INVESTIGATION ON THE EFFECTS OF OIL EXPLORATION ON THE ECONOMY, ENVIRONMENT & SOCIETY OF TURKANA COUNTY: A CASE OF LOKICHAR-NGAMIA 1, KENYA.

ELIM PETER EPAGAN

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION DEGREE IN STRATEGIC MANAGEMENT OF MOUNT KENYA UNIVERSITY.

APRIL, 2017

DECLARATION AND APPROVAL

Declaration by the Candidate

This project is my original work and has not been presented for a degree in any other University or for any other award.

Signature ……. Date ……..

ELIM PETER EPAGAN

MBA/L/0917

Supervisors' Approval

We confirm that the work reported in this project was carried out by the candidate under our supervision.

Signature …… Date ……..

Dr. Joshua W. Chesoli, PhD

School of Business and Management

Mount Kenya University

Signature …… Date …….

Mr. Darius Bosire

School of Business and Management

Mount Kenya University

DEDICATION

I wish to dedicate this research project to the people of Lokichar and its environs who are affected by oil exploration activities.

ACKNOWLEDGEMENT

First of all, I would like to thank God Almighty who has brought me this far and providing me with strength, knowledge and vitality that has helped me to make this project a reality. Secondly, I would wish to thank my lovely wife Esther Lokai, my beautiful daughter Shemmy Elim and my lovely daughter Shirley Elim (R.I.P baby) who passed on while I was still working on this work for their moral, financial support and encouragement and their understanding when I was not there for them during the period I was working to come up with this project. I wish to thank my supervisors Dr. Joshua Chesoli and Mr. Darius Bosire for their support and assistance. I am deeply indebted to all my lecturers too. God bless you all.

ABSTRACT

Oil exploration is activity geared towards extraction of oil deposits from the ground for the purpose of determining its economic viability in terms of quantity, quality and character. The purpose of the study was to investigate the effects of oil exploration on the economy, environment and society of Turkana County a case of Lokichar-Ngamia 1, Kenya. The specific objectives of the study were to determine the economic, environmental and social effects of oil exploration in Turkana County. The study used descriptive survey design. The population consists of the residents of Lokichar who are affected by activities of oil exploration. The sample of the study was 384 respondents and data was collected by questionnaires. Data was analysed by the use statistical package for social science version 21 software and findings tabulated for ease interpretation. The study concluded that oil exploration has led to economic, social and environmental effects to the community. Economically, oil exploration has led to creation of job opportunities and improvement of road networks. In addition, a number of people are engaged in business activities and the value of land has risen because of many people settling around Lokichar area for doing business and property development. On environmental aspect, the results indicates that disturbance of the ecosystem, deforestation and land degradation has increased in Lokichar. Noise and air pollution is being experienced due to sound and dust created by movement of the oil rig. Socially, displacement of people has affected their livelihoods. The results also indicate that there is increase of social vices like school drop-out and prostitution. Finally, there is population increase in Lokichar as a result of migration, people are coming to Lokichar to seek jobs and venture into business activities.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

CIDP	County Integrated Development Plan
EAC	East African Community
EIA	Environmental Impact Assessment
FTG	Full Tensor gravity
GDP	Gross Domestic Product
IMF	International Monetary Fund
NOCK	National Oil Corporation of Kenya
O & G	Oil and Gas
SPSS	Statistical Package for Social Science
TKBV	Tullow Kenya Business Venture
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
US	United States

CHAPTER ONE

INTRODUCTION

1.0 Introduction

In this section, the researcher has discussed the background of the study, statement of the problem, purpose of the study, objective of the study, research questions, of the study, justification of the study, scope of the study, study limitation and delimitation, assumption of the study and finally definition of key terms.

1.1 Background to the Study

The extraction of minerals and metals has been part of our lives since the beginning of mankind. Indeed, the Stone Age and the different metal ages described the process of human evolution activities and social life using terms based on the products of mineral extraction activities (Sass, 2008). Over the last decade, oil exploration industry has received much attention again due to the exploration in mined commodity demand and very high prices for most metals and many minerals (World Bank, 2011) and it is expected that the trend continues for the next years due to the accelerated growth of some developing economies (CSD, 2011; World Bank, 2011).

Countries like Australia and Canada have taken advantage of mining industry to strengthen their economies and have successfully transformed the natural resource based wealth into human well-being over decades. However, some consider that this was not due to the possession of the natural resources, but rather due to the presence of appropriate legal, democratic and financial institutions (Slack, 2010). While countries such as these may

have succeeded, in other resource rich countries extractive industries have had negative impact and have not helped to reduce poverty (Pegg, 2014).

The first challenge facing any resource-rich country is to ensure that the public gets as much of the value of the resources that lie beneath its land as possible. Nowadays, that challenge is mainly faced by developing countries, where many have close to 30% of their income coming from natural resources (Stiglitz, 2006). For most developed countries this figure generally represents only an average 2% (World Bank, 2011). As such, while mining could be an opportunity to overcome problems like poverty and inequality, on the contrary it could also constitute a 'resource curse' bringing negative effects on growth and development of resource rich countries (Rosser, 2010) with substantial negative environmental and social effects. Those effects include air and water pollution, loss of biodiversity and ecosystem services, deforestation which contributes to climate change (CSD, 2011) and also human displacement and resettlement; migration; lost access to clean water, effects on livelihoods; effects on public health, effects to cultural and aesthetic resources (ELAW, 2010), among others. In addition, when mining take place in countries with ongoing or frozen conflicts, such problems can be exacerbated and the potential for the conflict itself to be fuelled exists (CSD, 2011).

The importance of mining sector for development was recognized during the World Summit on Sustainable Development in Johannesburg. It included in its plan of implementation a specific paragraph about mining, focusing on addressing the negative effects and benefits, enhancing the participation of the different stakeholders and supporting best practices (UA, 2009). To follow up the plan, the United Nations Commission on Sustainable Development addressed mining as one of its thematic topics

during the 2010 and 2011 sessions, with the participation of different governmental and nongovernmental actors. Organizations like the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development have been actively involved in the discussion and have presented policy recommendations and best practice fostering good governance and recognizing as one of the main objectives the contribution to poverty alleviation (World Bank, 2011).

In Kenya, On 26 March 2012, the then Kenyan President Kibaki announced that oil had been discovered in Turkana County after exploratory drilling by Anglo-Irish firm Tullow Oil (Omondi, 2014) . The news about oil discovery in any economy normally makes people's minds go crazy and the hallucination created in people's heads cannot be easily explained (Imana, 2013). The oil was discovered in Turkana south near Lokichar town, a rural town between Kainuk and Lodwar which is about 89km from Lodwar on the highway to Kitale in North-western Kenya. The black gold, as it is referred to, was discovered near Loperot, Nakukulas, Kalapata and Kodekode villages, approximately 20km from Lokichar town, at sites named Ngamia1, Twiga 1, Ekales, Amosing and Etom 1 by Tullow Oil BV and Africa Oil companies (Omondi, 2014).

Following this discovery, several companies have intensified oil exploration activities in Kenya at places like Baringo, Nyakach, Mandera, Isiolo and Lamu on the Mesozoic and Tertiary rift basins and other sedimentary basins within the country, with the view of meeting the local and global energy demand. This discovery lead to the acquisition of high-quality data due to the deployment of advanced data acquisition technologies such as two-dimensional (2D) seismic and Full Tensor Gravity (FTG) which have since increased chances of oil and gas discoveries in the country. Recently the Ministry of Energy

announced that it had licensed all the 46 oil and gas exploration blocks in Kenya to foreign O&G (Oil and Gas) prospecting companies save for one, which NOCK is licensed to explore (Omondi, 2014).

This project is in line with the National Energy Policy (improving access to affordable energy services, enhancing security of supply, promoting development of indigenous energy resources, promoting energy efficiency and conservation, and promoting prudent environmental, health and safety practices), the Economic Recovery for Wealth and Employment Creation Strategy (expanding and improving infrastructure, developing arid and semi-arid lands, and safeguarding environment and natural resources), and Kenya Vision 2030 (enhanced equity and wealth creation for the poor in semi-arid and arid districts, must generate more energy at a lower cost and increase efficiency in energy consumption).

On the contrary, study is to be carried out on the probable effects of the oil exploration activities in Lokichar, noise and vibrations from vehicles, equipment and machinery; disturbance to soil, flora and fauna due to construction of the campsites and access roads; dust generation and exhaust emissions by vehicles and equipment; waste generation at campsites and drilling rig areas; pollution of soil and water (surface and groundwater) from waste streams generated at the campsites and drilling areas; and workforce influx and associated social and economic issues were identified to be the key issues with oil exploration undertaking (Omondi, 2014).

For Kenya, this represents a threat in one of the bio diverse countries in the world due to its environmental impact. Nowadays, the government considers this industry as one of the

main drivers for the economy (DNP, 2011). The results regarding exports, foreign direct investment, will bring positive results in national economy. However, the negative social and environmental antecedents so far have sparked off controversy in many groups of the civil society, like communities, academia, media among others. Such actors question its contribution to the country's development. Recently, there have been some changes in the institutions to support the increase in mining title requests and to improve the monitoring and control of the concessions regarding technical and environmental conditions (Ekutan, 2013).

Turkana County as a region has been neglected by the past governments for a long time. This is due to its inability to yield agriculture products as it falls in the semi-desert and desert region. That is why it was left behind by other counties regarding development and infrastructure. The local inhabitants are nomads who are much at risk in the event of a dry spell. Poverty, illiteracy and unemployment are also high. After the refugee camp was established at Kakuma, hundreds of local Turkana households moved to Kakuma town and near the refugee camp settlements as a way of getting casual jobs for sustainability (Ekutan, 2013).

The presence of oil and gas exploratory activities has resulted in new businesses opening in Lokichar, and even other sectors are also upcoming. There are also hopes that the road from Kitale to Lodwar is going to be repaired. This road, known as the northwestern corridor, connects Kitale and Lodwar with Lokichoggio and forms a highway into South Sudan. It has been severely affected by the meanderings of seasonal rivers (Laggas) and is in a destitute state leading to many road accidents causing loss of life and property over the years. In many occasions, this has also cut down transportations including relief supplies to

Kakuma refugee camp. With a good road, schools, hospitals and other public and social amenities are likely to crop up. Currently, there are over forty wells drilled. Oil resource will lead to a nationwide development. Bi-lateral understandings with investors are already on. Nationally, it is heard that the government will put in place strategies to enhance the proper exploration of the oil. Once it is marketed in the near future, the high price of fuel in the country should be reduced to the benefit of all (Omondi, 2014).

1.2 Statement of the Problem

According to (World Bank Group,2011), Mining companies provide their communities with direct and indirect employment, skills through trainings, health and educational amenities, improved social and economic infrastructure and support to small and medium business enterprises. However, according to Rosser (2010), mining operations have adverse effects on the local population by affecting their traditional means of livelihood, influx of newcomers to the area, which put pressure on existing but inadequate social amenities, rising cases of social vices such as teenage pregnancies and causing environmental problems ranging from waste disposal, land disturbance, air, water and noise pollution and ground vibration as a result of mining. With regards to the environmental hazards that arise from mining, most are not always reversible but they can be minimized to make sure that development is achieved. With the use of modern technology as well as scientific investigation methods, it is possible to reduce environmental impacts that are connected with the extraction of minerals so as to bring it to manageable levels that don't cause significant harm to the environment. According to Ekutan (2013), local people in Turkana have high hopes that discovery of oil is sure to transform the whole of the Turkana County. The residents are optimistic that with the

development of infrastructure their lifestyle will take a new course and the cost of doing business will also reduce. The research assessed on the effects that oil exploration has on the economy, environment and the society of Turkana Country, case of Lokichar-Ngamia 1, Kenya.

1.3 Purpose of the Study

The purpose of this study was to investigate the effects of oil exploration on the economy, environment and the society of Turkana County a case of Lokichar-Ngamia 1.

1.4 Objectives of the Study

The study was guided by the following objectives:

1. To determine the effects of oil exploration on the economy of Turkana County.
2. To establish the environmental condition of Turkana County as result of oil exploration.
3. To investigate the benefits of oil exploration to the society of Turkana County.

