C.O. Udo, Some studies on the effect of crude oil pollution of soil on plant growth, *West African Journal of Biological and Applied Chemistry* 26 (1984) 14

⁹¹ E.J.a.A.A.F. Udo, The effects of oil Pollution of soil on germination, growth and nutrient uptake of corn, *Journal on Environment Quality* 4(1975) 540.

⁹² G. Olsson, *Water and energy – threats and opportunities* (2nd Ed.), Ch. 11, IWA Publishing, London., , (2015.).

⁹³ J.Z. Otton, R.; Smith, B.; Abbott, M.; Keeland, B, Environmental impacts of oil production on soil, bedrock, and vegetation at the US Geological Survey OSPER Study Site A, Osage County, Oklahoma. *Environ. Environ. Geosci* , 12, 73-87. , (2005).

It is strongly argued that, the contaminated “water may contain much quantity of salts and this become serious threat to the environment and aquatic ecosystem when salts concentration exceeds threshold levels. Petroleum pollutants in the African tropical region consist of complex mixtures of both the aliphatic and aromatic hydrocarbons.”⁹⁴ The polluting agents of drinking water are categorised into three as: petroleum “hydrocarbons, halogenated hydrocarbons, and taste–and–odour compounds.” The “Petroleum hydrocarbons consist of the ubiquitous pollutants. In addition, “apart from polycyclic aromatic hydrocarbons (PAHs)”⁹⁵ the most prevalent are the volatile organic compounds: benzene, toluene, ethylbenzene, and xylenes(BTEX).⁹⁶ “It is known that PAHs are relatively recalcitrant in soils and some PAHs have been identified as carcinogens, mutagens, or teratogens. The discharge of produced water causes serious environmental risks to both human and the natural environment.” In this daring venture, the use of technologies, such as high efficient halophile oil-degrading microorganisms in biological treatment should be combine with membranes (SBR) biological treatment systems for effective management of produced water, since the large portion of SS crude oil is acidic in nature and contain heavy metals.⁹⁷ The pipelines are causing major problems from leaking leading to massive oil spills –along the transportation line to the sea terminal at Port Sudan. This needs proper awareness of the people in the areas and constant lookout, monitoring and maintenance.

4.3.7 PETROLEUM EXTRACTION TOLLS ON PUBLIC HEALTH IN UNITY STATE

The reliable consulted literature reveals that oil polluting agents cause serious health problems – ranging from: miscarriage, complicated eye infection, child born with deformed body parts, both

⁹⁴ A.A. Olajire, R. Altenburger, E. Küster, and W. Brack, Chemical and eco toxicological assessment of polycyclic aromatic hydrocarbon -contaminated sediments of the Niger Delta, Southern Nigeria, *Science of the Total Environment*, 340 (1-3). 123-136, , (2005).

⁹⁵ .E. Ite, U. J. Ibok, M. U. Ite, and S. W. Petters, Petroleum Exploration and Production: Past and Present Environmental Issues in the Nigeria's Niger Delta, *American Journal of Environmental Protection*, 1 (4). 78- 90(2013).

⁹⁶ .E. Rittmann, Transformation of Organic Micropollutants by Biological Processes," *Water Pollution: Drinking Water and Drinking Water Treatment*, J. Hrubec, ed., pp. 31-60, Berlin, Heidelberg: Springer Berlin Heidelberg, , (1995).

⁹⁷ L.R.C. Dou, D. S.; Li, M. W.; Mao, K. Y.; Shi, B. Q.; Li, Z., Unusual high acidity oils from the Great Palogue Field, Melut Basin, Sudan, *Organic Geochemistry* , 39 (2), 210-231. , (2008)

male and female fertility complication, death of domestic and wild animals. All this introduces a hard to address health crisis into the lives of the people of this State.

It remains an indisputable truth that oil and gas pollution –exacerbated by the petroleum worn out equipment and impacts of gruesome Civil Wars on this equipment, a number oil leakages are being reported by the locals and pollution is evident in the areas. In the course of extracting oil from underground to the wellhead, the associated gas that comes along with crude oil is either reinjected into the well or flare into the air.⁹⁸ The condition as to when gas could be reinjected into the well or disperse into the air is being regulated by laws, but petroleum operators hardly respect this legal restriction. One writer argues, “The emissions from gas flaring are the products of incomplete combustion, and this gas contains, benzene, styrene, ethynyl benzene, ethynyl- methyl benzenes, toluene, xylenes, acenaphthylene, biphenyl and fluorine.” Petroleum pollution in the areas of Tharjiath and Unity oilfields are responsible for ‘carcinogens’ while other pollution components bear blame for fetuses health problem.⁹⁹ One researcher laments, “*The high lead and Barium concentrations in hair, as observed of the respondents from Koch, Rubkona and Guit Counties indicate a serious exposure by this toxic metal detection of high lead concentrations in local well water, which suggests that the contaminated water plays an essential role as a source of the lead worrying results.*”¹⁰⁰ The findings of the study undertaken by this researcher confirms the fact that petroleum extraction becomes a hard to bear curse for long for the people of Unity State.

Oil and gas, as rich natural resources with combination of properties, and “acidic precipitation” as: “Nitrogen and Sulphur dioxide” with six common “outdoor pollutants.” The present of these chemical reaction enablers in the complex areas of Unity State oilfields, risk the unintended intake of the particulates that are fallouts from acid precursor gases by humans and animals, which result into complicated sickness and ‘premature death from heart and lung disorders such

⁹⁸ WEC, World Energy Resources 2013 Survey. London: World Energy Council (WEC). Retrieved August 17, 2017, from <http://www20.iadb.org/intal/catalogo/PE/2013/13233.pdf>,(2013).

⁹⁹ A. Nikiforuk (2014), Birth Defects Linked to Natural Gas Mining. The Tyee. Retrieved September 12, 2017, from <https://thetyee.ca/News/2014/02/04/Natural-Gas-Mining-Birth-Defects/>

¹⁰⁰Ibid

as asthma and bronchitis.’¹⁰¹ It is known, as argued by some researchers “*Nitrogen dioxide (NO₂) poses a health threat itself as well as playing a major role in the formation of the photochemical pollutant ozone. Previous studies have shown that animals exposed to NO₂ have diminished resistance to both bacterial and viral infection.*¹⁰² *While children exposed to high indoor levels of NO₂ may become more susceptible to critical infections of the lower respiratory tract, bronchial tubes and lungs, and may develop bronchitis and chest cough with phlegm.*¹⁰³ *Sulphur dioxide(SO₂) is a temporary irritant, though research have shown that increased levels of SO₂ in conjunction with particulate matter may trigger small, but measurable, temporary deficits in lung function*¹⁰⁴ *problems, such as skin cancers and lesions may be linked to acid rain. Stomach ulcers could also occur, as consumption of acidic water”* in three (3) Counties of Rubkona, Guit and Koch of Unity State. With this level of high risks to which many are exposed in the producing areas of Unity State, it is no longer an issue of when, where and how the petroleum extraction affect the people of this State, but how many of different lives are affected, and how many of the present and future generations are at the similar high risks. Such issues need a holistic and shared approach by oil and gas stakeholders to avert them. In addition, this can only be possible if robust petroleum and regulatory frameworks are formulated, enforced by fully funded, independent and experience institutions located in both National and State Capitals.

4.4 RESTORATION PROGRAMMES

There is no inference from the petroleum operators’ conduct of reinstating the original condition of land in which they found it before the discovery this resource in Unity State albeit the law pronouncement of requiring all involved in petroleum exploitation to restore it is unequivocal.¹⁰⁵ This programme is to be envisioned and reflected in the Decommissioning Plan (DP) section of the petroleum laws, Local Content and other relevant jurisprudences in SS. the Petroleum Act (PA) contains some pretty provisions that outline the essence of DP, but falls short of detailed

¹⁰¹ . U.S. Environmental Protection, clean Air Markets Division, Acid Rain Programmers-2001 progress Report. EPA-430-R-02-009, EPA, USA, 2001

¹⁰² D.E. Gardner (1984), Oxidant-induced enhanced Sensitivity to infection in animal model and their extrapolation to man, J. Toxicol. Environ. Health 423-439

¹⁰³ D. Neas L.M, D.W, et al (1991), Association of indoor nitrogen dioxide with respiratory symptoms and pulmonary function in children, American J Epidemiology 134 204-20T

¹⁰⁴ Ibid

¹⁰⁵Article 173(2) of the Transitional Constitution 2011; Section 70 of Land Act 2009 and Section 59 Petroleum Act 2011.

description of how it should be implemented and enforced. Under DP and WSA/PSA, the Land Restoration Programme (LRP) should be unambiguous, but apart from the PA, other essential documents, like WSA/PSA are kept secret from public to the extent that some of the government departments in various Ministries or Presidency are not qualified to access these documents in issue. Therefore, at the same measure, South Sudanese too, do not know whether the LRP does exist in the kept-away documents. Yet, as intended by laws, the citizens of this country have constitutional right to information¹⁰⁶ and to a healthy environment. Such constitutional provisions are envisioned to guarantee public participation in matters that affect their lives and environment pertaining to oil and gas exploitation. However, neither the local population nor the Government or private oil companies have ever attempted to implement domestic and international best practice in Unity State. Consequently, the State is slowly losing its natural habitat, flora and fauna. In the past, for instance, Unity State used to be one of SS's regions rich with different species of wildlife.

