EFFECTS OF OIL PRODUCTION ACTIVITIES ON THE SOCIOECONOMIC WELLBEING OF COMMUNITIES LIVINIG IN GREATER UNITY, SOUTH SUDAN

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A Research Thesis Submitted in Partial Fulfillment of the Requirements for the Award of Master of Sciences Degree in Environment and Natural Resource in the Department of Environment and Natural Resource Management, School of Science and Technology of Africa Nazarene University

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DECLARATION AND APPROVAL

I declare that this thesis is my original work and that it has not been presented in any other university for academic credit

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Supervisor's Declaration

This is to confirm that this research thesis has been done under my supervision and carried out by the candidate under our supervision

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DEDICATION

This thesis is lovingly dedicated to my wife, Mrs Martha; for believing in me always, even when I lost faith in myself. For holding me in such a high esteem and teaching me the ways of academia. In addition, I dedicated this thesis to my beloved Uncle Ustaz Abdelmajid for his unweaving guidance and support throughout my childhood. He has been my pillar and it is because of him I am at this level. Words are not enough to express and extent my heartfelt gratitude to those who made me realize my potential.

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ABSTRACT

Oil is a major resource for South Sudan and it provides 98 % of the government's revenue. At independence in 2011, the revenue from the oil was meant to provide for developments and improve on the lives of the local people. This has not occurred so far, as the communities are still poor and their lives have been impacted negatively by the oil production activities that have polluted the environment. Majority of the studies have researched on the amount of revenue accrued from the oil, the different uses the oil revenues have been put into but none have looked at the influence of these oil production activities on the wellbeing of the communities living around the oilfields in Greater Unity States. The objectives of the study were to assess the influence of Oil Company's Community Social Responsibility (CSR), environmental impacts arising from oil resource production and involuntary displacement due to oil production on the socioeconomic wellbeing of the households. The study targeted households within a 10 km radius of five Oilfields of Munga, Toma South, Elnaar, Toor and Unity oilfield in Greater Unity of South Sudan an accessible population of 25,000 households. A stratified random sample of 378 households was interviewed using a structured questionnaire. Five Focus Group Discussions one for each of the oil fields were conducted to triangulate the household data. Descriptive (frequency distributions, means and standard deviation) and inferential (regression analysis and ANOVA) statistics were used to analyse the data at 95 % level of confidence. Cronbach's alpha was used to determine the reliability of multi-indicator variables. The socioeconomic wellbeing of the households in the study area was found to be 4.82 (Low) on a scale of 1-10. The socioeconomic wellbeing of the households in Greater Unity State was found to be positively influenced by corporate social responsibility (β .989, p=, 001) and negatively by environmental impacts from oil production (β - .848, p=, 001) and involuntary displacement from land (β -.896, p=, 001). The following recommendations were made: the oil firms need to enhance CSR that improve the welfare of individual households, the government to improve on the monitoring and evaluation of the oil firms environmental management activities and ensure direct compensation to affected households in terms of land loss or pollution impacts. The study has implication in creating awareness of the plight of the households near the oilfields and what the oil firms and the government can be able to do to alleviate the problem.

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LIST OF ABREVIATIONS AND ACRONYMS

CBO	Community Based Organization
CSR	Corporate Social Responsibility
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Co-operation and Development
WHO	World Health Organization
GNPOC	Greater Nile Petroleum Operating Company
GPOC	Greater Pioneer Operation Company
SPLA/M	Sudan People's Liberation Army/Movement

DEFINITIONS OF TERMS

Corporate Social Responsibility: CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders voluntarily as they exceed the obligatory requirements in order to address the needs of the society (Prieto, 2006). In this study, the term CSR was used to refer to all the activities that oil firms undertake within the locality (Lokichar) of their operations to compensate for the existence of those firms and how it influences the wellbeing of the local community.

Environmental Pollution: Pollution is the introduction of contaminants into the natural environment that causes adverse change (Constantaras, 2014). Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. In this study, environmental pollution entails all the negative impacts of oil drilling to the environment of the local community and how it influences the wellbeing of the same community.

Influence: It refers to the ability to cause desirable and measurable actions and outcomes (Solis, 2010). In this study, this definition will be adopted to determine the relationship between the independent and dependent variables. In this study, the term influence entails the perceptions of the local community on the various impacts of oil drilling on their wellbeing.

Land Acquisition: Refers to the process by which the state or a private developer acquires private land for the purposes of industrialization, development of

infrastructural facilities or urbanization of the land and provides compensation to the affected land owners and their rehabilitation and resettlement. In this study, land acquisition stands for the ability of oil drilling firms to access land within the local community and the various restrictions that come as a result of it.

Location: According to this study, Location refers to a type of administrative region in Kenya. They are a fourth level subdivision below Provinces, Districts and Divisions. Location in this study stands for Lokichar which is the study area of this research.

Oil: oil is any neutral, nonpolar chemical substance that is a viscous liquid at ambient temperatures and is both hydrophobic (immiscible with water, literally "water fearing") and lipophilic (miscible with other oils, literally "fat loving") According to Kvenvolden (2006).

Subjective Wellbeing: Subjective Wellbeing can be defined as the state of being comfortable, healthy or happy. It is a condition of an individual or a group. A high level of wellbeing means in some sense the individual or group’s condition is positive (Diener, 2000). In this study, subjective wellbeing stands for how the Turkana people perceive comfort or what they understand as happiness.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

South Sudan became a new independent nation on July 2011 and oil business was considered an important resource to the country's development. However, in the past, oil production has been linked with serious human rights abuses, such as forced displacement from oil fields, some of the underlying causes for the recent outbreak of war in South Sudan (from mid-December 2013 onwards) are linked to the way oil revenues are managed and shared in South Sudan. As a result, some of the fiercest fighting took place in the oil-rich states of Unity, Upper Nile and Jonglei. Even though this study focuses on oil production impacts at community level and mostly written after the recent fighting, there is a believe that the findings and recommendations are of great importance for reflection and action to achieve a more sustainable peace (ICG, 2006)

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. Chevron made major discoveries in Western Upper Nile and developed the oil fields "Heglig" (today in Southern Kordofan State/Sudan) and greater Unity (today in Northern Liech and Ruweng States, South Sudan). The exploration activities of Chevron also covered areas in today's Northern, Central and Fashada States (Patey, 2007).

The second civil war in Sudan, from 1983 to 2005, affected oil exploration and production, but oil was also a factor in the outbreak of the war and it exacerbated hostilities. By 1988 Chevron had ceased all its operations because of the growing insecurity due to the civil war. Under the rule of President Omar el-Bashir, who came

to power in 1989, the link between oil production and civil war intensified and lasted until 2005, when peace negotiations between the Government of Sudan (GoS) and the Sudan People's Liberation Army/Movement (SPLA/M) successfully ended the north–south civil war (ICG, 2008)

In 1997, the Swedish oil company Lundin Oil AB formed a consortium with PETRONAS from Malaysia, OMV (Sudan) Exploration GmbH from Austria, and the Sudanese state-owned oil company SUDAPET; two years later the first oil discovery was made in what is today Greater Unity Region. Lundin's involvement in Sudan was tinged with controversy after it was accused of possible complicity in war crimes and crimes against humanity. After the pull-out of Lundin and OMV, Chinese and Malaysian companies formed consortia with SUDAPET; these consortia took over the existing oil facilities in the late 1990s and continued exploration in other areas (OVL, 2009)

In March 1997, Greater Nile Petroleum Operating Company (GNPOC), now Greater Pioneer Operation Company (GPOC) in block 1, 2 & 4 began to build a 1,540km oil pipeline from the oil fields to a marine export terminal on the Red Sea. In 1999, the pipeline began delivery.

From 2006 the TharJath oil field in Block 5A south of Bentiu in Koch County, began exporting through the GNPOC pipeline. In Melut, where Chevron had operated some seismic exploration activities, it was not until 1997 that production was started, by the consortium Petrodar Operation Company, also composed of Chinese and Malaysian companies. A pipeline from Adar Yale oil field through Palochand the Central Processing Facility in Al Jabalayn (Sudan) to Port Sudan was constructed between

2004 and 2006.The first oil was transported through the pipeline in 2006.The country's crude oil production almost doubled, making it Africa's fifth-largest producer, with more than 434,000 barrels per day (bpd) by late 2006. Oil production peaked at an average of almost 500,000 bpd in 2007, before falling back somewhat in 2008/09. The signing of the Comprehensive Peace Agreement (CPA) in January 2005 improved conditions for oil production and export. After independence in July 2011 new consortia (operating companies) were formed for the oil production and further exploration. South Sudan created NILEPET to replace SUDAPET in the consortia. With DPOC in Upper Nile State and SPOC and GPOC in Unity State, currently there are three oil operating companies in South Sudan (Patey, 2007).

Independence brought with it the opportunity to 'get it right'. The problems affecting oil production were many and the widow of opportunity to get it right dwindled. Tensions between South Sudan and Sudan arose after independence over a series of unresolved issues including South Sudan's use of Sudan's oil infrastructure to export its crude. Sudan began seizing southern oil as compensation, this prompted the south Sudan to stop production of oil for more than a year. In August 2012, the two opposing sides agreed on pipeline fees $10, plus a $3 billion one-off payment to Sudan. South Sudan resumed production in April 2013. Before the shutdown, South Sudan was producing 350,000 bpd. Production resumed in April 2013, and in the following month it was 160,000 bpd. Then, because of the threat of the GoS to shut off the pipeline in July 2013, production declined again in August. By September 2013 production had reached 240,000 bpd, the highest level since its resumption (Moro, 2008).

According to Kvenvolden (2006) oil is any neutral, nonpolar chemical substance that is a viscous liquid at ambient temperatures and is both hydrophobic (immiscible with water, literally "water fearing") and lipophilic (miscible with other oils, literally "fat loving"). Oils have a high carbon and hydrogen content and are usually flammable and surface active. In recent years, a significant amount of foreign-based oil drilling has begun in South Sudan, raising the land's geopolitical profile. Oil and other mineral resources can be found throughout South Sudan, but the area around Bentiu is commonly known as being especially rich in oil, while Jonglei, and other part of the Country, have potential reserves. During the autonomy years from 2005 to 2011, Khartoum partitioned much of Sudan into blocks, with about 85% of the oil coming from the South.

In due course the local councils and elders were taken as consultation base upon which support from all sub-systems, including state affairs. It is probable that the recognition of this intricate system of authority flow is fundamental to the resolution of any future crisis arising from the exploitation of the country‘s petroleum resources in general, and particularly from environmental degradation, which specifically affects the people living in the oil-bearing communities. Briggs and Weissbecker (2012) urged that the environment has long been a factor in violent conflict in both Sudan and newly created South Sudan, especially with respect to control over oil. The first oil was discovered in 1974 to 1999, and by 2007, hydrocarbons accounted for over 95 percent of Sudan’s income. South Sudan became independent in 2011 after years of war with the Sudanese Government in Khartoum, intensified by local conflicts over access to oil-rich border areas. But beyond conflict, South Sudanese

communities have also been ringing the alarm bell about pollution and health hazards caused by the oil production extraction.

In September, 2012, renegotiating the oil-sharing agreement between Sudan and South Sudan was signed, leading to relatively high levels of international cooperation three years ago, was an important task for any government. But the conflict legacy of oil also extends to these environmental health problems, which require a concerted effort from the government before more lives are lost. Indeed, addressing environmental health risks is an important way for the government to demonstrate its legitimacy to civilians and improve livelihoods (Morrison et al 2002). The focus on environmental factors, including natural resources and conflict-related environmental damage. Recognition of the detrimental impacts of environmental damage on health and development, as well as the opportunities to promote peace around it, are key to producing better data and more effective interventions calls for mainstreaming the environment in humanitarian responses and building in accountability mechanisms to environmental governance structures, especially for industries involved in oil and gas extraction.

These considerations were fortunately on the agenda of the United Nations Environmental Assembly in May 2016, where the impact of conflict on the environment and consequences of oil exploration were part of the proposed discussions and resolutions. More importantly, the voices of affected communities should be at the forefront of stakeholder discussions when rebuilding war-torn societies. Understanding their grievances and concerns is key to building back healthier and more peaceful societies.

1.3 Statement of the Problem

The independence of south Sudan on 9th July, 2011 brought with it the expectation that the oil that was being produced in the country would spearhead development and enhance the socioeconomic conditions of the people. Oil production in the country by the year 2012 was providing 98% of the government's revenue. Greater Unity Region in South Sudan has three oil producing sites and it is therefore an important oil producing region in the country. The revenue from the oil production was to be the main vehicle of bringing socioeconomic development to the local communities and to enhance their socioeconomic wellbeing. This has not been the case as the communities living in the oil producing areas in Unity state are experiencing high poverty levels and are facing many challenges arising from the direct effects of oil and gas on the environment, civil wars due to revenues arising from the oil sales and displacements due to oil production. These new unforeseen outcomes have brought about the interest in wanting to know how well the activities associated with oil production influence the wellbeing of the people living in these oil producing areas.

Most of the studies and reports have concentrated in knowing the total revenue arising from the oil and gas production, the effect of oil on the environment, and the way the revenue is disbursed but none have specifically concentrated in knowing how well the revenues influence the socioeconomic wellbeing of the local communities living where the oil mining is taking place in Greater Unity Region. This research therefore studied the way the wellbeing of individuals and households are affected by the activities involved in oil production.

1.4 Objective of the Study

1.4.1 General Objectives

The general objective of the research study was to assess the effects of oil production activities on the socio-economic wellbeing of community's living in greater Unity state, South Sudan .

1.4.2 Specific Objectives

The specific objectives of the study were:

(i) To assess the influence of Oil Company's Community Social Responsibility (CSR) on the socioeconomic wellbeing of households in Greater Unity region, South Sudan.

(ii) To assess the influence of environmental impacts arising from oil resource production on the socioeconomic wellbeing of households in Greater Unity Region, South Sudan.

(iii) To determine the influence of involuntary displacement due to oil production on socioeconomic wellbeing of households in greater Unity State, South Sudan.

(iv) To rank the three independent variables (CSR, environmental impacts and involuntary displacements) used in this study based on their importance in influencing the dependent variable (socioeconomic wellbeing).

1.5 Research Questions

The below were the research questions that guided the study:

(i) What are the influences of Corporate Social Responsibility of the oil company on the socioeconomic wellbeing of citizens living in the greater Unity Region, South Sudan?

(ii) How has environmental impacts influenced the socioeconomic wellbeing of households in Greater Unity States, South Sudan?

(iii) How does involuntary displacement of communities from their land due to oil production influence their socioeconomic wellbeing of households in the Greater Unity States, South Sudan?