1.5 Research Questions

1. Has oil exploration affected the economic conditions of Turkana County?
2. How does oil exploration in Turkana County affect its environmental conditions?
3. What are the benefits of oil exploration to the society of Turkana County?

1.6 Justifications of the Study

As any country in the world intends to make the best use of its natural resource base revenues, Kenya equally has given a mixed bag of feelings amongst its citizens in light of expected oil revenues to foster development on personal and national level. However, it proves to be a big challenge and distress for majority of rich oil producing countries with an exception of Ghana in Africa, which also has started facing issues of oil revenue management (BTI, 2013). As we all know, the economy of the republic of Kenya needs to grow and the exploration of this oil will propel this country to the next level in terms of economic growth. We understand that Kenya spends a lot of money in the national budget on importing crude oil and if the drilling of oil in Kenya begins, it means a lot of money will be saved for other uses. It is our hope that the government can solve the issues so that we can avoid problems faced by the African countries that are mining oil. The government should also ensure jobs in Kenya are allocated fairly especially to communities where oil exploration is being undertaken such as Turkana.

Therefore this research is an urgent intervention that its findings can best be put to use when the case is still in its infancy. This study contributes to the knowledge base of the sustainability field, informing policy makers of what challenges could be in existence to revise weak policies and for those responsible for implementation to improve their approaches.

1.7 Significance of the Study

The study assessed the actual contributions of oil exploration to its catchment communities and the extent to which the living standards of the people have been improved. The findings provide valuable information to the government, stakeholders in the mining sector and the community leaders on how to manage and control exploration activities to benefit both the sector and the communities at large.

It is believed that this would give a clear indication to policy makers and legislators both at the centralized and decentralized levels of governance to be able to make informed decisions not only to consolidate gains but minimize losses if not eradicating them completely. The study gives the regulatory bodies like the Mineral Resource Commissions and the Environmental Protection Agency the bases to review their mining procedures and guidelines to ensure environmental sustainability for both present and future generations. The government, professionals, chiefs, civil society organizations and other interest groups would thus be informed on the real or opportunity cost of oil exploration through an objective cost-benefit analysis of oil operations.

1.8 Scope of the Study

The study was conducted in Lokichar area of Turkana South sub-County and the attention for research was on local community, oil company and government institution. The study focused on the economic, environmental and society of Lokichar effected by oil exploration in Turkana County.

1.9 Study Limitations and Delimitations

1. The researcher may have not obtained all the data from respondents due to inability to fill and return the questionnaires. Therefore, withheld important information. The researcher first explained to the respondents the importance of the study through an introduction letter to state that the data collected was only for academic purposes and that the identity of the respondents could not be revealed.

2. The second limitation of the study was means of transport; hiring a vehicle proofed to be expensive and some villages were unreached within a single day, to address this, the researcher hired a motorbike which was cost effective and would penetrate all terrains to ensure that data was collected on time.

1.10 Assumptions of the Study

The researcher held up the following assumptions as the study was conducted.

1. The researcher assumed that respondents provided true and reliable responses reflecting the actual truth on the ground.

2. The researcher assumed that the respondents provided responses at 100% to enable him to carry out the study.

3. The researcher as well assumed that he was in good health during the period of the study to enable him carry out the study to completion.

1.11 Operational /Definition of Key Terms

Terms	Definition
Oil	According to Adams (2007), oil is a viscous liquid derived from petroleum, especially for use as a fuel or lubricant.
Economy	The large set of inter-related economic production and consumption activities which aid in determining how scarce resources are allocated. The economy encompasses everything related to the production and consumption of goods and services in an area (Lackner & Seddon, 2012).
Exploration	Exploration is activities geared towards extraction of oil deposits. These activities are significant for economic developments of a nation producing such deposits (Burns, 2004).
Sustainable Development	Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their needs (Kates, Parris & Leiserowitz, 2014).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents relevant literatures examined on the effects of oil exploration by other scholars and researchers. It also covers empirical literature, theories underpins the study, conceptual framework, gaps in the literature and recap of the literature review.

2.2 Empirical Literature

This part gives a summary of what other researchers have studied and found on the different research objectives. The most common definition of sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their needs (Kates, Parris & Leiserowitz, 2014). In their study Zeijl-Rozema et al., (2008) presents two general perspectives ecological sustainability perspective that gives priority to the environment and well-being perspective focus on the quality of human life. Environmental economists divide development into strong and weak; the former considers that natural capital should be maintained or improve while latter considers that it is possible to substitute that capital for other forms of capital (Barrow, 2006).

It is clear that despite the ambiguity of the concept it suggests a link between environment and development (Kemp & Martens, 2007), taking into account the three dimensions, economy, environment and society and that it implies inter-generation equity. However, as Kates et al., (2005) presents that lot of attention is paid to the short term indicators of

different initiatives, so to meet the basic needs of the current generations is very important. In addition Kates et al., (2014) argue that concept implies the integration of the environmental degradation with human development and poverty taking into accounts the reinforcing effect between them. Then poverty appears as one of the priorities in the transition to development in a way that it is not possible to achieve it if the problem of poverty alleviation is not tackled (Kempt & Martens, 2007). Then, despite the different interpretations and the ambiguity of the definitions two fundamentals are clear: maintaining the integrity of the biophysical systems and reducing poverty (Kempt & Martens, 2007).

2.2.1 Economical Effects of Oil Exploration

Oil exploration has the potential to create wealth in resource-rich countries; however, many conditions must be fulfilled for it to produce benefits for the host countries. Exports, direct foreign investment and Gross Domestic Product (GDP) growth, are some of the main contributions to the national economy; however, most of the mineral resources are exported outside of the country and the processes to add value to the mineral are made in other countries, therefore the multiplier effects are limited for local economies. So the main source of benefits for the economy is the taxes and royalties. At the local level large infrastructure is needed in oil exploration projects, like roads and power plants so its construction can benefit the local economies and the people. Oil exploration requires labour during the construction and the operation phases, so it is a source of employment in local areas and additionally the employees are trained improving their skills (Crowson, 2010).

Furthermore, he also mentioned other potential negative effects, like the dutch disease, the inflow of money from the exports causes the exchange rate appreciates so it can cause problems in the existing industries affecting their competitiveness in their markets that puts the economy at risk, so the success in the economy depends on the appropriate national economy management. According to Boakye et al., (2012) on the national level, fiscal income generated through taxes collected from oil exploration operations forms a substantial part of the government's revenue which can be used to implement a lot of poverty reduction interventions strategies. According to a report from the World Bank on oil exploration and development, tax receipts from a single mining company can amount to 30% to 50% of a country's fiscal income (Akabzaa, 2009).

In Ghana taxes from the oil exploration sector accounts for between 35% and 45% of revenue generated by the government According to (Akabzaa, 2009). According to Rosser (2010), studies have shown that the contributions of privately owned mining companies to national development are much encouraging than state-owned mining operations. On the regional and local level, any large-scale mining operation has the potential to significantly and positively affect economic opportunities for the poor (Rosser, 2010). AU (2009) noted that in the region where the mining operation is located, it can provide: Substantial additional employment opportunities with higher income generation potential than most, if not all, other employment in the area and Investments in basic public infrastructure, goods and services with universal access to transport, water, and power which creates opportunities for the local people.

According to Snyder and Bhavnani (2009) aside from oil exploration operation's direct employment impact, there is substantial potential for developing downstream and lateral

economic activity with suppliers and refiners, particularly for small and medium-sized enterprises, in turn generating employment opportunities for non-miners in the surrounding. He adds that employment generated indirectly by an oil exploration operation amounts to a range of between 2 to 25 times the numbers of direct employees, in certain cases even more than that.

According to Akabzaa (2009), a successful oil exploration operation can serve as a catalyst for further inflow of private-sector investment in a country or region if it takes place within a supportive policy context characterized by reliable regulatory frameworks. McMichael (2011) noted for instance that coal mining which has helped countries with significant coal resources such as China, India and South Africa to access cheap energy, thereby powering these countries' economic growth and creating further opportunities for those not involved in the mining sector. As noted by Akabzaa (2009), from the Ghana's economic reforms there are some publicized benefits as a result of increased mining sector investments that include; oil exploration and mining being viewed as the leading earner of foreign exchange through provisions of sizable government income, social infrastructure to the populace, creation of both direct and indirect employment and developing societies in the mining areas. However, Akabzaa (2009) also noted that while in gross terms, mining is the leading foreign exchange earner; its net foreign exchange contribution to the national economy has been minimal. Generous incentives and tax breaks are given to investors and the fact that mining companies retain on the average about 75% of their export earnings in off-shore accounts for various purposes helps explain the sector's minimal contribution to net foreign exchange receipts.

As stated by Boakye et al. (2012), most of the companies in Ghana do not pay corporate income taxes due to the virtual tax holiday enjoyed by these companies as a result of the generous capital allowances. Chowdhury (2005) who revealed that exploration activities and indeed oil exploration leads to improvement of road network in any oil exploratory sites and the development of infrastructure that may facilitate oil rig move and other forms of economic activities by opening up the interior places.

He also added that the revenue generating potential of mining may not always be used as efficiently as possible, particularly in the context of governance and corruption issues and where state ownership of the mining operation is involved.

2.2.2 Environmental Effects of Oil Exploration

Oil exploration causes some environmental effects; their degree depends on many factors like the amount of mineral extracted and the area of land affected or the kind of technology and method used i.e. surface or underground (Peck & Sinding, 2009). Those effects are produced along all the different stages of exploration, from the exploration stage, during drilling can contaminate surface and underground water, the transportation of material and the construction of infrastructure affect the ecosystem directly increasing the exposition of wildlife (Hooke, Martín-Duque, & Pedraza, 2012); until the closure and post-closure stages when mining legacies, orphaned and abandoned mines are associated with waste pollution and affect human health and security (Madalane, 2012). According to Korpela (2014) surface mining though less dangerous than underground mining has a greater impact on surface landscapes. Surface mining requires the removal of massive amounts of top soil in order to gain access to the minerals, which can cause erosion, loss of habitat and dust pollution. It can cause heavy metals to dissolve and seep into both ground and surface

water thereby disrupting marine habitats and deteriorate drinking water sources. Vast agricultural lands are destroyed through surface mining, affecting food production in the country and the sources of income for the people affected.

As stated by Madalane (2012), the most dramatic change which occurs during surface mining is the disturbance and associated change in land configuration and vegetation. In addition, Mensah (2008) noted that as a result of mine closure, abandoned or orphaned mines present serious causes of concern as they continously cause pollution and potential public danger. Another concern is that damages to the environment that occur in a mining operation, could lead to additional health risks caused by water pollution, and restrained water quantity to dust, noise and subsidence. According to Mensah (2008), a cross-study analysis of environmental damages as a result of a mining operation in 51 mining countries across the globe put about 60% of the residents in these communities at risk.

According to Madalane (2012), the mechanisms that have greater potential for causing environmental damage include; the modification of soil morphology that leads to alterations in hydrological pattern and loss of wild animal habitat as well as degradation of landscape value. Also, reduction of property value, topsoil removal leads to loss of land for agricultural use and increased surface runoff that in-turn leads to loss of proceeds as well as water pollution.Consequently, erosion control must be considered from the beginning of operations through completion of reclamation. Erosion may cause significant loading of sediments (and any entrained chemical pollutants) to nearby water bodies, especially during severe storm and high snow-melt periods. Sediment-laden surface runoff typically originates as sheet flow and collects in rills, natural channels or gullies, or artificial conveyances.

The ultimate deposition of the sediment may occur in surface waters or it may be deposited within the floodplains of a stream valley. Historically, erosion and sedimentation processes have caused the build-up of thick layers of mineral fines and sediment within regional flood plains and the alteration of aquatic habitat and the loss of storage capacity within surface waters. Major sources of erosion/sediment loading at mining sites can include open pit, heap and dump leaches, waste rock and overburden piles, tailing piles and dams, haul roads and access roads, ore stockpiles, vehicle and equipment maintenance areas, exploration areas and reclamation areas. According to Antwi-Boasiako (2003), further concern is that exposed materials from mining operations (mine workings, wastes and contaminated soils) may contribute sediments with chemical pollutants and principally heavy metals.

