PROJECTED IMPACTS OF PETROLEUM PROCCESING ON THE SURROUNDING COMMUNITIES A CASE STUDY OF KABAALE PARISH BUSERUKA SUB-COUNTY, HOIMA DISTRICT.

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A RESEARCH REPORT SUBMITED TO THE SCHOOL OF ENGINEERING AND APPLIED SCIENCES IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE OF A BACHELOR OF SCIENCE IN ENVIRONMENTAL MANAGEMENT OF KAMPALA INTERNATIONAL UNIVERSITY.

AUGUST, 2015.

DECLARATION

I Kusiima Catherine, declare that this report is my original work except where references have been made, and has never been submitted for a degree award to this university, or any other university or institution of higher learning that I am knowledgeable of.

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APPROVAL

I supervised Kusiima Catherine throughout the process of compiling this report and therefore it's ready for submission to the University Examiners.

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AIDS	Acquired Immune Deficiency Syndrome
CPA	Comprehensive Peace Agreement
CSOs	Civil Society Organizations
GDP	Gross Domestic Product
HIV	Human Immune Virus
ILO	International Labor Organization
MEMD	Ministry of Energy and Mineral Development
NACCIMA	Nigerian Association of Chambers of Commerce, Industry, Mines and Agriculture
NEPDG	National Energy Policy Development Group
OPEC	Organization of Petroleum Exporting Countries
RAP	Resettlement Action Plan
SSA	Sub-Saharan Africa
UAIS	Uganda Aids Indicator Survey
UBOS	Uganda Bureau of Statistics

ABSTRACT

The study was to explore the impacts of petroleum processing and its projected impacts on the surrounding communities. A case study of Kabaale Parish Buseruka Sub-County, Hoima District. The study considered the specific objectives namely; to assess the extent to which the proposed petroleum refinery project has affected the communities of Buseruka sub-county, to find out the perception communities of Kabaale parish have on petroleum processing project and to examine the projected impacts of petroleum processing on the surrounding environment of Buseruka sub-county. The researcher used both quantitative and qualitative design.

Qualitative design of data collection where the population was comprised of 80 respondents and a sample of 55 respondents which comprised of 50 community members, 4 local leaders with in the villages and 1 sub county chief.

This study was undertaken to primarily assess the impacts of the proposed refinery project on the surrounding communities. It was also intended to find out the perceptions of the local communities on the petroleum processing project in terms of land matters and business and employment opportunities. Furthermore the objective for the study included the need to examine the projected impacts of petroleum processing on the surrounding environment in the Albertine region. Findings for these objectives were obtained through administering a questionnaire to the sampled members of the community in the Buseruka sub-county. Interviews were also held with key informants who were believed to have unique insights into the proposed project. A number of local and international documents were also reviewed to supplement information obtained from interviews and the survey method.

The researcher recommended that Government should create an administrative procedure or institutional framework for these actors to obtain accurate information and respond constructively, All stakeholders should think ahead of times and plan for the health sector in the region due to the anticipated health challenges to emerge from this growing industry, CSOs need to be empowered and ought to have up-to-date information for their advocacy work. They need to be equipped and must have staffs that have vast knowledge and skills on petroleum processing activities. Such CSOs need to use a network approach as opposed to working as individual CSOs if they are to create a significant impact. This approach needs to be adopted by all other stakeholders' including religious and cultural institutions in the area.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter includes the background of the study topic, statement of the problem, objectives, research questions, scope of the study, significance of the study, definition of key words and conceptual framework.

1.1 Background of the study topic

Petroleum is naturally occurring liquid oil normally in deposits beneath the surface of the earth. It is a type of oil composed of rock minerals, making it different from other kinds of oil that comes from the plants and animals. It is an organic compound, formed from the remains of microorganisms living millions of years ago.

The term oil, crude oil and petroleum generally mean the same thing and are often used interchangeably (Mayer, 2001). Although much of the world depends on the production of fuel to its economies, either the activity can cause severe damage to the environment knowingly or unintentionally, oil processing can disrupt human population, animals and fish life of the region.

In Saudi Arabia, oil provides significant benefits to society. Oil serves a wide diversity of purpose which include; transportation, heating, electricity and industrial applications and is an input over 2000 and products. The oil industry was phenomenally profitable for some corporations and governments. Taxes from oil are a major source of income for some governments. Petroleum was the largest single item in the balance of payments and exchanges between nations and a major factor in local level politics regarding development, jobs, health and environment. Oil is crucial national economic viability accounting for upwards of the total national exports. As the International Labor Organization (ILO) notes the oil industry directly employed more than two million workers in the production and refinery. The ILO further estimates that each job in oil production or refinery generates one to four indirect jobs. Oil also created significant and varied negative impacts and costs to human health, cultures and the environment. Thus, it was critical to evaluate the costs as well as the benefits of oil. Although the NEPDG report encourages more oil development and processing, it provided little information on the negative consequences of this processing. (Akpan, 2005)

Petroleum processing in Africa has had significant environmental and social impacts. Oil spills notably pose major direct risks to the environment and health while undermining fishing and farming livelihoods.

Nigeria, Oil resource had both positive contribution and negative contribution to the Nigerian socio-economic life of the people. Oil processing had over the past four decades had a ruinous impact on the physical environment of the oil bearing communities in Delta State, extremely threatening the subsistence peasant economy, the environment and the entire livelihood and basic survival of the people. Their vegetation had been damaged, the ecology distorted and depleted, their natural landscape; eroded and scarce and diseases appeared common. (Moesinger *at el.*, 2003)

The petroleum industry in Nigeria, Africa was the largest industry and main generator of GDP in the continent's most populous nation. In 2013, the Nigerian Association of Chambers of Commerce, Industry, Mines and Agriculture (NACCIMA) claimed that the oil sector of the country "is killing the economy". NACCIMA's Director General Dr. John said that the oil sector was affecting businesses in the country negatively by failing to add real value to them. (Adaramol, 2013)

Oil processing in Nigeria had led to severe environmental and human consequences for the indigenous people who inhabit the area surrounding the refinery. Indigenous groups were actually further impoverished due to environmental degradation from petroleum processing and lack of adequate regulations on multinational companies as they become more vulnerable to food shortages, health hazards, and loss of land, pollution, forced migration and unemployment. Pollution is caused by gas flaring; approximately 75% of gas produced is flared annually causing considerable ecological and physical damage to other resources such as land, water and vegetation. Gas flares, which are often situated close to villages, produce, soot which was deposited on building roofs of neighboring villages. Oil spills and dumping oil into waterways had been extensive, often poising drinking water and destroying. Oil processing operations contributed 21% of oil spills. (Nwankwo *at el.,* 2001)

Oil plays a vast and vital role in our society, as it is organized today .Oil represents much more than one of the main energy used by mankind. In 2006, a considerable amount of oil deposits, estimated at between 2 billion to 2.5 billion were discovered in Lake Albert and on the shores of the lake in Hoima District. Oil is potentially present in four basins in Uganda. The main focus of oil exploration was the Albertine Graben. Although Uganda's petroleum was first discovered in 1938, but it was in recent years that oil production has truly come into sight. Full-scale oil production was not expected to start until 2016 -2017 but oil was already central in the country's long term planning agenda. (Wass *at el.,* 2013)

The discovery of oil in Uganda has been one of the exciting breakthroughs over the last few years. To advance exploration and production, the government of Uganda decided to build a refinery in Kabaale parish Buseruka sub-county, Hoima District in west Uganda along the eastern shores of Lake Albert, near the international border with Democratic Republic of Congo. The Ministry of Energy and Mineral Development (MEMD) under the auspices of Petroleum Act started the process to develop the refinery through the acquisition of 29sq.km of land through implementation of a Resettlement Action Plan (RAP) by Strategic Friends International. However, this development had led to a number of human rights concerns, including the displacement and relocation of 7,118 people and the impacts of petroleum company activities on the environment especially since the Albertine Graben was an ecologically sensitive area with enormous amount of biodiversity. (Chris *at el.*, 2013)