(iv) What is the rank the three independent variables (CSR, environmental impacts and involuntary displacements) used in this study based on their importance in influencing the dependent variable (socioeconomic wellbeing).

1.6 Significance of the Study

There is a need for environmental policies, and programmes be designed in such a way as to provide for the general wellbeing of people living around oilfields in greater Unity States. This may be achieved by a better understanding of the socio-economic of those communities. Thus, the significance of this study is to assess the influence of oil production on the on subsistent agriculture, physical environment and social life of citizens living in the greater Unity States within South Sudan then the research will put forward the problems associated with Oil production and its mitigation.

The effects of oil production depends on size of production firms together with the volume of land that they have occupied to carry out their activities which is take with great caution to natural resource, to mention local water wells/access points are placed a distance away from production plants to avoid contamination of physical environment, water, agriculture, domestic animals, human health and land hence mitigating they could be caused diseases.

The research addressed numerous effects associated with oil spillage, retardation of vegetation growth, soil infertility, and ill-health to members of the community, displacement of the people of the area, constant protestation of host communities, socio-economic deprivation, and perceived marginalization of the people are associated with oil resource exploration. This was based on to create conclusion to oil bearing communities have not adequately been compensated for harm done to them through degradation of the ecosystem caused by several years of oil exploration. Their oil resource wealth has been turned to oil resource curse as they are disempowered, and condemned to perpetual underdevelopment.

1.7 Scope of the Study

This Study focused on influence of oil production on subsistent agriculture, water, physical environment and social life of South Sudan with much emphasis on greater Unity area as research case study, thus the study will look into the dangers of both upstream and downstream. The upstream comprises of exploration and production activities whereas the downstream comprises of transportation, distribution, petrochemical production, refining and marketing processes. It is crucial to note that this thesis did not interfere with the national and corporate politics involved in the oil and gas sector in Greater Unity Region and at National level and otherwise. It was solely focus and evaluate the socio-economic and environmental related problems of the oil production in greater Unity and also the study suggested possible ways of mitigating such impacts especially on the environment.

1.8 Limitations of the Study

This research was b conducted in situation of economic hardship which the country is facing thus this limited the researcher’s potential to explore more information, in this

regard much financial resource will be needed for movements, internet, and use of private libraries.

Since the research entails to deprive information relating to State controlled oil company, some respondents may fail to provide information as expected in fear that it may affect their working position and environment, in this context the researcher declared that the information provided in the research was handled with highest degree of confidentiality and trust and will never their opinion will never be disclosed.

1.9 Delimitations of the Study

The research was confine on the motive of interviewing and observing the impacted oil-producing communities more so in Greater Unity Region which may\be very sensitive to oil and gas activities related problems.

1.10 Theoretical Framework

The research was based on two theoretical frameworks which in the consideration of the researcher are appropriate in exposing the very many problems rise by oil production activities to the environment relating to greater Unity States. They are the issue of paradox of plenty, otherwise known as the “Resource Curse” theory, and the “Environmental Externalities” theory. The “resource curse” theory, presupposes that nations with rich natural resources may fail to develop in other sectors ultimately bringing about financial problems. The theory also assumes that such a country will also fail to develop infrastructure and other industries; instead they focus on a handful of industries which cripples the economy by encouraging very isolated investments and development; while ignoring the need to develop a more diversified economy.

The result is that the country is also forced to a large extent to rely on other nations for a wide variety of goods and services; and may in fact end up with a net loss at the end of the year (Auty, 1993). The term resource curse was first used by Richard Auty (1998) to describe how Countries rich in natural resources were unable to use that wealth to boost their economies and how counter initiatively; these countries had lower economic growth than countries without an abundance of natural resources. This was exemplified with the "Dutch Disease" syndrome, a situation which makes it difficult to diversify the economy, generally undermining non-oil activities. Numerous studies including one by Sachs and Warner (2001), and Billon (2001), have all shown a link between natural resource abundance and poor economic growth. Hardin (1968) on his part opines that in the traditional Commons Problems, free access to a finite resource ultimately dooms the resource through over exploitation.

Natural resources can and often do provoke conflicts within the society as different groups and factions fight for their share as expressed by Collier and Hoeffler (2002). This tends to erode government's abilities to function effectively. The theory of negative externalities is very fundamental in the analyses of environmental economics. This is because pollution in any form is known to result in harm to both people and the physical environment. Externalities are benefits or costs generated as an unintended outcome of an economic activity that do not accrue directly to the parties involved in the transaction and where no compensation takes place.

They manifest themselves through changes in the physical biological environment. Positive externality arises when actions of an individual or a group confers to others positive effects or reward. A technological spill over is a positive externality which

occurs when a firm' s invention not only benefits the firm but also enters into the society' s pool of technical knowledge and benefits the society as a whole. On the other hand, pollution is a negative externality which occurs for instance, when a factory discharges its untreated effluents in a river, the river is polluted and consumers of the river bear costs in the form of health costs or/and water purification.

Alfred Marshall (1842 to 1924) noted to have introduced the externality theory in economics, but his theorization was only concerned with positive externalities accruing to the third parties outside of transactions (Marshall, 2009). In the 1920's, Pigou propounded the negative externalities theory having realized that externalities contained not only benefits but also costs. Pigou (1920) externality theory deals with the problem of smoke emission by a factory damaging nearby business or residents. His solution for correcting the negative externality is to impose a per unit tax on output to the firm generating the negative externalities. The per unit tax should be equal to the differences between the social marginal cost and the private marginal cost corresponding to the social optimal output, the output satisfying the condition the price equals the social marginal cost. Imposition of such a tax will raise the output price and reduce the demand thereby helps in internalizing the environmental costs to some extent in the decisions of producers and consumers of the product. Pigou recognizes that sometimes, government may find it necessary to exercise some means of authoritative control.

1.11 Conceptual Framework

This research was guided by the relationships between the suffered communities due to natural resources development, which has caused communities to be displaced to create room for the development and the wellbeing of the greater unity States welfare.

The independent variables, which are oil production activities which can be explained by different outcomes of the oil mining on the people and environment, they include: (i) Corporate Social Responsibility which are the obligations the oil mining companies have on the society living next to the oilfields, they include and are not limited to provision of health services, education, and compensation to the community for using their land, (ii) environmental pollution caused by the oil and gas bursts which have a direct impact on the land, water and agricultural fields and indirectly on people, (iii) involuntary displacement of the communities from their homes either due to the oil production or due to civil war. These independent variables are hypothesized to affect the socioeconomic wellbeing of the people. The dependent variable socioeconomic wellbeing of the community can be explained by the following indicators: improved standard of living, access to health care, safety, social relations, spiritual fulfillment, control of state of the environment, emotions and affiliations. The moderating variables include culture. The Intervening variable (government policies) has some effect in influencing this relationship.

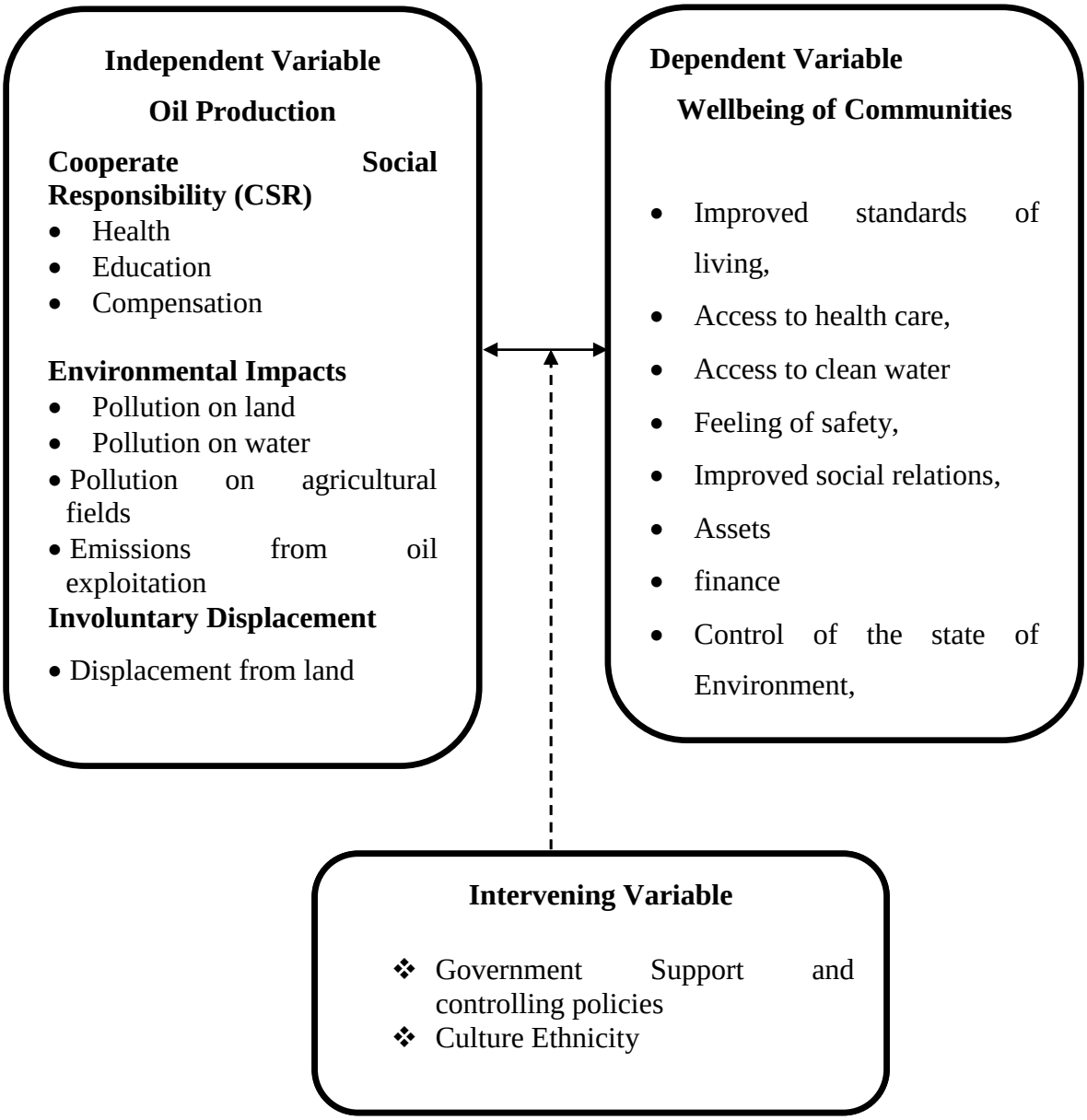

Figure 1: Conceptual Framework showing the Effects between Oil Production Activities and Socio-economic Wellbeing of Households around Oil Fields in Greater Unity State

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review presented in this Chapter focuses on literature related to the independent and dependent variables selected for this study that are contained in the conceptual framework (Figure 1). Thus, this chapter examines the socio-economic and environmental problems associated with oil discovery, drilling and production within greater Unity. It as well assesses the negative and positive impact of Oil production activities on the environment, and wellbeing of the people living around those oilfields. It also assess the harmful impacts on ecosystems and livelihoods of local people at all stages of oil prospecting and exploitation and terrestrial, It also take in national habitat fragmentation, pollution and indirect impacts such as displacement, destabilization of local economic, insecurity, among others (Burnham & Brahman, 2005)

2.2 Theoretical Review

It is necessary to review some existing literatures on the aspects of the impact of oil exploitation in greater Unity. The quality of the environment is critical to the survival and nourishment of human existence in particular and livestock and plants in general. Awodola (1997) categorized environmental degradation as second to economic depression, as one of the problems the world is currently facing and it is serious because the ability of the environment to support and sustain life depends on the proper natural balance of its properties; soil, water, air, plants and animals." He further posits that "the environment has to possess the right temperature, needed oxygen and carbon dioxide in its atmosphere, good rich soil, water of its rivers, lakes, oceans and precipitation, vegetation and all other conditions that are necessary for the

sustenance of life. Oil resource exploitation which involves various chemical and seismic wave generations is a major source of environmental degradation particularly through liquid discharges and oil spills as well as gas flaring. Thus, various materials are released into the environment in the course of oil production operations. Petroleum renders the soil infertile, burns vegetation and kills useful soil organisms thereby hampering agricultural output and productivity environment (Rick, 2004).

It is true that, extraction of natural resources beings oil or other minerals temper with environmental issues. The destruction of livelihood of the local community and degradation of their surrounding environment is symptom of resource curse. Issues relating to the loss of land through uncompensated displacement, destruction of subsistence sources of living , destruction of domestic and wildlife habitats and unprofessional disposal of heavy substance, results in long term impacts of social nightmare and immense pollution.

However, the presence of substantial amounts of oil and gas reserves has been identified by many authors as a potentially mixed blessing for oil producing countries (World Bank 2006). Although the discovery of oil creates a sense of hope and expectation that the revenue would lead to the development of local communities and countries as a whole, in most cases, this dream has remained illusory as the exploration of the oil resources has led to the destruction of local communities and anarchy in oil-producing developing countries. Evidence around the world suggests that whether or not a community/country benefits from its discovery of oil and gas is a function of the global position of the oil-producing country in question (Bloomfield 2008; Hartzok 2004; National Academy of Sciences 2003; UNCTAD

2007). In most instances, local communities and oil producing nations in the global West seem to derive more blessings from the oil discovery and exploration in comparison to those in the global South. A good case in point is Norway which was the poorest country in Scandinavia at the end of the 1960s but had by the end of the 1990s become the wealthiest thanks to the discovery of oil in 1969 (Larsen, 2006)

One key exception to the assertion that only developed countries with natural resources do well is the case of Botswana. For almost twenty years, specifically between 1966 and 1989, Botswana was the world's fastest growing economy (Sarraf & Jiwanji, 2001: 9) and is currently considered an upper-middle income economy. Its success is due to the discovery of diamonds a year after it gained independence from Britain and the state's ability to implement policies that ensured the judicious use of the revenue. The emphasis on a fund similar to the Norwegian Future Generations Fund is evident in the words of Hon. Sir Masire, the President who presided over much of Botswana's economic growth who noted.

