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IMPLICATIONS OF PETROLEUM DEVELOPMENTS AS DRIVERS OF LAND USE CHANGE IN THE ALBERTINE GRABEN
A CASE STUDY ON THE PERCEPTIONS IN HOIMA AND BULIISA DISTRICTS, UGANDA

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A DISSERTATION SUBMITTED TO THE DEPARTMENT OF NATURAL RESOURCES ECONOMICS, FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES IN PARTIAL FULFILLMENT OF A REQUIREMENT FOR RESEARCH FOR THE AWARD OF THE DEGREE OF MASTERS OF SCIENCE IN CLIMATE CHANGE AND DISASTER MANAGEMENT OF BUSITEMA UNIVERSITY.

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DECLARATION

I, Khanzila Proscovia, declare that this dissertation is my original work done within the period of registration and that it has neither been submitted nor being concurrently submitted for a degree award in any other institution.

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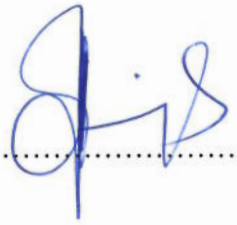
APPROVAL

This is to confirm that this dissertation is original and has entirely been the efforts of Khanzila Proscovia. She has therefore submitted it in partial fulfillment as one of the requirements for the award of the degree of Master of Science in climate change and disaster management of Busitema University with our approval.

Signature ..... 

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DEDICATION

I dedicate this dissertation to God Almighty, my parents Edward and Jane Masawi Khisa, siblings Joy, Gerald, Barbra, Titus, Patience, Brenda and Peace, relatives, Friends, and well-wishers.

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LIST OF ACRONYMS

DSOER	-	District State of Environment Report
DDP	-	District Development Plans
EA	-	Exploration Area
SSIA	-	Environment Social Impact Assessment
EIA	-	Environment Impact Assessment
GIS	-	Geographical Information System
GPS	-	Global Positioning System
MFNP	-	Murchison Falls National Park
NEMA	-	National Environment Management Authority
MEMD	-	Ministry of Energy Mineral Development
NGOs	-	Non Government Organizations
SEA	-	Strategic Environment Assessment
Ha	-	Hectares
HDLG	-	Hoima District Local Government
BDLG	-	Buliisa District Local Government
EIN	-	Environment Information Network
UBOS	-	Uganda Bureau of Statistics
MLHUD	-	Ministry of Lands Housing and Urban Development
NFA	-	National Forestry Authority
E and P	-	Exploration and Production
CPF	-	Central Processing Facility
WCS	-	Wildlife Conservation Society
WWF	-	World Wildlife Fund

ABSTRACT

Land is an essential natural resource, both for the survival and prosperity of humanity, and for the maintenance of all terrestrial ecosystems. Over millennia, people have become progressively more expert in exploiting land resources for their own ends. Land has gone through trends in its development and for Uganda has been from customary to freehold and leasehold. With the invent of petroleum exploration activities since early 2000 demonstrating that the Albertine Graben is endowed with oil and gas resources that have the potential for commercial development. The Government of Uganda plans to exploit these resources so that the generated income will contribute to early achievement of poverty eradication and create lasting value to the society as stated in the National Oil and Gas Policy.

The study was carried out in Buliisa and Hoima Districts of Albertine Graben to assess the implications of petroleum developments on land use change with the perceptions of the communities in Hoima and Buliisa. Satellite images and Key informant interviews were used to collect data. Data were analyzed using Geographical Information System software, Excel to get the trends between the years 2002 – 2016. The year 2002 was used as a base year when petroleum developments activities were still on surveys while 2008 was when developments were at the peak and 2016 waiting on production. In tracing the traditional trends of land use changes, the key informants mentioned, 2002 to 2016 as periods which had severe land use changes resulting into infrastructure developments (roads, schools, hospitals, work camps), growth centres, migrations (population increase), resources degradation, extension into unused land and increase of area under crop cultivation were the main proximate causes of land use changes. There were also land use change effects on environment and forest production including increased vegetation clearance and reduced forest size.

Research findings suggest that there are trends in land use change mainly attributed to petroleum developments in the study area. However, majority of the respondents (83.3%) reported minimal impact because the activities of petroleum are still in the early stages citing serious impact when production starts. The research therefore, recommends the use of the regulatory framework by the Ugandan government and incorporate an environmental management system which involves the assessment and control of risks and the creation of an in-built system of maintenance and review.

Key words: Land use, Land use change, Buliisa, Hoima, Albertine, Drivers, Implications, Petroleum Developments

CHAPTER ONE: INTRODUCTION

1.1 Background

The African Union's perspective is that agriculture and land are central in the social and economic development of the continent and that rights to land are fundamental for the participation of all people of society in the development process. Africa's development remains dependent on agriculture and exploitation of natural resources, yet agriculture and livestock production is largely carried out by smallholder farmers under increasing pressure of scarce land resources managed under unsecured customary land ownership (African Union, 2006)

Land and land resources constitute the most important natural resources in Uganda with its people mostly depending on them for sustainability and survival; therefore, land and its resources make Uganda habitable (MLHUD, 2006). Uganda has a total surface area of about 241,500 km^2 of which 194,000 $km^{2's}$ land, and the rest open water and wetlands, however, it is one of the least urbanized in Africa. Close to 88% of Ugandans live in rural areas and are pastoralists or practice subsistence agriculture. Agriculture is the dominant form of land use in the country.

Uganda discovered commercially viable oil and gas deposits in the Albertine Graben. Efforts have been done on establishing effective management procedures to promote the growth and development of the Oil and Gas sector (NEMA, 2010). Petroleum development is one of the land use changes that can happen to an area due to its value as a transportable, high-energy source powering majority of the vehicles and also been a base of many industrial chemicals makes it one of the world's most important commodities.

The Albertine graben covers 25 districts (Adjumani, Yumbe, Nebbi, Nwoya, Buliisa,Masindi, Arua, Amuru, Kiryandongo, Hoima, Kibaale, Ntoroko, Kyenjojo, Kabarole, Bundibugyo, Kamwenge,Kasese, Kanungu, Ibanda, Buhweju, Bushenyi, Rubirizi, Mitooma and Rukungiri). The Albertine Graben stretches from Moyo district in northern Uganda to Kanungu District in south western Uganda within the East African Rift Valley. The Graben is about 500km long and with an average width of 45km of which 19% is covered by water bodies. This area has been identified as the most prospective sedimentary basin for oil and gas resources in Uganda.

The Albertine Graben covers a total land area of 6,788,616 ha. Out of this, 5,369,164 ha (79.1%) is under agriculture, settlement and other miscellaneous land uses. The remaining 1,419,452 ha (20%) are

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