The rates used for the valuation of the people's property in the refinery area were not communicated to them and even after the completion of the property valuation there was no feedback on the value of their property. So people had no idea how much money they were supposed to get. In addition, the compensation agreements were in English and there was no way to translate the content to them, the majority of the people could not read or write English. There were allegations that some women thought they had signed land use agreements, yet they were actually signing for compensation of destroyed crops while others signed without knowing what they were signing for. (Wass *at el.,* 2013)

1.2 Statement of the problem

Following the discovery of petroleum in Hoima District in 2006, there have been plans to construct a refinery in Kabaale parish Buseruka sub-county approximately 40kilometers (25mi) west of Hoima due to its centrality in relation to the entire Albertine Graben, approximate to the oil fields. Site selection and preparation of the petroleum refinery project as some of the stages have caused a greater impact to communities who lived on the land and those surrounding the project area. There was displacement of people from their land, land grabbing and illegitimate acquisition of titles by the officials who are non-indigenous in the area. However, the affected people were compensated by the government and had bought land and built in other areas, others opted for being relocated and were given hope. But the residents who opted for relocation remained uncertain as to when they will be removed. The government has delayed yet the people were stopped from farming and they were suffering with hunger. They are surrounded with bushes and wild animals. People are living in uncertainty and their lives have been disrupted. While the government and oil companies continue to carry out business in the region, the local stakeholders are hardly aware of the short and long term plans for the development of oil refinery. There was an outcry in the communities about injustices being committed by the government, oil companies and powerful individuals in and out of the government against the interest and livelihoods of the community members in the areas surrounding the refinery project, which is being prepared to be established in Bunyoro sub-region. The petroleum processing being prepared also is anticipated to have adverse impacts on the environment that would later affect the community surrounding the refinery and there might be direct impacts to the people. All this calls for deeper and more focused studies and inquiries so that appropriate interventions can be made.

1.3 Objective

1.3.1 Main objective

To explore the impacts of petroleum processing through research and reviewing of written documents about petroleum

1.3.2 Specific objectives

The specific objectives of the study included;

i. To assess the socio-economic impacts of the activities of the proposed petroleum refinery project on the communities of Buseruka sub-county
ii. To find out the perception communities of Kabaale parish have on petroleum processing project
iii. To examine the projected impacts of petroleum processing on the surrounding environmental resources of Buseruka sub-county

1.4 Research questions

The following were the research questions, which this study answered:

i. How is the communities affected by the proposed petroleum refinery project?
ii. What perception do communities of Kabaale parish have on petroleum processing project?
iii. What are the projected impacts of petroleum processing on the surrounding environmental resources of Buseruka sub-county?

1.5 Scope of the study

Concept Scope: The study was limited to the impacts of petroleum refinery project on the communities, the communities' perception on petroleum processing and projected impacts of petroleum processing on the surrounding environment of Buseruka sub-county.

Geographical Scope: This study was conducted in Kabaale parish, Buseruka sub-county in Hoima District.

Time Scope: The study was carried out within a time period of three months (from April-June 2015).

1.6 Significance of the study

The study will be of great importance to different groups of people and these are;

To the researcher;

- The study will help in getting knowledge about the present impacts of petroleum processing project and the future impacts of petroleum processing to the surrounding environment.

- The study will also enable the researcher to be awarded with Bachelors Degree of Science in Environment Management at Kampala International University.

To the future researchers;

- The study will provide up to date literature for future researches, academicians and other stakeholders.
- The study will be useful for other researchers and lecturers for future references.
- The study will provide the future researchers with the basis for comparing the present and future state of the communities living and the environment around the refinery area.

To the local communities;

- The study will create public awareness to the local communities about the impact of oil processing.
- The study will prepare the local communities overcome the impacts of petroleum processing through the possible solutions which will be given in the recommendations.

To the government and development agents;

- These will be informed about people's challenges of petroleum refinery project.
- The study will reveal the fears that people have as far as petroleum processing is concerned.
- The study will result in facilitation to formulate strategies and actions to address the communities' issue.

1.7 Definition of the key terms

Impact

This means having a strong effect on someone or something.

Petroleum

According to Tyler and Miller (2004), petroleum is a thick liquid consisting of hundreds of combustible hydrocarbons (organic compounds made of hydrogen and carbon), along with small amounts of sulfur, oxygen and nitrogen impurities.

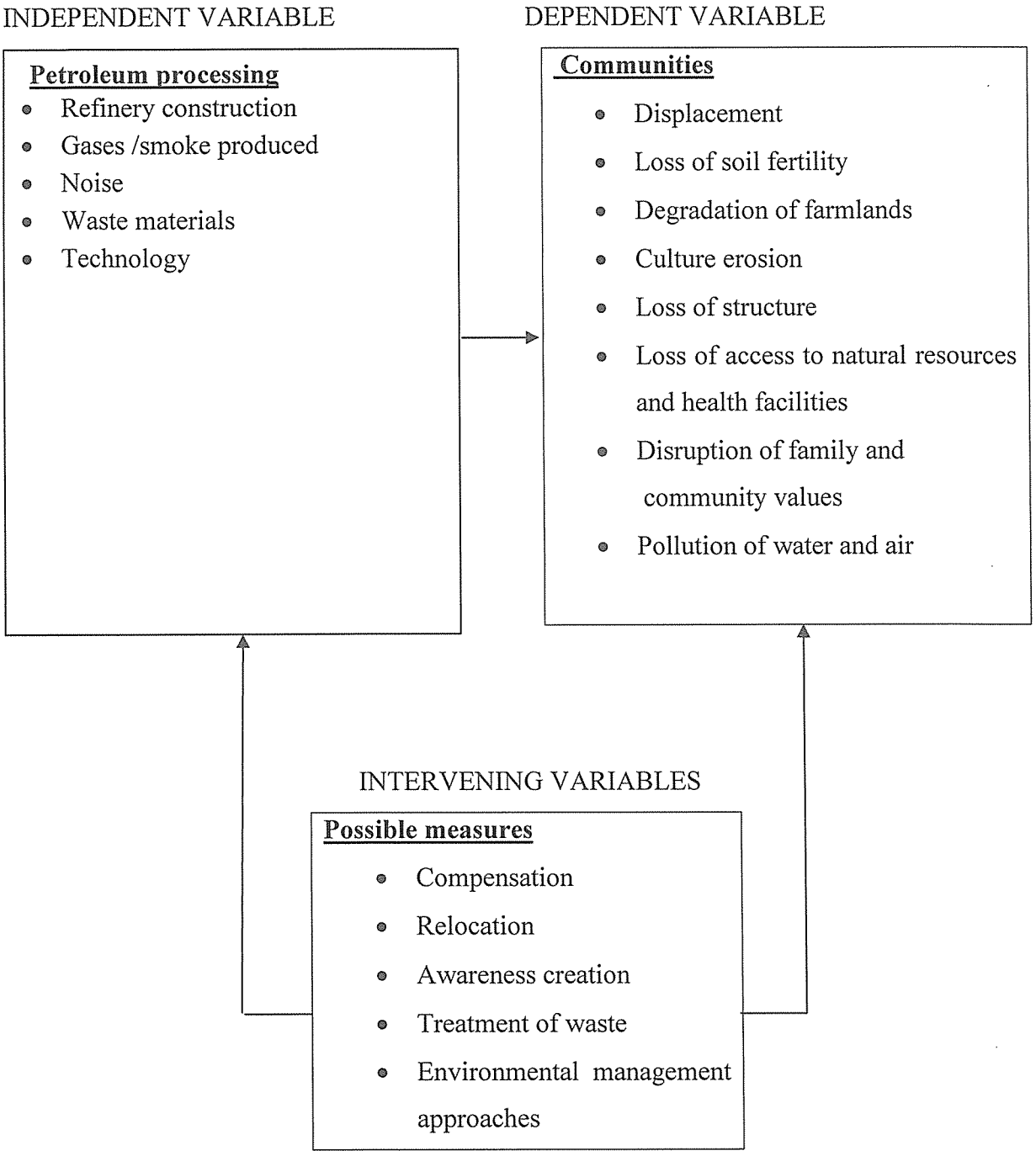
Petroleum processing

It is defined as the physical, thermal and chemical separation of crude oil into more useful products such as petroleum, naphtha, gasoline, diesel fuel, asphalt base, heating oil, kerosene and liquefied petroleum gas.