To make it possible for future generations of Botswana to derive benefits from the diamonds discovered on their land, the state accumulated international reserves and ran budget surpluses in anticipation of leaner seasons ahead. Unexpected increases in revenue were not spent, but rather saved. New development projects were only undertaken if the resources were available to cover the long term recurrent costs associated with such a project. In addition, like the Norwegians although less successfully than the Norwegians, the state sought to diversify the manufacturing, services and agricultural sectors of the economy so that revenue was generated from sources other than minerals. Finally, great pains have also been taken to ensure that

mining operations are environmentally sound so that communities that live in close proximity to the mines do not suffer unduly from the mining of the natural resources (Sarraf & Jiwanji 2001).The successes of Norway and Botswana seem to lie in a nutshell in their governance structures. Resources, it seems, are only a curse if governance structures are weak. Effective institutional mechanisms need to be in place to ensure that a model closely resembling the Norwegian or Botswana structure exists before the oil revenues come into a developing country if the country is to avoid the resource curse.

Pegg (2009) demonstrates in explaining the failure of the Chad-Cameroon pipeline, the largest single private sector investment project in Africa, both timing and consistency are key here. Although the revenues from the Chad-Cameroon pipeline begun to accrue to the Chadian government in 2003, some of the measures to ensure its proper dispersal were not in place at that point. In addition, key components of the institutional measures which were written into law while the oil wells were being developed such as the need for a Future Generations Fund similar to the Norwegian Petroleum Fund were scrapped once oil revenues begun. It is imperative that Ghana learns from both the successes of countries such as Norway, Canada and Botswana as well as the mistakes of Angola, Nigeria, Equatorial Guinea and others for countries in the global south which are rich in natural resources seem to suffer from what Auty (1993) has famously identified as the resource curse thesis.

Using GDP growth, Auty and Mikesell (1998: 87) have demonstrated that ore-exporting, resource rich economies recorded a lower average GDP growth per annum, infact a 0.2% decline, than small resource poor countries between 1970 and 1993.

Collier and Hoefller (2000) have extended the resource-curse thesis by arguing that natural resources do not only pose challenges to the economy of a state, but also have a tendency to generate civil conflict like in the of two Sudans, Libya and Iraq. In their analysis of 73 civil conflicts that occurred between 1965 and 1999, they argued that the most powerful explanatory factor for these conflicts was the fact that they occurred in states that derived a significant amount of its GDP from the export of primary commodities. Collier (2007) has gone on to argue that having abundant natural resources is therefore one of four traps that a poor country might find itself in. All in all then, the mere discovery of oil and gas should not be cause for celebration.

Extractive activities including oil exploration can also have profound social and political impacts. They can have a positive effect on development by creating jobs, encouraging business and providing vital infrastructure for remote communities such as roads, electricity, education and health. However, the presence of substantial amounts of oil and gas reserves has been identified by many authors as a potentially mixed blessing for oil producing countries (World Bank 2006). Although the discovery of oil creates a sense of hope and expectation that the revenue would lead to the development of local communities and countries as a whole, in most cases, this dream has remained illusory as the exploration of the oil resources has led to the destruction of local communities and anarchy in oil-producing developing countries. Evidence around the world suggests that whether or not a community/country benefits from its discovery of oil and gas is a function of the global position of the oil-producing country in question(Bloomfield 2008; Hartzok, 2004).

It is undeniable that oil, fuels the global economy. Oil converted into petrol and diesel fuels our various modes of transportation that allows for the movement of goods and people around the globe. Due to the enormous financial resources that can accumulate from this industry, the discovery of oil in any location, particularly developing countries, is greeted with great optimism. Such was the case in the golden jubilee year of Ghana's independence when oil was discovered in commercial quantities in the Western Region of Ghana, the same region noted historically for rubber, forestry and minerals of various kinds. In the golden jubilee fields alone, it is estimated that by 2011, oil production per day would hit 120,000 barrels and the revenue from the oil and gas exploration is estimated to hit an accumulated value of US$20 billion between 2012 and 2030 (Gary 2009). Ghana's president at the time, J. A. Kufuor noted with great optimism: 'oil is money and we need money to do the schools, the roads, the hospitals. Even without oil we are doing so well already. Now, with oil as a shot in the arm, we are going to fly' (Gary 2009:5). The international community also shares in the optimism generated by the discovery and exploration of oil in developing nations.

2.3 Empirical Review

The evidence to date particularly in developing countries shows that the discovery and exploration of high valued natural resources including oil have plunged oil-producing countries into chaos and conflict. The data from Collier and Hoeffler (2000) which served as an extension of the resource-curse thesis is further buttressed with a report conducted by the United Nations Environmental Programme (2009). This report indicates that from 1990 to date, not less than 18 violent conflicts have been sparked by the exploration of natural resources including oil in regions such as Angola, Cambodia, the Democratic Republic of Congo, Darfur in the Sudan, South

Sudan and the Middle East. These intra-state armed conflicts can be national or confined to a specific territory of the country. In some cases, these intra-state armed conflicts are influenced by inequalities in the allocation of oil revenues especially when the local communities near the oil reserves are disadvantaged as is the case in the Niger Delta of Nigeria. According to Boonstra et al (2008), insurgency is on the increase in Nigeria and this is coupled with frequent attacks on oil installations and increases in the kidnapping of western workers (over 100 between 2006 and 2007). Bloomfield (2006) also indicates that the Niger Delta has become a chaotic haven for armed gangs, with increasing instances of kidnappings and daily violence. Le Billon (2001) also provides a good account of the extent to which the war in Angola was fuelled by proceeds from the sale of oil.

In a good government, the exploitation of oil resources is expected to generate larger revenues to foster development and reduce poverty for the people. But a weak government characterized with ineffectiveness, corruption, and conflicts, poverty will certainly strive. Finding is in line with the negative externality theory as propounded by Pigou (1920). Pigou realized that externalities also contained costs. The cost of oil exploration in Delta state of Nigeria is that the people suffer from horrible poverty as a result of government' s failure to effectively exercise control over the implementation of adequate compensation due the host communities who has been deprived of their traditional economic activities of farming.

The extractive industry, particularly oil exploration, also has serious human rights implications for developing countries. The quest for the much needed foreign exchange from the extractive industries has in most cases resulted in high government

tolerance of firms in these industries regardless of their human rights record. In their bid to protect their investments and secure foreign revenues, TNCs and governments respectively, have in some cases formed alliances of convenience that expose the population to human rights abuses. In some cases, the national security agenda are determined by the security concerns of TNCs. Thus the need to provide security for the continued exploration of oil overrides national security. According to an UNCTAD (2007) report, the participation of transnational corporations in the extractive industries can result in human rights abuses such as the disappearance of people, arbitrary detention and torture and loss of land and livelihoods without negotiation and without compensation. The famed case of Ken Saro Wiwa, leader of the Movement for the Survival of the Ogoni People, and eight other Ogoni minority rights activists in November 1995 who protested the poor quality of life of the Ogoni inspite of the oil exploration activities of Shell in their community, are a good example of such cases of atrocious human rights abuses (Obi 2001).

Nigerian women, as victims of harassment and repression at the hands of the state and multinational oil companies, have been stripped, beaten, maimed, raped and killed. Instances of such cases abound in Nigerian media. For example, Onwuemeodo of the Vanguard newspaper noted in 1999 how 238 Ijaw women had been raped in 4 major military crackdowns on Ijaw resistance (cited in Ikelegbe 2005:255). While women may not always be the direct targets of human rights abuses, they suffer the consequences of human rights abuses just as much as the victims do. When husbands/partners, fathers, brothers and sons are subjected to human rights abuses, women are left with the responsibility of picking up the pieces and trying to keep

families together as best as they can. Especially in the cases where husbands, who are also breadwinners, are the victims of human rights abuses, women as wives and mothers have to double their efforts to fend for their families, the stress and strain of which can have disastrous impacts on their health.

Forced resettlements were also identified as associated with the development of extractive industries. The April 3, 2009 edition of the Sudan Tribune reported for example that in Sudan, thousands were forcefully evicted to make way for a low-sulphur crude oil venture in south-central Sudan. Through this forced eviction, the people of this community lost venerated ancestral homes, died from contamination and saw livelihoods jeopardized. Agriculture is the mainstay of a substantial number of African families and as has been documented in the works of authors such as Baanante et al (1999) and Whitehead (1999), the agricultural systems in Africa depend as much on the efforts of women as they do on the efforts of men. However, men are more likely to be cash crop farmers and food crop farmers are usually the poorest in our societies (Darkwah 2005).Forced resettlements which expose the livelihoods of women food crop farmers put undue strain on them and their Families as they struggle to develop alternative livelihood practices to fend for their already cash-strapped families.

The social and environmental costs (destruction of wildlife and biodiversity, loss of fertile land etc.) of oil resource exploration and exploitation have been extensive to the Delta state oil producing communities and indeed the entire oil bearing communities in Nigeria. This paper argued that environmental degradation caused by intensive oil exploitation does not only exacerbate the collapse of socio-economic

activities induced by oil spillages, gas flaring, deforestation and other such activities of oil industries but had also displaced many from their farming activities without providing possible alternatives.

To begin with, burning of natural gas, employed to dispose of associated gas is connected with crude oil production. Gas flaring contributes to climate change, which has serious implications. It has been established that burning of fossil fuel, mainly coal, oil and gas has led to global warming. In Ghana, Tullow Oil was permitted to flare a total amount of 75 million standard cubic feet of gas daily in July 2015 due to the breakdown of the compressor on the FPSO. Secondly, gas flaring gives rise to the pollution of the atmosphere as a result of the release of oxides of Nitrogen, Carbon and Sulphur (NO2, CO2, CO, SO2), particulate matter, hydrocarbons ash, photochemical oxidants, and hydrogen sulphide (H2S). These contaminants acidify the soil and depletes soil nutrient. Studies have shown that the nutritional value of crops within such vicinity are reduced. In some cases, there is no vegetation in the areas surrounding the flare due partly to the tremendous heat that is produced and acid nature of soil. The effects of the changes in temperature on crops include stunted growth and withering of crops (Obioh, 2015).

Furthermore, there are adverse effects such as haematological effects on humans: The implication of gas flaring on human health are related to the exposure of those hazardous air pollutants emitted during incomplete combustion of flared gas. These pollutants are associated with a variety of adverse health impacts, including cancer, neurological and effects on reproduction. Deformities in children, lung damage and skin problems have also been associated with gas

flaring. Hydrocarbon compounds are known to cause some adverse changes in hematological parameters. These changes affect blood and blood-forming cells and could give rise to anemia (aplastic), pancytopenia and leukemia. Moreover, in addition to the health and environmental consequences of gas flaring, the nation also loses billions of dollars' worth of gas which is literally burnt off daily in the atmosphere though much of this can be converted for domestic use and for electricity generation (Ajakaiye, 2015)

With this in mind, lack of social development and environmental degradation in communities around oil fields in greater Unity has led to growing violent resistance to oil development at local level. If left unchecked the sensitive Sudd marshland of Unity region in South Sudan may develop into a protracted Niger Delta Esque scenario where local communities are pitted against negligent oil companies in the absence of environmental measures. Insecurity surrounding the oilfields in greater unity of South Sudan ranges from the theft and removal of oil company equipments and vehicles to armed kidnappings and killings. Grievances have been fuelled by Juba's failure to govern the social and environmental aspects of oil development in a manner suitable to anything but its own imperatives. The government of South Sudan has voiced some concern but failed to follow up with strong actions. This gradual formation of local resistance to oil development is fed by continual underdevelopment and environmental degradation (Hyne, 2001).

There have been pockets of development from oil in South Sudan, but these pale in comparison to the violent legacy of the sector and the ongoing environmental degradation shaped by its expansion. In former Unity State, the then governor, Taban

Deng Gai, now the current First Vice president of Republic of South Sudan, has been accused of corruption and mismanagement, but in his time, there has been noticeable investment in education and agriculture, and the expansion of oil infrastructure has brought more roads and public transportation access to markets, and wider mobile network coverage. Nonetheless, Deng requested a 15 percent stake in post-CPA oil revenue, as opposed to existing levels of 2 percent, citing the environmental damage his state has suffered (Cordaid 2014) The damming of water flows due to road construction has upset irrigation for agriculture and led to the evacuation of several communities in the state (Mike & White, 2001).

Issues surrounding road construction have been compounded by seismic survey activity, which has carved hundreds of kilometres of 12-metre wide bulldozed tracks, upsetting farmland and leading to deforestation and devegetation. The most damaging environmental impact, however, has been the discharge of contaminated 'produced water' generated from oil reservoirs and the disposal of drilling mud and other wastes, which have resulted in the death of livestock and serious illness among the local population. Often oil-polluted water, or the perception of tainted water, has forced locals to travel longer distances to find fresh sources, threatening to enflame longstanding inter-communal conflicts over water and grazing rights. State institutions and operating companies have failed to respond to these rising social grievances emanating from oil sector activities. There is a distressing absence of social and environmental regulation in South Sudan's oil sector. Together the Petroleum Act and the South Sudan Environmental Protection Act provide comprehensive regulations for environmental preservation.

For example, the Minister of Petroleum (MOP) in Juba can revoke certain contractual rights, including those for Blocks 1, 2, and 4 of GPOC concession, if environmental measures are not undertaken. However, there is an extreme lack of clarity and, more importantly, absence of political will to employ such enforcement mechanisms. Government officials have given precedent to energy and investment sectors. Nonetheless, the essential self-regulation of the sector encourages poor environmental practices among oil companies. Not surprisingly, environmental impact assessments are often substandard, only conducted after operations have already begun, and shelved upon completion with little follow-up. Neither have the results of environmental negligence resulted in compensation for local communities. Standards and modes of compensation were not specified and enforcement mechanisms are non-existent (Adekoya, 2003)

Government of South Sudan use strong language to bear on social and environmental issues. And it put together an environmental protection bill in 2010, but it has yet to be seen if industry development. The complaints of local commissioners have often gone unanswered by state governors and national government leaders. In 2006, the then GOSS Vice-President Riek Machar pleaded with villagers to allow Petrodar to continue its work in the face of protests. Compensation for damaged farms was promised along with infrastructure projects, but never materialized. Altogether, there are few opportunities for local communities to address their grievances regarding the oil sector in South Sudan in a peaceful fashion. The consequences of poor oil governance threaten to be increasingly (Cordaid 2014)

At independence, South Sudan inherited an oil industry with pre-existing infrastructure and a number of production sharing agreements with multinational oil companies, however, it did not inherit the human resources, institutions, and experiences necessary to manage them. The Government of South Sudan has since begun a process of creating a legal environment that is amenable to a transparent, equitable, and sustainable petroleum industry; beginning with Chapter 3 of the Transitional Constitution (2011) followed in2012 by the Petroleum Act. On July 17, 2013, the Legislative Assembly passed and, pending review and approval from the Council of States will soon enact the newest addition to the ongoing reform process: the Petroleum Revenue Management Act (2012).