In the present time, it is very rare to see wild animals roaming in large numbers in the area, especially big animals such as elephants, giraffes, and buffalos to mention the few. Desertification is also looming in the State as a result of extensive pollution and degradation of the environment. Drought and seasonal floods are also taking tolls as a result of drastic climate Change. In the past rains started in March, ended in November, but today rains start in May, and drastically reduces in September. This situation needs to be addressed as a matter of urgency if the environment, as law demands, is to be maintained for present and future generations.¹⁰⁷

It must be known that, anyone who causes a certain condition that negatively alternates human's normal way of living, has an exclusive social responsibility to fix what his or her action brings about at detriment of others. Against this backdrop, it is proper to affirm that, government, IOCs, as enshrines in the Constitution,¹⁰⁸ do have collective responsibility to restore land/soil to its original state as before oil and gas exploration in Unity State.

¹⁰⁶ TCSS, art.32

¹⁰⁷Deng Mabiior Bior, Examination of the legal Regime for Environmental Regulation in the oil Industry in Unity State, South Sudan, Unpublished undergraduate thesis submitted to Kampala International University

¹⁰⁸ Art. 173 (2) (O)

4.5 CONCLUSION

The problems associated with pipelines in Unity State are now clear to all concerned –given their strategic proximity with the residential villages of Koch, Guit and Rubkona Counties. In a bid to avoid and mitigate such risks, petroleum contingency plans and response need to be formulated. This could include, but not limited to protective measures for strategic infrastructures, transportation mechanisms, compensation and restoration plans.

Trapped in the old systematic of united Sudan’s disregard for law, SS is known to ignore its own national and international legal frameworks since independence. This legal deviating conduct does not only, in one hand, reinforce the IOCs main objective of minimising the operational cost, environmental and social responsibility and maximize the benefits, but also, in another hand, deprives the citizens of Unity State of their livelihoods including the environment. The IOCs are thus determined to explore this weakness for its economic interest, and there is no evidence, in their conduct to exit the strategy of maintaining the status quo, which is why they could not even bother to commit to rehabilitating the damaged environment –they too, support neither environmental audit nor observing Strategic Environmental Impact Assessment (SEIA). Nevertheless, GoSS is currently on course of promulgating laws and put in place ‘*strict regulatory mechanisms*’ in a bid to protecting the environment and its ecological composition.

CHAPTER FIVE

LEGAL, REGULATORY, AND CONTRACTUAL FRAMEWORK OF ENVIRONMENTAL REGULATION IN THE OIL AND GAS INDUSTRY IN SOUTH SUDAN.

5.0 INTRODUCTION

Effective and efficient environmental management of oil industry requires enactment and enforcement of the environmental laws and regulations. This chapter analyses laws, policy and SS petroleum regulatory frameworks with respect to protecting the environment in the course of tapping natural resources. It is not disputed that since way back in history due to civil political unrest, SS has weak regulatory and legal frameworks pertaining to sustainability management in the oil and gas industry and ranked low in the human development index. It has been argued, that amidst the weak governmental capacity to regulate business organizations, that role could be

assumed by private regulatory processes and pressures could come from secondary stakeholders such as NGO.

Consequently, in the past, there was no adequate legal mechanism –regulating oil operations in the united Sudan. IOCs gladly enjoyed such petroleum regulatory gap –since they were the same companies that dominated petroleum operation in the Sudan, they, in SS, continue engaging in legal circumventing activities, which aids them to ignore putting in place environmental pollution mitigating measures. This practice results, as explained elsewhere in this document to displacement of many villages inhabitants with no compensation package; water is contaminated, environment is eroded, and determinedly, the IOCs discouraged environmental audit whose results would hold them accountable for environmental pollution and other damaging deeds while extracting oil.

This study is undertaken to examine petroleum regulatory framework with respect to environmental protection, and cognisant of looking into effects imposed by oil and gas extraction on human and ecological system in Unity State. In addition, this ‘chapter assesses the responsibilities of government institutions’ charged with the development and supervision of petroleum activities as well as evaluating legal responsibilities conferred on the oil and gas stakeholders in SS. In examining the SS Petroleum laws, the Researcher, concurrently deemed it proper to look into the relevant environmental laws of the Republic of Sudan from which SS gained its independence since the two countries have legal commonalities.

5.1 HISTORICAL ORIGINS OF LEGAL FRAMEWORK

SS was part of the united Sudan until 2011 when it attained its independence. As legal reference for Central Sudan and GoSS, CPA, placed the whole petroleum sector under the National Congress Party (NCP) management. Thanks to the CPA, both NCP and SPLM as representatives of the two governments were equally accorded with decision-making power and information sharing about petroleum activities in the country (united Sudan). Interestingly, NCP was not enthusiastic about petroleum legal enforcement,¹⁰⁹ and premeditatedly failed to capacitate GoSS in order to gain a pre-independence knowledge to leading SS petroleum sustainable development as an independence nation. therefore, SS ‘began its independence with limited detailed

¹⁰⁹ Jill Shankleman (2011), Oil and State Building in South Sudan: New Country, Old Industry Special Report 282

knowledge of the industry , the companies involved, the geology, or the minutiae of the concession contracts wherein lies the opportunities for increasing or reducing the state’s share of oil profits.’ The TCSS spells a high level of the proposed arrangements for managing the petroleum industry in the RSS.¹¹⁰ It provides for three bodies: National Petroleum and Gas Commission (NPGC),¹¹¹ charged with policymaking that approves contracts with oil companies, MoP,¹¹² responsible for policy implementation and represents the government in oil contracts, and Nilepet,¹¹³ designated as a state-owned company and shareholder in oil and gas stakes.

5.2 MINERAL REGULATORY FRAMEWORK IN SOUTH SUDAN

The TCSS, 2011 and various Acts of Parliament govern the South Sudanese mining sector. This sector, as reflected in the subsequence discussions, is not a scratching bud; it gets its regulatory references from the united Sudan Petroleum Regulatory Frameworks.

5.2.1 TRANSITIONAL CONSTITUTION OF SOUTH SUDAN (TCSS)

The Transitional Constitution contains general principles of law with respect to a sustained petroleum development.¹¹⁴ The TCSS professes that all persons in SS, have the ‘right to clean and healthy environment.’¹¹⁵ This is a constitutional testimony that does not only protecting present humans, but also protects the future generations and environment perpetually.¹¹⁶ In this constitution, the responsibility to protect the environment and its inhabitants, including all ecological compositions rests with both national and state governments in SS. the law emphasises the wise use of natural resources for equal and sustainable economic development,¹¹⁷ in a manner that does not compromise the environment and human generations.

¹¹⁰ Part 12, Chapter 111, Draft Constitution of the Republic of South Sudan Released,” Sudan Tribune, April 24, 2011, <http://www.sudantribune.com/Draft-constitution-of-the-Republic.38679>.

¹¹¹ Art. 174 of the TCSS

¹¹² Art. 175, Ibid

¹¹³ Art. 176, Ibid

¹¹⁴ Art. 173, Ibid

¹¹⁵ Article 41(1) of the Transitional Constitution 2011

¹¹⁶ Principle 2 of United Nations Conference on the Environment (Stockholm Declaration) 1972

¹¹⁷ Art. 41 of the Constitution, Ibid

Under the TCSS, the people of SS own the land, but the government regulates it.¹¹⁸ The constitution permits, under due process the government to ‘expropriate land’ for public benefit.¹¹⁹ Pursuant to the purpose of the law, such process should be done with the sole aim of public good in sincere consultation with affected individuals or community –after which proper measures are considered being accorded adequate compensatory package to the affected landowners or reallocating them with enough development funds.¹²⁰

Guided by the overarching legal principles –being domestic or international, all involved in natural resource extractions are required to comply with international petroleum and environmental best practice –putting in place mitigating measures that aim to protecting, preserve the environment, ecological chains, bio-diversity; responsibly and transparently manage and develop natural resources for present and future generations –with unwavering promotion of human rights and accountability in the event of infringing such rights in the course of extracting oil.¹²¹

5.2.2 MINERAL WEALTH AND MINING DEVELOPMENT ACT OF 2015 OF THE REPUBLIC OF SUDAN

Section 26 of the Act¹²² particularly provides for protection of the environment in the oil and gas industry of the Sudan. This law was not enacted when the Sudan was still one country; however, its effect in the enactment of SS mining laws is recommendable since it contains comprehensive provisions in respect to protecting environmental ecological components. However, unlike SS whose minerals ownership is vested in the people of SS,¹²³ in nutshell, Sudan laws profess that, mineral resources belongs to the government, but extract and manage on behalf, and for the benefit of the people of Sudan.