Refinery

Is an industrial process plant where crude oil is processed and refined into more useful products such as petroleum, naphtha, gasoline, diesel fuel, asphalt base, heating oil, kerosene and liquefied petroleum gas.(Leffler ,2005)

1.8 Conceptual framework



Petroleum processing (Independent variable) was caused by different factors such as refinery construction, gases /smoke produced, noise, waste materials and technology advancement. Communities (Dependent variable) is affected by the preparation of petroleum processing

through displacement, loss of soil fertility, degradation of farmlands, culture erosion, loss of structure, loss of access to natural resources and health facilities, disruption of family and community values, pollution of water and air. As a result, the communities affected are suffering with food shortage and water in the area, children are walking long distances to schools and others no longer go there. Some measures can be put in place to mitigate the effects of petroleum processing preparation like compensation, relocation, awareness creation on petroleum processing (benefits, the possible negative effects and the ways of being safe from them),treatment of waste and applying environmental management approaches when exact processing starts.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter provides a discussion of literature on the socio-economic impacts of the activities of the proposed petroleum refinery project, communities' perception on petroleum processing and the projected impacts of petroleum processing. It is necessary to review some existing literature on the aspects of the impact of oil exploitation as many works have been done by various scholars and experts in this topical area (Elvidge *et al.*, 2009). The quality of the environment is critical to the survival and sustenance of human existence in particular and animals and plants in general.

2.1 Socio-economic impacts of the activities of the proposed petroleum refinery project

A World Development Report of the United Nations Conference on Trade and Development (UNCTAD) (2007:95) states that 'oil processing activities can have profound social and political impacts. They can have a positive effect on development by creating jobs, encouraging business and providing vital infrastructure for remote communities such as roads, electricity, education and health. This observation makes it imperative for communities and other stakeholders to be interested in activities of oil processing wherever this resource is discovered. Oil processing activities will always have positive benefits to some groups or sectors but will also have negative consequences particularly to the poor communities who cannot compete favorably due to their political and economic marginalization. The presence of substantial amounts of oil has been identified by many authors as a potentially mixed blessing for oil producing countries (World Bank 2006).In Uganda, there is no doubt that some infrastructure like the road network to Hoima was constructed partially due to the oil discovery in the Albertine region. However, the creation of jobs, promotion of business and improvements in social services like health and education as a result of oil processing activities are matters of contention.

One of the important impacts of the activities of oil processing project on communities is the cultural practices, specifically the ways in which otherwise being cultural practices might be

rendered problematic in the face of changes resulting from the oil industry. As many nationalities engaged in oil processing project activities enter a particular community, there is dilution of that community's cultural practices. A good case in point is the ways in which commercial sex work can increase with potentially more disastrous consequences like HIV/AIDS in such communities. Oil processing project activities also contribute to family breakages as women are attracted to men who have the capacity to meet their financial obligations particularly in the local communities. The activities often leads to a decline in farming/fishing as viable economic ventures thus increasing the propensity for women to choose commercial sex work for income generating purposes. In addition, the influx of foreign oil workers who are often paid large sums of money as expatriates makes the profession of commercial sex work potential more lucrative in such communities. As a Nigerian female activist put it, "See, in our (Ogoni) community we have girls, small girls from Lagos, Warri, Benin City, Enugu, Imo, Osun and other parts of Nigeria here every day and night running after the white men and staff of Chevron, they are doing prostitution..."(Turner and Brownhill 2005:174).

Dadiowei (2003) has also indicated that Gbaran communities are confronted with an increase in the number often age mothers with father less babies. While this generation has witnessed the emergence of potentially deadly sexually transmitted infections such as HIV/AIDS, our women still have very little ability to negotiate after sexual practices (Adomako, 2006). Be it as commercial sex workers who are more at risk for sexually transmitted infections including HIV/AIDS or teenage mothers who are left to care for children all on their own, the destruction of the structures that provide livelihoods for women in oil producing communities puts an undue burden on women in these communities.

Besides the fact that women can lose livelihoods as a result of the execution of oil projects without necessarily being integrated into the formal sector, the environmental degradation, particularly the destruction of forest cover that often accompanies oil projects has serious implications for the availability of energy sources with which food can be cooked and lighting sources provided. In many African communities such as the Gbaran in Nigeria, Dadiowei (2003) indicates that the traditional division of labour places on rural women, the

responsibility for providing and managing natural energy sources required for the sustenance of the household.

Bina (2006) has long noted how village commons and forests in rural communities house a variety of resources that are crucial to the survival of rural households, particularly poor households. These include food, medicinal herbs, fodder, fiber and fuel wood. Therefore, environmental degradation in an effort to carry out oil activities places an extra burden on women, who have to continue to provide these energy sources inspite of the loss or the scarcity of these energy resources. Perhaps because women bear the brunt of the negative impact of the activities of oil discoveries, explorations and processing, they are at the fore front of the efforts to change the way soil companies operate in these communities.

The activities involved in petroleum processing disrupt the human population and the animals and life in the region. Oil waste dumping ,processing pollution and spills wreak havoc on the surrounding wildlife and habitat .they threaten the extinction of several plants and has already harmed land ,air ,sea animals and plant species.(Dabbs ,2006)

In Ecuador, the construction of oil road that opened more than 2.5 million acres of the forest colonization .As a result, Ecuador's rainforest are being cut down by the oil companies and settlers at the rate of 340,000 hectares a year. This has created numerous environmental problems of all types in the Amazon region. The Amazon basin in Ecuador has the greatest plant species of any South American country, also the Sierra highlands have been almost completely deforested. (Angela *et al.*, 2007)

2.2 Communities perception on petroleum processing project

Bloomfield (2008), while finding out the people's perception on oil processing on job creation in Nigeria noted that jobs in the oil industry mostly went to well-paid expatriates and Nigerians from less marginalized parts of the country and those residents closest to the oil industry got casual jobs which came when there was the need to clean oil spills or pipeline bursts. Women, as Ikelegbe (2005:200) notes, are the least to gain employment in these oil companies even on these occasions. This is partly due to the social discrimination which has always had its origins in the cultural domains of different societies. Although the UNCTAD(2007) report did not give any

sense of how many men/women constituted the5% of the Bagyeli who got jobs from the oil project, Dadiowei (2003) makes it clear to us that women were the last to benefit from any 'leftover' trickling down effect of oil processing in the Gbaran community. This conclusion would apply in almost all African contexts-Uganda inclusive. Indeed, insights from Ross (2008) who contends that oil producing economies in general have a poor record of incorporating women into the formal labour force offer an important template for our conclusion.

According to a qualitative baseline assessment in South Sudan in 2014 commissioned by Cordaid, through a participatory perceptions are shaped by the kind of information people have access to as well as people's past experiences and interaction with the oil sector. The perceptions are accepted that they are subjective; nevertheless, for communities these perceptions are their reality or at least it is the way communities see the oil business. The people feel that the losses and problems caused by the processing of oil far outweigh the benefits. People do not have access to accurate information about the oil business, which has led to conjecture and rumors becoming widespread in the county. People are also frustrated because they cannot make their voices heard and their complaints go unheeded.

According to Lawrence Bategeka *at el.*, 2014, people's perceptions exist in two distinctive forms the positive and the negative. In the case of oil discovery and processing, the positive perceptions are really hopes that the precious resource and the associated 'windfall' revenues will deliver substantial social, economic and infrastructural improvements.

2.3 Impacts of petroleum processing on the surrounding environmental resources

Environment could be treated within the frame work of natural human surrounding and activities, which include biophysical components and processes of natural environment of land, water and air. It also includes all layers in the atmosphere, inorganic and organic matters (both Living and non-living), socio- economic components and processes of the human environment. These components and processes include social, economic, technological, administrative, cultural, historical, archaeological components and processes. Land and associated resources, structures, sites, human health, nutrition and safety are also inclusive (Emmanuel and Alakinde, 2006).