The Petroleum Revenue Management Act (PRMA) establishes a formalized structure for distribution of petroleum revenues to immediate budgetary needs, savings and revenue stabilization, and direct transfers to petroleum producing states and affected communities. It sets a high bar for reporting requirements for both the Government and oil companies, with the overarching principle of transparent and accountability management. As it stands, the PRMA has the potential to be a ‘game changer’ for South Sudan, avoiding capital flight and unstable public expenditures while ensuring that long ignored communities in the oil-producing regions see direct benefit from the petroleum sector. This brief begins with an overview of Natural Resource Funds as a tool for resource rich states, follow by an overview of the strengths and weakness of the PRMA as the legislation currently stands in the context of international best practices. The brief concludes with a discussion of additional consideration and recommendation necessary for ensuring the success and sustainability of the ongoing petroleum industry overhaul in South Sudan

2.4 Summary of the Reviewed Literature

Oil companies need to establish projects that truly deal with the needs of the people. Such projects should include health facilities, institutions/training centers, communication facilities, good roads, electricity, and pipe borne water. This should involve the peoples' participation. The dominance of private and multinational sectors in the area notwithstanding, the National Government should on its part, have the political and economic will to ensure greater involvement of the people of the oil producing areas. Sustained job creation for the youth, provision of social amenities and infrastructures, will on one hand reduce unemployment, youth restiveness, and activities of doubtful values, and on the other hand, enhance peace and stability in the area. Environmental degradation problems have been here for several years. It should not be sustained for the next generation to handle. Efforts to solve them should be taken more seriously. It is the responsibility of the government to protect the vulnerable group of the society. Environmental protection laws and policies should be carried out with utmost sense of responsibility.

2.5 Sources of Oil Pollution.

2.5.1 Oil Spills Occurrences

In Great Unity, between 1993 and mid- 2007 alone, there has been a recorded 35 incidences of oil spills. This is aside from the unnoticed slicks and unreported cases of oil spills. The major causes of the spill incidences in Great Unity include Pipelines and flow lines leakage/blowouts, blowouts from well-heads due to poor maintenance and damage and spills from flow stations.

As has been stated earlier, oil spills involve the release of dangerous hydrocarbons such as benzene and Polynuclear Aromatic Hydrocarbons into the soil and water

sources. These spillages affect vast stretches of land and waterways thus polluting not only crops but also fish and animals' life and the sources of water for domestic uses. Forests are particularly vulnerable to oil spills because the soils soak up the oil like sponges and re-release it every rainy season. Other cases, the oil prevent the lenticels of the forests to absorb oxygen hence oxygen starvation results. The trees die in large numbers due to spill. As the spill occurs, it spreads onto farmlands and water bodies. The toxic crude seeps into the grounds and is taken up by the roots of plants. Recent studies have shown that oil spills lower soil fertility and cause poor growth of plants.

2.5.2 Gas Flares

Oil production involves the burning of hydrocarbon gases. The flaring–off of natural or associated gas is done as a by-product of the drilling of crude oil from reservoirs in which oil and gas are mixed. One hundred percent of the gases were being flared, resulting in pollution of the area. This made the Great Unity area one of the most polluted area. In the Great Unity area, the impact of gas flares on the local ecology and climate as well as peoples' health and property is evident. The flares involve the release of dangerous hydrocarbon mostly methane and others which include sulphurous oxides and the oxides of Nitrogen into the atmosphere. The flares raise the temperature of the surrounding environment to temperatures beyond normal of 13-14,000 degrees Celsius and causing noise pollution around the vicinity of the flares.

The result of this unchecked emission of gases is the release could be million tons of Carbon dioxide and millions tons of methane which means that South Sudan oilfields may contribute to global warming. Another problem associated with gas flaring is Light Pollution. Light pollution subjects the living organism around the vicinity of the flare to 24-hour daylight. This affects diurnality and night-time patterns in animals.

The flares drive away games; it affects the reproduction of fish as well as sending fish to deep river areas. The gases released during gas-flaring, mixes with the moisture and other forms of precipitation in the atmosphere to form acid rain.

2.5.3 Effluent and Waste Discharges

Another source of oil related pollution is the discharge of effluents into the surrounding environment, sometimes into the water, by the oil companies. 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 of chemicals during seismic activities. The major constituents of drill cuttings such as baryotes and bentonitic clays when dumped on the ground prevent local plant growth until natural processes develop new topsoil. In the water, these materials are dispersed and sink and may kill local bottom living plants and animals by burying them (Adekoya, 2003).

In addition to the pollutants introduced into the environment from exploration and exploitation operations, refinery wastes also have characteristics which constitute potential land, water and air pollutants. The disposal of wastes into the sea from oil facilities has direct effects on fish stocks. A serious threat posed by oil related pollution is the impact on underground waters. When oil spills or when there is an effluent discharge or acid rain, it seeps into the ground and becomes mixed in the underground water system. It has been found that polluted underground water take many years before it can be remedied. Yet this underground water moves into streams and wells which are the only sources of local water supply in the community which results in the rise of water borne diseases. This has affected the traditional relationship of our people with water. There is a obvious fear that rather than being

the source of life, these water systems have become sources of misery, disease and death (Adekoya, 2003).

2.6 The Impacts of Oil Pollution on the Environment and Wellbeing of the Living in Greater Unity State, South Sudan

2.6.1 The Impact on Great Unity Biodiversity

The most profound and adverse impact of oil pollution in Great Unity with far-reaching implications on all other aspects of our traditional lifestyles and livelihoods, had been the total loss of biodiversity and destruction of habitats largely due to soil degradation.

The results of the unchecked oil pollution in Greater Unity have been the complete destruction of ecosystems. Mangrove forests have fallen to the toxicity of oil spills and are being replaced by noxious nypa palms, the rainforest has fallen to the axe of oil companies, wild-life and game have been driven away and farmlands have been rendered infertile with gross implication on the right to adequate food.

During oil spills, the process of photosynthesis which enhances plant diversity is impaired since the process is reduced due to the fact that spilled crude have a high absorbance property so when the crude spreads on to the surface of leaves, the latter find it difficult to photosynthesize and thus die, leading to biodiversity loss. The toxic crude also affects underground herbs and shrubs, while microbial organisms which form important groups in the food web, are also destroyed

2.6.2 Socio-economic Impacts

Nutritional styles and Food Shortage: One fallout of oil pollution in the Great Unity area is the destruction of the traditional local economic support system of fishing and farming. The combination of the effects of oil spill and acid rain resulting from gas flaring has been soil degradation which affects crop yield and harvest. Fish are driven away from in-shore or shallow waters into deep-river Nile as a result of flaring. The ultimate result of this is the poor crop yield as the soil has been rendered infertile and poor fish catch, as most fish has been driven into deep waters and the Great Unity people do not have the fishing gadgets to go into deep-river fishing.

The whole impact of this is food shortage and which has affected the ability of most families to feed themselves. As a result of the above, Great Unity that was once the food basket of their own, is now fully dependent on imported from Sudan and Kampala through Juba the Capital. Thus, oil pollution has impacted on the right to food of the Great Unity people.

stated, amongst others that the government's treatment of the Great Unity has violated all three minimum duties of the right to food by allowing private oil companies to destroy food sources thereby falling short of what is expected, under the provisions of the African Charter and international human rights standards, and hence, is in violation of the right to food of the Unity region.

One of the important effects of oil exploration on communities near oil reserves is its impact on cultural practices, specifically the ways in which otherwise benign cultural practices might be rendered problematic in the face of changes resulting from the discovery of oil. A good case in point is the ways in which commercial sex work can increase with potentially more disastrous consequences in such communities. As

noted in the previous section, oil exploration leads to a decline in farming/fishing as viable economic ventures thus increasing the propensity for women to choose commercial sex work for income generating purposes.

In addition, the influx of foreign oil workers who are often paid large sums of money as expatriates makes the profession of commercial sex work potentially more lucrative in such communities. As a Nigerian female activist put it, "See, in our (Ogoni) community we have

girls, small girls from Lagos, Warri, Benin City, Enugu, Imo, Osun and other parts of Nigeria here every day and night running after the white men and staff of Chevron, they are doing prostitution. (Turner and Brownhill 2005: 174).

Dadiowei (2003) has also indicated that Gbaran communities are confronted with an increase in the number of teenage mothers with fatherless babies. While the work of social historians such as Akyeampong (1997) and White (1990) on Ghana and Kenya respectively make it quite clear that commercial sex work is not a new invention in Africa, one can safely say that the nature, extent and consequences of such practices in our current context is more worrisome. While this generation has witnessed the emergence of potentially deadly sexually transmitted infections such as HIV/AIDS, our women still have very little ability to negotiate safer sexual practices (Adomako Ampofo 2006). Be it as commercial sex workers who are more at risk for sexually transmitted infections including HIV/AIDS or teenage mothers who are left to care for children all on their own, the destruction of the structures that provide livelihoods for women in oil producing communities puts an undue burden on women in these communities.

2.6.3 Destruction of Traditional Means of Livelihood

The concept of 'livelihood' refers to the total of activities, resources and chances people use to secure individual as well as communal existence. As such, it also includes the approaches taken by a given group to preserve those social relationships and claims that may provide buffers in times of hardship and make sure those individuals and groups are able to generate livelihoods in the future."40 Prior to the launch of oil activities in these parts of Upper Nile and Unity states, pastoralism and agro-pastoralism were the most important pillars of livelihood. Oil production needs land, but access to land and land use is the basis of communities' livelihood. The majority of inhabitants cannot make a living without access to land, whether for cultivation, grazing of livestock, hunting, or collecting fruits and firewood, etc. Land take for oil production puts people's livelihood in jeopardy. Moreover, Oil production has negative consequences for people's livelihood through the destruction of resources. Water shortages, water pollution and difficulty of access to water affect people's means of livelihood in many locations throughout the region. In addition, the other negative impacts, as described in the four preceding sections of this chapter, accumulate and have a bearing on the livelihood of communities and have contributed to their vulnerability.

Another implication of oil pollution is that having destroyed biodiversity, it has also rendered the agricultural sector, which is the largest employer of labor in the area, it create conflict among the communities. Hence, most of the youth have become jobless since their local economic support system of livestock, fishing and farming is no longer sustainable. Oil extraction also resulted in the destruction of environment. This is in turn has led to the unsustainability of land for traditional economic livelihood patterns that once thrived in the area. As a result, many people migrate out

of the area into cities like to Juba. As such, it also includes the approaches taken by a given group to preserve those social relationships and claims that may provide buffers in times of hardship and make sure those individuals and groups are able to generate livelihoods in the future. Prior to the launch of oil activities in these parts of Upper Nile and Unity states, pastoralism and agro-pastoralism were the most important pillars of livelihood. Oil production needs land, but access to land and land use is the basis of communities' livelihood in Melut County. The majority of inhabitants cannot make a living without access to land, whether for cultivation, grazing of livestock, hunting, or collecting fruits and firewood, etc. Land take for oil production puts people's livelihood in jeopardy (Klaus Stieglitz 2017)

The extremely great potential dangers emanating from the use of chemicals in drill drilling fluids cause it to be strictly regulated by internationally-applicable guidelines. Augmenting this peril is another technique employed when extracting oil. Highly-concentrated salts containing solutions are injected into the oil deposits, so as to increase the pressure in them. The crude oil and the previously-injected salts-containing solutions are pumped to the surface, where the crude oil is separated from the so-called "produced water". The extraction of each liter of crude oil requires the employment of from 3 to 9.5 liters of produced water and incredible amount. This produced water often has a higher content of salt than does ocean water. The produced water also often contains noxious metals and radioactive materials. The general practice is to inject the produced water via another injection hole deep enough into the ground, with this meaning its being transported to layers of rocks that are far away from potable water. Should, however, the produced water be disposed of via in-feeds into surface waters, or via shallow drilling into layers containing ground water,

the risk arises that this polluted water will via wells be incorporated into humans' food cycle (Klaus Stieglitz2017)

2.6.4 Physico-health Impacts of Oil Pollution

There are many indications that oil production has caused or contributed to health problems. A specialized study of health problems in the oil areas is necessary. It is urgent to form a research team to look into this in order to confirm or exclude oil production as a cause of various health problems. If there is a link then this must be addressed as soon as possible in order to avoid more people becoming ill. If there is no link it is also important to obtain and to communicate evidence in order to prevent the spreading of rumours that will worsen relationships between stakeholders. A specific program to raise awareness on health and safety risks must be set up and implemented as soon as possible.

According to Some respondents, health problems caused by oil production are of great concern to the communities. They believe that, Oil production pollutants are suspected by communities to have caused many new health problems, namely increased infertility in women and a high number of miscarriages; eye pains, eye infections and even blindness; and skin problems and hepatitis (HCB) Many interviewees mentioned in addition fatigue and stomach pains and an increased incidence of appendicitis. A link between the pollution caused by oil production and some of these health problems cannot be excluded and needs further research. The smell (vapor) that comes from the produced water pits is a big issue for all those living close to these pits.

Seemingly very few decision-makers at company and government level but also within civil society are aware of the high risk that the oil business poses for the social fabric in the area. Yet, the oil business has led to previously unknown imbalances developing in the communities. Only a small number of people have obtained good jobs or business opportunities, or have gained access to oil money and become richer. The majority of people in the rural community has become poorer or feels they are poorer because their resource base has been diminished. This imbalance has had a negative impact on social relations and has the potential to create further frustrations and even conflict. The flow and mixture of people in a social environment that is characterized by vulnerability and feelings of marginalization is contributing to tensions between local people and newcomers as well as returnees.

Multiple conflicts concerning land caused or exacerbated by the oil business have led to a serious deterioration in social relationships. According interviewees in greater Unity region. People used to stay together, even if there was no clear and official demarcation of land. But since the oil company came into the area and started paying small compensation, there were many cases where several people claimed to be the owner of the same plot of land. During validation in county, chiefs as well as representatives of youth and women clearly confirmed the increase of conflicts and the negative impact on the social fabric. So far the communities and other stakeholders have failed to find any way of dealing constructively with these conflicts. Destructive behavior, such as outbreaks of violence, theft, withholding information, spreading rumors, is very likely to increase.

Impact of the past: war, violence and displacement the history of oil and wars in Sudan has been recounted and analyzed in a number of reports by the European

Coalition on Oil in Sudan (ECOS) and others. Violence, displacement and destruction affected thousands of people who had to flee, were killed, or lost their property. The legacy of the years of conflict, and the cruelty inflicted on communities, is impoverishment, traumatized and deeply disturbed individuals and families, and broken relationships within families, clans and villages. Victims of the violence and displacement have had no redress, even though the CPA provided for this.