5.2.2.1 Ownership of minerals

¹¹⁸ Ibid, article 170 (1)

¹¹⁹ Ibid, article 170 (2)

¹²⁰ Ibid article 171(10), section 64/75 of the Land Act 2009

¹²¹ Article 173(2) of the Transitional Constitution 2011

¹²², Mineral Wealth and Mining Development Act of 2015

¹²³ Art. 173 (1), TCSS, 2011

According to this Act, Sudan, as other African natural resource producing states is charged with legal power to own, manage and develop natural resource,¹²⁴ on behalf its people. Indeed, petroleum products, including oil and natural gas legislation declares that all such products are deemed to be the property of the state, for which no one may search or produce without a licence or lease granted by the government.

The 2015 Act confers power on the Minister of Mining and Energy to identify geographical areas endowed with minerals that might have significant economic bearing on Sudan, and if confirmed as economically viable, the invitation for bidding is issued for interested oil and gas companies, which is followed by awarding the exploration license to whoever wins the bidding. However, such license is subject to revocation in case the licensee bent the provisions in the license.¹²⁵ Based on the recommendation of the Minister in charge of natural resource, the licence may be revoked on condition that the licensee receives reasonable compensation.¹²⁶ Moreover, the law grants the licensee an opportunity to seek redress at established arbitral tribunal in Khartoum, Sudan, if the compensation given to them is not convincing compare to the losses incurred, and this tribunal decision is binding and enforceable in the Sudan Court of Law.

The Land Acquisition Act, 1930 of the Sudan provides for the forced acquisition by the state of land privately held when a determination has been made, that such land is required permanently or temporarily for any public purpose. It is stated that no person shall be deprived of property except through the payment of prompt consideration and in accordance with due process of the law.¹²⁷ The true picture here is that, despite the presence of these detailed legal jurisprudents, the Sudan government, in collaboration with IOCs operated petroleum activities in a total contrary of the intention of the laws since the discovery of oil and gas in the then united Sudan. This legal circumvention is intact, and being tactically adopted by the IOCs, and incentivized by the GoSS inaction to enforce the laws. Such irresponsible practice allows the IOCs to carry out petroleum operations in Unity State in the manner they do, albeit being proscribed in the petroleum regulatory framework (PRF), preceded by TCSS, 2011 as amended.

¹²⁴ Section 8, Mineral Wealth and Mining Development Act of 2015.

¹²⁵ Section 8(b), Ibid

¹²⁶ Section 8(c), Ibid

¹²⁷ Civil Transactions Act, 1984, s.517(2). See also, Permanent Constitution of the Sudan, 1973, art. 34 (suspended 1985); Transitional Constitution, 1985, art. 25

5.2.2.2 Licensing

The 2015 Act lists five types of mining licences or mining contracts under Section 14 (1):

- a) *a general licence for prospecting, which entitles a licensee to enter the area identified in the licence, or with respect to which a mining contract has been concluded, and search for minerals and mining materials;*
- b) *an absolute or exclusive exploration licence, which grants the licensee the exclusive right to explore in the area identified in the licence;*¹²⁸
- c) *a mining contract and a small mining contract, which grants the contractor the exclusive right to mine the mineral resources regulated under the contract and which are located within the licensed area;*¹²⁹
- d) *a traditional mining contract, which grants the contractor the right to extract specific minerals by traditional means in the area identified in the contract; and*
- e) *a contract for the extraction of minerals and industrial rocks.*

Section 12 of the Act sets out the prerequisites an applicant must satisfy in order to qualify for license or contract any of the licences or conclude any of the contracts. It outlines condition that an applicant must meet to get license:¹³⁰

- a) *show that it has the technical competence to conduct the proposed activities;*
- b) *have “ample experience” in the mining sector;*
- c) *show that it has the financial capability to fulfil its contractual obligations;*
- d) *submit a certificate of registration, where the applicant is a company;*¹³¹

¹²⁸The exploration activities are supervised by The Geological Research Authority of Sudan (GRAS)

¹²⁹The mining activities are supervised by The Geological Research Authority of Sudan (GRAS)

¹³⁰Section 12 of the 2015 Act.

¹³¹The certificate must confirm the applicant’s business name as well as whether it is a local branch of a foreign company.

- e) *provide a tax clearance certificate and Zakat;*
- f) *provide a certificate from the competent authority which confirms that the proposed licence area is clear of conflicts; and*
- g) *Pledge that it will pay the prescribed fees, rents and meet its other financial obligations.*

Following all these procedures, the established Technical Committee reviews the submitted applications and submits its recommendations to the Minister concerned, who awards contract or license based on such recommendations. In this process, there is an element of systematic consultations among the energy and mining institution in Sudan before awarding the license or contract in issue. This consultation, however, is only done among the government institutions and ignoring public participation.

Exploration and exploitation of minerals

Section 11¹³² provides that all to whom the license or contract is awarded have exploration and production right in the contracted area.

Statutory Duties conferred on Licensees and Contractors

Under this law, any mining licensee has contractual obligation to pay fees as specified in the contract or license.¹³³ Their responsibility extended to the protection of the environment, minimise pollution and respond, avert or address the dangers imposed by pollution in case it happens.¹³⁴ In the event the licensee fails to comply with the provisions of this Act, they are legally held accountable for such failure. The law requires licensees and contractors *‘to notify the Minister in writing of any sites of archaeological importance, which are found within the licence site. Once the notice is provided, the licensee or contractor must suspend all operations, which could cause damage to these sites. Operations can only recommence once the Archaeological*

¹³²Mineral Wealth and Mining Development Act of 2015

¹³³The fees are provided in the schedule to the 2007 Act, and may be updated by the Minister from time to time.

¹³⁴Section 26 of the 2015 Act

*Public Corporation confirms that the prospecting, exploration or mining activities may proceed.*¹³⁵

The 2015 Act condemns any persons that conduct “exploration activities without a valid licence.”¹³⁶ Alternatively, if such “... mineral extraction without being party to a mining contract”¹³⁷ and refuses to provide the body concerned with information relating to the actual produced quantities or minerals;¹³⁸ or submits an application to the Technical Committee, which contains false or misleading statements.¹³⁹ These provisions set a legal implementation benchmark for any persons involved in petroleum operation.

Other regulatory issues

The Sudan 2015 Act falls short of providing clear environmental law and regulations that holistically address matters in correlation with the environment, restoration programme, rehabilitation, mine closure, mine affected communities, or mine occupational health and safety. Owing to the growing trend in the global mining industry, there is need to develop and implement a comprehensive Environment, Social and Governance framework to address these loopholes.

5.2.3 PETROLEUM ACT, 2012 of South Sudan

Pursuant to this Act,¹⁴⁰ petroleum operators must conduct an environmental assessment if the Council of Ministers sanctioned the opening of the identified areas for petroleum activities. This is to ensure that oil extraction is conducted in a total conformity with environmental laws and international oil and gas operational standards.¹⁴¹ Additionally, the licensee and contractor ought to take measures to avoid, prevent, reduce or manage environmental hazards and risks.¹⁴²

¹³⁵Section 29 of the 2015 Act.

¹³⁶Persons convicted of this offence shall be imprisoned for a term not exceeding two years, a fine, or both a fine and imprisonment.

¹³⁷Persons convicted of this offence shall be imprisoned for a term not exceeding three years, a fine, or both.

¹³⁸Persons convicted of this offence shall be imprisoned for a term not exceeding five years, a fine, or both.

¹³⁹Persons convicted of this offence shall be fined not less than one hundred thousand Sudanese pounds.

¹⁴⁰Section 15, Petroleum Act

¹⁴¹Section 58(1), Petroleum Act

¹⁴²Section 58(2), Ibid

Contractors and licensees are implored to use the best available technology to fulfil the aforementioned duties.¹⁴³

The law requires a licensee or contractor to make a proper petroleum operational and management plan in respect to avert any adverse petroleum incidents that may affect environment and the people in such area.¹⁴⁴ This plan in question should be informed by the prior environmental and social impact assessments for the area in target and ‘provide a summary of the studies undertaken to identify environmental hazards and, to evaluate environmental risks relating to the proposed activity.’ Such plan would not only be a supporting reference for the operators, but also a reminder for social and environmental responsibility.

The licensee is tasked to avail a narrative version of the hazards identified and the results of the risk evaluation. In addition, they should “provide details of the activity and measures that will be implemented to manage the hazards and risks identified and described in the Act.”¹⁴⁵ The conditions envisioned in the law ensure a friendly environmental protection and management in the face of pollutions.