The oil industry, especially the processing of petroleum, has destructive environmental impacts or what Watts (2001) refers to as engendering ecological violence. Petroleum processing involves several environmental pollution processes (Sebastian *et al.*, 2001). A UNCTAD (2007) report indicates that petroleum processing impact on the environment in many negative ways by exposing it to oil leakages and spills, gas flaring, and deforestation as a result of the processing and creation of access routes to new areas. Gas flaring without temperature or emissions control pollutes the air (Hurtig and Sebastian 2002) and releases unacceptably high levels of carbon dioxide into the atmosphere (US Non-Governmental Delegation to the Niger Delta 1999). In Ogonil and for example, two independent studies have revealed that total petroleum hydrocarbons in the streams located there are between 360 and 680 times the European Community permissible levels (Watts 2001: 196). Oil spillages are also quite frequent in petroleum processing areas in the global south. According to the UNCTAD (2007) report, between 2000 and 2004, there were as many as 5,400 officially recorded oil spillages in the Niger Delta alone. Further studies show that these spills are far more frequent in the global south than in the global north.

The government should mandate all the oil companies operating in there going to embark on the continuous provision of infrastructure (such as water, good roads, electricity, health facilities, schools, markets, and other) for the host communities.

Compulsory life insurance schemes must be put in place for the inhabitants of the proposed oil processing areas in addition to the provision of adequate and immediate compensation and clean-up of spills. Collier and Hoefller (2000) have extended the resource-curse thesis by arguing that natural resources do not only pose challenges to the economy of a state, but also have a tendency to generate civil conflict. In their analysis of 73 civil conflicts that occurred between 1965 and 1999, they argued that the most powerful explanatory factor for these conflicts was the fact that they occurred in states that derived a significant amount of its GDP from the export of primary commodities. Collier (2007) has gone onto argue that having abundant natural resources is therefore one off our traps that a poor country might find itself in. All in all then, the mere discovery of oil and gas and development of the petroleum refinery should not cause celebration.

A study conducted in Warri Township, Nigeria, environmental resources were believed to be partially and totally damaged suggesting that the degree of pollution was high. Furthermore, 26.4% and 74.5% of the respondents believed that water pollution leads to loss of aquatic lives and reduction of potable water. Cough diseases was believed to be really affecting the entire people of the area as 19.7% and 44.7% of the total respondents agreed that water pollution and air pollution oil processing respectively caused the diseases (Ordinioha.B *at el.*,2013). In the disaster pollution from oil about 180 people died while 300 people contacted various illnesses through drinking polluted water and eating contaminated food in the affected areas (Nwilo and Badejo, 2005).

In the Exxon Valdez (Mayer 2011), the oil spill killed hundreds of marine mammals and thousands of birds in Prince William Sound. Some species were affected more than others. Estimates of wildlife killed include;250,000 sea birds,2,800 sea otters,250 bald eagles,300 harbor seals,200 harlequin ducks and possibly 13 orca whales. Following an oil spill, the native Alaskans were unsure whether their fish, shellfish and wildlife harvest were safe to eat and this forced them to suspend their substance harvest in the Gulf of Alaska because they feared adverse health effects from oil contamination. Commercial fishers suffered losses, before the spill, they could get $2.40 pound for sockeye salmon, afterwards, they got only 70 cents of pound.

Ogoigbe's (2012) report also revealed that 64 Itsekiri Communities in Warri South West and Warri North Local Government Areas of Delta State were affected by a devastating oil spill, on 20th December 2011. They claimed has disturbed their fishing and economic activities as oil spill flowed to their village fishing areas disturbing fishing activities, staining their fishing materials, vegetation, and killing aquatic lives.

The World Bank (1995) shows that gas flaring has been known to be the singular highest contributor of global warming. In the same vein, Orubu (1999) adds that greenhouse gases such as carbon dioxide emitted from gas flares contribute to global warming which could lead to arise in sea level, accelerate the problem of climate change and harsh living conditions on earth if not checked. It also has negative effects on the immediate environment as it adversely affects plant growth, wildlife and human beings. It has been estimated that the total emission of carbon dioxide from gas flaring in Nigeria amounts to 35 million tons per year and it is on record that

Nigeria flares the highest amount of gas in the world (World Bank, 1995, 2000/2001). The percentage of gas flared in Nigeria is three times the OPEC average, is about 16 times the world average (Ajayi *at el.*, 2005).

According to Wass and Chris (2013), oil processing will inevitably have a profound impact on livelihoods in Uganda as the section covering economic impacts. It will therefore be impossible for Uganda's economy, both informal and organized, not to be heavily impacted by the emerging oil sector. Some of these, like agriculture, may be affected by economic shift, whereas others such as fishing and tourism may be affected by the physical presence of petroleum processing. Other livelihoods and community dimensions that are likely to be impacted include; livestock rearing strategies, hunting and ecotourism. 22% of the communities around the Albertine Graben whose livelihood will be affected earn less than UGX 50,000 per month (about USD 20). Fishing communities are another group who could be affected.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the study area and what the researcher did in order to collect data while conducting this study .The chapter gives the location of the study area, study population, sample size, sampling procedure, research design and methods of data collection and analysis.

3.1 Description of the study area

Location

Hoima District is located in Western Uganda within the Albertine Graben .Like many other Ugandan districts, it is named after its main municipal center. Its bordered by Buliisa District to the north, Masindi District to the northeast, Kyankwanzi District in east, Kibaale to the south, Ntoroko District to the southwest and Democratic Republic of Congo across lake Albert to the west. The district headquarters are located approximately 230 kilometers (140mi) by road, northwest of Kampala, the capital of Uganda and the largest city in the country. The coordinates of the district are: 0124N, 3118E.

Population

According to the 2002 national census, that year estimated the population of the district at about 27,930. In 2010, the Uganda Bureau of Statistics (UBOS) estimated the population of the town at 40,600. On 27 August 2014, the national census put Hoima's population at 100,625.

Economic activity

Agriculture with emphasis on food crops is the backbone of the district economy. Crops grown include; Sorghum, maize, peas, groundnuts, sunflower, sweet potatoes, beans, cabbage, tomatoes, onions, and other cash crops such as tea, coffee and tobacco. Fishing on Lake Albert employs several hundred people .They recent discovery of petroleum in the district is increasingly many attracting people from the district in the activities that the industry entails.

Water bodies

There is Lake Albert in Hoima district which is the border between Democratic Republic of Congo and Uganda. It is in the northern most of the chain of lakes in the Albertine Rift, the western branch of the Eastern African Rift. River Muzizi also forms a border between Hoima District and Ntoroko District, close to the southern shores of Lake Albert in Western Uganda.

Climate and Vegetation

Hoima District has a humid climate .The climate is tropical savanna (winter dry season), with a subtropical dry forest biozone. The land area is not cultivated; most of it is natural vegetation.

Soils

The soil in the area is high in ferralsols, acrisols, nitosols (fr), soil composed of kaolinite and quartz, enriched in fe and al oxides.

3.2 Research Design

In this study, the researcher used both quantitative and qualitative design. Qualitative design of data collection involved exploratory designs which included the review of literature and pilot studies. Under quantitative design, the researcher used frequencies and percentages in describing and summarizing the present data so as to make good conclusion.

3.3 Target population

The target population was communities surrounding the proposed area of the refinery project and the community leaders of Kabaale parish Buseruka sub-county, Hoima District.

The communities and their leaders helped the researcher in getting information on how they had been affected by the petroleum refinery project and their perception on petroleum processing. The population was comprised of 80 respondents.

3.4 Study Sample

This contains the sampling technique used and sample size that was selected for the study.

3.4.1 Sample size

The researcher obtained a sample of 55 respondents which comprised of 50 community members, 4 local leaders with in the villages and 1 sub county chief.

3.4.2 Sampling techniques

The researcher used stratified sampling method. In this method subjects were arranged according to their sub groups .Then the researcher selected participants (respondents) randomly from each group. For example members were grouped according to age and gender because they were affected differently by the refinery project.

Also a non-probabilistic sampling technique where the chance of being selected into the sample is subjective was used. These techniques included;

Convenience Sampling

This is where the selection of units from the population was based on easy availability and accessibility.

3.5 Sources of Data

Data was obtained from both primary and secondary sources.

3.5.1 Primary data

Sources of primary data included interviews, observation, questionnaires and others.

