THE EFFECTS OF REFUGEE SETTLEMENT ON WILDLIFE HABITATS

CASE STUDY: PAGIRINYA SETTLEMENT, ADJUMANI DISTRICT

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TUMUSIIME Paul
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Supervisor: Ika Lino

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Master's Dissertation

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Researcher's signature: _____

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Date of Submission: 16-10-2019

Submitted to: SPGS

DEDICATION

Dedicated to the following: my wife (Asiimwe Annet), my brother (Namara Wilson)

ACKNOWLEDGEMENTS

I owe special gratitude to the Almighty God for His wisdom and direction. I am very grateful to my supervisors, IKA LINO for the encouragement he gave me to ensure that this work is completed.

I am grateful to the refuges community and staff of Pagirinya settlement for allowing me to carry out my research. Your cooperation and openness has helped me reach this great academic achievement.

My sincere appreciation also goes to my family members who patiently accepted my preoccupation during the laborious period of research writing.

May the Almighty God reward them abundantly.

CONTENTS

ABBREVIATIONS AND ACRONYMS

AU	African Unity
DRC	Democratic Republic Of Congo
ID:	Identity Card
IDP	Internally Displaced People
LULC	Land-Use and Land Cover
LWF	Lutheran World Federation
NEMA	National Environment Authority
NFA	National Forestry Authority
OAU	Organization for African Union
UDHR	Universal Declaration of Human Rights,
UN	United Nations
UNEP	United Nations Environment Program
UNHCR	United Nations High Commissioner for Refugees

ABSTRACT

The growing burden of the refugee question facing Uganda is enormous, Uganda today has a refugee population of over 1.4 million refugees making Uganda the number one refugee hosting country in Africa and second in the world behind Turkey which hosts 3.5 million refugees (UNHCR 2018). Notwithstanding the diverse causes of the refugee crisis in great lakes region, the refugees have to be settled. Globally, the question of how and where the refugees settle is a pertinent one. With Ugandan government been praised by the international community for having a progressive open door policy to all refugees regardless their country of origin, there still remain questions how this impacts the environment, especially wildlife habitat with majority of the settlements seemly located in and around the game reserves.

Against this background, this study qualitatively explored the extent to which refugee settlement has affected wildlife habitat. Using interviews, observation, focus group discussion various data was gathered from purposively sampled population among which included the district environment officer, Uganda wildlife authority officers, local councilors and opinion leaders based on their expertise on the subject. While the study randomly sampled refuges representative, staff of NGO, members from local community with the view of giving all members equal chances for selected to participant in the study.

The Government of Uganda and all administrative levels starting from the LC1 to LC5 the results from this study indicate that lack of enough fire wood is the leading factor to the environmental distraction and cutting down of trees in and around the settlement. In addition, the establishment of Pagirinya refuges settlement has effected wildlife habitats in Adjumani District. Farming, hunting, grazing, tree cutting, setting of forest fire and encroachment to protected areas resulted into a decrease in wildlife populations and habitats.

All in all, working together as a team without leaving the burden to the government alone on how to rehabilitation the degraded areas, thorough environmental impact assessments. In nutshell involving key stakeholders starting from village level to national level, instead of leaving this activity to conservation to organizations that is; NGOs, UNHCR and central government alone. Further ecological studies should be undertaken in order to understand the importance of maintenance of vegetation cover in the environment. NFA, NEMA and all other agencies by working together to protect the environment and habitat for wildlife.

CHAPTER ONE
GENERAL INTRODUCTION

1.0 Introduction

The influx and presence of refugees can have harmful impacts on the wildlife habitats including deforestation; de-vegetation; erosion; the destruction, degradation and pollution of water sources and catchment areas; illegal poaching and fishing; and overgrazing (UNHCR, 2011). Despite this likely implication, many governments' settlement schemes are near national parks, game reserves. This means, the refugee settlements doesn't pose any threat to the wildlife and many other aspects of nature thus the continued settlements, this presuppositions direct consequence to the Habitat through increased motility (Benn and Herrero, 2002). On the other hand it is a worry especially from a conservation point of view or from the view point of sustainable development (Urteaga, 2011).

The social problems can arise from sustainable development. It was true that this development has to take place in a context of economic crisis that corresponds also to a crisis of the theories of development which turned in into the historical logic of the modern societies because of its indirect consequences, such as a shift in animal behaviors habitat selection (Harju et al., 2011; Latham et al., 2011) which can be environmentally unfriendly to both the animals and human settlement.