Airborne emissions occur during each stage of the mining cycle, but especially during exploration, development, construction and operational activities. Oil exploration operations mobilize large amounts of material and the wind easily disperses waste piles containing small size particles. The largest sources of air pollution in oil exploration operations are particulate matter transported by the wind as a result of excavations, blasting, transportation of materials, wind erosion (more frequent in open-pit exploration), fugitive dust from tailing facilities, stockpiles, waste dumps, and haul roads. Exhaust emissions from mobile sources (cars, trucks and heavy equipment) raise these particulate levels and gas emissions from the combustion of fuels in stationary and mobile sources, explosions and mineral processing. Once pollutants enter the atmosphere, they undergo physical and chemical changes before reaching a receptor. These pollutants can cause serious effects to people’s health and the environment. These airborne emissions from the

mine's operation can affect the air quality of a surrounding community (U.S. Environmental Protection Agency, 2009)

Disturbances (noise and vibrations) also cause life quality degradation and reduction of property value. Noise pollution associated with exploration may include noise from vehicle engines, loading and unloading of rock into steel dumpers, chutes, power generation and other sources. Cumulative effects of shovelling, ripping, drilling, blasting, transport, crushing, grinding and stock-piling can significantly affect wildlife and nearby residents. Vibrations are associated with many types of equipment used in exploration operations, but blasting is considered the major source. Vibrations affect the stability of infrastructures, buildings and homes of people living near large-scale open-pit exploration operations. According to a study commissioned by the Gisore and Matina (2015) Shocks and vibrations as a result of blasting in connection with exploration can lead to noise, dust and collapse of structures in surrounding inhabited areas. The animal life on which the local population may depend might also be disturbed. The surface run-off and discharges from surface water collected in pit cause suspended solids in streams and aquatic life disturbance, floods and degradation of potential water uses:

(a) The mine might use natural resources such as land and water on which in particular the poor may depend by limiting opportunities to generate incomes from agriculture, fishing or hunting. (b) The exploration operation might use regional infrastructure services to the extent that the poor will entirely lose access due to the service increased prices or due to simple capacity limits. (c) Higher incomes of mine workers can lead to rising local prices for key goods (food, fuel, land/housing) and services with others in the area not only left behind but with significantly shrunk real incomes.

Environmental damages resulting from an exploration operation, or left behind after mine closure, ranging from water pollution or restrained water quantity to tailing and subsidence, can seriously limit people's current and future income opportunities in particular when dependent on agriculture, fishery, forestry or hunting (Akabzaa, 2009). According to McPhail (2009), corruption and macroeconomic mismanagement can severely limit the positive impact of mining creating opportunities on the national level. Further, McPhail (2009) gives an example of countries such as Congo and Zambia which have shown little overall development benefit from the copper production of the past decades with state ownership and mismanagement characterizing the sector.

According to Kitual (2005), individuals health risks associated with large-scale mining evolve around work-related injuries and health risks, as well as around an increased exposure to infectious diseases and environmental issues. He noted that the number of injuries and fatalities in mining varies a lot between countries, mostly depending on mining methods and technologies used and whether minerals are mined in open pits or underground. According to Sumanth (2005), mining regions may have a higher prevalence of certain diseases because mining alters the environment and allows disease causing pathogens and vectors to survive more freely than in other settings. Malaria is endemic in many tropical regions of the world. The warm and wet climate is ideal for mosquitoes which is the vector for the disease. In addition to malaria, some skin diseases may also have a higher prevalence in exploration areas (Sumanth, 2005). In tropical regions with active exploration, cyanide and mercury runoff from gold processing into local water bodies often increases the prevalence of skin diseases, as people use such water for daily necessities without treatment. Pollution caused by quarrying and blasting in open-pit mines

increases not only the dust particles in the air and the surrounding environment but also promotes the spread of toxic chemicals. Some of the toxic chemicals that result from blasting include cyanide and sulphur dioxide, which are all very harmful to the body (Akabzaa, 2009). According to Rosser (2010), a major principle of the environmental impact assessment (EIA) process is that the proponent is required to give notice and advertise the proposal in the national press to enable the public to express its interest or concerns or to comment on the project. On receipt of a draft EIA report, EPA publishes it for people with specific interest or concerns to study the report and raise such concerns within a period of 21 days from the first day of publication. The channel for notifying and soliciting information from interested and affected people does not provide a level playing field for the communities who are directly impacted by such mining projects. However, Rosser (2010) noted that the sources of information which are primarily the national press or the premises of District Assemblies, are inaccessible for these communities. Worse still, EIA reports are presented in a technical language and these communities do not have the capacity to study and understand the issues raised in the reports.

2.2.3 Effects of Oil Exploration to the Society

The World Bank (2011) considers that mining can contribute to poverty reduction, inspite others like Pegg (2006), who point out the empirical evidence suggests that mining contributes more to poverty exacerbation. The national governments ought to have national poverty reduction strategies engraved in the mining sector (McPhail, 2010). On the other hand, Slack (2010) noted that the only way that the government could make use of mineral resources is through using them in a wise manner and without ignoring other development

alternatives while the sector is articulated with larger development strategies as well as careful monitoring of the costs and benefits.

According to Banerjee (2008), the positive economic development that often follows the establishment of a mining operation can also have negative effects on consumption levels of the poor. Higher incomes of mine workers, especially in relatively isolated areas, can lead to rising local prices for key products (food, fuel, transport) with the poor left behind. Also, mining can use significant amounts of land and water which can impact the poor who depend on these resources for their livelihood and food security.

In the context of mine closure, the sudden end of economic opportunities when not planned for tends to increase local poverty levels dramatically (Akabzaa, 2009). He noted that in Namibia foreign mining investors closed their operations and withdrew without notice leaving the Government and the local communities to deal with the mine closure without any preparedness. Sudden mine closure can also deprive the local population of the most basic social services and access to public goods such as clean water, energy or transport if the mining company previously had provided these (Kayumba, 2014).

According to Boakye et al. (2012), in Ghana, the sudden closure of Dunkwa Goldfields mines in the late 1980s deprived all the communities in the area from electricity supply since the mining company had previously provided this. According to Kayumba (2014), the often-remote location of mining operations increases the challenges for local economic development in the aftermath of mine closure, with government resources typically hard to free up for these areas. The problematic social and environmental legacies left behind by mining operations can compromise the economic benefits they once yielded. In a study on

the impact of mining in Tarkwa, Ghana, Akabzaa and Darimani (2001) identify two main factors responsible for the high cost of living in Tarkwa. First of all, he noted the disparity in incomes for mining company staff. According to him, the salaries of the Ghanaian staff in the mines are indexed to the US dollar, which raises their income far above their counterparts in the public sector. Also, the expatriate staff of the mines is paid internationally competitive salaries, which further widens the income disparities in Tarkwa. This group of high- income earners has thus influenced the pricing of goods and services such as housing, food and other amenities (Akabzaa, 2009).

A study by Devasia (2009) also proved that disparities in incomes emerge and the lure of new opportunities creates immigration. Different groups compete for access to public goods and social services and new tensions in the community around. According to Devasia (2009), new types of poverty are also created with a mixture of original residents who have been unable to share in employment opportunities and newcomers who have migrated in with the hope of finding employment but have been unsuccessful in doing so. Social ills such as alcohol abuse, prostitution and child labour often increase. Sumanth (2005) posted that the mining industry had withdrawn a significant percentage of the labour force from agriculture another income-generating activities by taking farmland away and holding out the false promise of employment. The fall in food production in an area that is already densely populated, with high unemployment accounts for high food prices.

As noted by UNEP (2007) research, a major issue that is always investigated during decision-making procedures regarding the development of surface mines is a public protest. For numerous groups of interest, including local authorities, chambers and

ecological organizations, a mine is a potential threat to the environment, public health and socio-economic activities that interfere with it. For this reason, any proposal for further development of mining sites is either rejected or accepted after setting a series of terms and conditions (UNEP, 2007). The development of surface mine impacts the socio-economic activities of communities in any locality in several ways (Devasia, 2009). They include the reduced access to public utilities such as transportation, economic impacts such as employment and money inflow to local economy, land use changes, farmland, archaeological sites and monuments are affected.

An observation by Akabzaa (2009), noted that the social organization of every community is guided and directed by certain principles. In a study of the impact of mining at Tarkwa in Ghana, he found out that the concentration of mining operations has had a seriously adverse impact on the social organization and cultural values of the people. Concerns have been expressed about inadequate housing, youth unemployment, and family disorganization, school dropout rates, prostitution and drug abuse. Although these problems are not new to the area, they have risen to a level that the population perceives to be threatening and the main cause has been the concentration of mining activities in the area.

According to the Akabzaa (2009), the concentration of mining activities in Ghana has triggered massive migration of all kinds of people to the mine areas. The population growth rate is above the national average and might even double it. For example, at the Grasberg mine in Indonesia, the local population increased from less than 1000 in 1973 to between 100,000 and 110,000 in 1999. Similarly, the population of the squatter settlements around Porgera in PNG which opened in 1990 has grown from 4000 to over 18,000. This

influx of newcomers can have a profound impact on the original inhabitants, and disputes may arise over land and the way benefits have been shared. Sudden increases in population can also lead to pressures on land, water and other resources bringing problems of sanitation and waste disposal. Migration effects may extend far beyond the immediate vicinity of the mine. Improved infrastructure can also bring an influx of settlers for instance it is estimated that 80- meter-wide, 890-kilometre-long transportation corridor built from the Atlantic Ocean to the Carajas mine in Brazil created an area of influence of 300,000 square kilometres (World Bank, 2007).

According to UNEP (2007) surface mining results in the eviction of communities and their relocation to marginal sites, often with inadequate compensation also causes a lot of tensions and distrust between mining companies, the chiefs and the people. Relocation and compensation measures implemented by various mining companies have had serious consequences for the family as a close-knit social unit (Sumanth, 2005). New housing arrangements for resettled communities have also disrupted long-established family networks in mining areas. According to the study of Akabzaa (2009), it showed that in many instances, the housing units provided by the mining companies have not conformed to the size of households. For instance a family that had a house with five rooms and large space was resettled in a house with three rooms in a crowded space. Many of the residents of the resettled communities complained of inadequate internal space (number of rooms, size of rooms) and external open space for other domestic activities. A study by Sumanth (2005), also showed that the compensation scheme has helped disorganize some families. In the Tarkwa area, irresponsible male family heads opted for relocation instead of resettlement. This enabled them to collect cash compensation and they subsequently

abandoned their families. This deepened the plight of affected rural women and children in direct and indirect ways. Mining accounts for the high rate of unemployment in the mining community, (Rosser, 2010) noted that large-scale surface mining has taken up large tracts of land from farmers while at the same time mining activities do not provide enough jobs to match the total number of people laid off from other sectors.

2.3 Theoretical Review

2.3.1 The Institutional Theory

Institutions are social structures which have attained a high degree of resilience (Andrews 2013). The institutional theory can be decomposed into three core thematic areas; the cultural cognitive, normative and the regulative. These three core thematic areas work in tandem and when combined with appropriate activities and resources they bring about stability and meaning to social life (Andrews, 2013). Institutions operate at various degrees of power ranging from the 'world system to localized interpersonal relationships' and are affected by both periodic and constant change (Andrews, 2013). This implies that institutions has the inherent capacity to control and restrain behaviour thus being able to shape actions.

The three pillars put forward in the theory represent the underlying processes that could be used to construct change, ultimately influencing planning and organization outcomes to try to avert conflicts and overlapping roles in the industry. The regulative pillar of institutions touches on upholding the social law and order. It deals with producing rules that must or ought to be observed. This is related to introducing rules or conventions ensuring compliance so as to reward or punish behaviour as appropriate. The procedure is reflected

in several measures including shaming or shunning as well as the use of the police and law courts (Andrews, 2013). The normative pillar aims at desirable goals by focusing on how things should be done. For the cognitive pillar consideration is laid on how Institutions make individuals and other actors conform to behaviour about communal ideas of social realism which structure meaning to the commonly expected outcome.