3.5.2 Secondary data

This form of data was obtained through reviewing literature and data sources that has been collected for some other purposes other than the study at hand. Sources included Newspapers, journals, text books, reference books, internet and magazines.

3.6 Data Collection tools

The data collection tools the researcher used included the following;

3.6.1 Interview

This involved face to face interaction between the researcher and the respondent. An interview guide was formulated and questions put before the local leaders and community members in a logical order. The researcher's choice of this method was because it enabled the research to clarify certain questions, allowed the researcher to supplement her answers by recording her own observations, ensured that the responses were actually provided by the person intended and no questions were therefore skipped. It allowed evaluators to gain firsthand knowledge and establish a relationship with the respondents and finally enabled the researchers to obtain complete evidence that further enhanced data reliability.

3.6.2 Observation

This was used to collect primary data through viewing what exactly has happened on the ground; in terms of people being affected by the refinery project .It enabled the researcher to crosscheck for validity and accuracy of the information that had been gathered using other methods. It also enabled the researcher to obtain more direct answers by studying people's daily life and non-verbal expressions.

3.6.3 Questionnaire

The researcher also used questionnaires to collect data. Under this method, a set of pretested questions were prepared and given to respondent for answering. Closed and Open ended questions were designed to enable respondents to air out their problems and views freely. The researcher's choice of this method was because of its flexibility, cost effectiveness, time saving and convenience.

3.7 Validity and Reliability

The interview instrument and questionnaire were cross examined for approval by the research expert (academic supervisor), to ensure that the information they generated was appropriate and consistent. The researcher also analyzed the evidences collected and drawn conclusions from the evidence.

3.8 Ethical considerations

The researcher first obtained an introductory letter from the Department of Biological and Environmental Sciences, forwarded it to the local leaders of the area under study to seek permission to the respective places where the researcher got the data from. The researcher therefore, did not at any one moment interfere with the norms and cultural beliefs of the people under the area of study. This was intended to build the confidence in the respondents for purposes of getting accurate and rightful information about the research problem.

3.9 Data Analysis and Presentation

After data collection, the researcher analyzed raw data in order to get exact information and mathematical methods were used. The data was presented using tables, frequencies and percentages.

3.10 Limitations of the study

The validity of the research findings were affected by the following limitations as below;

- Inadequate finances which were of great importance to the researcher.
- Data gaps which made statistical computations difficult.
- Lack of cooperation from the respondents in data collection.
- Weather changes like rains also affected the quality and quantity of data that was collected.
- Respondents' bias in answering the questions in the questionnaires was also a big problem that the researcher faced.
- Limited time for the researcher to gather all the data.

CHAPTER FOUR

FINDINGS AND DATA ANALYSIS

4.0 Introduction

This chapter consists of findings and data analysis.

4.1 Background characteristics of Respondents

This section deals with the background characteristics of respondents. It covers the distribution of the respondents by gender, age, marital status and occupation. In terms of distribution of respondents, 34 (62%) were female compared to 21(38%) male.

The following table summarizes the findings from the sub county covered by the study;

Table 1.Respondent's distribution by gender

Gender	Frequency Distribution	Percentage
a. Male	21	38 %
b. Female	34	62 %

When the researcher disaggregated the analysis by gender to determine how many of the respondents were male and female respectively as such a strategy would enable get a feel of the implications of gender on responses pertaining to the matters petroleum processing. This goal was achieved through across-tabulation of the gender and respective items of the study variables. In terms of gender distribution it was generally found that from the four villages visited, 34 (62%) were females respondents while 21(38%) were male. This signifies that there was unequal number of both male and female respondents that participated in the study.

The study respondents also had varying levels of age distribution and the following table gives the summary of the findings;

Table 2.Age distribution of the study respondents

Age Category	Frequency	Percentage
a.Below15 yrs	5	9.1%
b.Between15-35 yrs	20	36.4%
c. Between36-50 yrs	17	30.9%
d. Above 50 yrs	13	23.6%

Petroleum processing activities will always have positive benefits to some groups or sectors but will also have negative consequences particularly to the poor communities who cannot compete favorably due to their political and economic marginalization. The presence of substantial amounts of oil has been identified by many authors as a potentially mixed blessing for oil producing countries (World Bank, 2006). According to the age distribution presented in table 2, the majority of the respondents (36.4%) in the study were aged between 15 and 35 years which reflect a likely high number of many jobless youth in the Albertine Region. This finding compares well with the national unemployment rates of the country where the majority of the youth completes their studies but cannot get employment. These were followed by respondents aged between 36-50 years of age (30.9%) and then those above 50 years (23.6%). Those who were below15 years of age (9.1%).

When the study respondents were analyzed based on different categories of occupation, the table gives the summary as follows;-

Table 3.Showing distribution of respondents by occupation category.

Respondent category	Frequency	Percentage
a. Farmers	20	36.4%
b. Fishermen/Women	15	27.3%
c. Traders/Service sector	12	21.8%
d. Craftsmen/Women	8	14.5%

As seen from the above table, the majority of the respondents in the study were farmers (36.4%) followed by fishermen/ women (27.3%) and traders (21.8%). Put otherwise, an overall majority of 63.7% fall under the primary sector (agriculture and fishing). Such categories of respondents often had different views on petroleum processing as they are likely to be affected differently. They also had different expectations from petroleum processing activities. The farmers for example had high expectations of market for their produce as they anticipate that the booming petroleum processing activities will employ people who will need to be fed. On the other hand, the traders of all types of merchandise had high expectations for increased business opportunities. In the next section, we present results on the socio-economic impacts of the activities of the proposed petroleum refinery project which are guided by the study as reflected in the objectives in chapter one. In the presentation, descriptive statistics as well as some qualitative data from interviews are presented. This process is supported by a discussion and careful comparison with the information in existing records.

4.2 Socio- economic impacts of the activities of the proposed petroleum refinery project

Table 4. Respondent's reaction on social and cultural issues

Item	Yes(Agreed)	No(Disagreed)	Not sure
1.destroyed archaeological resource with a recognized importance	45(81.8%)	7(12.7%)	3(5.5%)
2.created demand for additional housing	35(63.6%)	9(16.4%)	11(20.0%)
3.destroyed any human remains	40(72.7%)	10(18.2%)	5(9.1%)
4.Caused displacement of large population	55(100%)	0(0%)	0(0%)

Different social groups were affected differently by the activities of the proposed refinery project. The researcher asked respondents to indicate their opinions on whether the proposed project has destroyed archaeological resource such as the shrines with a recognized importance in preserving unique ethnic cultural values and analysis of the responses suggested that 45 (81 .8%) agreed that such a practice was being done by the time the study was

conducted, 7 (12.7%) disagreed and 3 (5.5%) were not sure. This high number of respondents agreed that the proposed project has destroyed archaeological resource with a recognized importance.

Respondents were also asked to comment on whether the proposed project has created demand for additional housing. On this subject, a significant number of respondents totaling 35(63.6%) agreed that the project has created demand for additional housing in the Albertine region. This is because of the increased the number of people who came in the area as workers and more are expected to come as the projects continue to operate. Others are needed to be offices of different of people who will be working in the refinery. There is also need of houses since the existing ones in the area are not on the modern standard more especially where the local people are operating their businesses from.

When respondents were asked to comment on whether the human remains were destroyed in the area as a result of project activities, 40(72.7%) respondents agreed on the statement while 10(18.2%) did not agree and 5(9.1%) were not sure. The big number of respondents agreed and this suggests that the human remains were destroyed in the area. The grave yards within the area were destructed and it was difficult for the affected people to relocate the graves of their dead people.

Findings from the members of the community, when asked to comment on whether the activities of the proposed project refinery caused displacement of large population from the project undertakings, 55(100%) agreed that people were displaced which created disputed in the proposed refinery area and most people were left suffering because they had no way to go.