This licensee is also required to “provide a list of all structures, facilities, equipment and systems critical to environmental protection and a summary of the system in place for their inspection, testing and maintenance.” According to this Act, the ‘same should establish and implement effective and safe systems for disposal and treatment of waste and prevention of pollution resulting from petroleum activities in accordance with best petroleum industry practice.’ The licensee or contractor has a statutory obligation to create and operationalise a system that enables it to ‘track the source, transport and destination of potential hazardous waste from petroleum activities.’ In addition, continuously review and audit systems to assess the state of the environment at intervals of time specified in the plan and institute the necessary remedial and improvement measures because of the review or audit. The law demands this licensee to identify the person responsible within the licensee or contractor’s organisation for implementation and compliance with the plan.¹⁴⁶

¹⁴³Section 58(3), Ibid

¹⁴⁴Section 60(1), Ibid

¹⁴⁵Section 60 (2), Ibid

¹⁴⁶Section 60(2), Ibid

The licensee or the contractor is liable for pollution damage without regard to fault.¹⁴⁷ The licensee or contractor is required to create a pollution damage fund for a clean-up and rehabilitation of the site in which the pollution damage is found.¹⁴⁸ It also imposes high penalty on anyone who carries out oil and gas activities without relevant license, and whose action led to pollution that occasioned damage on environment and on others who committed the similar wrongdoing, or “should have known, that the activity was conducted without a licence or a petroleum agreement.”¹⁴⁹

5.2.4 SOUTH SUDAN MINING ACT, 2012

Chapter XV of the Act provides for environmental guidelines in the oil and gas industry. The Title Holder of a Mineral Title shall, in accordance with the Act and in good Mining industry practice, conduct his or her operations in such manner as to preserve as far as possible the natural Environment. Minimise and control waste or undue loss of, or damage to natural and biological resources; prevent, and where unavoidable, promptly treat pollution and contamination of the Environment. In addition, shall take no steps, which may unnecessarily or unreasonably restrict or limit further development of the natural resources of the Licence Area or adjacent areas.¹⁵⁰ The applicant for a Mining Licence or Retention Licence or any renewal of either shall prepare and submit a comprehensive Environmental and Social Impact Assessment (SIA) as part of the business plan as required under Section 63(8) or, for an Exploration and Mining Agreement, as per Section 102.¹⁵¹

A Mining Licence title holder shall have the duty to rehabilitate and restore the land disturbed, excavated, explored, developed, mined or covered with tailings arising from its operations to a natural-like state or to such safe state as may otherwise be approved pursuant to a Rehabilitation and Mine Closure Plan.¹⁵² A mining Licence Title Holder shall prepare, have approved and implement a Rehabilitation and Mine Closure Plan and, provide financial assurance for proper

¹⁴⁷Section 61(1), Petroleum Act, 2012

¹⁴⁸Section 61(3), Ibid

¹⁴⁹Section 61(4), Ibid

¹⁵⁰Section 121(1) of the Mining Act

¹⁵¹Section 121(2), Mining Act, 2012

¹⁵²Section 122, Mining Act

implementation of such plan in accordance with prescribed regulations.¹⁵³ When any Mining Licence is renewed, no Mining Operations shall proceed on the Mining Licence Area following the expiry date of the original Licence term until an amended Rehabilitation and Mine Closure Plan has been approved.¹⁵⁴

In the event that the Title Holder of a Mineral Title fails to fulfil his or her obligation under this Chapter and without prejudice to any other remedy available or other liability, the Title Holder may otherwise incur, as long as the Minister gives the Holder reasonable time performance their obligations.

The Title Holder shall carry out the necessary restoration whereupon the cost of such restoration shall be a debt due to Government and shall be recoverable in a court of competent jurisdiction. This process is subject to legal due procedures, provided that the cost of any part of the restoration determined by an arbitrator not to have been necessary shall be deducted from the sum payable or if paid, refunded from the sum paid.¹⁵⁵

5.3 INTERNATIONAL LEGAL FRAMEWORK

In any efforts to remedying the afore discussed petroleum regulatory –in relation to environmental protection issues, it is wise for the resource host state to adopting a realistic implementation mechanism that treats domestic, international environmental legal instruments as inseparable enforcement gauging scale in order to maximize benefits accrue from oil and gas exploitation. This part of the chapter examines the existing international and regional legal frameworks governing environmental pollution from oil and gas activities. Additionally, South Sudan’s obligation in these international and regional legal frameworks is key. The analysis mainly focuses on how the international and regional frameworks address the issue of environment pollution caused by the oil and gas mining activities. The chapter will cover analysis of several legal instruments dealing with environmental sustainability in oil mining jurisdictions. The chapter will provide a summary on the effectiveness of the examined international conventions and the obligations they impose on SS.

¹⁵³Section 122(1)

¹⁵⁴Section 122(3)

¹⁵⁵Section 125

5.3.1 The United Nations Framework Convention on Climate Change (UNFCCC)

UNFCCC was adopted at the 1992 United National Convention on Environment and Development (UNCED), the International Summit at Rio de Janeiro, of Brazil,¹⁵⁶ open for global governments' signature in June 1992 and entered into force on 21 March 1994 after the deposit of the '50th instrument of ratification.' The instrument is intact today and attracts international recognition as a reference for reinforcing domestic environmental laws in combating dangerous activities that affect the environment.

The purpose of the UNFCCC is to “achieve...the stabilisation of greenhouse gas emissions at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system.”¹⁵⁷ The Convention further provides that such a level of prevention is to be achieved “within a time-frame sufficient to allow ecosystems to adapt naturally to climate change; to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.”¹⁵⁸

The Convention defines “climate change” as ...a “change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability observed over comparable time periods.”¹⁵⁹ The principles, which are designed to guide this process are set out in Article 3 and include “common but differentiated responsibilities, precaution, cost-effectiveness and sustainable development”. Article 3 of this Convention required parties to it to protect the climatic system on an “equitable basis but allowing for common but differentiated responsibilities depending on their individual capacities.”

Cognizant of the aforementioned principles, parties are committed under Article 4 to, inter alia: “take climate change considerations into account...in their relevant social, economic and environmental policies and actions, and employ appropriate methods... to minimise adverse

¹⁵⁶The UNFCCC represents the first manifestation of a need to tackle the problems associated with perturbation in the global climate system.

¹⁵⁷Article 3 of the UNFCCC. Text of the UNFCCC available at [http:// unfccc.int/essential background/ convention/ background/items/1353.php](http://unfccc.int/essential_background/convention/background/items/1353.php).

¹⁵⁸Article 3, The United Nations Framework Convention on Climate Change.

¹⁵⁹Article 1(2), Ibid

effects on the economy, public health, and on the quality of the environment...”¹⁶⁰ Similar to this, “parties are, as well “required to formulate, implement, publish and regularly update national...programmes containing measures to mitigate climate change by addressing anthropogenic emissions by source...”¹⁶¹

Since its ratification of the UNFCCC on 17 February 2014, the GoSS has worked towards achieving the Convention’s objectives. As a part to this Convention, SS is obliged to periodically report to the Convention through a National Communication (NC), which details common but differentiated responsibilities and specific national and regional development priorities, objectives and circumstances.

However, though this Convention contains a number of international promising principles, its articles 4 (2) (a) and 4 (2) (b) –links with Annex I exposes worrying loopholes in that, it permits Parties take a “non-legally binding commitment to reduce their emissions of greenhouse gases to 1990 levels by the year 2000.” Unsurprisingly, no party to this Convention has ever tried to observe these principles, which is why today, young people around the world describe political elites as manufacturers of “a non-act upon big talks” as observed in many recent years’ rallies. With these weaknesses, it is fair to say that, “the non-legally binding commitments” do not command a true commitment to effect the implementation of the Convention –given the fact that the need by the global governments to heap petrodollars seems to override the need to protect environment and its ecological system.

In Conclusion, the relevant international Conventions discussed in this chapter with respect to regulatory frameworks of petroleum sector are mainly focused on placing general obligations on States to adopt necessary regulations and develop measures to prevent pollution in the environment. These international conventions place obligations on SS to protect and sustainably manage the environment.

5.3.2 The Biodiversity Treaty (BDT)

SS is a signatory to Convention on Biological Diversity. One of the major achievements of the 1992 “Earth Summit” in Rio de Janeiro, Brazil - the Biodiversity Treaty – influences major

¹⁶⁰Article 4, para 1(d), Ibid

¹⁶¹ Article 4, para 1 (b), Ibid

implications for the mining sector. Its core concept is that nations are “responsible for conserving their biological diversity and for using their biological resources in a sustainable manner”. There are two major “International law environmental treaties” that stress much on “preservation of biological diversity in ecosystems, species and gene pools” – that is the one for terrestrial biodiversity and the Law of the Sea Convention for marine biodiversity.

BDT does not only embody provisions that spell how the oil and gas industry should be sustainably developed for economic prosperity and technological growth, but also stress the development and maintenance of preservation programme. In addition, the sole owner of this programme is the party to the BDT, as one states, “It requires State parties to develop and implement national biodiversity plans, which are to include inventories, monitoring, planning, management, new laws, and the establishment of protected areas in situ biodiversity, and prevention of significant impacts on biological diversity.” Although the “language” used in this Treaty to describe the national duty of each party to the citizens on whose behalf they joined the treaty is appealing as oppose to authoritative, it helps the national governments to fashion their national legal instruments in a firm semblance with the intention of this Treaty. This affirm, frameworks, which its Conference of Parties (COP) are compelled to develop, could be coded in a manner that drives petroleum industry including IOCs to adhere to the best international standards for protecting ecosystem and preservation.¹⁶²

5.4 INSTITUTIONAL FRAMEWORK

SS entails a structure similar to that of “federal system of governance” as applies in the most capitalists states. This structure consists of National and States governments. It is adopted simply, in SS to devolve developmental and economic responsibilities among these bodies. In such structural chain, the responsibility of mining sector, on behalf of the national government is legally vest in three institutions, the MoP, the NPGC, and the National Petroleum and Gas Corporation (NPGC)-NilePet. The MoP in charge of petroleum is the policy implementing body of the government with respect to petroleum affairs.¹⁶³

5.4.1 Government bodies and sub-bodies:

¹⁶²Guruswamy, Lakshman & Brent Hendricks, *International Environmental Law In A Nutshell* (1997).