Through the lens of these three pillars, Institutions can increase the identity of organizational structures in an institutional environment. Institutions have a great impact on the practice of individuals and communities (Rosser, 2010).This theory offers an approach into the political activities that are believed to occur within the institution. Understanding social structures can help determine how resource management could be executed.

In this project, the institutional theory is used to have a complete understanding of how institutions can drive actors (Oil companies, government and local communities) and the local coherence in governing actions. Countries such as Kenya that have weak institutional and regulative framework will likely undergo negative aspects of resource curse (Melham et al., 2006). Countries such as Botswana with a less track record of corruption have concentrated more on having and building institutions that are of high level so as to support the country in its mining endeavours. Glavovic et al (2007) affirms that existing organizations and their activities can greatly encroach on chances for poor people to access and benefit from assets which consequently impact livelihood strategies they assume. This is comparable to the Albertine region where different actors are alleged to be grabbing land near the oil wells (Kwesiga, 2009). Hence examining how the institutional building is done

in this new sector to ensure that the economy, social and environmental effects of oil exploration in Turkana County.

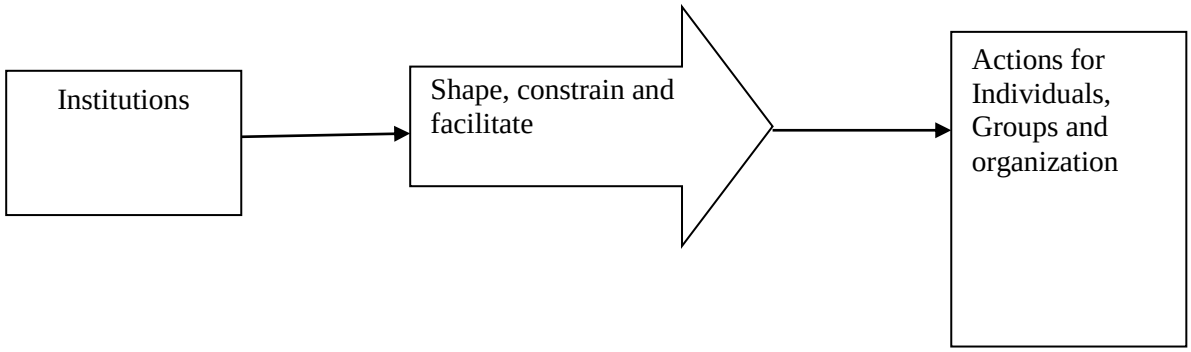


Figure 2.1: Institution Structure

Source: Esther Namuyondo, 2014

This design defines Institutions as entities that affect decision-making actions. According to (Andrews, 2013), institutions are held by structured activities determined by perpetual behaviour or practice. This signifies that institution can enforce restrictions by dictating legal, moral and cultural limits, setting off legitimate from illegitimate activities. They also assist and sanction activities and actors offering guidelines and resources for conduct. However, this is passed on through four different types of carriers (Andrews, 2013); Symbolic system covers; Rules, laws, values, Relational system – involves Governance system, Routine – standard operating procedure and Artifacts.

2.3.2 Resource Curse Theory

The resource curse has been associated with the "Dutch Disease," which is associated with resource exploration, accompanied by appreciations of exchange rates, making the non-oil sector less competitive. The "Dutch Disease" is often characterized by real exchange rate appreciation, high labour costs and the structural imbalances in economic development (Poteete, 2009). Because of currency appreciations, non-oil sectors become less competitive including agriculture and industrialization. Less emphasis on agriculture and industrialization makes a country dependent on the oil sector as well as reducing their competitiveness (Izuchukwu, 2011).

Similarly, high expectations and the subsequent disappointments from poor performance lead to political instability as small group of people become richer while the rest descends into poverty. The inadequate institutional arrangements face a wide range of political, economic and social challenges such as the likelihood of civil wars and social instability as government competes to control power (Collier, 2005). The "Dutch Disease," being considered as the product of rentier politics undermines the long-term economic performance in resource-dependent economies resulting in a 'resource curse.' Institutions and state development during resource exploration are locked into development trajectories (Poteete, 2009). The result is negative development outcomes such as poor economic performance, growth collapses and a high degree of corruption, ineffective governance and greater political instability.

This theory applies to the current study to help us understand the discourse representing inevitable poor economic and political outcomes with valuable resources (Rosser, 2010) and links resource exploration to poor development outcomes. During resource

exploration, expenditures may expand more than earnings, favouring consumption over investment, leading to accumulation of debt. Policies during the time of natural resource exploration result in the pursuit of rentier politics since the country balance of power flow directly from its economic structure (Karl, 2012). As a result, increase in rent-seeking and corruption generate lower growth because corruption adds on transaction costs and the need to keep bribes secret, reduces the security of property rights, lowering investments in the long term. When it comes to taxation, oil rents provide a significant fiscal base for the state and also reduce the necessity of the states to tax their citizens. The absence of incentives to tax internally weakens the administrative reach of the state, which results in lower levels of state authority, capacity and legitimacy to intervene in the economy (Rosser, 2010). This theory aided the researcher in formulating expectations as he conduct an investigation to the economic, environmental and social effects of oil exploration in Turkana County.

2.4 Identification of Research Gaps

Basing on the objectives and the theoretical literature under the study, the research established that there are effects of oil exploration on the economy, environment and the society of Turkana County. Therefore, there was a great need for this research because past research focused in other mining sectors. This research therefore, sought to fill gaps by critically examining the effects of oil exploration to the Turkana people narrowing to economy, environment and the society.

2.5 Conceptual Framework

The conceptual framework of the study is shown in figure 2.2. This framework determines and explains the effects of oil exploration on the economy, environment & society of Turkana County: a case of Lokichar-Ngamia1. The conceptual framework identifies oil exploration as the independent variable and the state effects on economy, environment and society as dependent variables. The moderating variables in this case are licenses, bills and laws formulated by the government.

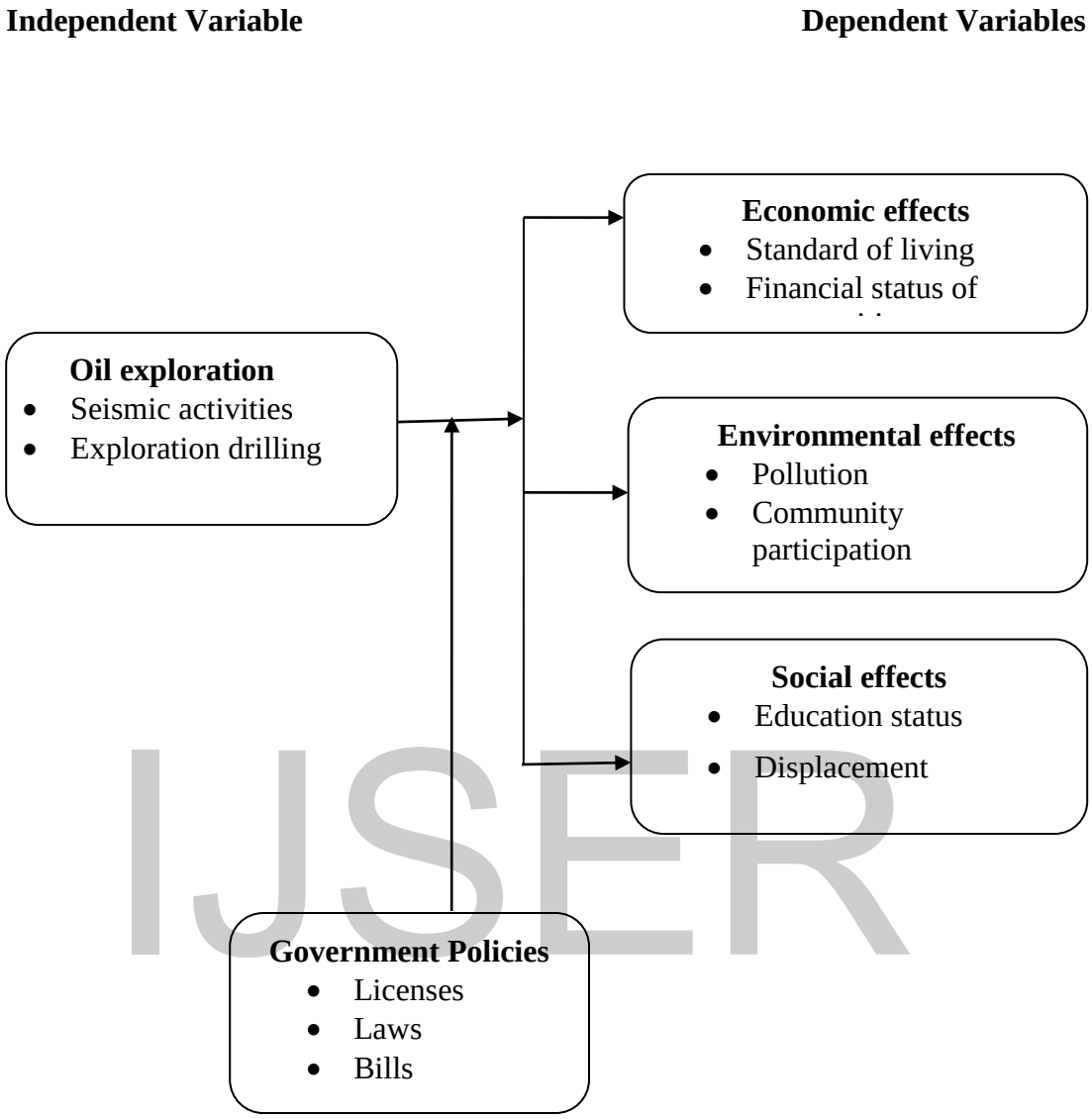


Figure 2.2: Conceptual Framework

Source: Researcher, (2017)

2.6 Recap of Literature Review

Review of the literature revealed that oil exploration has impacted people economically, environmentally and socially. On the economic sector, it mainly has an impact on the exports, foreign direct investment and job creation as well as boost business. In case of the environment, oil exploration depends on factors like the amount of mineral extracted and the area of land affected. The social factors include displacement of people and social vices. However, development of most oil producing countries is always in question. This is because of such factors as weak governance structure, unstable political environment and poorly structured equity distribution policies.

From the literature reviewed the study found out that there is a question of whether the discovery and domestic production of oil in Kenya would have a positive or negative impact on the Kenyan economy, environment and society. There is also little research on the relationship between oil exploration and economic growth of a developing country such as Kenya. There is a gap in the economic, environment and society in terms opportunities and challenges that would be brought by oil exploration. These were the gaps that the study aimed to bridge by investigating the effect of oil exploration on the economy, environment and society of Turkana County.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was employed in achieving the objectives of the study. This chapter sets out various stages and phases that were followed in completing the study. It includes research design, location of the study, target population, sampling, and the survey instrument, methods of data collection, data analysis and ethical consideration.

3.2 Research Methodology

The research adopted both quantitative and qualitative methods. However, the primary data was collected by the use of questionnaires and interview schedule. The secondary data was collected by document analysis.

3.3 Research Design

The research problem was best studied through the use of a descriptive survey. Descriptive research portrays an accurate profile of persons, events or situations (Yilmaz, 2013). Survey design allows the collection of a large amount of data from a sizable population in a highly economical way. Therefore, the descriptive survey was the best strategy to fulfill the objectives of the study.

3.4 Location of the Study

The study was conducted in Lokichar-Turkana South Sub County of Turkana County in Kenya where Tullow oil Company is operating. The main economic activities of the residents are trading, formal and informal employment and pastoralism. Public facilities like schools and dispensaries are available although scarce.

3.5 Target Population

The target population was the population that was used to generalize the findings. The target population usually has varying characteristics. The target population is entire set of units for which the data was used to make inferences. The study intended to focus on the residents of Lokichar who were affected by activities of oil exploration. According to Turkana County integrated development plan (2013), there are 21,791 residents who are 18 years and above (adults). The target population was 21,791 residents who were the respondents in the area of study.