Given the destruction the existing housing in the area caused by the preparation of the refinery project, this study explored views of the respondents on the matter. The analysis of the respondents that were covered is summarized as follows:

Table 5. Respondent's rating on the destruction of the existing housing

Item	Frequency Distribution	Percentage
A. Permanently destroyed the houses	42	76.4%
B. Partially destroyed the houses	10	18.2%
C. Has not destroy the houses	3	5.5%

The analysis confirms that from the sub county some existing houses in the area were destroyed when in preparation of the refinery project, 42 (76.4%) respondents commented that the houses were permanently destroyed while10 (18.2%) commented that the houses were partially destroyed. Some people are now living in grass thatched huts since they have no way to go and their houses were destroyed. People are now are few in the area as a result of their neighbors who accepted compensation left the area and now they are surrounded with bushes, wild animals and thieves attack them. The results confirm that the community members are living in uncertainty, their livelihood have been disrupted and in danger.

Effects of the proposed project on individuals

Most people in the planned refinery area were depending on agriculture; however the plan of constructing the petroleum refinery in Kabaale parish has affected the people who remained in the land on the promise of the government to be relocated, communities members said that the government stopped them from growing the crops in the area. Now hunger has set in, people are weakened by hunger and their children are suffering from malnutrition. Twenty four – years-old Monica Akello a resident of Nyahaira village and a mother to four depended on a 23 acre plot to cultivate cassava for home consumption and income generation .But she neglected the land since being told to stop planting. She is living by doing manual work but it is not easy.

Water is also a problem to the communities, they cannot access the water sources which seem to be near are within the demarcated area and are not allowed in and some of the boreholes they were getting water from broke down, their near source of water is a swamp. Animals also drink water from the same source, this is not safe and has put people's health at risk. One of

the children found collecting water from the swamp was quoted saying," The borehole near my home broke down, this is the only water which we can use at home."

Businessmen and women have gone way from Kabaale village in fear of losing all their money debts are piling up. They have no money to pay school fees or buy food, many of them are indebted to banks and have decided to hide away from the bank officials.

Children have drop out of school, community member said that children cannot go to school anymore because the roads and schools were closed. Grace Alora said," Nyamasoga is far for our children, Nyahaira and Kyapaloni schools were closed."

Another member said that she was left in the wilderness and she has nine years old child who goes in Nyamasoga and comes back home late because the school is far and fears the child's safety. However, as the hunger continues to affect the area, less than 20% the children are in school. Some dropped out of school because of fees problem since their parents were stopped from growing crops which was a source of income.

People's comments on how they were affected individually by the project indicates the suffering there in within the area. The situation is worrying when it comes to hunger, some members even cannot remember the times they have slept without eating. For the case of water scarcity, this has a big implication on the communities' health. This finding suggests a need for all stake holders to think a head of times and plan for the health sector in the region due to the anticipated health challenges to emerge from this growing industry. The findings on increased school dropouts shows that in the five years to come the area will have most of the people uneducated ,an observation that puts a serious long term effect on the economic well being of the communities given the critical role of education.

4.3 Communities perception on petroleum processing project

The communities' perception on petroleum processing project emphasized on land matters and on creation of business and employment opportunities.

Land is a resource that is highly valued by every community and is often a controversial policy area in all governments. There are divergent attachments indigenous rural communities

fix on their land as compared to their urban counter parts. In almost all parts of the world, indigenous communities are united by unique and all- important connections to their traditional lands.

Much more than just economic or geographic considerations, indigenous communities' relationships with their lands encompass spiritual and cosmological perspectives. Indigenous communities do not view land as a commodity available for sale or lease, but rather as a comprehensive system of resources to be utilized, respected, and maintained for future generations.

Indigenous conceptions of land, therefore, often do not connect with Western theories of property ownership, a reality which has caused considerable difficulties in the efforts of many communities store claim traditional land rights. Moreover, when a certain project need to be developed in line with any natural resource discovered in rural communities where there are such attachments coupled with different land tenure systems, policy makers have to be cautious in making decisions that pertain to land as it can be a potentially political issue.

Today indigenous communities often face in tense pressures for their lands and projects due to the discovery of natural resources, as populations expand and non-indigenous society continues its efforts to develop new economic frontiers. Mindful of indigenous rights at least in theory, governments have recently enacted important legal changes which recognize these communities' rights to land and project development. As a result, many indigenous communities enjoy the most secure land tenure and greatest control over project development of any time in recent memory. But problems and weaknesses remain in many parts of the region, as poor administration, ineffective enforcement, and a frequent lack of political will handicap meaningful recognition of indigenous land and development rights.

Uganda in general and more so in the Albertine region is not immune from these problems revolving around land. Recent press reports of land evictions in the Albertine region of communities where the petroleum refinery is to be constructed is one example of the potential sources of problems. Thus, in study, we sought the respondent's views using a set of questions on matters of land and the emerging findings are presented in table 6:-

Table 6.Community views on matters of land ownership

Items	Strongly	Agree	Disagree
1.There is a clear land ownership system	13(23.6%)	22(40.0%)	20(36.4%)
2. Land is owned by the community	8(14.5%)	9(16.4%)	38(69.1%)
3. Land is owned by individuals	40(72.7%)	12(21.8%)	3(5.5%)
4.The majority live on unregistered land	5(9.1%)	14(25.5%)	36(65.5%)
5. It is easy for me to acquire a land title	3(5.5%)	6(10.9%)	46(83.6%)
6.There are reported cases of land grabbing	43(78.2%)	10(18.2%)	2(3.6%)
7. Compensation guide lines were communicated	3(5.5%)	4(7.3%)	48 (87.3%)
8. Government surveyed the land	5(9.1%)	18(32.7%)	32(58.2%)
9. People discussed matters of land surveying	6(10.9%)	12(21.8%)	37(67.3%)
10.Government consulted to gain consensus	4(7.3%)	18(32.7%)	33(60%)

When respondents were asked to comment on whether there is a clear land ownership system in the area covered by the study, 13 (23.6%) strongly agreed, 22(40.0%) agreed compared to 20 (36.4%) who disagreed .This confirms the existence of mixed responses on the matters of land.

Asked on whether land is owned by the community, again there were mixed results as seen from the above table. While about 30% of the respondents believed that land was owned by the community, over 60% believed it was not owned by the community. This raises an idea of individual ownership of land. This is confirmed by responses to the statement that land is owned by individual where 40(72.7%) of the study respondents strongly agreed to the

statement and 12(21.8%) agreed; suggesting that about 93% of the study respondents believed land be longed to individual.

It is worth noting that the clarity on land tenure system remains hard in the area given that most respondents had mixed responses, there was no consensus on the dominant tenure between individual and community ownership. While the old generation believes land in the planned petroleum refinery is communally owned and needs to remain so, the young generation is less convinced and would prefer individual ownership. The findings indicate that majority of respondents believed in the idea that there were incidences of land grabbing as seen from the 43(78.2%) respondents who strongly agreed and10(18.2%) who agreed to the statement. During an interview with one of the aged male respondents confirmed that people had been denied their liberty to decide for themselves on how to live well on their land and those communities were not involved by government in discussing their compensation rates and procedures. He noted that some areas which formerly belonged to the communities have been restricted from accessibility by the same community.

In yet another interview, one respondent indicated that some individuals have claimed large chunks of land which formerly belonged to the community, and have either sold it or surveyed it with plans to sell it or own it for private gains. All the above findings confirm that the local communities have a poor perception on the ability of government to address their concerns.

Perception on creation of business and employment opportunities by petroleum processing project

In the researcher's study, respondents were asked to give their views on whether business and employment opportunities had so far been created as a result of the petroleum processing project activities. The analysis of the responses is summarized as follows

Table7.Showing respondent's perception on creation of business and employment opportunities by petroleum processing project

Item measures	Strongly agree	Agree	Disagree
1. We will have a big number of residents who will be unemployed	2(3.6%)	11(20.0%)	42(76.4%)
2. Our people will get business opportunities from the proposed project	1(1.8%)	9(16.4%)	45(81.8%)
3. Oil companies will prefer to employ local people	4(7.3%)	3(5.5%)	48(87.3%)
4. Local communities shall get high market for their food	1(1.8%)	11(20.0%)	43(782%)
5. Most business will be linked to petroleum processing	6(4.9%)	10(10.8%)	39(22.5%)
6. There are indicators that the businesses will be boosted by oil industry	4(7.3%)	7(12.7%)	44(80.0%)
7. Fishing will remain a booming business in the traditional areas	5(9.1%)	12(21.8%)	38(69.1%)
8. Quantity of fish will remain high even when the refinery project plan is passed	3(5.5%)	6(10.9%)	46(83.6%)

Table 7 summarizes respondent's opinions on creation of business opportunities and jobs as a result of the proposed petroleum project. The researcher first asked each of the respondents to indicate their views on whether they believed that they will have be a big number of residents who will be unemployed to which 13(23.6%) agreed and 42(76.4%) disagreed. Asked whether the people in the Albertine region will obtain business opportunities from the petroleum processing project activities, as seen in the above table 45(81.8%) disagreed suggesting that over 70% of the study respondents believe that petroleum processing project will not benefit the local communities.