¹⁶³Article 175(1), Transitional Constitution of South Sudan

The Ministry of Petroleum and Gas is the main National Government Institution that heads this industry, manages and oversees the petroleum operation.¹⁶⁴

Various administrative bodies support the Ministry. Section 9 of the 2012 Act establishes the NPGC, which approves Petroleum agreements on behalf of the government.¹⁶⁵ The Chairperson of the Commission reports to the President of the Republic. The same Act¹⁶⁶ creates NPGC-NilePet in which the government stakes, with respect to Petroleum operations is vested.

5.5 CONCLUSION

South Sudan has been facing with lack of legal clarity and absence of Petroleum Regulatory Frameworks (PRF) including Local Content (LC) and Implementation Mechanisms (IM). Due to this, and convinced by the outcome of the in-depth analysis of the current laws, especially TCSS, 2011 and Petroleum Act, 2021), the Researcher fairly deduced that the aforementioned laws attempt to outline general legal principles in a bid to create a pivot of legal basis from which all other legal instruments would evolve, with respect to petroleum exploitation and, environmental protection.

Issues in Transitional Constitution of SS, 2011 and PA, 2012: the parent law itself (TCSS),¹⁶⁷ contains some confusing provisions that allocate responsibilities to key SS petroleum stakeholders, and this puzzling wordings infests the Petroleum Act.¹⁶⁸ Section 11 (b) grants Supervisory power to the Commission and section 12 (2) of the same Act gives overseeing power to the Petroleum Authority. This overlapping power contributes to derailing regulatory and petroleum framework enforcement in SS. this opposes the argument that SS “has a robust policy and legislation framework to ensure sustainable environmental management in the backdrop of oil and gas exploration.” The researcher, however, concurs with the fact that if the existing laws are enforced with reliable expertise, the resource producing states would, by this time realised some positive benefits from oil. Therefore, the researcher supports the call that requires the GoSS to “enhance the implementation through the relevant agencies by allocating enough resources and capacity building of the agencies personnel. Lack of enough resources and

¹⁶⁴ Section 12, Petroleum Act, 2012

¹⁶⁵ Section 9 (11), Ibid

¹⁶⁶ Section 13, Ibid

¹⁶⁷ TCSS, Chapter III

¹⁶⁸ Sections, 11 and section Petroleum Act, 2012

facilities are major hindrances to monitoring and evaluation of the oil and gas exploration activities effects to the surrounding ecosystems.” The oil companies operating in the country have taken advantage of these challenges and failed to do their internal environmental auditing. The local Community Based Organisations (CBOs) and Civil Society Organisations (CSOs) are incapacitated since the agencies that should support them lack the capacity in monitoring and evaluating the operation of the IOCs.

CHAPTER SIX

COMPARATIVE ANALYSIS OF SOUTH SUDAN’S LEGAL FRAMEWORK AND ITS SUCCESS WITH OTHER COUNTRIES

6.0 INTRODUCTION

It is useful that this paper makes a comparative study as to how other oil mining jurisdictions legislated their legal frameworks while striking a balance between development and ensuring environmental preservation and sustainability. This paper considers the legislation and practice in Nigeria, Norway and the United Kingdom.

6.1 NIGERIA

Environmental Protection Guidelines in Nigerian Petroleum laws

Nigeria mining laws are derived from national norms and different international legal references to which it is a party –a combination of Treaties or Conventions like UNFCCC, 1992 Protocols, 1992 and Montreal Protocols, 1995 on substances that disfigure Ozone Layers,¹⁶⁹ and International Convention on Oil Pollution Preparedness, Response and Cooperation (ICOPPRC) of 1992,¹⁷⁰ and Convention on Biological Diversity.¹⁷¹ All these focus on preserving and protecting natural state of environment while developing natural resources for human welfare.

¹⁶⁹Nigeria signed this Protocol on the 10th of April 1996

¹⁷⁰Nigeria became a signatory on the 27th of November 1994

¹⁷¹See UNCED (1992), Nigeria also signed this Convention in November 1994

Central to Nigeria environmental law and policy is their Constitution of 1999 Section 20 “which stipulates the provisions for environmental protection, preservation of water, air, land, forests and wildlife in Nigeria.”¹⁷² From this Constitution, other relevant legislations are enacted to enable the structuring and functions of Nigerian Government. To effect petroleum smooth operations, the “Federal Ministry of Environment comprise of the Federal Environmental Protection Agency Act of 1988, denoted as the FEPA Act and its accompanying regulations,”¹⁷³ was created. To promote the principle preserving the environment and develop natural resources for equitable benefits of all times generations. Nigeria promulgated special legislations coded as, “Environmental Impact Assessment Act of 1992 (EIA Act)”¹⁷⁴ “National Oil Spills Detection and Response Agency Act, (NOSDRA).”¹⁷⁵ All this with aim of minimizing pollutions that are associated with petroleum extraction, and maximise the oil and gas benefits for present and future generations of Nigeria. This Agency is charged to “tackle preparedness, detection and response to all oil spillages in Nigeria.”¹⁷⁶ In the same range of power, the Agency is as well tasked to oversee the enforcement of “Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN), pursuant to the Petroleum Act of 1969.” The EGASPIN commands “regulatory and compliance guidelines to secure performance of environmental objectives during petroleum exploitation.” This regulatory instrument is in line with the Petroleum Act as it hinges on the fact that it lays out a nominal framework for the observation of safety procedures, health guidelines and pollution prevention during petroleum operations.¹⁷⁷ Indeed, S.9. (1) of the Petroleum Act (PA) stipulates that; “the Minister may make regulations prescribing anything requiring to be prescribed for the purposes of this Act. The Minister provides generally for matters relating to licences and leases granted under this Act and operations carried on thereunder, including, the safe working, the conservation of petroleum resources, the prevention of pollution of water courses and the atmosphere...”

¹⁷²See S.20 Federal Republican Constitution of Nigerian 1999.

¹⁷³ Other regulations under the Act include; National Environmental Protection (Effluent Limitation) Regulations, the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, the National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations

¹⁷⁴See Section 5, 6 & 7 National Oil Spill Detection and Response Agency (NOSDRA) (Establishment) Act, CAP 157 LFN 2006

¹⁷⁵Ibid

¹⁷⁶Section 1, NOSDRA (Establishment) Act, CAP N157, LFN 2006.

¹⁷⁷Section 9, Petroleum Act 1969.

Like any African country, the provisions enshrine in Nigerian laws have promising impacts that are enough to lend environmental support during oil exploration, however they are legally ambiguous and prone to subjective interpretation, which renders them hard for oil and gas stakeholders to enforce. One argues that, “further perusal of S.9 of the PA indicates a recommendation for the Minister to make regulations for oil pollution.” As earlier explained, these laws contain details provisions, but fall short of clear enforcement mechanism, due to its heavily reliance on “excessive discretion of the Minister, who is not obliged to make specific regulations that would guarantee environmental protection.” One argues that, “this has resulted into the claims that the PA has been partly responsible for the poor environmental state of the Niger-delta, as the regulations lack clear or comprehensive environmental guidelines and proffer minimal standards”¹⁷⁸.

The researcher agrees with this analytical statement that, “ultimately, the extant Petroleum Act remains weak and incapable of triggering or driving synergies across the Sustainable Development Goals (SDGs) to engender a green oil industry in Nigeria, but requires reforms to guarantee its relevance as a tool of environmental sustainability in the Nigerian petroleum industry.”

6.2 NORWAY

Norway has assisted the petroleum sector in several countries since the early 1980s. In 2005 the Government decided to reorganize the aid into an Oil for Development program (OfD), to broaden the support from petroleum management; to also include revenue and environmental issues, inclusion of civil society and strengthening anti-corruption efforts, and later on more attention also to gender. To manage this programme, an OfD-secretariat was established in Norad with responsibility to coordinate and quality assure the work. OfD’s overall objective is poverty reduction through “economically, environmentally and socially responsible management of petroleum resources, which safeguards the needs of future generations.”

The Norwegian Petroleum Activities Act of November 1996 (PAA) administered by the Ministry of Petroleum and Energy (Norway) and the Norwegian Petroleum Directorate (NPD) intends to

¹⁷⁸Lawrence Atsegbua, “Acquisition of Oil Rights under Contractual Joint Ventures in Nigeria”.(1993)Journal of African Law, 37, pp 10-29. doi:10.1017/S0021855300011086

“promote a preventative approach to environmental protection by underscoring the need for consultations prior to the commencement of petroleum operations or before the issuance of petroleum licences.”