3.6 Sampling Procedure and Techniques

Sampling is a procedure of selecting a part of the population on which research is to be conducted (Mugenda and Mugenda, 2008). It ensures that conclusions from the study can be generalized to the entire population. For this study the total population of residents in Lokichar is over ten thousand and to get a representative population sample, respondents were selected using a simple random sampling technique. The researcher visited them in their homes, offices as well as by- passes. According to Mugenda and Mugenda (2008), when the population is more than 10,000 individuals, 384 of them are recommended as the

desired sample size. The total population of residents in Lokichar is over ten thousand and to get a representative population sample, Mugenda recommends the formula as shown.

3.7 Sample Size/Population

The sample size was determined by use of the Cochran equation $n = Z^2 * pq / d^2$

$n = Z^2 * pq / d^2$

Where:

n= desired minimal sample size (where pop>10,000),

Z = Standard normal deviation which is equal to 1 at 95% confidence level.

p = is the proportion in the target population estimated to have the characteristics being measured; in this case p is 0.5.

d = the degree of accuracy desired, here set at 0.05 corresponding to the 1.96

q = 1 – P

q= 1-0.5 =0.5 q= 0.5 , Therefore **n** = $\frac{1.96^2 * 0.5 * 0.5}{0.05^2} = \frac{0.9604}{0.0025}$

n =384

To obtain reliable results from the study, it was necessary to have a representative sample. Hence the sample size was 384.

3.8 Research Instruments

The research instrument used in the study was the questionnaires because of the descriptive nature of the study. Questionnaires are believed to be the most practical and economical tools in gathering data. The questionnaires were developed by reviewing and modifying questions from previous studies as well as reviewing various literature. The questionnaire comprised of close-ended and open ended questions. Closed-ended questions were used to get specific responses. The variables in the instrument were measured using a 5 point likert scale. The questionnaire was divided into four parts. Part one comprised of demographics of respondents, part two captured questions related to economic, part three comprised questions related to environmental effects and finally part covered questions related to society oil exploration in Lokichar.

3.9 Testing for Validity and Reliability

After constructing the questionnaires, its validity, reliability and layout was taken into consideration, the aim was to avoid any weakness before producing the final version for implementation.

Validity addressed the problem of whether an instrument measured what it was supposed to measure (Bickman & Rog 2008). According to Silverman (2013), the main concerns with the validity are whether the measured data was relevant and precise, and the second was the extent to which we can generalize the results. In this research, it brought up the question of whether the researcher had measured in the right way and also if all the interviewed questions have been proper and go well with the research objectives and

purpose. Therefore, the researcher discussed the instrument with experts and specialists to ensure that all the concepts under investigation were measured.

According to Berg and Gall (2009) reliability is defined as a measure of how consistent a research method is. Silverman (2013) outlined a number of ways that reliability can be achieved in qualitative research: pre-testing interview protocols and questions using fixed-choice responses and systematically collecting, transcribing and reporting field notes and transcripts for others to review as necessary. In this study reliability was achieved through being a sole observer. The pilot study allowed for pre-testing of the research instruments for reliability. The clarity of the instrument items to the respondents was necessary so as to enhance the instrument's reliability. The aim was to correct any inconsistencies arising from the instruments, which ensured that they measure what was intended. Reliability was also increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures.

3.10 Piloting of Research Instrument

According to King and him (2005), a pilot test is conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample. A pilot study was conducted when the questionnaire was given to just a few people with the intention of pre-testing the questions (Frost, Goode & Hart, 2010). The pilot test was an activity that assisted the researcher in determining if there were any flaws, limitations or other weaknesses and allows him or her to make necessary revisions before the implementation of the study (Merriam, 2014). A pilot study was undertaken on 38 individuals to test the reliability and validity of the questionnaire.

The rule of the thumb was 10% of the sample should constitute the pilot test (Neergaard, 2007). The pilot test undertaken was within the recommended range.

3.11 Data Collection Methods and Procedures

Before data collection begun, Mount Kenya-ethics review committee (ERC), National Commission for Science, Technology and Innovation, Turkana County Commissioner and Turkana County Director of Education were contacted for permission to administer the questionnaires to the respondents. Questionnaires were administered in the form of an interview (self-administered where possible). Questionnaire administration and the collection were carried out in three weeks. The researcher distributed some of the questionnaires and collected them immediately after the exercise to ensure efficiency in collection of the data. Then he re-administered questionnaires again to the same respondents after a period of two weeks.

Data for the study was gathered from both primary and secondary sources. Primary data collection involved visiting the selected catchment communities to gather information from the inhabitants and staff of various departments in Tullow Oil BV Company operational zone.

The data was collected to assess the depth of impact from the viewpoint of the people affected by Tullow Oil Company oil exploration activities. The source of data helped to uncover certain issues which could not have been tackled by previous studies. It also ensured that the researcher has a first-hand knowledge of the source of his data. Secondary data was sourced from existing literature on oil exploration and its effects. Such data was sourced from books, articles, journals and other written documents. The literature on oil

exploration and its impact on local, regional, and national levels made up the secondary information. Secondary data was used because to a great extent, it is free from credibility issues which arise with primary sources.

3.12 Data Analysis Techniques and Procedures

The process of organizing data was a key to understanding what the data does and does not contain. Data collected from the questionnaires were coded and entered into computer using SPSS version 21. Data was analysed thematically in five main stages transcription, familiarization with the data, open coding, axial and selective (Creswell, 2007). The statistical tools used in this research were descriptive. The data collected through questionnaires and interviews was analysed as from the background information of the respondents in the study. Such general information included gender, age, educational level, and respondents' occupation. The information provided by the respondents was analysed based on actual frequencies.

3.13 Ethical Considerations

Ferrell (2011) believes that ethical codes vary from person to person, culture to culture and from one context to the other. Something acceptable in one setting may be considered unethical or even unacceptable in another. The application of ethics to research is dependent on how each situation is deconstructed to understand the needs of all the participants in it including the researchers and research sponsors. Moreover, ethical decisions involve trade-off where a researcher should have a compromising attitude. Kimmel (2009) argue that researchers need to strike a balance between the demands placed on them as professional scientists in the pursuit of truth and their subjects' rights and

values potentially threatened by the research. The researcher made ethical measure involving treating the respondents with respect and courtesy (Schutt 2009). The researcher also ensured that the respondents are aware of the objectives of the research and their contribution to its completion. This was aimed at ensuring that the respondents were at ease to make them more likely to give candid responses to the questionnaire. The researcher informed the respondents that their responses would be treated confidentially and be used strictly for the study and no other purpose.

Therefore, a give and take attitude was adopted in which the researchers' interests and the audience's right to know was evaluated against the participants' right for privacy and confidentiality (Frankfort-Nachmias and Nachmias, 2005). That is, "the value of the best research is not likely to outweigh injury to a person exposed''. Qualitative researchers are guests in the private spaces of the world their manners "should be good and their code of ethics strict" (Stake 2005).

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents the study findings on the effects of oil exploration on the economy, environment and society of Turkana County. This is organized into four main sections including results on basic information of the respondents, the effects of oil exploration on the economy, the effects of oil exploration on the society of Turkana and the environmental effects of oil exploration

4.1.1 Response Rate

The study targeted a sample of 384 respondents in collecting data. From the study, 302 out of 384 sampled respondents filled in and returned the questionnaire constituting 79% as indicated in table 4.1. This commendable response rate was made a reality after the researcher made personal visits to remind the respondent to fill-in and return the questionnaires it time.

Table 4.1: Response Rate

Response	**Frequency**	**Percentage (%)**
Responded	302	79
Not responded	82	21
Total	**384**	**100**

Source: Researcher, (2017)

4.2 General Information

4.2.1 Gender Information of the Respondents

The table 4.2 refers to the respondents' gender and it shows that 64% of the respondents were male while 36% of the respondents were female. The results is an indication that more of those involved in the whole process of mining are men, this was a reflection of the community where there were more men than women being involved in the economic development of the county.

Table 4.2: Gender Information of the Respondents

Gender	**Frequency**	**Percentage (%)**
Male	192	64
Female	110	36
Total	**302**	**100**

Source: Researcher, (2017)

4.2.2 Age of the Respondents

Results of the age of the respondents are set out in table 4.3. The results shows the majority of the respondents were in cohort of 31-40 years as supported by 33%, followed by age between 21-30 years as shown by 26%, this was followed by age between 41-50 years as indicated by 20%; this was followed by age below 20 years which was represented by 12%, whereas finally the results revealed that only 9% of the respondents were aged above 50 years. This shows that the respondents were old enough to have an experience on oil exploration activities and its effects on the economy, environment and society. Thus, this valid information shows that the sample selected was old enough in terms of age spread and representation to carry out the study.

Table 4.3: Age range of the Respondents

Age (Years)	Frequency	Percentage (%)
31-40	100	33
21-30	79	26
41-50	60	20
below 20	36	12
above 50	27	9
Total	**302**	**100**

Source: Researcher, (2017)

4.2.3 Educational Level of the Respondents

The results on the level of education of respondents are presented in table 4.4. The findings established that majority of the respondents as indicated by 48% had their highest level of education being primary school; this was followed by 19% of the respondents who had their highest level of education being secondary, 14% of the respondents had their highest level of education being certificate, 13% of the respondents had their highest education at diploma level and whereas only 6% of the respondents had their highest education level being university degree.

Table 4.4: Educational Level of the Respondents

Level of education	Frequency	Percentage (%)
Primary	147	48
Secondary	58	19
Certificate	41	14
Diploma	39	13
Degree	17	6
Total	**302**	**100**

Source: Researcher, (2017)

4.2.4 Occupation of the Respondents

In this section the researcher sought to find out the occupation of the respondents. The results are as shown in the table 4.5. The results reveals majority of the respondents as supported by 39% are engaged in trading activities; this was followed by 21% of the respondents who were in formal employment, followed by 16% of the respondents who were in mining sector, 10% of the respondents were not employed, this was followed by 7% of the respondents who were in both carpentry and pastoralism.

Table 4.5: Occupation of Respondents

Occupation category	**Frequency**	**Percentage (%)**
Trading	119	39
Formal Employment	63	21
Mining	48	16
Unemployed	30	10
Carpentry	21	7
Pastoralism	21	7
Total	**302**	**100%**

Source: Researcher, (2017)

4.3 Findings Related to the Objectives

4.3.1 Effects of Oil Exploration on the Economy of Turkana County

This section sought to establish the effect of oil exploration on the economy of Turkana County. The results are as shown in table 4.6.The findings established that as a result of oil exploration Tullow Oil Company and its affiliates advertises all relevant job opportunities locally as indicated by 86% of the respondents who agree; on the statement that oil exploration companies are acting in accordance with its public commitment and promoting local content and economic development 70.6% of the respondents revealed that they

strongly disagree; on oil exploration having resulted in improvement of road network in Lokichar and its environ 87.2% of the respondents showed great extent of agreement; on the statement that oil exploration has resulted in improvement of water supply in Lokichar only 59% of the respondents agree; on the statement that as a result of oil exploration the number of people engaged in business related activities has increased 68.7 % of the respondents agree and finally on the statement that as a result of oil exploration the value of purchasing land has skyrocketed 78.2% of the respondents agree.

Table 4.6: Economic Effects of Oil Exploration in Turkana County

Statement	**Percentages (%)**					**Mean**	**Sd**
	SD	**D**	**U**	**A**	**SA**		
Tullow oil and its affiliates advertise jobs.	1.8	2	10.	38.7	47.3	4.10	.567
Oil company acts in accordance with its commitment.	37	33.6	10	10.2	9.2	3.89	.765
Improvement of road network.	1.7	4.7	6.4	36.6	50.6	4.32	.987
Improvement of water supply	4	15	22	30	29	2.07	1.021
Business activities increased	4	6.4	20.9	39.7	29	3.58	.456
The value of land has skyrocketed	3.8	5	13	42	36.2	3.98	.945

Source: Researcher, (2017)

Note: SA-Strongly Agree, **A**-Agree, **U**-Undecided, **D**-Disagree, **SD**-Strongly Disagree,

Sd - Standard Deviation.