Asked to indicated in their view whether oil companies will prefer to employ local people in petroleum processing project activities, the study found that 48(87.3%) disagreed compared to only 4(7.3%) that strongly agreed and 3(5.5%) that agreed. The local communities shall no obtain local markets for their goods as confirmed by 43(782%) of the respondents who

disagreed when this question was put to them. The findings overall indicate that petroleum processing project in the region will not translate into business opportunities but instead some businesses like fishing which are source of livelihood will be affected.

Asked further to indicate whether in their opinion the people will get any business opportunities as a result of the proposed project,44(80.0%) disagreed. The majority of members 48(87.3%) that responded to this statement disagreed that oil companies will employ local people in high paying jobs. This indicates that while petroleum processing project activities are taking place, the majority of beneficiaries are not the local residents. This could be attributed to two major factors namely (i) the local communities are less educated and do not have the technical expertise in the refinery project development given the recent discovery of this resource and (ii) there is a 'deliberate' move by the oil companies to deny the local people an opportunity to benefit. The first reason is more convincing given that it was found that the majority of respondents had low levels of academic qualifications which were not adequate to allow them participate in such high paying jobs if this finding was to be extrapolated to the entire population of the Albertine region. However, the findings from the people suggest that the majority believed that the petroleum processing project activities had huge business potentials which could be exploited.

This suggests a need to mobilize the communities around agreed business opportunities. Since findings from the people suggests that most business will not be linked to petroleum processing project activities, the leaders at local and community levels need to organize the local business communities around important business segments that have direct or indirect linkage to the petroleum processing.

Overall, the findings as presented above confirm the growing perception that the oil companies have not empowered the local communities in the region to support them in their business. This observation implies that more women are likely to be affected since in Uganda like other parts of Africa, women's livelihood revolves around the small business they do and agriculture.

Any negative effect on the sale of the small business and agricultural produce therefore has significant implications on the economic well-being of women compared to men.

4.4 Impacts of petroleum processing on the surrounding environmental resources

The researcher sought respondents' views on the projected impacts of petroleum processing activities in the Albertine region on the environment and the comments include; the majority of respondents believed that oil activities had not taken into much consideration the safety of aquatic species. Should this perception be emerge to be true in both the short and long term, the region will face a number of consequences in regard to the aquatic species. Environmental considerations should however not be concerned more with aquatic specifies at the expense of the people. All the findings suggest a need for government and do the irrelevant bodies including the oil companies to have concerns for the environment. This requires environmentally friendly strategies in the process of oil processing to avoid problems which are often associated with the oil processing activities. However, experience shows that the oil industry can cause pollution damage in ways other than oil spills. Oil companies make extensive use of chemicals and create many by-products as part of oil production. Unless oil companies devote substantial resources to properly dispose of these pollutants, the pollutants will severely impact Uganda's soil, air and water.

Table 8.showing respondents' comments on the impacts of petroleum processing on the surrounding environmental resources

Item measures	Frequency Distribution	Percentage
1.Potential risk of ground, surface and sub-surface water	10	18 %
2.Risk of site contamination from hazardous waste	8	15%
3.Effects on the fishery resource	15	27%
4. Effects on the mammals and reptiles	11	20%
5.Detoriation of air quality	4	7%
6.Risk of fire and explosions	7	13%

A study conducted shows that 18 % of the respondents believed that there will be potential risk of ground contamination and contamination of surface, and sub-surface water bodies during

operational activities (soil and groundwater) due to release gases for example CO_2, CO, oxides of sulphur and nitrogen, ammonia. These may arise from; Exhaust gases from the combustion of fuels to generate power, heat and steam.

Asked to comment on the risk of site contamination from hazardous waste and risk of contamination to water bodies and community drinking water, 15% of the respondents agreed saying that all these arise from hazardous waste produced such as tank bottom sludge composed of water residual product, sand, and scale rust, inorganic slats and additives, sludge from oil separations systems, pill cleanup material, contaminated equipment and protective clothing. Waste waters released by crude oil-processing and petrochemical industries are characterized by the presence of large quantities of crude oil products, polycyclic and aromatic hydrocarbons, phenols, metal derivatives, surface-active substances, sulfides, naphthylenic acids and other chemicals. Due to the ineffectiveness of purification systems, wastewaters may become seriously dangerous, leading to the accumulation of toxic products in the receiving water bodies with potentially serious consequences on the ecosystem.

When respondents asked to comment on the effects of petroleum processing to the fishery resource, 27% complained on the effects to be caused on the fisheries due the waste emission and oil spills. With regards to the offshore water, the oil affects the nutrient content of the water which thereby affects the feed of fishes and other organisms in the water. This occurred in Gambia and claimed lives of many fishes and gradually affected the fishery system since the river runs from the Atlantic coast in the west to the east, cutting the country into two halves and carrying a rich variety of fish. (Colley, 2015)

Furthermore, 20% of the respondents believed that the waste from the processing will affect the mammals and reptiles and are likely to contact pollution when surfacing to breath and eventually die. The most vulnerable water creatures are birds as their bodies are protected by the feathers. If the oil gets in contact with the feathers it will smother them and with time kill their value and finally attack their bodies. These birds will then find it difficult to fly neither breath thus endangering their lives. Our nature reserve plays a vital role and attracts tourist in the country. Research as shown that the Gambia was blessed with over 500 different species of birds and the country's abundance and diversity of birdlife was ranked as one of the highest in

the world. This had caught the attention of many tourists, but its value was diminished due to the oil spill disaster. (Colley, 2015)

Findings from the members of the community indicate that 7% of them commented on the detoriation of air quality which will be caused by gaseous emission to the atmosphere, the direct emissions from refining are the largest contributor to carbon dioxide emissions. It has been estimated that the total emission of carbon dioxide from gas flaring in Nigeria amounts to 35 million tons per year and it is on record that Nigeria flares the highest amount of gas in the world (World Bank, 1995, 2000/2001). The percentage of gas flared in Nigeria is three times the OPEC average, is about 16 times the world average (Ajayi *at el.*, 2005)

Also 13% of the respondents have fear on the risk of fire and explosions due to the flammable and combustible nature of petroleum products which may lead to death of the workers and people surrounding the refinery industry and also cause destruction of peoples' businesses and vegetation. Explosion and fire broke out at Caribbean Petroleum Refinery in October, 2009; it damaged homes and businesses over a mile from the facility. (Bayamon,2009).

Environmental considerations should however be concerned more with aquatic specifies at the expense of the people. All these findings suggest a need for government and other relevant bodies including the oil companies to have concerns for the environment. This requires environmentally friendly strategies in the process of petroleum processing to avoid problems which are often associated with the refinery industry.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The broad objective of this research was to explore the impacts of petroleum processing through research and reviewing of written documents about petroleum.

This study was under taken to primarily assess the impacts of the proposed refinery project on the surrounding communities. It was also intended to find out the perceptions of the local communities on the petroleum processing project in terms of land matters and business and employment opportunities. Furthermore the objective for the study included the need to examine the projected impacts of petroleum processing on the surrounding environment in the Albertine region. Findings for these objectives were obtained through administering a questionnaire to the sampled members of the community in the Buseruka sub-county. Interviews were also held with key informants who were believed to have unique insights in to the proposed project. A number of local and international documents were also reviewed to supplement information obtained from interviews and the survey method.