In addition, the Norwegian regulatory framework in correlation with aspect of environmental protection requires systematic consultations among petroleum environment stakeholders during the planning applications. The same requirement is also applicable in the EIA for both onshore and offshore oil and gas infrastructures, exploration and production operations.¹⁷⁹ The best environmental practice (BEP) adopted in the United Kingdom (UK) and Norway by Environmental Control regulations ensure more environmentally protective measures during oil exploitation. It is described as “the application of the most appropriate combination of environmental control measures and strategies”.¹⁸⁰

It is both matter of law and practice in the UK that, EIA and Strategic Environmental Assessment (SEA) in petroleum industry regulations are central and mandatory tools for fulfilling environmental goals. Accordingly, the “UK and Norway have optimized impacts assessments regulations for environmental protection during oil and gas exploitation via SEA regulations, EIA regulations and environmental statements. The Norwegian Ministry of Petroleum and Energy (Norway by virtue of S.22 and S.45 of the Norway Petroleum Activities Act also mandates SEA for oil and gas operations in line with the objectives of the Kiev Protocol.”¹⁸¹ This strong adherence to the international best practice and domestic petroleum regulatory framework in Norway is attributed to expertise of the designated sectors and clear natural resource policy.

According to the Norwegian regulatory requirements, strategic environmental assessment should be undertaken to “evaluate the environmental consequences of their official draft plans and programmes by ensuring a comprehensive assessment. SEA is undertaken much earlier in the decision-making process than project environmental impact assessment, and it is therefore seen

¹⁷⁹Offshore operations involving the use and or discharge of ‘defined’ chemicals must be the subject of a chemical permit which came into force on 15 May 2002. Amendments to the Offshore Chemicals Regulations 2002, made under Schedule 2 of the Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (OPPC) increase the powers of DECC inspectors to investigate non-compliances and risk of significant pollution from chemical discharges, including the issue of prohibition or enforcement notices.

¹⁸⁰Oil and Gas UK and Norway <http://oilandgasukenvironmentallegislation.co.uk/>

¹⁸¹Protocol on Strategic Environmental Assessment (Kyiv, 2003). The Kiev (SEA) Protocol.

as a key tool for sustainable development.”¹⁸² To effect this precautionary practice, the Ministry of Petroleum and Energy evaluates the effects of the proposed petroleum activities in a holistic manner, in a bid to avoid environmental pollution. These processes afford the opportunity to the parties involved in oil and gas activities to forecast any likelihoods of endangering people lives and environment as result oil operation, and devise a means of eliminating such threat before it happens.

Norway’s success is attributed to the country’s ability to avoid the resource-curse from the ‘initial conditions and the institutions that were put in place by the time the extraction of natural resource started in early 1970s.’ Norway was not just a developed economy with per capita GDP of over US\$10,000 (PPP); it was (and continues to be) ‘a highly egalitarian society that prides itself on being that.’ In other words, egalitarianism was socially embedded.

Second, Norway is a mature democracy. Norwegian politicians hardly posed any risk of wasting public resources on selfish political activities (such as bribing the electorate). Third, Norway forged a tripartite social contract between capitals, labour and state elites. This social contract, which is central to Scandinavian welfare capitalism, resulted in the institutionalization of equitable distribution of wealth as a societal norm. Norway’s distributive justice was in turn made possible by national norms that protected citizens against the vagaries of free markets, or de-commodification. This practice enables the Institutions tasked to oversee the extraction of natural resources while the preservation of natural environment is upheld under all circumstances.

6.3 UNITED KINGDOM

The UK petroleum regulations is administered by the Department of Energy and Climate Change (DECC), to promote a preventative approach and environmental protection by underscoring the need for consultations prior to the commencement of petroleum operations or before the issuance of petroleum licences. In the “UK’s 14th offshore licensing round, 35 blocks nominated by the industry were not offered for licence because their location made them highly sensitive.”¹⁸³

¹⁸²Section 22A Norway Petroleum Regulations (NPR) 1997

¹⁸³Jeremy Rowan-Robinson, Environmental Regulation of the UK Offshore Oil and Gas Industry in, *Journal Of Energy & Natural Resources Law* Vol 18 No 3 2000 at 270. See also, Daintith and Willoughby, Chapter 9 of *UK Oil and Gas Law* (A Hill ed, Sweet & Maxwell).

Moreover, the high court's decisions in the Greenpeace cases are further illustrative of the incumbent powers of the UK petroleum regulatory bodies to enforce precautionary measures prior to and during petroleum operations. “**In R v Secretary of State for Trade and Industry, ex parte Greenpeace**,”¹⁸⁴ the principal issue entailed whether the European Commission (EC) Directive 92/43 on the conservation of natural habitats and wild fauna and flora applied up to the 200-mile limit of the UK continental shelf.¹⁸⁵ The Directive had been implemented in the UK through the Conservation.

Moreover, the Natural Habitats Conservation Directive applies to marine areas, which it defines as “any land covered continuously or intermittently by tidal waters or any part of the sea in, or adjacent to Great Britain up to the seaward limit of territorial waters and the continental shelf”.¹⁸⁶ The Court held that the Directive was applicable and it upheld the prescriptive nature of the provisions of Articles 3-11 of the Directive as binding on the DECC for the protection of habitats and species.¹⁸⁷ In the subsequent Greenpeace case, Greenpeace challenged the failure of the Secretary of State for Trade and Industry for failing to carry out its licensing function in accordance with the Habitats Directive during the 19th Licencing round.¹⁸⁸ The affected areas to be licensed in the 19th round within the Atlantic Frontier were outside the 12-mile limit of territorial waters but within the area of the UK continental shelf. Mr Justice Kay concluded that the reference in the Habitats Directive to the “European territory of the Member States” (Article 2 of the Directive) included the area up to the 200-mile limit of the UK continental shelf. The significance of this judgment rests on the particular attention accorded to environmental protection of natural habitats in not just the onshore producing areas but also the offshore locations to which scanty attention has been paid.¹⁸⁹

UK adopts a continuous environmental monitoring mechanism, which requires that, before any operational steps taken “impacts assessments of new sites and continuous assessments of work

¹⁸⁴R v Secretary of State for Trade and Industry, ex parte Greenpeace[1998] Env LR 415

¹⁸⁵Ibid

¹⁸⁶the Conservation of Natural Habitats Regulations 1994

¹⁸⁷Ibid

¹⁸⁸R. v. Secretary of State for Trade and Industry(Unreported), Queen's Bench Division,5 November 1999. Seealso, SI 1994 No 2716 and Regulation 2 of the EC Directive 92/43.

¹⁸⁹Further aspect of the pre-commencement phase of the environmentally protective petroleum regulations in England and Wales, include, environmental permits issued under the Environmental Permitting Regulations (EPR 2010).

programmes and field development programmes as well as impacts assessments before decommissioning of oil fields or oil wells,” should be priorities, and the outcomes are subjected to joint critical evaluation. The UK oil and gas regulations require that a “licensee or oil and gas operator must undertake not only a preliminary assessment but also an overall assessment of the likely impacts on the environment of the proposed petroleum activity.”¹⁹⁰ The deliberations derived from the assessments are submitted to the concerned agency, who would then initiate more consultations among stakeholders before arriving at any decisions.¹⁹¹

The adoption of these international environmental regulations and European Union (EU) Directives has served as a ground for their enforcement via EIAs undertaken for the petroleum industry. This formed the “thrust of Greenpeace’ argument in *R. v. Secretary of State for Trade and Environment*,”¹⁹² in which the UK *high court upheld the provisions of Articles 3-11 of the EC Habitats Directive*. The High Court authoritative directive requires, “before consenting to a plan or project, which is likely to have a significant impact on a European site, an appropriate environmental assessment of the implications for the site’s conservation objectives must be undertaken.” The ruling and subsequent directives expound that, “If the assessment shows that the plan or project will adversely affect the integrity of the site, consent cannot be given unless there is no alternative solution, and there exist imperative reasons of overriding public interest why the plan or project should be carried out.”¹⁹³ The UK regulatory system backed by independence court of law boosts environmental protection.

6.4 CONCLUSION

The Republic of South Sudan (RSS) can pick a couple of lessons from the legal frameworks of particularly Norway and the United Kingdom and the subsequent implementation of these frameworks from the empowered designated agencies. The inherent gaps in the legal framework of SS in light of environmental sustainability in the oil and gas industry can be cured by adopting the Best International Practices (BIP) in ensuring environmental preservation.

¹⁹⁰See Part II, SS.10-13 UK Petroleum Act

¹⁹¹Department of Energy and Climate Change (DECC) (Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (as amended)).

¹⁹²*R. v. Secretary of State for Trade and Industry*(Unreported), Queen's Bench Division,5 November 1999

¹⁹³See Articles 6.3-6.4 of the Directive

CHAPTER SEVEN

FINDINGS, RECOMMENDATIONS AND CONCLUSION

7.0 INTRODUCTION

This is the last chapter of the thesis and it will give a conclusion of the whole research and the findings thereunder based on the various case studies and discussed in previous chapters. The specific objectives were to investigate the impact of the oil and gas industry on the environment of SS and its people. To also examine the existing legal regime with respect to regulating environmental sustainability in the oil and gas industry; to make a comparative analysis of the law regulating the oil and gas industry in other jurisdictions and to propose workable recommendations for a robust regulatory framework for SS Petroleum industry in relation of environmental regulation. This chapter is a summary of the study. It analyses wholly the researchwork, outlines research recommendations and finally gives the conclusion of the study.