4.3.2 Environmental Effects of Oil Exploration in Turkana County

This section sought to establish the effects of oil exploration on the environment of Turkana County. The results is presented in table 4.7 which establishes that since oil exploration begun, there has been no involvement of local communities and leaders in

environmental assessment conducted in which 86% of the respondents strongly agree; on the statement that there has been a lot of water pollution since oil exploration begun 72% of the respondents agree; on the statement that as a result of oil exploration there has been increase in noise pollution, it was supported by 68% of the respondents,oil exploratory activities have led to increased air pollution 75% of the respondents agree;on the statement that as a result of oil exploration activities most indigenous trees were cut off to make roads and room for camps 88% of the respondents strongly agree; the statement that the Turkana community's ecosystem has been disrupted due to exploratory activities revealed 92% of the respondents who strongly agree, whereas the statement that there was expansive land degradation as a result of oil exploration is supported by 73% of the respondents .

Table 4.7: Environmental Effects of Oil Exploration in Turkana County

Statement	**Percentages (%)**					**Mean**	**Sd**
	SD	**D**	**U**	**A**	**SA**		
No involvement of communities	2	4	8	52	34	4.32	.691
Increase in Water pollution	6	10	12	41	31	3.45	.675
Increased noise pollution	10	9	13	39	29	3.78	.902
Increased air pollution	5	4	16	55	20	4.43	1.021
Indigenous tress disappeared	0	3	9	49	39	4.41	.801
Ecosystem has been disrupted	1	2	5	59	33	4.45	1.007
There is land degradation	2	8	17	29	44	4.10	.786

Source: Researcher, (2017)

Note: SA-Strongly Agree, **A**-Agree, **U**-Undecided, **D**-Disagree, **SD**-Strongly Disagree,

Sd-Standard Deviation

4.3.3 Benefits of Oil Exploration to the Society of Turkana County

This section sought to establish the effect of oil exploration on the society of Turkana County. The results are as shown in the table 4.8. From the results, it was revealed that oil exploration has promoted education of the community youths through training and sponsorship packages offered by the oil company as was revealed by 54% of the respondents who are in agreement; on the statement that oil exploration has increased social vices like thuggery and prostitution in Lokichar 73% of the respondents were in agreement; on the statement that there has been increased drop out of children from schools since oil exploration begun this was endorsed by 51% of the respondents; on the statement that there has been population increase as a result of migration hence turning Lokichar from one ethnic group majority into cosmopolitan and creation of more poverty due to oil exploration was exhibited by 87% of the respondents who agree; on the statement that oil exploration processes resulted in displacement of settled communities which led to communities losing their land and also their livelihoods, this was displayed by 94% of the respondents who strongly agree; on the statement that more Turkana people have become exposed to external views and ideas of other people as a result of oil exploration, it was supported by 79% of the respondents who were in agreement, whereas on the statement that as a result of oil exploration there is increase of inter communal fights manifested by 66% of the respondents who agree and finally on the statement that as a result of oil exploration there is high level of illegal oil siphoning from oil companies vehicles by employees and oil brokers around Lokichar this was disclosed by 70% of the respondents who agree.

Table 4.8: Effects of Oil Exploration to Society of Turkana County

Statement	Percentage (%)					Mean	Sd
	SD	D	U	A	SA		
Promotion of education	14	17	15	33	21	3.01	1.08
Social vices increased	4	8	15	22	51	3.78	.675
Increased drop out from school.	8	29	12	20	31	2.40	.980
Population increase due to migration.	1	10	2	38	49	4.03	.156
Displacement of settled communities.	1	2	3	39	55	4.16	.689
Exposure to external environment	1	5	15	51	28	3.92	.123
Increase of inter communal fights.	7	20	7	40	26	3.43	.987
Oil siphoning	6	7	17	32	38	3.56	.876

Source: Researcher, (2017)

Note: SA-Strongly Agree, **A**-Agree, **U**-Undecided, **D**-Disagree, **SD**-Strongly Disagree, **Sd**-Standard Deviation

4.4 Discussion of the Results in Relation to the Study Objectives

The objectives of the study were; to determine the effects of oil exploration on the economy of Turkana County; to establish the environmental condition of Turkana County as result of oil exploration; to investigate the benefits of oil exploration to the society of Turkana County.

4.4.1 Economic Effects of Oil Exploration in Turkana County

The findings of the study identified by 87.2% of the respondents strongly agree that since oil exploration begun there has been improvement of road network in Lokichar and its environs, this was attributed to movement of oil rig and many vehicles owned by oil companies to facilitate their work. This concurs with Chowdhury(2005) who revealed that exploration activities and indeed oil exploration leads to improvement of road network in any oil exploratory sites and the development of infrastructure that may facilitate other

forms of economic activities by opening up the interior places for business opportunities (Gulati, 2003).

On the other hand, the findings show that 86% of the respondents are in agreement with the statement that jobs are locally advertised and many opportunities are handed to the local community members despite being casual and semi-skilled jobs. The results concurs with Crowson (2010) who noted that due to the fact that oil exploration is labour intensive during the exploration, construction and the operation phases, it offers a source of employment in local areas. In addition, the findings concur with those of Snyder and Bhavnani (2009), who found out that aside from oil exploration operation's direct employment impact, there is substantial potential for developing downstream and lateral economic activity with suppliers and refiners, particularly for small and medium-sized enterprises.

4.4.2 Environmental Effects of Oil Exploration in Turkana County

The results indicates that 92% of the respondents strongly agree with the statement that since oil exploration begun Turkana community ecosystem has been disrupted by the oil exploratory activities which have led to environmental damages. These findings are similar with those by Madalane (2012) who explored the effects of oil exploration on the environment in Unity state of South Sudan. According to his findings, oil exploration brought about expansive land degradation which the local communities could not manage. This was also supported by Akabzaa (2009), who noted that environmental damages resulting from oil exploration operation ranges from water pollution or restrained water quantity which can seriously limit people's current and future income opportunities.

More so, 88% of the respondents support that most indigenous trees were cut or destroyed during the oil exploration activities. From findings, we also found out that land clearance was done to make room for hospitality camps to host thousands of oil company employees. Deforestation and increased land degradation as a result of oil exploratory activities due to large chunk of land used to make operation camps to accommodate many field operation staff in the work-site. These findings second the statements of Mensah (2008) who in his analysis noted that environmental damages as a result of mining operation in 51 mining countries across the globe put about 60% of the residents of these communities at environmental risk.

4.4.3 Effects of Oil Exploration to the Society of Turkana County

The study findings evidenced by 94% of the respondents are in strong support that oil exploration resulted in displacement of settled communities which led to communities loosing their land and also their livelihoods. The respondents acknowledged that there has been involuntary displacement by oil Company for the exploratory activity to take place. This forceful displacement was disastrous for indigenous communities with strong cultural and spiritual ties to their lands who may find it difficult to survive when these ties are broken. This concurs with past study by UNEP (2007) which revealed that exploration activities and indeed mining displaces people from their lands to create room for building camps, mining and other exploration related activities. Land in Kenya is a sensitive issue and any involuntary displacement of people can be particularly disastrous for indigenous communities with strong cultural and spiritual ties to their lands and this could spark some resistance because this leads to migration, loss access to water and thus affects livelihoods, effects on public health, effects to cultural and aesthetic resources (ELAW, 2010).

Also, the results divulged by 88% of the respondents were in agreement with the statement that there is population increase due to migration hence turning Lokichar from one ethnic group majority into cosmopolitan and creation of more poverty as a result of oil exploration. The migration was due to hopeful employment in the oil sector in which everybody tried to get a job opportunity. These findings are substantiated by Akabzaa (2009) who noted that the concentration of mining activities usually trigger massive migration of all kinds of people to the mine areas and the population growth rate is above the national average and might even be doubled. Furthermore, the findings are in line with Devasia (2009) who noted that new types of poverty are created, with a mixture of original residents who have been unable to share in employment opportunities and newcomers who have migrated in with the hope of finding employment, but have been unsuccessful in doing so. Consecutively, the research findings noted that there were some levels of increased poverty with the introduction of higher wages and new sources of income in the area due to employment of few people which led to increase in the cost of living. This means that those not in employments are finding it hard to acquire primary products because of the inflation. These findings are supported by those of Banerjee (2008), who noted that any positive economic development that often follows the establishment of a mining operation can also have negative effects on consumption levels of the poor where higher incomes of mine workers can lead to rising local prices for key products (food, fuel, transport) with the poor left behind.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the findings, conclusions and recommendations of the study.

5.2 Summary of the Findings

From the study findings it was evident that oil exploration has greatly impacted the economy of Turkana County from findings, (Table 4.6) 83.9% of the respondents strongly agree that oil exploration has resulted into improvement of road network in Lokichar and its environ due to the oil company making road network for the passage of oil rig and its many vehicles to facilitate their work. The road as a social good is used by all people around that area hence has created business opportunities to others. More so,the road network has opened the rural Turkana to business people who can transport their goods with ease to any location. Further more, the study found out that oil company and its affiliates advertise all jobs locally and local community members are given the first opportunity in employment. This has resulted to people earning money hence be able to buy food and meet other essential needs like school fees and medical bills, but on the contrary this has led to increase in prices of basic goods like food and transport hence making people without employment hard to meet their daily needs.

Secondly, the researcher deduced from the study findings (Table 4.6) that environmentally 92% of the respondents strongly agree that since oil exploration begun, Turkana

Community ecosystem has been disrupted by the oil exploratory activities which has led to environmental damages. The oil exploration processes have negatively impacted Lokichar area and it's environ. Some of the effects of the oil exploration process are deforestation and increased land degradation, loss of animal grazing land due to fencing huge chunks of land to establish hospitality camps and oil exploratory sites.

On impacts of oil exploration to the society, from the study findings (Table 4.8) 94% of the respondents were of the view that oil exploration resulted in displacement of settled communities which led to communities loosing their land and also their livelihoods. The respondents acknowledged that involuntary displacement was particularly disastrous for indigenous communities with strong cultural and spiritual ties to their lands who found it difficult to survive when these ties are broken. This was as a result of their experiences in terms of being displaced from their ancestral land where they associate the land and its geographic's with spiritual ties.

5.3 Conclusions of the Study

This study sought to investigate the effects of oil exploration on the economy, environment and society of Turkana County. The results conclude that as a result of oil exploration Turkana County has benefited in economically, environmentally and socially.

Economically the findings show that oil exploration created job opportunities, improvement of infrastructure including road networks. In addition, oil exploration has led to many people to engage in business activities around Lokichar area. Through these economic changes as a result of oil exploration, development can be achieved in the area since revenues collected from all the new economic ventures could be used to ensure there

are funds to oversee formulation and implementation of sustainable development strategies.

On environment, the study found that the ecosystem, deforestation and land degradation has increased due to oil exploratory process. Also, water, noise and air pollution has also increased in the area. Companies in the mining industry ought to present strategies that will go ahead in making sure that the environment is well conserved at the beginning and end of the exploration process. A well formulated EIA process will aid in this process of the mining industry. For sustainable development to be achieved, well laid strategies ought to be formulated that will be aimed at ensuring that the environment is well covered from being destroyed by the exploration process.

The government ought to come up with regulations that will reduce the oil exploration damages to the environment, the oil company needs to involve both the community and the leadership in environmental assessment at all stages. Without well laid rules and regulations, sustainable development will be hard to achieve since the firms will operate without caring for the environment as there are no follow ups done or even laws to prosecute them.

The results finally established that the social set up of the community around Lokichar has been affected as a result of oil exploration in a number of ways. To start with, oil exploration resulted in displacement of settled communities which led to communities loosing their land and also their livelihoods. The respondents acknowledged that involuntary displacement were real. The result explored increase in social vices like thuggery and prostitution in Lokichar due to high influx of many people with hopes of being employed or getting business with the oil company which never happened hence

engage prostitution as means of survival, increased drop out of children from school since was established as everyone thought of earning the oil money.