2.6.5 Environmental Impacts

Environmental damage is obvious. There is need to evaluate this damage and to identify the harmful practices that must best option. The assessment team recommends, first, an environmental audit related to oil production in all oil fields. On the basis of this audit, measures for clean-up need to be designed and implemented. Second, communities whose livelihood was affected through environmental damage need to be compensated. Third, harmful practices must be stopped immediately. The special committee on natural resources and mining of the National Legislative Assembly should see to it that the Ministry of Petroleum and Mining, perhaps assisted by the National Petroleum and Gas Commission, takes care of these tasks. In order to make sure that environmental and social impacts will be minimized in future it is recommended the existing (but undisclosed) EIA be updated. With the introduction of new and more comprehensive Environmental and Social Impact Assessments (ESIAs) the possible environmental and social impacts should be identified. On the basis of such new ESIAs the oil companies must be obliged to redesign their Environmental Management Plans as well as their Health and Safety Management Plans.

2.7 Knowledge Gap

My research had been conducted in situation of economic hardship which the country is facing thus this will limit my capacity and potential to explore more information, in this regard much financial resource will be needed for movements, security, internet and use of private and well equipped libraries. Some respondents may just fill the questionnaire at very faster speed without reading and proper interpreting of the questions; there I will not distribute the questionnaire at the rush hours especially evening time when most of the staff is winding their daily duties. Sensitivity of the Information: Since the research entails to deprive information relating to State controlled oil companies, some respondents may fail to provide information as expected in fear that it may affect their working position and environment, in this context I will declare that the information provided in the research will be handled with highest degree of confidentiality and trust and will never their opinion will never be disclosed. Unwillingness: Some respondents may be not willing to share information with the research on the questionnaire or interview about the research topic, though it will be declared to them that the research is majorly for academic purpose and your contribution will be much accounted to my long journey of academic life.

CHPAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers the research design and methodology. This includes sampling, population, establishing rigor during and after data collection, ethical considerations and data analysis.

3.2 Research Design

This study adopted the qualitative phenomenological methodology in which two main sources, namely, the primary and secondary data were used. Primary data was collected by use of structured interview, the opinion of participants on their experiences on the impact of oil resource exploitation on the people of Unity State of South Sudan.

Burns and Grove (2003:195) define a research design as "a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings". It is therefore, a plan that explains how, when and where data are to be gathered and analyzed.

3.3 Research Site and Rationale

The study focused on block 1, 2 & 4 of Greater Unity Oilfield, Munga, El toor, Toma South and El naar. These oil fields lie in former Rubkona, Mayom, Abiemnhom and Panrieng Counties of previous Unity State and form larger oil concession in the Country. The Greater Unity oil field is connected to an export terminal in Port Sudan, of Sudan Red Sea coast, through the 1,600kmGreater Nile pipeline. The consortium that holds the concessions Greater Pioneer Operating Company (GPOC) made up of CNPC, PETRONAS, ONGC and NILEPET.A refinery is under construction in the

region. The region is home to the agro-pastoralists, Leek, bull and Jikany Nuer, and Ruweng Dinka. It lies on the migration route of Arabic Baggara tribes, coming from Sudan, and this is an ongoing cause of tension. Many of the younger population are Christians. Both Nuer and Dinka are cattle-herders but also practice traditional farming and fishing, and also use the forest for income-generation (charcoal, firewood, timber).

3.3.1 Geology and Geomorphology

According to the Sudanese Geological map 1983 (Appendix D), the project region is featured by unconsolidated sand tertiary and mud group, interceded with clay, gravel and shale, overlaid with recent alleviation and swamp sediments. The main feature controlling the climate of this area among other things is the Inter – Tropical Convergence Zone (ITCZ) that migrates north/south across this area following the apparent movement of the sun. The rainy season extends from May to October with peak values in August. The period November to April is essentially dry with the prevailing winds are from the north/northwest of 8 mph, while during the wet season the winds are predominantly from south/southwest of 6 – 8 mph. this wind patterns reflect the shift in the surface air circulation as the ITCZ passes over the area. The mean maximum temperature over the area varies between 32° C and 37° C. However, maximum temperatures in the range 42° – 44° C were reported during the dry season of some years. The mean minimum temperature over the area varies between 17° C and 24° C with 9.7^{o} C as the lowest temperature recorded. The daily mean temperature around the year varies between 25° C and 32° C.

3.4 Target Population

Greater Unity State has 12,340,000 people according to 2015 estimate (United Nations world population prospects, 2015) As a matter of fact, the influence of oil production activities in South Sudan has not been known until recently. The target populations were the poor vulnerable communities of greater Unity region, in particular those concentrated in high-risk areas of oil production of Unity, Munga, Toma South, Elnaar and Toor Oilfields. Though the research judgment was based in 100 respondents as sampling and target population.

3.5 Sampling Procedure

Stratified random sampling was used to select the sample. The areas surrounding the oilfields in unity state form the strata, they include: Munga, Toma South, Elnaar and Toor Oilfields. The households surrounding the oilfields at 10 km radius was listed and then randomly selected for interview. The research project explains to the prospective participants who were on the short- list and they were asked personally if they wanted to take part in the research.

3.6 Sample Size

The sample size required was calculated using the formula described by Krejcie and Morgan (1970) and Kathuri and Pals (1993):

$$n = \frac{\chi^2 * N * P(1-P)}{(ME^2 * (N-1)) + (\chi^2 * P(1-P))}$$

Where:

n = The required sample size, given by the following:

χ^2 = The table value of chi square for one degree of freedom relative to the desired Level of confidence which was 0.95. [The chi-square value used was 3.841].

N = The population within the study area [25,000]

P = The population proportion [assumed to be 0.50], as this magnitude yields the maximum possible sample size required.

ME = desired margin of error (expressed as a proportion). This is the degree of accuracy as reflected by the amount of error that can be tolerated in the fluctuation of a sample proportion about the population **P**. The value of d was taken as 0.05, which is equal to plus or minus 1.96σp. $\boldsymbol{ME^2}$= [0.05^2 =0.0025]

n = 378

Based on the estimated households (25,000) and the above formula the required sample size was 378 households. The sample population was then proportionally stratified into the five strata (areas around the oilfields). The households in the study localities was listed from the administrators' records and then using a table of random numbers the sample was randomly selected from the prepared list.

3.7 Data Collection

A research permit was obtained from the Government of South Sudan after obtaining an introductory letter from Board of post graduate studies of Africa Nazarene University. The government administrator's office within the oilfields was visited for familiarisation and to seek permission to make inquiries from the communities. Permission was sought from the administrators to conduct the research by informing the institutions the purpose of the study to avoid any suspicion and increase their confidence in giving information. The questionnaires were administered by the researcher with the help of enumerators before the respondents were led through Focus Group Discussions. Prior to data collection, the respondents were informed of the purpose of the study and assured of confidentiality of information provided in order to promote their free and honest participation in the study. An atmosphere

conducive to all the respondents was created by the researcher, to enable them open up and answer the questions asked truthfully.

3.8 Research Instrument

Three research instruments were used in this study; they included a structured questionnaire for the household interview, a Key Informants Interview (KII) guide and a Focus Group Discussion (FGD) guide. The KII and the FGD were used to triangulate the information that was obtained from household questionnaire. The KII and FGD information was used to: (i) obtain different perspectives on the phenomenon under investigation. (ii) clarify unclear questions because dialogue was used. (iii) observe non-verbal communication. (iv) prevent researcher bias and approach the phenomenon without preconceived ideas.

According to Parahoo (1997), a research instrument is “a tool used to collect data. An instrument is a tool designed to measure knowledge attitude and skills. Obtaining data from participants with different experience prevents information bias and thus increasing credibility regarding the information.

3.8.1 Piloting of Research Instruments

A pilot study was conducted on 30 random selected households before the actual survey was conducted. The pilot test was used to pretest the research instrument. Pilot studies are a crucial element of a good study design, the results were used to make changes on the questionnaire before it was used on the larger sample.

3.8.2 Validity

In general, validity is an indication of how sound your research instrument is. More specifically, validity applies to both the design and the methods of your research.

Validity in data collection means that your findings truly represent the phenomenon you are claiming to measure. Valid claims are solid claims.

3.8.3 Reliability of Research Instruments

Reliability refers to the repeatability of findings. If the study were to be done a second time, would it yield the same results? If so, the data are reliable. If more than one person is observing behavior or some event, all observers should agree on what is being recorded in order to claim that the data are reliable. The data obtained during the pilot test will be used to calculate Cronbach's alpha a measure of reliability and an alpha of 0.7 and above was accepted.

3.9 Ethical Considerations

The researcher ensured that the respondents understood the process in which they are being engaged in, including why their participation is necessary, how the data was to be used and to whom was to be reported to. Voluntary informed consent was observed where the participants understood and agreed to participate without any duress prior to the research underway. The researcher also recognised the respondent's entitlement to privacy and accorded them their rights to confidentiality and anonymity. No personal information will be divulged for whatever reason without seeking first the consent of the respondent.

3.10 Data Analysis

Data were analysed using both descriptive and inferential statistics within the Statistical Package for the Social Sciences (SPSS version 20). Descriptive analysis included use of frequency distribution tables, charts, measures of central tendency (means, median and mode), dispersion (variance and standard deviation) and cross tabulation of categorical variables.

Inferential statistics were used to determine the relationship between variables and to test the research hypotheses. Inferential statistics used included regression analysis to determine the influence of the independent on the dependent variables. The chi-square test compare differences among the different strata and the *F* and *t* tests (Mugenda & Mugenda, 1999). The factors to be considered by the study include independent variables (X) and dependent variable (Y). The regression equation was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \alpha$$

Where Y is the dependent variable (Socioeconomic wellbeing), β_0 is the regression coefficient, β_1, β_2, β_3 and β_4 are the slopes of the regression equation, X_1 Corporate Social Responsibility, X_2 is environmental impacts, X_3 involuntary displacement, while α is an error term normally distributed about a mean of 0 and for purposes of computation, the α will be assumed to be 0. The equation will be solved by use of a statistical model using SPSS. Data collected from the Focus Group Discussions was analysed by use of narratives. The summary of the analytical procedures that were used are given in Table 1.

Table 1: Summary of Data Analysis

Objectives	Independent Variables	Dependent Variable	Statistical Tests
To assess the influence of Oil Company's Community Social Responsibility (CSR) on the socioeconomic wellbeing of households in Greater Unity region, South Sudan.	CSR	Subjective wellbeing	Descriptive statistics (frequencies, means, mode) Inferential (regression, ANOVA)
To assess the influence of environmental impacts arising from oil resource production on the socioeconomic wellbeing of households in Greater Unity Region, South Sudan.	Environmental impacts	Subjective wellbeing	Descriptive statistics (frequencies, means, mode) Inferential (regression, ANOVA)
To determine the influence of involuntary displacement due to oil production on socioeconomic wellbeing of households in Greater Unity State, South Sudan.	Land acquisition	Subjective wellbeing	Descriptive statistics (frequencies, means, mode) Inferential (regression, ANOVA)
To rank the three independent variables (CSR, environmental impacts and involuntary displacements) used in this study based on their importance in influencing the dependent variable (socioeconomic wellbeing)	CSR, environmental impacts, land acquisition	Subjective wellbeing	Multiple linear regression

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the results of this study based on formulated objectives and study questions as presented in Chapter One. The study investigated the effects of oil production activities on the socio-economic wellbeing of the communities living in greater Unity. Both descriptive and inferential statistics were used in the analysis of the study. The results of findings are discussed in relation to other studies as given in the following sections. The chapter is divided into nine sections, as follows: Characteristics of the communities living near the oil fields, socioeconomic wellbeing of the communities, influence of environmental impacts on the levels of wellbeing of the households, Influence of involuntary land acquisition on the wellbeing of households, influence of the combined factors on the wellbeing of the communities.

4.2 Characteristics of the Respondents

The study analysed the demographic characteristics of the respondent, among the characteristics analysed include: sex of the respondent, age, marital status, education level,

4.2.1 Sex of the Household Head

The sex of the household head was observed during the household survey. The data was then analysed and the results are presented on Table 2.

Table 2
Sex of Household Head

Sex	Frequency	Percent
Male	246	65.1
Female	132	34.9
Total	**378**	**100.0**

The majority (65.1%) of the respondents were male. The number of the female headed households was 34.9%. The high number of female headed households could be due to the migration of the males with livestock to other areas.

4.2.2 Age of Respondents

The respondents were asked to state their age. The data was then analysed and presented in Table 3.

Table 3
Age Distribution of the Household Heads

Age Categories	Frequency	Percent
Less than 18	40	10.6
18-35	196	51.9
35-45	94	24.9
45-55	42	11.1
60 and above	1	1.0
Total	**378**	**100.0**

The majority (51.9%) of the respondents were in the age category 18-35 years. A significant number of respondents (10.6%) were below the age of 18 years. The sample is a reflection of the situation in South Sudan, where the civil war has disseminated all the older generation leaving the young people.

4.2.3 Respondent's Marital Status

The respondents were asked to state their marital status and the data was analysed and presented in Table 4.

Table 4
Marital Status

Marital Status	Frequency	Percent
Married	267	70.6
Single	99	26.2
Divorced	3	3.2
Total	**378**	**100.0**

The majority (70.6%) of the household heads were married, while 26.2% were single. It is evident that the married household heads were higher than the other two categories of singles and divorced.

4.2.4 Highest Education Level Attained by the Household Heads

The respondents were asked to state the highest level of formal education they had attained. The data was analysed and presented in Table 5.

Table 5
Respondent's Educational Level

Educational Level	Frequency	Percent
No Formal Education	18	4.8
Primary Level	27	7.1
Secondary Level	96	25.4
Diploma Level	27	7.1
Bachelor Level	158	41.8
Master Level	52	13.8
Total	**378**	**100.0**

The number of respondents who had obtained an undergraduate degree and master's degrees was 210 (55.6%). This figure was the highest in the sample and could be attributed to the fact that the oil company needed this cadre of people to work in their firm.

4.2.5 Respondent's Occupation

The household heads were asked to state the main occupation they were engaged in and the information was analysed and presented in Table 6.

Table 6
Respondent's Occupation

Occupation	Frequency	Percent
Casual Labor	12	12.0
Permanent Employee	60	60.0
Small Business Person	15	15.0
Farmers and Pastoralists	13	13.0
Total	**100**	**100.0**

The majority (60%) were engaged in permanent employment in the oil companies. This is due to the fact that the oil companies provide jobs for the communities. The remaining types of occupation are also related to the oil companies business such as small business supplying the workers and casual workers.