7.1 RESEARCH FINDINGS

The study reviewed sufficient data from primary sources and secondary sources (laws of SS, international Conventions, writings of environmental activists, Journals and online documents) sources; interviewed 593 individuals –hail from Koch, Guit and Rubkona Counties, where petroleum operations concentrate. Of the 593 respondents, 17 were oil workers, 9 from GPOC (Unity oilfields) and 8 from SPOC (Tharjiath oilfields). The rest were community members around oil producing areas of Koch, Guit and Rubkona Counties. The data and findings are analysed, interpreted and hereby the following findings are explained:

The first objective of this study was to examine the effects of petroleum industry on environment in Unity of State of SS. The study found that the magnitude at which the environmental damage revealed in Unity State is so huge, as it negatively interfered with all lives in the oil producing areas. The impact of oil exploration and production include deforestation, loss of wildlife habitat and biodiversity, loss of grazing land, and soil and water contamination especially of critical wetlands due to oil spills.¹⁹⁴

¹⁹⁴<https://wedocs.unep.org/bitstream/handle/20.500.11822/27920/Foresight%20150419.pdf?sequence=1&isAllowed=y>

The second objective aimed to review “policy, legal, constitutional and institutional frameworks that govern environment” and oversee oil and gas management in the backdrop of petroleum extraction in SS. The study observes that SS has third world legal and regulatory frameworks with respect to petroleum operations, management and environmental protection. This is not without stressing that, there are gaps in its legal systems in line with natural resource laws as: (1) conflicting provisions that allocate functions and powers to the petroleum agencies, (2) regulatory framework and enforcement mechanism, (3) lack of reliable expertise in environmental and petroleum enforcement agencies and interference from other executive departments in the work of petroleum regulatory agencies. These gaps aid the IOCs to guarantee a safe haven for state and regulatory capture in SS.

The recent case between the Communities of Unity and Upper Nile States explains the magnitude of gross negligence in the manner in which the GPOC and Dar Petroleum Operating Company (DPOC) carry out oil extraction in these States. In April 2020, Hope for Humanity Africa (H4HA), on behalf of the Communities of Unity and Upper Nile States, took the GoSS and GPOC to the East African Court of Justice (EACJ).¹⁹⁵ This case was lodged as a result of explosion in the Unity oilfields areas, where over 2,000 barrels of crude oil leaked from a pipeline owned by GPOC. The leaked oil polluted a 400 square metre area, and subsidiary tributaries connected to the Nam River used by people in Guit and Rubkona counties.¹⁹⁶ *The figure II* below illustrates the exact explosion site in the area of Unity Oilfields.

¹⁹⁵ <https://law-in-action.com> › 2020/06/30 › the-oil-spills-o.. (seen on 15 Feb. 2022)

¹⁹⁶ Boris Ngounou, “SOUTHERN SUDAN: An Environmental Audit Of Oil Sites Is Announced” SOUTHERN SUDAN: an environmental audit of oil sites is ... <https://www.afrik21.africa> › southern-sudan-an-enviro...



The intensifying phase of explosion in Unity Oilfields



First phase of Oil leaked explosion in Unity Oilfields



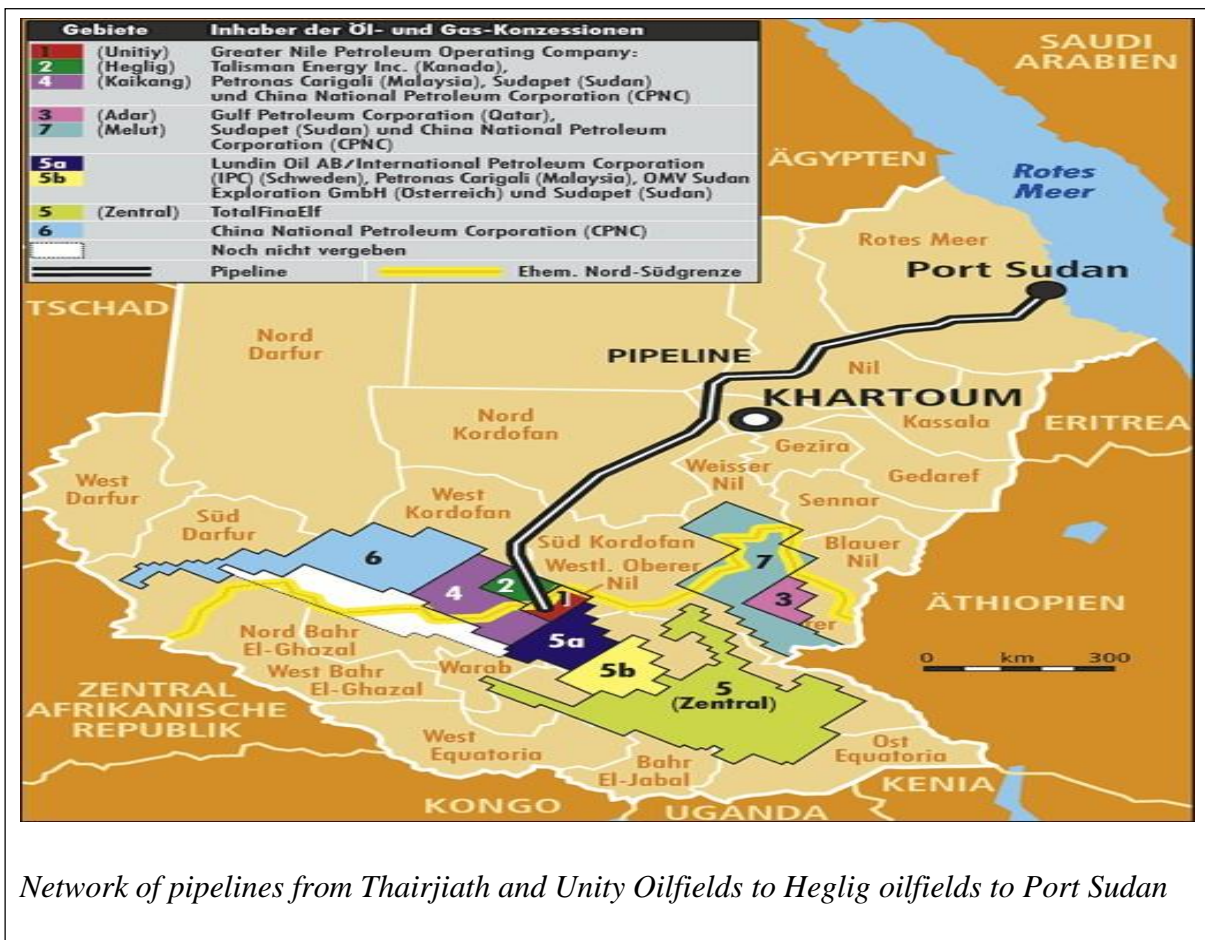
Unity Oilfields Fire Fighters trying to mitigate the intensity of the explosion



This picture shows the petroleum wastes being dumped in the area of Unity Oilfields

For the afore discussed case, the Court ordered a temporary injunction against the GoSS and GPOC to cease oil operation in the concerned locations until the worn out pipeline that leaked oilout are replaced with new ones albeit not enforced to date. Due to the hazardous petroleum activities – according to H4HA, over 47,249 in Upper Nile and 60,000 locals in Unity States weredisplaced, and no compensation ever accorded to these affected people.

There are arrays of subsidiary running pipelines from different oil wells in operational areas of SPOC and connected to its main pipeline from Tharjiath to Unity Oilfields of SS, and to Heglig oilfields of Sudan and proceeds to Port Sudan (Red Sea), which is the final exit point of SS and Sudan crude oil to the international markets. These network of pipelines run across large section of villages (residential areas) from Gon Payam of Koch, to almost all Payams of Guit and Budang Payam of Rubkona Counties; western and north-western Payams of Ruweng Administrative Area and then finally to Unity Oilfields of SS and proceed to Heglig oilfields of Sudan. Some of these pipelines can be seen from the map below.



All the 593 respondents stressed common issues that affect them in their localities, which ranges from water, air and environmental pollution, with blame directed to GPOC and SPOC that operate oil in Unity State. The concerns they raised are so worrying –they observed defects in new-born babies, untold miscarriages experienced by mothers; unknown cause of death of their animals, including wildlife, the soil is no longer fertile and productive as it was before oil

extraction in their areas. The revelation hereunder by the MoP in respect of these concerns reciprocates the worries raised by the community.

The Minister of Petroleum acknowledged the evidence of grave environmental pollution concerns in April 2021,¹⁹⁷ due to which the government invited tenders and selected six (6)¹⁹⁸ qualified international companies to carry out Environmental Audit (EA) in the petroleum producing States of Unity including Ruweng Administrative Area and Upper Nile. These companies were Envage Associate (K) LTD, Bright Heritage Company limited, CSI International (Bomatex Ltd), Panloy, Cowi and Norway Optimum Engineering Company. Nonetheless, these companies have never been called to sign contract to commence the exercise for which they were selected. Overwhelmed by the concern that faces the community around oil producing areas, the Minister of Finance of Unity State, Hon. Malual Tap said, “I want to remind the ministry of petroleum and stakeholders that the five percent give to the state are not in exchange the lives of our people.”¹⁹⁹ This statement calls for accountability in terms of conducting petroleum activities according to law and compensate the affected persons and community in case of damage brought about by the petroleum operations.