5.4 Recommendations for Practice:

The study has made the following recommendations:

5.4.1 The authorities for Implementation.

The following recommendations have been made for policy makers

- Usage of huge chunks of land for making camps to host oil company staff can be minimized and staff be informed to rent houses in Lokichar and they be transported daily to and from work hence boosting transport and property business in Lokichar and its environ.
- The community and leadership participation should be considered in making key decisions during oil exploration in Turkana because they have the potential to make suggestions that can reduce the impacts of oil exploration on the communities.
- After decomposing the work-site, environmental restoration should be done by government and oil companies in presence of community representatives.
- Finally, periodic environmental social impact assessment (ESIA) and environmental impact assessment (EIA) should be conducted with both the leadership and the community representatives.

5.4.2 Service Users/Beneficiaries

- The people around Lokichar and its environ should take economic opportunities such as transport and property business.
- The population around should also consider taking up job opportunities to improve their well-being.
- The Community in Lokichar and its environ should be sensitize on leasing land instead of directly selling their land, because at the rate they are selling their land the Turkana people will be landless in near future.
- The people in Lokichar should take up opportunities like scholarships and training provided by oil exploration companies in the area to scale up their education to increase their employ-ability status in oil and other sectors.
- Social menace should be controlled through mentorship programs focused on pupils and students in schools to reduce dropout rates.

5.4.3 Other Authorities

Stakeholders like civil societies, community based organization, faith based organization and non-governmental organization should take Oil Company to task on environmental accountability and local content obligation for business people.

5.5 Recommendations for Further Research

- A study needs to be conducted on the relationship between cancer and working in the oil fields. According to Sumanth (2005) mining regions may have a higher prevalence of certain diseases because mining alters the environment and allows disease causing pathogens and vectors to survive, also through the inhalant of the gas emitted during the process of oil exploration.

- Challenges and prospects of oil benefit sharing: a case study of oil mining in Turkana County, Kenya.

- Corporate social responsibility of Oil Company in Turkana County.

- The study recommends for a study to be done on assessing the success-fullness of policies put in place to safeguard negative impact of oil exploration.

- Another study could be done with the same interest like current one on assessing effects of oil exploration but with a wider scope in East Africa for the generalization of study findings.

REFERENCES

Akabzaa, T. (2009). Mining in Ghana: implications for national economic development and poverty reduction. *Mining in Africa: regulation and development*, 25-65.

Andrews, M. (2013). *The limits of institutional reform in development: Changing rules for realistic solutions*. Cambridge University Press.

Banerjee, S. B. (2008). *Corporate social responsibility: The good, the bad and the ugly*. Critical sociology, 34(1), 51-79.

Barrow, C. J. (2006). *Developing the environment: problems and management. Longman scientific & technical.*

Berg, D. & Gall, P. (2009). Case Study Research Methods. London: Continuum.

Bickman, L., & Rog, D. J. (Eds.). (2008). *The Sage handbook of applied social research methods*. Sage Publications.

Boakye, D., Dessus, S., Foday, Y., & Oppong, F. (2012). Investing mineral wealth in development assets: Ghana, Liberia and Sierra Leone. *World Bank policy research working paper*, (6089).

Chowdhury, J. and A. Menon (2005). "Multidimensional components of quality and strategic exploration activities.

Crowson, P. (2010). Institutions and the resource curse. The Economic Journal, 116(508), 1-20.

Devasia, V. V. (2009). *Social work concerns and challenges in the 21st century*. APH Publishing.

DNP (2011). Bases Del Plan Nacional de Desarrollo 2010 -2014. Prosperidad para todos. Bogota. [Online]. http://www.dnp.gov.co/PND/PND20102014.aspx (Accessed 19 April 2012)

Ekutan, A. (2013). 1st Lake Turkana Stakeholders Workshop Sharing Knowledge, *Building Partnership.*

Ferrell, O. C. (2011). A framework for understanding organizational ethics. *Business ethics: New challenges for business schools and corporate leaders*, 3-17.

Francis F. & Zach, A, (2008). Using environmental permits for boosting the environmental performance of large-scale lignite surface mining activities in Greece. Page 8-12.

Frost, D., Goode, S., & Hart, D. (2010). *Individualist and collectivist factors affecting online repurchase intentions*. Internet Research, 20(1), 6-28.

Genasci, M., & Pray, S. (2008). Extracting *accountability: The implications of the resource curse for CSR theory and practice.* Yale Hum. Rts. & Dev. LJ, 11, 37.

Gisore, R., & Matina, Z. (2015). *Sustainable Mining in Africa: Standards as Essential Catalysts*.

Hilson, G. (2012). *Corporate social responsibility in the extractive industries: experiences from developing countries*. Resources Policy, 37(2), 131-137.

Hooke, R. L., Martín-Duque, J. F., & Pedraza, J. (2012). *Land transformation by humans*: a review. GSA today, 22(12), 4-10.

Imana, D. K. (2013). *Economic Implications of Oil Discovery in Kenya* (Case Study of Turkana County). Diss. Webster University, 2013. Retrieved fromhttp://www.webster.ac.th/2012/pdf/thesis/2012-13/mba/David_Kamar_Imana.pdf

Izuchukwu, O. (2011). *Analysis of the contribution of agricultural sector on the Nigerian economic development*. World Review of Business Research, 1(1), 191-200.

Karl, T. (2012). *The Paradox of Plenty: Oil Booms and Petro States, University of California* Press, Berkeley.

Kates, R. W., Parris, T. M., & Leiserowitz, A. A. (2014). *What is sustainable development*? Environment, 47(3), 8.

Kayumba, A. A. (2014). *Challenges and prospects of equitable benefit sharing in mining sector: a case study of titanium mining in Kwale County*, Kenya (Doctoral dissertation, University of Nairobi).

Kemp, R., & Martens, P. (2007). Sustainable development: *how to manage something that is subjective and never can be achieved. Sustainability:* Science, Practice, & Policy, 3(2), 5 14.

Kimmel, A. J. (2009). *Ethical issues in behavioural research: Basic and applied perspectives*. John Wiley & Sons.

Korpela, D. (2014). *A social and environmental impact assessment of the Crucitas gold mining project in Costa Rica.*

Kwesiga, Pascal (2009). "Banyoro worried over land grabbing. *"New vision; Uganda's leading daily,* Daily edition, sec. Archive, May 09. http://www.newvision.co.ug/D/8/18/680144.

Lackner, H., & Seddon, D. (2012). *Relations of Production*. Routledge.

Madalane, T. (2012). *The obligation to rehabilitate mining areas: post mining activities* (Doctoral dissertation, University of Limpopo (Turfloop Campus)).

Masson, P. R, (2012). *Effects of Oil and Gas Discoveries on the Proposed East Africa Community (EAC) Monetary Union*

McMichael, P. (2011). *Development and Social Change: A Global Perspective: A Global Perspective*. Sage Publications.

McPhail, K. (2009). The challenge of mineral wealth: using resource endowments to foster sustainable development. In *Mining, society, and a sustainable world* (pp. 61-74). Springer Berlin Heidelberg.

McPhail, K. (2010). Material constraints to popular imaginaries: The extractive economy and resource nationalism in Bolivia. Political Geography, 31(4), 225-235.

Mensah, F. (2008). Impact benefit agreements between aboriginal communities and mining companies: Their use in Canada. Ottawa: Canadian Environmental Law Association.

Merriam, S. B. (2014). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Mugenda, O. M & Mugenda A. G (2008). *Research Methods; Quantitative and Qualitative Approaches*. Nairobi. African Centre for Technology Studies Press

Nachmias F, & Nachmias, D. (2008). Research Methods in the Social Sciences. Worth Publishers.

Namuyondo, E (2014). Sustainability and Oil Exploration in Uganda – the case of Uganda's Albertine Region

Neergaard, H. (2007). 10 Sampling in entrepreneurial settings. *Handbook of qualitative research methods in entrepreneurship*, 253.

Omondi, G. (June 24, 2014) Daily nation: Uhuru offers Turkana land owners oil pipeline shares in way leaves deal.

Peck, P., & Sinding, K. (2009). Environmental and social disclosure and data richness in the mining industry. Business Strategy and the Environment, 12(3), 131-146.

Pegg, S. (2014). Mining and poverty reduction: Transforming rhetoric into reality. *Journal of Cleaner Production*, *14*(3), 376-387.

Poteete, A.R. 2009. Is Development Path Dependent or Political? Reinterpretation of Mineral-Dependent Development in Botswana. Journal of Development Studies, 45:4, 544-571.

Rosser, A. (2010). The political economy of the resource curse: A literature survey.

Sass, S. L. (2008). The substance of civilization: Materials and human history from the Stone Age to the age of silicon. Sky horse Publishing Inc.

Saunders, M. N., Saunders, M., Lewis, P., & Thorn hill, A. (2007). Research methods for business students, 5/e. Pearson Education India.

Silverman, D. (2013). *Interpreting qualitative data: Methods for analysing talk, text and interaction*. Sage.

Snyder, R., & Bhavnani, R. (2009). Diamonds, Blood, and Taxes A Revenue-Cantered Framework for Explaining Political Order. *Journal of Conflict Resolution*, *49*(4), 563-597.

Turkana County integrated development plan CIDP (2013)

Union, A. (2009). Africa mining vision. *AU, Addis Ababa*.

United Nations (2007). Results of the World Conference on Environment and Development: Agenda 21. UNCED United Nations Conference on Environment and Development, Rio de Janeiro, United Nations, New York.

United Nations Secretary-General's High-level Panel on Global Sustainability (2012). Resilient People, Resilient Planet: A future worth choosing. New York: United Nations. [Online].

World Bank (2010). Mining Community Development Agreements– Practical Experiences and Field Studies, Environmental Resources Management 1001 Connecticut Ave, NW Suite 1115, Washington, DC 20036.

World Bank (2011). Key Topics in Mining [Online]. http://go.worldbank.org/5KLKVXXXU0 (Accessed 20 April 2012)

World Bank (2011). The World Bank Group in extractive industries, 2011 Annual review.

World Bank Group (Ed.). (2012). World Development Indicators 2012. World Bank Publications.

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, *48*(2), 311-325.

APPENDICES

APPENDIX I: LETTERS OF INTRODUCTION

ELIM PETER

MOUNT KENYA UNIVERSITY

P.O BOX 342-01000

THIKA.

Greetings respondents,

I am Elim Peter, an MBA student at Mount Kenya University and undertaking my academic research which is part of the study to **'Investigation on the effects of oil exploration on the economy, environment and society of Turkana County: a case of Lokichar-Ngamia 1', Kenya.**

Therefore, I kindly request you to fill the questionnaire below. The information collected will be kept confidential and will remain anonymous throughout. The information you will provide will only be used for this research only.

It will only take less than 20 minutes of your time to complete it.

Thank You.

APPENDIX II: QUESTIONNAIRE

Instructions.

Dear respondents, please respond to this questionnaires as honestly and accurately as possible All your responses will be treated as confidential and will be used for academic and research purposes only.

Please read each statement carefully and tick [ ] against the appropriate answer

Section A: Demographic Features of the Respondents

Please supply the required data by filling in the blank spaces provided or ticking against the appropriate answer

1. Gender of correspondent
    a. Male [ ] Female [ ]
2. Age range of respondent
    a. Below 20 years [ ] 21-30 [ ] 31-40 [ ] 41-50 [ ] above 50 years
3. What is your level of education?
    a. Primary [ ] Secondary [ ] Certificate [ ] Diploma [ ] Degree
4. What is your occupation?
    a. Pastoralism [ ] Carpentry [ ] Trading [ ] Formal Employment [ ] Mining [ ] unemployed

Section B: Economic Effects of Oil Exploration in Turkana County

5. Please indicate the extent you agree with the following statements on the economic effects of oil exploration

Where: 1=strongly disagree; 2=disagree: 3= undecided: 4= agree: 5= strongly agree

	Statement	1	2	3	4	5
i	As a result of oil exploration Tullow oil company and its affiliates advertise all relevant job opportunities locally and many opportunities is handed to the local community despite being casual and semi-skilled jobs.					
ii	Oil exploration companies are acting in accordance with its public commitment about promoting local economic development.					
iii	Oil Exploration has resulted in improvement of road network in Lokichar and its environ					
iv	Oil Exploration has resulted in improvement of ample water supply in Lokichar					
v	As a result of oil exploration the number of people engaged in Business related activities has increased					
vi	As a result of oil exploration the value of purchasing land has skyrocketed					

Please provide any other relevant information

……

……

……

……

……

Section C: Environmental Effects of Oil Exploration in Turkana County.