4.3 Socioeconomic Wellbeing of Households in Grater Unity Region

The socioeconomic wellbeing of the households living near the oilfields in Greater Unity States was operationalized as an index composed of 32 indicator items grouped into 7 categories, as follows: (i) standard of living with six indicators (provision of food, shelter, clothing, capital, assets and work), (ii) access to health care with 2 indicators (provision of health services and cost of health), (iii) feeling of safety with 3 indicators (peace of mind, absence of fear and worry), (iv) improved social relations with 3 indicators (community connections, good family and community relations), (v) spiritual fulfillment with 2 indicators (belief in God and attendance), (vi) control of the state of environment with 8 indicators (control of political situations, material situations, acquisition of services, skills, resources, knowledge loans and information), (vii) emotions and affiliations with 5 indicators (social respect, part of community, fulfill social obligations, listened to, help to others).

The household heads of the communities were asked to rate (or gauge) their household level of wellbeing based on the 32 indicators of socioeconomic wellbeing using a 10 point semantic differential scale, which ranged between 1 and 10 (1 being Very Low level and 10 Very High level). The scores for each indicator item were added together to form the index and a mean was calculated. Then all the scores for all the indicators were added together to form an index of socioeconomic wellbeing. The internal reliability of the created socioeconomic wellbeing index using Cronbach's alpha (α) was calculated and found to be .856, which was acceptable. The 32 indicators their frequency distribution and their descriptive statistics are shown in Table 7

Table 7
Wellbeing of Households in the Great Unity State

Indicator Items	Rating by Communities in Greater Unity State					
	Mean	**Median**	**Mode**	**Std dev**	**Range**	**A**
Standard of living	**4.51**	**4.40**	**4.00**	**1.43**	**5.33**	**.834**
Food provision	5.64	7.00	7.00	1.81	6.00	
Shelter	4.96	5.00	5.00	1.86	9.00	
Clothing	5.83	5.00	5.00	1.57	5.00	
Capital	4.32	5.00	5.00	1.85	6.00	
Assets	4.75	5.00	4.00	2.10	8.00	
Work	4.55	5.00	5.00	2.32	9.00	
Good health	**5.80**	**6.00**	**5.80**	**1.93**	**9.00**	**.642**
Health services	6.01	5.00	5.00	2.11	9.00	
Cost of health	5.55	5.00	5.00	2.39	9.00	
Safety	**4.50**	**4.00**	**4.00**	**1.69**	**7.00**	**.767**
Peace of mind	4.92	400	4.00	1.80	7.00	
Constant Fear	4.46	4.00	4.00	2.35	8.00	
Constant Worry	4.01	4.00	4.00	1.94	8.00	
Social Relations	**5.57**	**5.83**	**5.00**	**1.82**	**6.67**	**.912**
With Community	5.51	5.00	5.00	2.04	7.00	
With Family	5.78	5.00	5.00	1.89	7.00	
Good Community	5.42	5.00	5.00	1.99	6.00	
Spiritual fulfillment	**6.26**	**6.75**	**6.50**	**1.61**	**6.00**	**.944**
Belief in God	6.08	7.50	6.00	1.66	6.00	
Worship area	6.44	6.00	6.00	1.66	6.00	
Environment	**4.13**	**4.06**	**4.63**	**1.37**	**6.25**	**.892**
Politics	4.28	4.00	4.00	1.81	7.00	
Physical Material	4.17	4.00	400	1.49	7.00	
Services	4.17	4.00	4.004	1.63	7.00	
Access to resources	4.25	4.00	4.00	1.76	7.00	
Skills	4.12	4.00	4.00	1.80	7.00	
Knowledge	4.26	4.50	4.00	1.72	7.00	
Loans	4.64	4.00	4.00	2.22	7.00	
Information	4.17	4.00	4.00	2.04	7.00	
Emotions and Affiliations	**6.95**	**6.80**	**6.00**	**1.70**	**6.20**	**.961**
Respect	6.89	6.00	6.00	1.88	6.00	
Part of community	6.94	6.00	6.00	1.88	6.00	
Social obligations	6.73	7.00	6.00	1.93	6.00	
Listened to	6.03	6.00	6.00	1.74	6.00	
Help others	7.17	6.50	6.00	1.74	6.00	

n=378 1=Very low and 10= Very High.

The descriptive statistics of the main indicators for the household socioeconomic wellbeing and their reliability using Cronbach's alpha (α) are shown in Table 8.

Table 8
Socioeconomic Wellbeing of Households in Greater Unity State

Main Indicators and Statements	**Rating by the Household Heads in Lokichar**					
	Mean	**Median**	**Mode**	**Std. dev**	**Range**	**Alpha**
Standard of living	4.51	4.40	4.00	1.43	5.33	.834
Good health	4.80	5.00	5.00	1.93	9.00	.642
Safety	4.80	5.00	5.00	1.69	7.00	.767
Social Relations	5.57	4.83	4.00	1.82	6.67	.912
Spiritual fulfilment	6.26	5.75	5.50	1.61	6.00	.944
Environment	4.13	5.06	5.63	1.37	6.25	.892
Emotions and Affiliations	6.95	5.80	5.00	1.70	6.20	.961
Socioeconomic wellbeing	**4.82**	**4.00**	**4.00**	**1.20**	**6.00**	**.881**

n=378, 1 =Very Low and 10= Very High.

The mean for the household socioeconomic wellbeing index was 4.82±.062, while the median was 4 and mode 4. The variation was low (Standard deviation 1.206).

The index of household socioeconomic wellbeing developed from the 32 indicators was grouped into five (5) categories in order to indicate the level of socioeconomic wellbeing as follows: 1.0 – 2.99 Very Low; 3.0 – 4.99 Low; 5.0 – 6.99 Moderate; 7.0 – 8.99 High; 9.0 – 10.0 Very High.as shown in Table 9

Table 9
Socioeconomic Wellbeing of Households in Greater Unity State

Wellbeing Categories	Frequency	Percent
1-2.99 (Very Low)	-	-
3- 4.99 (Low)	217	57.4
5.0-6.99 (Medium)	109	28.8
7.0-8.99 (High)	48	12.7
9.0-10.0 Very High)	4	1.1
Total	**378**	**100.0**

The mean of the socioeconomic wellbeing of the community was 4.82 (Low Level) and ranged from 2 (Very low) to 9.28 (Very High). The differences in the distribution of the households into the different categories was determined using the Chi-square test and the results are shown in Table 10.

Table 10
Chi-square Test for the Distribution of Household's Socioeconomic Wellbeing

Categories	Observed n	Expected n	Residual	Statistics
1-2.99	-	-	-	
3-4.99	217	94.5	122.5	$\chi^2 = 270.57$
5-6.99	109	94.5	-14.5	$df = 3$,
7-8.99	48	94.5	-46.5	$p = .001$
9-10	4	94.5	-90.5	
Total	**233**			

The Chi-square test revealed that there were significant differences among the five categories. The category of Low was found to be significantly ($\chi^2 = 270.57$, $df = 3$, $p < .001$) higher than the other categories. This meant that majority of the community households were mainly having a wellbeing level of between 3 and 4.99.

4.4 Influence Oil Company's Community Social Responsibility on the Socioeconomic Wellbeing of Households in Greater Unity Region

The first objective of this study was to assess the influence of Oil Company's Community Social Responsibility (CSR) on the socioeconomic wellbeing of Households in Greater Unity, South Sudan.

4.4.1 Community Social Responsibility

Community Social Responsibility of the Oil companies operating in Greater Unity State was operationalized as an index which included 14 indicators as follows: payment of school fees for household members, building of health centres, equipping health centres, cash compensation, sponsorship of vocational activities, employment provision to self, employment provision to family members, provision of water, roads, building of social centres, assisting communities with transport, and provision of cash for treatment.

The household heads rated all these activities on a 0, 1 scale (0 no activity undertaken, while 1 activity was undertaken). The scores for the different indicator items were then added together to form the index of corporate social responsibility. The resulting index, its descriptive statistics and frequency distribution are given in Table 11.

Table 11
Descriptive Statistics and Frequency Distributions of the Index of Corporate Social Responsibility of Oil Firms

Scale	Frequency	Percent
6.00	216	57.1
7.00	66	17.5
8.00	22	5.8
9.00	22	5.8
10.00	40	10.6
11.00	8	2.1
13.00	2	.5
14.00	2	.5
Total	**378**	**100.0**

Mean 7±.08, median 6, mode 6, Std dev 1.613, minimum 6, maximum 14

The results show that the activities of the oil firm social responsibility was not done uniformly among the community members as the households experienced between 1 and 14 different activities related to CSR. The majority (57.1%) of the households had received 6 CSR activities.

4.4.2 Influence of Corporate Social Responsibility on the Wellbeing of the households in Greater Unity State

The first research question for this study was stated as follows: how does the oil firm's Corporate Social Responsibility influence the wellbeing of households around the oil fields in Greater Unity State?

Bivariate linear regression analysis was used to determine the influence of the oil firm's Corporate Social Responsibility on the wellbeing of households in local community in Greater Unity State. The corporate social responsibility formed the independent variable while the socioeconomic wellbeing formed the dependent variable. The results of the regression model are presented in Table 12.

Table 12
Regression Model Summary for CSR and Socioeconomic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.989[a]	.978	.978	.17762

The model indicates an adjusted R^2 value of 0.978; this means that the independent variable corporate social responsibility explained approximately 98 %of the variation in dependent variable socioeconomic wellbeing. The *F* test for the regression model is shown in Table 13.

Table 13
***F* Test for the Regression Testing the Fit of the Model**

	Sum of Squares	*df*	Mean Square	*F*	*p*
Regression	536.613	1	536.613	17008.466	.001
Residual	11.863	376	.032		
Total	**548.476**	**377**			

Dependent Variable: socio-economic wellbeing
Predictors: (Constant), corporate social responsibility

The statistical significance for the overall regression model was tested using the *F* test (Table 13). The regression equation was found to be statistically significant (F (1, 376) = 17008.46, p=.001). The regression coefficients of the model showing the beta, *t* statistics and the tolerance levels is shown in Table 14.

Table 14
Regression Coefficients for CSR and Socioeconomic Wellbeing

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
	B	Std. Error	Beta	*t*	*p*.	VIF
(Constant)	-.404	.041		-9.826	.001	
CSR	.739	.006	.989	130.417	.001	1.000

The regression analysis indicates that corporate social responsibility has a positive significant influence (β= .989, p=.001) on the socioeconomic wellbeing of households near the oilfields in Greater Unity State It was concluded the more a household experienced the CSR activities it significantly influenced the socioeconomic wellbeing of the household positively. The socioeconomic wellbeing of the households was increased by the increase in CSR. The research question was therefore answered as: CSR significantly influences the socioeconomic wellbeing of households in Greater Unity State.

4.5 Influence of Environmental Impacts on the Wellbeing of the Households in Greater Unity State

The second objective of the study was stated as: to assess the influence of environmental impacts arising from oil resource production on the socioeconomic wellbeing of households in Greater Unity Region, South Sudan.

4.5.1 Environmental Impacts of Oil Production

Environmental impacts of oil resource production in Greater Unity region was operationalized as an index that consisted of 11 indicators rated using a 5 point Simental differential scale. The eleven (11) indicators included pollution of resources, pollution of agricultural land, emission from the oil processing affecting the health of the people, pollutants affecting animals, pollutants directly affecting the people, gas outbursts affecting people, clearing of plants in oil drilling areas, effects of waste disposal from the factory, pollutants, oil leaks from the pipeline and other areas, pollution of the water resources, and pollution of vegetation.

The household heads rated the different indicators of environmental impacts using a 5-point scale (where 1 was low impact and 5 high impact). The scores were then

summed up to form the index of environmental impact in Greater Unity region. The environmental impacts index, its descriptive statistics and frequency distribution are shown in Table 15.

Table 15
Frequency Distributions of Environmental Impacts Index

Environmental Impacts Categories	**Frequency**	**Percent**
20-30	20	5.3
31-40	57	15.1
41-50	91	24.1
51-60	210	55.6
Total	**378**	**100.0**

Mean 46.98±.413, Median 51, Mode 51, Std dev 8.02, minimum 24 and maximum 55

The majority (55.6%) of the household heads rated the environmental impacts as very high (score 51-60).

4.5.2 Influence of Environmental Impacts on the Wellbeing of Households in Greater Unity Region

The second research question for this study was stated as How do environmental impacts influence the socioeconomic wellbeing of the Greater Unity State

The relationship between environmental impacts and socioeconomic wellbeing were tested using bivariate linear regression. The environmental impacts index formed the independent variable while the socioeconomic wellbeing of the households formed the dependent variable. The results of the regression model are presented in Table 16.

Table 16
Regression Model Summary for Environmental Impacts and Socioeconomic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.848[a]	.719	.718	.64046

The model indicates an adjusted R^2 value of 0.718; this means that the independent environmental impacts explained approximately 71.8 % of the variation in dependent variable socioeconomic wellbeing. The *F* test for the regression model is shown in Table 17.

Table 17
***F* Test for the Testing the Fit of the Overall Regression Model**

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	394.247	1	394.247	961.150	.001
Residual	154.229	376	.410		
Total	**548.476**	**377**			

The statistical significance for the overall regression model was tested using the *F* test (Table 17). The regression equation was found to be statistically significant (F (1, 376) = .961, p =.001). The regression coefficients of the model showing the beta, *t* statistics and the tolerance levels is shown in Table 18.

Table 18
Regression Coefficients for the Socio-Demographic Factors

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**
	B	**Std. Error**	**Beta**	***t***	***p***	**VIF**
(Constant)	10.810	.196		55.203	.001	
environmental impacts	-.127	.004	-.848	-31.002	.001	1.000

The regression analysis indicates that a statistical significant negative influence (β= -.848, *p* =.001) exists between environmental impacts and the socioeconomic wellbeing of the households in Greater Unity region. The increase of environmental impacts lowers the socioeconomic wellbeing of the households.

4.6 Influence of Involuntary Displacement from Communal Land on the Socioeconomic Wellbeing of the Households in Greater Unity Region

The third objective of this study was to determine the influence of involuntary displacement of the people from communal land by oil companies on the socioeconomic wellbeing of the households in Greater Unity State.

4.6.1 Involuntary Displacement from Community Land

The oil drilling companies have to displace the local communities from their communal owned land in order to use the area for their oil production purpose. The study operationalized this variable involuntary displacement as an index that combined three indicators, which included: (i) displacement without compensation, (ii) ownership of other land, and (iii) effect of the loss to the household. The index was defined in the negative to reflect the land displacement problem. The displacement without compensation was measured as a dummy variable or a 0, 1 variable, with the ones affected negatively scoring 1. Ownership of other land was also measured as a dummy variable or a 0, 1 variable, with the respondent without other land scoring a 1. The third variable effects of displacement to the household was scored on a scale of 1-3, where no effect was given a score of 1, moderate effect a score of 2 and high effect a score of 3. The scores for the three indicators were summed up to create an index of involuntary displacement from land with a

maximum score of 4 indicating a high negative effect to the household. The descriptive statistics and frequency distribution are given in Table 19.