7.2 CONCLUSION

The doctrinal theory “adopted in this study explicitly explains the role of constitutional, policy, legal and institutional frameworks in sustainable governance of environment in the backdrop of oil and gas exploration.” This study finds that the insufficient environmental, legal and policy frameworks –coupled with scant regulatory enforcement by the institutions in which the power to oversee petroleum operation vests. This disappointingly, leads to horrible biophysical, socioeconomic and environmental management in the oil value chain. The loopholes exist in SS regulatory, environmental, legal and policy frameworks – especially in relation to oil and gas

¹⁹⁷ Deng Machol, “Juba – South Sudan’s Ministry of Petroleum has launched the opening bid round for its environmental audit tender, warns the private oil companies of environment pollutions” <https://panafricanvisions.com › Algeria>

¹⁹⁸ Ibid

¹⁹⁹ “Ibid “I want to remind the ministry of petroleum and stakeholders that the five percent give to the state are not in exchange the lives of our people,” (2021)

exploitation cement the IOCs grip on continuing with the loose regulatory enforcement system derived in the united Sudan.

In addition, the study suggests that government and private agencies that enforce regulatory framework, environmental laws need to devise a robust regulatory enforcement mechanism (checklist) that would enable them measure the level of petroleum stakeholders' compliance to environmental, legal and petroleum laws. Not only this, they must also be proactive, and accorded enough resources and capacity building for them to be effective in ensuring that sustainable environmental management is duly achieved.

Despite the explicit legal requirements enshrine in SS domestic legislations and international environmental best practice – contain in various Conventions and Treaties, the petroleum stakeholders protracted-negligence with respect to protecting the environment in the course of extracting oil and gas is evident. On this issue, the environmentalists argued that, “the improper storage of the drilling waste materials in the study area, lack of public participation of the locals over oil and land issues and lack of annual environmental auditing data on water, soil and air quality as stipulated in the environmental laws ascertained the agencies assertion and the study’s findings.” The study has shown that in the absence of a legal framework guiding the adoption of an ecologically friendly horizontal oil drilling technology, the conventional vertical oil drilling leads to increased ecological footprint and destruction of vegetation cover. This implies the degradation of the vegetation caused by the oil and gas exploration process and this is subject to intensify with more exploration and production. Furthermore, the study shows that drill cuttings, natural gases mixed with impurities, dust mixed with volatile organic compounds and used drilling fluids are the leading waste materials generated from oil and gas exploration drilling activities and they are all potential environmental pollutant. “Drill cuttings forms the bulk of the waste material and they are rich in heavy metals and other chemicals and needs to be managed sustainably to avoid water, soil and air pollutions”²⁰⁰ which are now, with no doubt on course to cause severe human health challenges in Unity State.

The relaxing stance of Petroleum stakeholders to comply with domestic laws and international Conventions and Treaties that guide petroleum operations globally has been incentivised by the

²⁰⁰ <https://ir-library.ku.ac.ke>

similar gesture on the part of SS government institutions that charged with supervisory power on the petroleum operations in the country.

7.3 RECOMMENDATIONS

Recommendations made in this part of this chapter are arrived at as deductions made from the preceding chapters that discussed findings of the study and ‘interventions.’ With these recommendations, the researcher deemed that, policy, legal, environmental, socioeconomic and institutional frameworks challenges would be resolved if the stakeholders (Government & IOCs) consider these recommendations as follows:

Promulgation of New Laws

SS Petroleum upstream, downstream and environmental protection laws and regulations, with respect to oil and gas extraction are so inefficient to guide the petroleum operations. Yet, as argued “legislations specific to oil and gas exploration processes are key if sustainable management of environment is to be realised in the oil fields, not only in SS, but in all developing countries.” These specific legislations that need to be developed include, the passing of the Drafted Environmental Protection Bill, 2010, drilling generated hazardous waste management addressing problems posed by drill cuttings and adoption of technologies such as phytoremediation in their management. Operationalisation of Local Content and timely Plan of Decommissioning Component. Other legislations are those addressing gas flaring challenges especially as exploration and production intensify. In addition, a legislation guiding oil exploring companies to adopt more ecologically friendly technologies in oil drilling, such as horizontal drilling to minimise ecological footprint in SS.

As an independence new nation, RSS promulgated most of its laws before 9th of July, 2011 – especially 2008 and 2009; even the TCSS was made when the then Southern Sudan transitional parliament was heavily relying on united Sudan laws, which were pivoting around Islamic tradition, devoid of democratic principles and values. By relying on Sudan Laws by then, today has bearing consequences on institutional set up, and responsibilities allocated to such institutions in SS. For instance, if one looks critically at the roles assigned to the Ministry of

Petroleum, SS Petroleum Authority and NilePet, the confusion therein worth much attention, and rectification, by enacting new laws that will distribute duties to government department more clearly. In addition, old laws that were enacted before SS independence need to be amended to bring them in a total conformity with the parent law (TCSS). The intention of reviewing these laws is to make them legally reliable for regulatory agencies and petroleum operators in SS.

Statutory Instruments, Rules and Regulations

This study also recommends the making of statutory instruments, rules and regulations to guide the institutions and agencies in implementation of environmental laws and policies.

Empowerment and Establishment of Environmental Agencies and Ad hoc Committees

This study recommends empowerment of existing institutions responsible for protecting the environment and creation of ad hoc Government agencies at state level to implement the laws and policies and enhance monitoring and supervision of private oil companies with respect to environmental protection. This should be done by directing adequate resources for locals' capacity building and hiring the most qualified workers for SS environmental and petroleum agencies. This will enable the government regulatory agencies to set enforcement mechanism that enhances their monitoring efficiency and encourage IOCs to assess the possibility of environmental pollution in the oil producing areas whenever needs arise. This may not only minimise oil and gas pollution, but also restores and maintain the integrity of the soil tiers in Unity State's petroleum sites.

By doing so, the issues of constitutional, policy and regulatory frameworks enforcement lagging by the regulating and regulated bodies will be improved.

Regulatory Efforts and Policies that Safeguard Environment

GoSS has a due responsibility to upholding the laws being national or international in respect to extracting natural resources for the welfare of present and future generations. This can only be achieved with proper 'adoption of clear policies that promote environmental protection' and in total conformity with domestic laws and International Treaties and Conventions on environment.

Thorough Revision of Petroleum Contracts in SS

The current petroleum agreements and contracts were entered into by the RSS and IOCs when there were no relevant mining laws, and public participation was hardly taken into account. With the laws in place now, SS needs to reconsider all these contracts and agreements to bring them into conformity with these laws. As reflects therefrom, the nation proclaimed its independence with no petroleum legal maturity, for it was in a rush to make laws to cementing its readiness of becoming a complete independence nation in the eyes of the international community, and prove contrary the Khartoum regime, which viewed Juba elites as an incompetent group to lead South Sudanese. With this rush, petroleum laws, in respect to environmental protection were not in place, and those (laws) enacted by then were not well fashioned to enforce the environmental international best practice. For instance, Decommissioning Plan and liabilities imposed on those in charge of plunging petroleum infrastructures in the PA, 2012, after oil depletion, does not hold the IOCs responsible for any adverse effects, which might happen afterwards. This contributes to the relaxing stance exhibit by IOCs towards adhering to the laws.

Establishment of Environmental Impact Assessment Mechanisms

As the petroleum impacts in Unity State are documented, there is an urgent need for considering swift EIA across all areas where petroleum extraction takes place. For precision purpose, the areas of: Tharjiath, Male and Unity, and up to Heglig Oilfields need this assessment. For great assurance, this assessment should be extended to other oil producing areas in SS, because not only Unity State faces these challenges, also other areas in question, like Northern Upper State faces the similar problems.

Use of Advanced Environmental Technologies

It is pertinent for SS to adopt the use of new technologies in order to ensure environmental sustainability in petroleum industry. These technologies are being used in Norway, Venezuela, Saudi Arabia and many other countries that produce oil in large quantities.

The environmental Audit Proposed in 2021

This exercise is so important not only to saving human lives, but also to save the ecological chain in the oil producing areas. The outcomes of the environmental audit of SS's Petroleum fields will

enable local communities and civil society to put pressure on GPOC and SPOC to fulfil their social and environmental responsibilities.²⁰¹

Consultation

Consultation with local communities and other legitimate stakeholders is also an essential element of good environmental management. Oil Companies operating in SS should work hand in hand with the local communities while performing their social corporate responsibilities. Environmental preservation campaigns should be carried out in consultation and with participation of the local communities. This would allow the community participation in petroleum activities and promote their right to hold the petroleum stakeholders to account where and when necessary.

²⁰¹ [Boris Ngounou, "SOUTHERN SUDAN: an environmental audit of oil sites is ...
https://www.afrik21.africa/southern-sudan-an-environ..."](https://www.afrik21.africa/southern-sudan-an-environ...) (2021)

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