On the impacts of the proposed refinery project on the surrounding communities in the area, the study concludes that;

There was high number of respondents accepted that the proposed project has destroyed archaeological resource with a recognized importance. The big number of respondents agreed and this suggests that the human remains were destroyed in the area. Findings the from the members of the community on the displacement of large population from the project undertakings shows many people were displaced, this created disputes in the proposed refinery area.. Many existing houses in the area were permanently destroyed in the sub county when in preparation of the refinery project and some the houses were partially destroyed. Permanent destruction forced people to move away.

Water is also a problem to the communities, they cannot access the water sources which seem to be near are within the demarcated area and are not allowed. Businessmen and women have gone way from Kabaale village in fear of losing all their money debts are piling up. Children have drop out of school, the roads and schools were closed. However, as the hunger continues

to affect the area, less than 20% the children are in school. Some dropped out of school because of fees problem.

Land is indeed a resource that is highly valued by the community and is thus a controversial policy area for government. There are divergent attachments indigenous rural communities fix on their land as compared to their urban counterparts.

There have been cases of manipulation of the community by the rich and unfair judgment by the government. All the above findings confirm that the local communities have a poor perception on the ability of government to address their concerns.

While petroleum refinery activities are taking place, the majority of beneficiaries are not residents in Bunyoro Sub-region. Despite the huge business potentials of the industry, nothing substantive had been made to tap these unique opportunities. While lack of employment by the local communities could be attributed to lack of commitment by oil companies and government, the lack of educated people to take on jobs related to the industry was alarmingly clear from the findings. There is an urgent need to mobilize the communities around agreed up on business opportunities in the region. Findings from members suggests that most business will not be linked to petroleum processing activities and this gives the leaders at local and community levels a challenge to organize the local business communities around important business segments that have direct or indirect linkage to the petroleum processing . There is a growing perception that the oil companies have not empowered the local communities in the region to buy from their small business and agricultural produce from the planned petroleum processing areas, a problem that can be addressed by local leadership in the oil industry through passing appropriate bye laws that protect the local business and agricultural sectors. There is need for a form of protection that makes mandatory for the people engaged in the petroleum processing industry to use local materials and food where appropriately clear. These strategies must take primary interest in the plight of women and other marginalized groups in society. Any negative effect on the sale of the small business and agricultural produce therefore has significant implications on the economic well- being of women compared to men. In the Albertine region, there is a growing perception that the oil companies have not empowered the local communities in business and employment.

Petroleum processing project in the area has had some negative consequences especially on the fishing communities but also on the survival of aquatic specifies. The same industry has had implications on the social dynamics of the society and these implications are likely to increase unless government takes a proactive approach to addressing them in consultation with local stakeholders.

Potential risk of ground contamination and contamination of surface, and sub-surface water bodies, risk of site contamination from hazardous waste and risk of contamination to water bodies, wastewaters released by crude oil-processing and petrochemical industries, impact on fish resource, with regards to the offshore water, the oil affects the nutrient content of the water which thereby affects the feed of fishes and other organisms in the water, mammals and reptiles are likely to contact pollution when surfacing to breath and eventually die. Detoriation of air quality due to gaseous emission to the atmosphere, the direct emissions from refining are the largest contributor to carbon dioxide emissions. Risk of fire and explosions due to the flammable and combustible nature of petroleum products.

5.2 Recommendations

After close examination and analysis of the research findings, the following recommendations are suggested;

- Government should create an administrative procedure or institutional framework for these actors to obtain accurate information and respond constructively.
- All stakeholders should think a head of times and plan for the health sector in the region due to the anticipated health challenges to emerge from this growing industry.
- CSOs need to be empowered and ought to have up-to-date information for their advocacy work. They need to be equipped and must have staffs that have vast knowledge and skills on petroleum processing activities. Such CSOs need to use a network approach as opposed to working as individual CSOs if they are to create a significant impact. This approach needs to be adopted by all other stakeholders including religious and cultural institutions in the area.

- Environmental considerations should how ever be concerned more with aquatic specifies at the expense of the people.
- Oily water should be passed through appropriately selected and designed oil interceptor. Interceptors are only designed to remove some oils and fuels from water. They do not remove other pollutants, such as heavy fuel oils, chemicals or dust.
- A site management plan addressing drainage, water runoff and discharge requirements should be developed. The plan should also establish the procedure for seeking discharge consents from local authorities.
- Ensure adequate personnel training in oil spill prevention, containment, and response
- Site threat and vulnerability analysis should be undertaken and security countermeasures should be developed as part of site-risk-threat assessment.

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APPENDIX

APPENDIX 1: RESEARCH INSTRUMENTS

A. Questionnaire

I am Kusiima Catherine a student of Kampala International University perusing Bachelor of Science in Environmental Management conducting a research on "Projected impacts of petroleum processing on the surrounding communities of Kabaale parish Buseruka Sub-county, Hoima District."

Please feel free to answer the questions and make additional comments on your answer to any or all questions. The information collected will be used only for academic purpose and shall be treated with utmost confidentiality.

Instructions:

Name: ----------

Village: ----------

RESPONDENTS BACKGROUND.

Tick where applicable.

Section i: Socio-Demographic data

1. Gender

a. Male b. Female

2. Marital Status

a. Single b. Married

3. Age

a. Young (below 15 years) b. Youth (15-35 years) c. Adult (36-50 years) d. Elder (50 above)

4. Category respondents

a. Farmers (crop/livestock) b. Fishermen/women c. Traders sales/service sector

d. Craftsmen/Women

Section ii: Impacts of the proposed petroleum refinery on population, housing and culture

5. Has the proposed project destroyed an archaeological resource with a recognized importance in the area?

a.	Yes	
b.	No	
c.	Not sure	

6. Has the proposed project created demand for additional housing?

a.	Yes	
b.	No	
c.	Not sure	

7. Has the proposed project destroyed any human remains in the area?

a.	Yes	
b.	No	
c.	Not sure	

8. Has the proposed project displaced a large number of people?

a.	Yes	
b.	No	
c.	Not sure	

9. How has the proposed project altered the distribution of human population of an area?

A. People are densely populated in one area

B. People are sparsely populated in one area

C. Distribution not altered

10. How has the proposed project destroyed the existing housing?

A. Permanently destroyed the houses

B. Partially destroyed the houses

C. Has not destroy the house

SECTION B: COMMUNITY PERCEPTION ON LAND MATTERS

Give your objective opinion on each of the statements for example if you strongly agree with a statement tick in the box against it.

Items	Strongly agree	Agree	Disagree
1.There is a clear land ownership system			
2. Land is owned by the community			
3. Land is owned by individuals			
4.The majority live on unregistered land			
5. It is easy for me to acquire a land title			
6.There are reported case of land Grabbing			
7. Compensation guidelines were communicated			
8. Government surveyed the land			
9. People discussed matters of land Surveying			
10. Government consulted to gain Consensus			

SECTION C: BUSINESS AND EMPLOYMENT OPPORTUNITIES

Item measures	Strongly agree	Agree	Disagree
1. We will have a big number of residents who are unemployed			
2. Our people will get business opportunities from the proposed project			
3. Oil companies will prefer to employ local people			
4. Local communities shall get high market for their food			
5. Most business will be linked to petroleum processing			
6. There are indicators that the businesses will be boosted by oil industry			
7. Fishing will remain a booming business in the traditional areas			
8. Quantity of fish will remain high even when the refinery project plan is passed			

INTERVIEW GUIDE

Interview Guide for the key informants

Date: .....

1. Land ownership and management

   a) What are the key land issues in the community related to the emerging petroleum processing industry in this area?

   b) What has government done in addressing land issues in your community?

   c) What more would you want government to do in addressing the land issues in your community?

   d) What are the common legal land documents possessed by majority of the community members?

2. Employment and Business Opportunities

   a) Please comment on whether the oil companies are committed to obtaining agricultural supplies from this region ever since they started working here.

   b) Comment on the opportunities the oil sector has created for the local businesses in the region/area.

   c) How has the oil industry affected fishing industry on Lake Albert and what needs to be done?

   d) What would you expect the petroleum processing industry to contribute to the development of trade and commerce in this region (including agriculture?)

   e) Are the local people employed in the oil sector here?

   1. Yes 2. No

   If yes, what type of jobs are they employed for mostly?

   If no: why?

3. How has the proposed project affected you as an individual?
4. How will the petroleum processing project affect the environment?