Table 19
Descriptive Statistics and Frequency Distribution of the Index of Involuntary Displacement

Scale	Frequency	Percent
3.00	5	1.3
4.00	2	.5
5.00	24	6.3
6.00	43	11.4
7.00	18	4.8
8.00	72	19.0
9.00	214	56.6
Total	**378**	**100.0**

8.01±.073, median 9, mode 9, Std dev 1.43, minimum 3, maximum 9

The majority (56.6 %) of the households were affected negatively by involuntary displacement from their households as they rated the index at 9 the maximum negative level.

4.6.2 Influence of Involuntary Displacement on the Socioeconomic Wellbeing

The third research question for this study was stated as: what is the influence of involuntary displacement of people from their communal lands for oil production on the socioeconomic wellbeing of the households in Greater Unity region?

The relationship between involuntary displacement from communal land and socioeconomic wellbeing were tested using bivariate linear regression. The index of involuntary displacement from communal land formed the independent variable while the socioeconomic wellbeing of the households formed the dependent variable. The results of the regression model are presented in Table 20.

Table 20
Regression Model Summary for Involuntary Displacement and Socioeconomic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.896[a]	.803	.803	.53545

The model indicates an adjusted R^2 value of 0.803; this means that the independent variable involuntary displacement explained approximately 80 % of the variation in dependent variable socioeconomic wellbeing of households in Greater Unity region. The statistical significance for the whole regression model was determined using the *F* test and the results are presented in Table 21.

Table 21
***F* Test for the Testing the Fit of the Overall Regression Model**

	Sum of Squares	*df*	Mean Square	*F*	*p*
Regression	440.673	1	440.673	1536.991	.001
Residual	107.803	376	.287		
Total	**548.476**	**377**			

The statistical significance for the overall regression model was tested using the *F* test (Table 21). The regression equation was found to be statistically significant (F (1, 376) = 1536.99, p =.001). The regression coefficients of the model showing the beta, *t* statistics and the tolerance levels are shown in Table 22.

Table 22
Regression Coefficients for the Involuntary Displacement and Wellbeing

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
	B	**Std. Error**	**Beta**	***t***	***p***	**VIF**
(Constant)	10.860	.156		69.449	.001	
Involuntary Displacement	-.753	.019	-.896	-39.204	.001	1.000

The regression analysis indicates that involuntary displacement from communal land had a negative and significant influence (β= -.896, *p*=.001) on the socioeconomic wellbeing of the households in Greater Unity State. Therefore it can be concluded that involuntary displacement from communal land influences the socioeconomic wellbeing of the households negatively.

4.7 Importance of Independent Variables in Influencing the Dependent Variable

The fourth objective of this study was to: rank the three independent variables (CSR, environmental impacts and involuntary displacements) used in this study based on their importance in influencing the dependent variable (socioeconomic wellbeing). There was need to differentiate the importance of the three variables used in this study in terms of their influence to the dependent variable

The multiple linear regression was used to determine the importance of the three independent variables in terms of their influence to the dependent variable socioeconomic wellbeing. The results of the regression model are presented in Table 23.

Table 23
Multiple Regression Model Summary for CSR, Environmental Impact, Involuntary Displacement and Socioeconomic Wellbeing

R	R Square	Adjusted R Square	Std. Error of the Estimate
.990[a]	.981	.981	.16699

The model indicates an adjusted R^2 value of 0.981; this means that the independent variables CSR, environmental impact and involuntary displacement explained approximately 98 % of the variation in dependent variable socioeconomic wellbeing of households in Greater Unity region. The statistical significance for the whole regression model was determined using the *F* test and the results are presented in Table 24.

Table 24
***F* Test for the Testing the Fit of the Overall Regression Model**

	Sum of Squares	df	Mean Square	*F*	*p*.
Regression	538.046	3	179.349	6431.20	.001
Residual	10.430	374	.028		
Total	548.476	377			

The results of the *F* test for the whole regression model shows that there was a statistically significant relationship, F(3, 374) = 6431.20, *p* =.001). This indicates that the three independent variables have an influence on the socioeconomic wellbeing of the households in Greater Unity region. The coefficients for the regression model are given in Table 25

Table 25
Regression Coefficients for the Independent Variables

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
	B	**Std. Error**	**Beta**	***t***	***p.***	**VIF**
(Constant)	1.227	.231		5.303	.001	
CSR	.647	.014	.866	46.284	.001	6.883
Impacts	-.010	.002	-.064	-4.881	.001	3.347
Displacement	-.066	.013	-.079	-5.055	.001	4.771

The results of multiple linear regression indicated that there was a collective significant effect between CSR, environmental impact, and involuntary displacement, F(3, 374) = 6431.20, *p* =.001) as shown on Table 24.

The individual predictors were then examined further (Table 25) and indicated that corporate social responsibility (*t* = 42.28, *p* < 001), environmental impacts (*t* = -4.88, *p* < .001) and involuntary displacement (*t* = -.5.05, *p* < .001) were statistical significant predictors in the model.

The results of Table 25 show that Corporate social responsibility had the highest positive influence on the socioeconomic wellbeing (β=.866. *p*=.001). This means that increasing CSR can improve the wellbeing of the community significantly. The remaining two variables environmental impacts (β= -.064, p=.001) and involuntary displacement (β= - .079, p=.001).had negative significant influence on the wellbeing of the community, implying the reduction of these two variables would significantly improve on the wellbeing of the people.

CHAPTER FIVE

SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the summary of the research and also the key findings from the field analysis. It provides the conclusion of the study based on the evidence provided in chapter 4. Recommendations are then made based on the findings of the study.

5.2 Summary of the Study

The research study was done on assessment of the effect of oil production activities on the socioeconomic wellbeing of communities living in Greater Unity States, South Sudan The researcher was inspired to conduct this study due a high knowledge gap about the effect of oil companies in their respective located areas and the consequences they impose on both human life and other environmental resources, the research consists of five chapters, chapter one of the research presents the Introduction of the research, background, statement of the research problem, objectives which included (to ascertain the influence of Oil Company's Community Social Responsibility (CSR) on the socioeconomic wellbeing of communities living in greater Unity State, South Sudan.

To assess the influence of environmental impacts arising from oil resource production on the socioeconomic wellbeing of the communities in greater Unity State, South Sudan. To determine the influence of involuntary displacement due to oil production on socioeconomic wellbeing of the communities living in greater Unity State, South Sudan. And the research questions included (What are the influences of Corporate Social Responsibility of the oil company on the socioeconomic wellbeing of citizens living in the greater Unity State, South Sudan?, how has environmental impacts influenced the socioeconomic wellbeing of communities living in greater Unity State,

South Sudan?, How does involuntary displacement of communities from their land due to oil production influence their socioeconomic wellbeing in the greater Unity State, South Sudan?).

Chapter Two presented the previous studies published and put forward by different scholars/researchers and authors that relates to topic under study. Chapter Three presented the methodology that used in the research. This includes the data analysis tools, data presentation, ethical considerations, sources of information for the research among others, that structured and questions were used upon collecting respondents views for the research topic. Chapter four presents the analysis of data using the findings from the field, also in this chapter analysis of the findings were done, chapter five presented the summary of the research and key findings with the recommendations and conclusions of the research.

5.3 Discussions

5.3.1 Influence of Corporate Social Responsibility on the Wellbeing of the Households

Corporate social responsibility activities undertaken by the oil firms were found to have significant positive influence on the wellbeing of the households in Greater Unity State. The CSR of the oil firms when done well could enhance the wellbeing of the households. The CSR activities that had the highest impact on the wellbeing of the people were activities that had direct influence on the households such as educational scholarships, employment, and provision of water.

Studies on CSR have shown that there exists positive effects on the wellbeing of the recipients of the services. It was found that CSR improved the quality of working life (QWL) and the overall quality of life of employees in the hospitality industry (Kim,

Woo, Uysal, & Kwon, 2018). A study conducted of Nigerian bankers found significant ($p<.05$) relationship between participants wellbeing and the provision of CSR in the form of health facilities (Oluyemi, Yinusa, Abdulateef & Akindale, 2015). These results are

Provision of CSR that aim at social amenities and not the households or individuals such as construction of social centers (social halls, offices, sports centers), infrastructure such as roads, transport tend to have minimum to no effect on the wellbeing of the affected recipients. Thatcher and Milner (2012) found no significant influence on the wellbeing of workers provided green office environment.

5.3.2 Influence of Environmental Impacts on the Socioeconomic Wellbeing of the Households

The research found that environmental impacts arising from the production of oil had a negative impact on the wellbeing of the households in Greater Unity state. The impacts included: oil spills polluting agricultural land, which has affected crop production, water resources as well animals; emission of gas wastes, which affect human health; and pollution of water resources, which affects aquatic animals.

The oil companies are regulated by National Environmental Act (NEA), which requires that all oil companies to formulate policies which favour humans and the environment. NEA includes ISO 14001, ISO 18001, ISO 14001, Air quality, water quality and soil application regulations. These regulations are meant to mitigate the impacts of oil on the environment. Mitigation activities include monitoring, conducting third party environmental assessment, and enforcing safety and regular clean up the environment.

Environmental impacts from the oil production affect the production of ecosystem services, which in turn affects the wellbeing of the people. Millennium Ecosystem Assessment (2003) found a direct positive link between ecosystem services and human wellbeing. A study of six Chinese cities on the atmospheric and water pollution, traffic congestion, access to parkland and personal well-being found that there was lowered levels of personal well-being due to these factors (Smyth, Nielson, Zhal, Liu, Liu, Tang, Wang, Wang, & Zang, 2011).

5.3.3 Influence of Involuntary Land Displacement on the socioeconomic Wellbeing of the Households

Involuntary displacement of the people from their communal land in Greater Unity State was found to significantly ($p > .05$) affect the wellbeing of the households negatively. Many of the households had left their homeland in fear of gas flares, polluted land that cannot sustain crop and livestock production. This displacement requires the households to look for fresh areas for settlement a situation that calls for finances. In most cases the oil companies don’t compensate the people directly, leaving them more impoverished than before they moved in search for new areas to settle.

Studies have shown involuntary displacement of households without providing compensation and social amenities to the affected parties often leads to lowered wellbeing of the people (Ndunda, 2018).

5.4 Conclusion

The following conclusions were made from the study:

(i) Corporate social responsibility has positive statistical significant influences on the socioeconomic wellbeing of the households in Greater Unity State.

(ii) Environmental impacts arising from oil production have negative statistical significant influence on the socioeconomic wellbeing of the households in Greater Unity State.

(iii) Involuntary land displacement by the oil firms has a negative statistical significant influence on the socioeconomic wellbeing of the households in Greater Unity State in south Sudan

(iv) Corporate social responsibility was ranked the highest of the three independent variable in its influence on socioeconomic wellbeing of the households in Greater Unity State.

5.5 Recommendation

The following recommendations were made based on the finding of the study:

(i) Corporate social responsibility activities that have direct influence on the household welfare (such as education scholarship, water provision, compensation) should be enhanced by the oil firms. The government should regularly monitor, audit and evaluate the implementation of the CSR activities.

(ii) The oil firms should enhance environmental management activities to mitigate or reduce the impacts of oil production on the environment. The government should enhance its monitoring and evaluation programme to curb non-compliance to NEA regulations by the oil firms.

(iii) Direct compensation for the acquired land and to affected households by oil spills should be undertaken. The compensation can be in monetary terms at market rates or in the form of housing constructed for the affected families.

5.6 Suggestions for Further Research

The research study recommends a further research assessing the effect of oil production activities on the socioeconomic wellbeing of communities living in other areas of South Sudan since the research study only focused at Great Unity State and the findings could be made more manifest in the way that should be extended to all oil reach regions, communities and companies in south Sudan. A comparative study of selected similar oil regions terms of assessing effect of oil production activities on the socioeconomic wellbeing of communities in relation to various predictors

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APPENDICES

Appendix A: Research Questionnaire

Africa Nazarene University

Department of Environment and Natural Resource Management (ERM)

Household and Individual Questionnaire for the key informant

Dear Respondent,

I am Bill Wan Yual, ID **No 17M01DMEV010** currently studying at the Africa Nazarene University, Kenya, pursuing Master of Science in Environment and Natural Resource in the department of Environment and Natural Resource Management (ERM). I am currently conducting a research study entitled **"An Assessment of the effect of Oil Production Activities on the Socioeconomic Wellbeing of Communities Living in Greater Unity States, South Sudan"** for partial fulfilment of Master degree in Environment and Natural Resources Management at Africa Nazarene University, Kenya. You have been identified and selected for this study. I would appreciate if you could spare part of your time to answer my questionnaire. The purpose of this questionnaire is to request you to participate in this study by providing information sought. The information obtained is strictly for academic purpose and shall be treated with utmost confidentiality.

Your participation is really appreciated

Mr. Bill Wan Yual

+211912124125

Section 1: General Information

Instructions

Please answer all questions appropriately and tick (☑) *all that apply*

1. Gender1. Male [ ] 2. Female [ ]

2. Age I. Less then 18 [ ] II. 1 8-35 [ ] III. 36-45 [ ] VI. 46-55 [ ] V. 56-65 [ ] VI. Above 65 [ ]

3. Please indicate your marital status

Single [ ] Married [ ] others (specify)……

4. What is your educational qualification?

No education [ ] Primary level [ ] Secondary level [ ] Diploma [ ] Bachelor Degree [ ] Master degree [ ] PhD [ ]

5. What is your occupation?

Casual Labourer [ ] Permanently Employed [ ] Small Business person [ ] others (specify)……

6. What are the various sources of your household income? Farming [ ] Pastoralism [ ]

Oil corporation supplier [ ] business person [ ] others [ ]

7. Distance of your home from the oil field ……

Section 2: Corporate Social Responsibility

(i) Education

Has the oil company provided you with school fees Yes [ ] No [ ]

State the amount of money received for school from the oil company …….

Has the oil company sponsored a school with money in your locality Yes [ ] No [ ]

Have they built any school in your locality Yes [ ] No [ ]

(ii) Has the oil company sponsored vocational activities in your locality Yes [.]