6. Kindly tick to indicate the extent you agree with the following statements on the environmental effects of oil exploration. Where: 1=strongly disagree; 2=disagree; 3= undecided: 4= agree: 5= strongly agree

	Statement	1	2	3	4	5
i	Since oil exploration begun, there is no involvement of local communities and leaders in environmental assessment conducted					
ii	There has been a lot of water pollution since oil exploration begun					
iii	As a result of oil Exploration, there has been increase in Noise pollution					
iv	Oil exploratory activities have led to increased air pollution					
v	As a result of oil exploration activities, most indigenous trees were cut off to make roads and rooms for camps					
vi	The Turkana community's ecosystem has been disrupted due to exploratory activities					
vii	There is expansive land degradation as a result of oil exploratory process					

Please provide any other relevant information

……

……

……

……

……

Section D: Effects of Oil Exploration to Society of Turkana County.

7. Read the statements below and indicate the extent you agree with them on effects of oil exploration to the society.

Where: 1=strongly disagree; 2=disagree: 3= undecided: 4= agree: 5=strongly agree

	Statement	1	2	3	4	5
i	Oil exploration has promoted education of the community youths through training and sponsorship packages					
ii	Oil exploration has increased social vices like thuggery and prostitution in Lokichar					
iii	There has been increased drop out of children since oil exploration begun					
iv	There has been Population increase as a result of migration hence turning Lokichar from one ethnic group majority into cosmopolitan and creation of more poverty as a result of oil exploration.					
v	Oil exploration process resulted in displacement of settled communities which leads to communities losing their land and also their livelihoods					
vi	More Turkana people have become exposed to external views and Ideas as a result of oil exploration.					
vii	As a result of oil exploration, there is increase of inter communal fights					
viii	As a result of oil exploration there is high level of illegal oil Siphoning from oil Companies Vehicles					

Please provide any other relevant information

……

……

……

……

Thank you for your time and cooperation

APPENDIX III: RESEARCH BUDGET.

Activity	Amount (Kshs)
PROPOSAL PREPARATION	
Proposal development-Literature Review	3,000
Internet Search-Cyber cost	10,000
Photocopying and Printing of the proposal drafts	12,000
Transport	8,000
Sub total	**30,000**
PILOT STUDY	
Transport to Lokichar and Back	6,000
Testing of research instruments (Printing, photocopy & Binding)	2,000
Sub total	**8,000**
DATA COLLECTION	
Printing and photocopying of questionnaires	26,000
Transport to Lokichar and its environ and back	32,000
Sub total	**58,000**
PROJECT PREPARATION	
Data coding, entry and analysis	16,000
Printing, photocopying and binding of the project draft	10,000
Transport cost	6,000
Sub total	**32,000**
TOTALS	**128,000**
Contingencies (10% of the total)	12,800
TOTAL	**140,800/-**

APPENDIX IV: WORK PLAN.

	2016						2017		
Activity	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Proposal Development									
Literature Review									
Proposal Defence									
Making Corrections									
Submission of Proposal									
Data Collection									
Data Analysis									
Writing of project draft									
Submission of project for examination									
Project Defence									
Submission of final project									

APPENDIX V: RESEARCH AUTHORIZATION

Mount Kenya University

JULY 5, 2016

Ref. No. MKU/ERC/0120

CERTIFICATE OF ETHICAL CLEARANCE

This is to certify that the proposal titled "**INVESTIGATION ON EFFECTS OF OIL EXPLORATION ON THE ECONOMY, ENVIRONMENT AND SOCIETY OF TURKANA : A CASE OF LOKICHAR, NGAMIA 1**", whose Principal Investigator is Mr Elim Peter Epagan (MBA/L/0917) has been reviewed by Mount Kenya University Ethics Review Committee (ERC), and found to adequately address all ethical concerns.

Mr. Francis W. Makokha
Secretary, Mount Kenya University ERC

Sign: _____ **Date:** 5/7/2016

Dr. Francis W. Muregi
Chairman, Mount Kenya University ERC

Sign: _____ **Date:** 5/7/2016

Mount Kenya University
Director, Research & Development
& Development
P.O. Box 342 - 01000, Thika

Main Campus, General Kago Road, P.O Box 342-01000 Thika. Tel +254 020 208 83 10, +254 020 2 338 143/6/8, Fax:+254 020 20 503 15,
Cell: +254 720 790 796, +254 789 126 571 Email: info@mku.ac.ke, Web: www.mku.ac.ke
ISO 9001 : 2008 Certified

Mount Kenya University

SCHOOL OF POSTGRADUATE STUDIES

REF: MBA/L/0917

7th July, 2016

The Director, Research Coordination Division
National Commission for Science, Technology & Innovation
Utalii House, 8th & 9th Floor
P.O.Box 30623- 00100
Nairobi

Dear Sir/Madam,

RE: ELIM PETER EPAGAN – REGISTRATION NO. MBA/L/0917

The purpose of this letter is to introduce the above named student who is pursuing Master of in **Business Administration (Strategic Management)** in the Department of Management in the School of **Business and administration.**

The Project title will be: ***" INVESTIGATION ON EFFECTS OF OIL EXPLORATION ON THE ECONOMY, ENVIRONMENT AND SOCIETY OF TURKANA COUNTY: A CASE OF LOKICHAR, NGAMIA 1."***

He has been cleared by the university's Ethics Review Committee (certificate attached) and now has to proceed to the field to collect data for his research project in the course of this semester **(July, 2016 – October, 2016).**

Any assistance accorded to him will be highly appreciated.

Thank you.

Mount Kenya University
School of Postgraduate Studies
P. O. Box 342 - 01000 Thika

Dr. Cecilia Kinani
Dean, School of Postgraduate Studies

Main Campus, General Kago Road, P.O Box 342-01000 Thika. Tel +254 020 208 83 10, +254 020 2 338 143/6/8, Fax:+254 020 20 503 15,
Cell: +254 720 790 796, +254 789 126 571 Email: info@mku.ac.ke, Web: www.mku.ac.ke
ISO 9001 : 2008 Certified

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No **NACOSTI/P/16/13957/12525**

Date:

2nd August, 2016

Peter Elim Epagan
Mount Kenya University
P.O. Box 342-01000
THIKA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on **" *Investigation on Effects of oil exploration on the Economy, Environment and Society of Turkana County*: *A case of Lokichar, Ngamia 1,"*** I am pleased to inform you that you have been authorized to undertake research in **Turkana County** for the period ending **30th July, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Turkana County** before embarking on the research project.

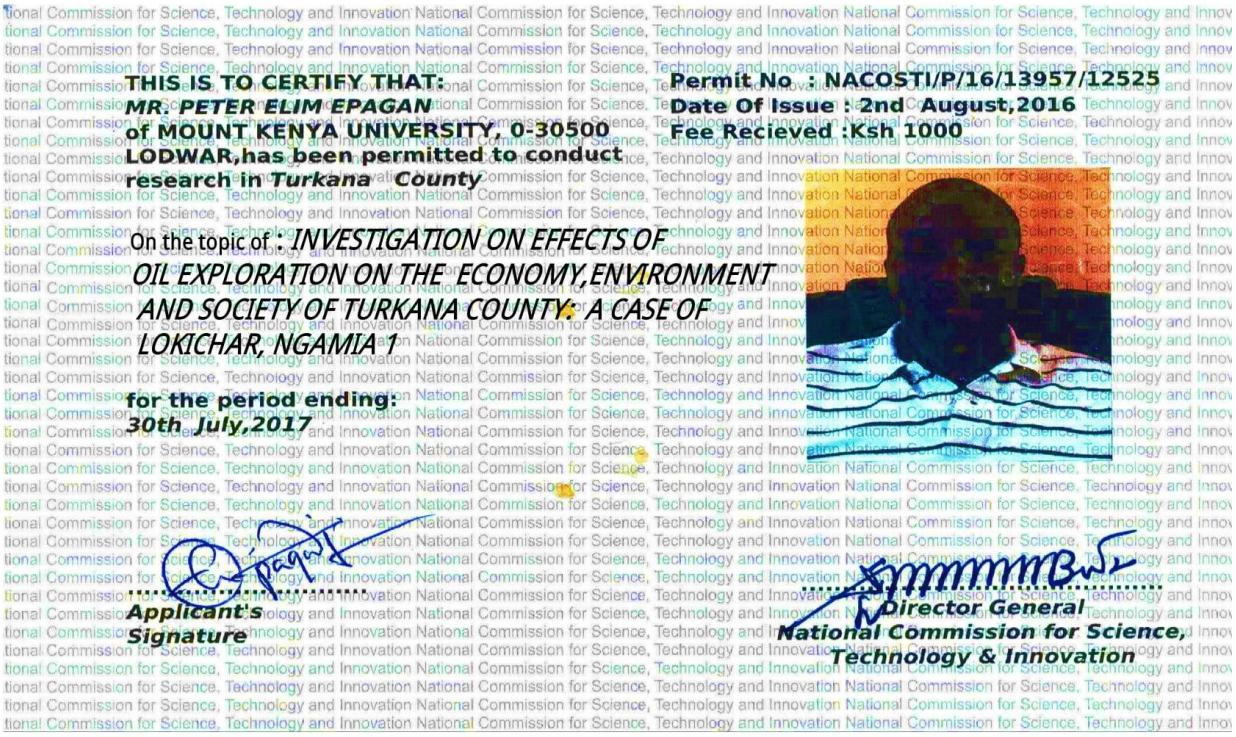
On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Turkana County.

The County Director of Education
Turkana County.



THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

Telegraphic address: COUNTY COMMISSIONER" LODWAR"
Telephone: LODWAR 21240
Telex:
Fax:
When replying please quote
Ref No. CC.CONF.ED.12/1/VOL.I/(190)
and date

COUNTY COMMISSIONER'S OFFICE
TURKANA COUNTY
P.O. BOX 1 – 30500
LODWAR

5th September, 2016.

Deputy County Commissioner,
TURKANA SOUTH SUB-COUNTY.

RE: RESEARCH AUTHORIZATION: PETER ELIM EPAGAN

The above mentioned is from Mount Kenya University,Thika is authorized to authority to carry out research on " ***Investigation on Effects of oil exploration on the Economy, Environment and Society of Turkana County***: ***A case of Lokichar, Ngamia 1"*** . The research period ends on 30th July, 2017.

Any assistance accorded to him will be appreciated.

S. IKUA,
COUNTY COMMISSIONER,
TURKANA COUNTY.

C.C. The County Director of Education,
TURKANA COUNTY.

PETER ELIM EPAGAN

REPUBLIC OF KENYA
MINISTRY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION.

Telegram 'ELIMU', Lodwar
Telephone'Lodwar'054 21076
Fax/No: 054 21076
Email: cdeturkana@education.go.ke
When replying please quote
REF: TUR/CDE/CIR/17/VOL.1/28

TURKANA COUNTY EDUCATION OFFICE,
P.O. BOX 16- 30500,
LODWAR.

05/09/2016

PETER ELIM EPAGAN
MOUNT KENYA UNIVERSITY
P.O BOX 342-01000
THIKA.

RE: RESEARCH AUTHORIZATION.

Following your application dated **5th September 2016**, you are hereby authorized to to carry out research on " ***Investigation on Effects of oil exploration on the Economy, Environment and Society of Turkana County: A case of Lakichar, Ngamia 1."***

Am pleased to inform you that you are permitted to undertake your research in **Turkana County** for a period ending **30th July 2017.**

COUNTY DIRECTOR OF EDUCATION
TURKANA COUNTY
05 SEP 2016
P.O. BOX 16, LODWAR

SIFUNA N. M
COUNTY DIRECTOR OF EDUCATION
TURKANA COUNTY.

APPENDIX VI: NGAMIA 1 OIL RIG IN LOKICHAR, TURKANA