No [ ] other activities (specify)……

Have they built any vocational center in your locality Yes [ ] No [ ]

(iii) Health facilities

Has the oil companies built a health center (s) in your locality Yes [ ] No [ ]

Equipped a hospital with drugs or equipments Yes [ ] No [ ]

Provided you/other member with any cash for treatment Yes [ ] No [ ]

(iv) Compensation

Does the oil company provide you with cash as compensation Yes [ ] No [ ] if yes?

State the amount of cash provided in (USD/SSP)……

(v) Environmental clean up

Does the oil company provide environmental cleanup Yes [ ] No [ ]

What precautions do the companies provide?

……

…..……

…..

(vi) Employment provided to family member Yes[ ] No [ ]

(vii) Built social amenities (social hall, offices, sport center etc) Yes[ ] No [ ]

(viii) Provided water boreholes for the community Yes[ ] No [ ]

(ix) Built roads in the locality Yes[ ] No [ ]

(x) Assist community with road/air transport when necessary Yes[ ] No [ ]

(xi) Rate the assistance received from the oil companies:

1=not useful, 2= slightly useful, 3=moderately useful, 4=useful, 5=very useful

Section 3: Environmental Impacts

Indicate your level of agreement with the following statement ‘relating to negative environmental impacts arising from oil company activities by putting a tick [√] to the level you require. This uses a scale of 1 to 5; where; 1 corresponds to Strongly Disagree (SD), 2 correspond to Disagree (D), 3 correspond to moderately agree (U), 4 correspond to Agree (A), and, 5 correspond to Strongly Agree (SA). Part II of this section is an open ended question; and put answer on the space provided

N	Environmental impacts arising from oil production activities	Level of agreement with statement				
		SD	D	U	A	SA
		1	2	3	4	5
1.	Negative environmental impacts from the oil company are high					
2.	The agricultural land is polluted affecting crops					
3.	Water resources are polluted by various oil activities					
4.	The emissions from the company affect the people health					
5.	Animals are affected by oil pollutants					
6.	Humans are directly affected by the oil pollution					
7.	Gas outbursts affect the people					
8.	Clearing of the area by the oilfields of plants					
9.	Waste disposal in the area affects the people					
10.	Oil companies comply with environmental standards					
11.	Environmental standards followed by oil companies in South Sudan ◆ Does Oil Company apply environmental policy annually/quarterly on their environmental reports? If yes, what are they …… ……and if no, explain why..... …… ◆ Which environmental standards pursue by Oil Corporation working in South Sudan? National [..] International [ ]					
12.	Does oil companies take into account all the impacts cause by their oil production activities on host communities Yes [ ] No [ ] describe …… ……					
13.	Name the type of pollutants cause by oil production operation…… ……					
14.	What are the possible impacts of those exposures or toxic materials use in oil exploitation to host communities and their surroundings?					

	……. ……
15.	What are the measures that have been taken by both oil companies and government to mitigate these hazards and impacts? …… ……
16.	To what extend is the oil production activities in line with national or international environmental objectives and does oil company take those goals into account? E.g. E.g. national environmental Act, convention on biodiversity among others…… ……
17.	Could you please name some of environmental principles apply in South Sudan which are related to air quality……water quality ……soil quality…….

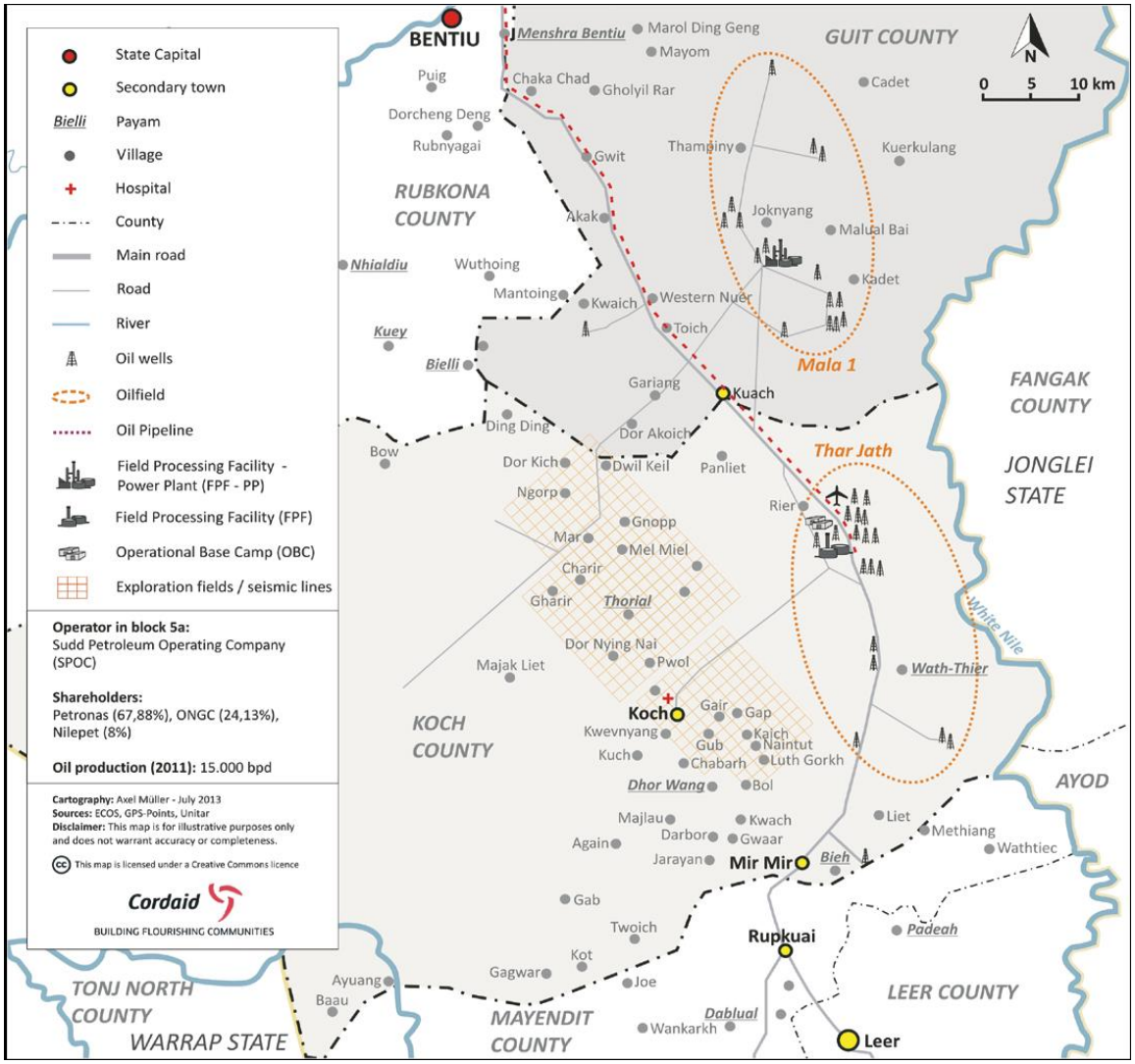
Section 4: Wellbeing of the people

Has the oil company production activities assisted you in any of the following? If it has, rate the assistance on a scale of 0 to 10:0=not assisted /contributed and 10= highly assisted / contributed.

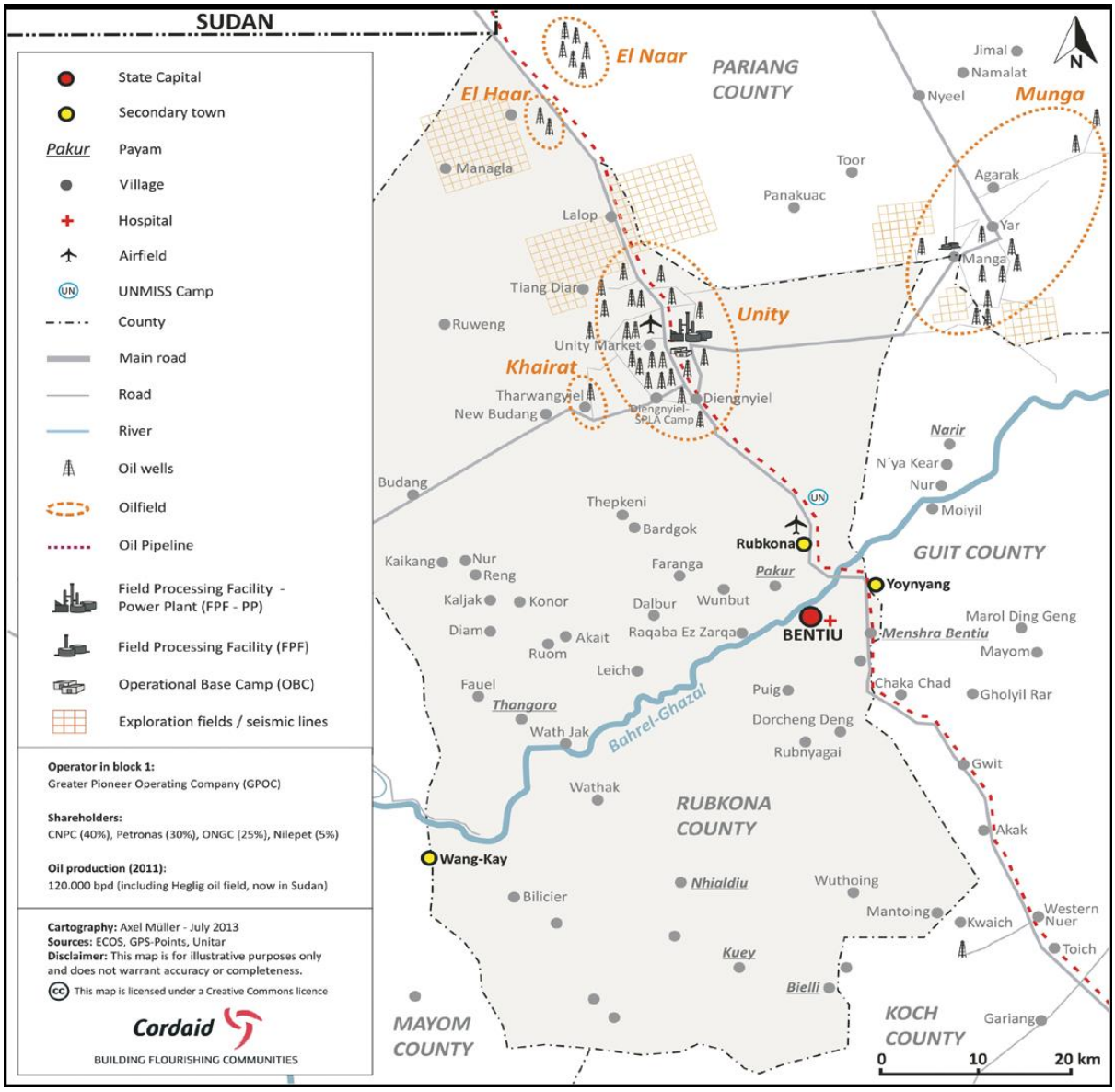
Statement: Has the relocation programme assisted you in the following	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	Not Assisted/contributed										**Highly Assisted/Contributed**
1.Improved your standard of living (Material Provision)											
Food,											
Shelter (for displace persons)											
Clothing											
Entrepreneurships (small business)											
Provision of Assets (e.g. Financial assistance)											
Work (paid labour, employment)											
2.Assisted in your health (Good Health)											
Provision of health services											
Cost of health services											
3.Made you to feel more safer (Safety)											
Peace of mind											
Absence of constant fear											
Absence of constant worry											
4.Improved your Social Relations											
Connection with the other community members											
Good relations with family											
Good relations with community,											
5.Assisted in your Spiritual Fulfillment											
Belief in God											
Attendance to Worship areas (Church, Mosque, shrine)											
6.Assisted you in Controlling the State of your Environment											

Ability to Control Political situations											
Ability to Control Physical situations (Material situations)											
Ability to Acquire Services											
Ability to Acquire Resources											
Ability to Acquire trainings & Awareness											
Ability to Acquire Loans											
Ability to Acquire Information											
7. Assisted in your Emotions and Affiliations											
Social Respect (culture)											
Being part of the Community											
Fulfill Social Obligations											
Listened to by others											
Help Others											
8. Life achievement (what you are achieving in life)											
How was your wellbeing affected by the oil production activities?											
How is your wellbeing now? Assess your wellbeing on a 10 point scale											
What assisted you the most during your relocation											
Was the relocation compensation package provided by the oil company benefit the affected communities											
What can the Government do to people who are being displaced from their area due oil production activities?											

Appendix B: Research Area Map



Appendix C: Map of Study Area



Appendix D: University Introductory Letter

AFRICA NAZARENE
UNIVERSITY

19th June, 2018

RE: TO WHOM IT MAY CONCERN

Bill Yual Dhuor 17M01DMEV010 is a bonafide student at Africa Nazarene University. He/She has finished his/her course work and has defended his/her thesis proposal ***entitled "An assessment of the effect of oil production activities on the socioeconomic wellbeing of communities living in greater Unity State South Sudan.***

Any assistance accorded to him/her to facilitate data collection and finish his/her thesis is highly welcomed.

Prof. Rodney Reed
Deputy Vice Chancellor, Academic Affairs

P.O Box 53067 - 00200 Nairobi, Kenya • Tel: 020 252 7170/1 - 5 • Fax: 020 201 2233 • Cell: 0733 874 111 • Email: registrar@anu.ac.ke • www.anu.ac.ke

Appendix E: Permission Letter to Collect Data

Republic of South Sudan
Ministry of Petroleum
South Sudan Petroleum Authority

To: Mr. Guo Xinwen
President GPOC

20. June.2018

Cc: Mr. Angelo Chol
Vice President GPOC

Subject: Data Collection.

Dear Mr. President

With regards to the above mentioned subject, **Mr. BILL WAN YUAL** is a student at African Nazarene University in Nairobi Kenya pursuing a Master of Science in Enviromental and Natural Resources Management **(ERM).**

His area of research is: **AN ASSESSMENT OF THE EFFECT OF OIL PRODUCTION ACTIVITIES ON THE SOCIECONOMIC WELLBEING OF COMMUNITIES LIVING IN GREATER UNITY STATE SOUTH SUDAN.**

Therefore the Ministry of Petroleum is herby requesting from your respected office to assist him with the necessary information and data collection that are in relation to his research, as per the company rules and regulations.

Your cooperation is highly appreciated.

With best regards.

Dr. William Anyak Deng 2018-06-21
Acting Director General for Petroleum Authority
Ministry of Petroleum.

Cc: Hon. Amb. Ezekiel Lol Gatkouth, Minister
Cc: Molana. Mayen Wol Jong, Undersecretary
Cc: File.