Furth more, practitioners have shown the importance of human settlement and how they interacted with environment and all the species that lived on it. There were also clear facts that the more the population the more the threat it will pose to the environment including biodiversity. Livestock and human settlement encroachment into protected areas and associated interactions with wildlife was a global issue with implications for sustainable development particularly in developing countries. For example, the changes in the northern Gonarezhou National Park (GNP) and Zimbabwe, as a result of the livestock and human settlement encroachments into the park in 2000 (Gandiwa, et al., 2011). But they showed a correlation to how natural increase balances these reality (ibid, 2011; Urteaga, 2011). Ultimately the answered question this study sought was how has an increase in population through refugee settlement

impact on the environment? This study took a depth discussion but with a focus on Refugee Settlement and Wildlife Habitats; particularly, how the continued settlement affects the wildlife Habitat.

This chapter covers the background to the study with specific look at some of the theoretical aspects, explaining how refugee's settlement affects the wild life habitats. It further looks at the purpose of the study, research questions, significance of the study, and the definition of some key concepts.

1. 1 Background of the study

Globally the Wildlife habitats was defined as the native environment of a wild animal which ideally provided all elements needed for life and growth; food, water, cover, and space. A Wildlife Conservation Union analysis of animal extinction since 1600 showed that loss of habitat ranks the second known cause of animal extinction to the introduced exotic species (IUCN, 2004).

Following the current loss of wildlife habitats particularly through destruction of the tropical forests, 10.0% of world's species could become extinct in the year 2000 and 25.0% by 2009, For example, the resulting rapid and uncontrolled deforestation had left the refugees area in Pakistan remaining with only 20.0% of the original forest cover (Crush, 2001). This clearly underscored the need to rethink our settlement plans and this could be achieved through providing empirical evidence of the implication of human activities on the environment. This is what this study explored, with reference to, UNHCR, (2011)prolonged presence of refugees can have negative impacts on the environment, including deforestation, de-destruction, degradation, pollution of water sources and catchment areas, illegal poaching and fishing, and overgrazing.

Establishment and maintenances of refugees' settlement had a serious impact on natural wildlife habitats because it contributed to wildlife habitat loss and disturbed the natural environment of the wild animals and plants. The presence of refugee settlements near protected areas disturbed the ecosystem by increasing the risk of transmitting diseases to wildlife (Kalpers, 2001). However, resettlement emerged as a solution for some of the 65 million people displaced both within and outside their countries of origin by World War II UNHCR (2000). While policies

addressing displacement originally focused on repatriating refugees to their origin countries, by the late 1940s it had become clear that many could not return home and the attention of the international community, led by the United States, turned to finding solutions elsewhere. In 1950, the United Nations High Commissioner for Refugees (UNHCR) was created to serve as a more permanent refuge agency.

Following the end of the Cold War, resettlement numbers initially declined before rebounding in recent years driven in part by new displacement crises in Iraq and Syria. Today, resettlement programs are growing in diversity: more countries participate in resettlement and they accept refugees from a greater variety of national and demographic backgrounds.

The number of refugees resettled had been trended upward. Between 2011 and 2015, the number of resettlement places globally rose by approximately 27,000 spots. Notable increases could be seen in 2004, when resettlement from Somalia, Sudan peaked in 2009 with the resettlement of Iraquis refugees due to conflicts in Syria and Iraq (UNHCR, 2017). Of the world's 15 million refugees, 107,051 were resettled (UNHCR, 2016). The number of countries participating in resettlement worldwide had also increased. By 2015, 28 countries reported resettling refugees, up. The elements of refugee's settlement include; Building materials, Agricultural activities, Poaching and Tree cutting.

At the onset of creation all creatures were living freely in the wild. Both flora and fauna were directly under the control of only nature without interference of man. A nation's system of protected areas was designed to suit its own resources and requirements for conserving the resources as a sustainable basis for human development. Conservation practices on natural resources were positive, embracing preservation, maintenance, sustainable, utilization, restoration and enhancement of the resources (IUCN, 1980).

Countries worldwide had designated some areas as protected areas resulting in many benefits. This included the central role they played in socio-economic development of local in habitats in surrounding rural areas. They contributed to the better lifestyle and standard of living of people. In national parks, game reserves and other protected areas unique natural resources (flora and fauna), sceneries and landscapes areas were protected, managed and regulated for human benefit from one generation to another. These protected areas are harboring outstanding natural

resources and scenic areas of national or international interest/important for scientific, educational and recreational uses. The elements of wildlife habitat include; forests or vegetation, water catchment areas and land or soil.

Refugees searching for safe heaven were seen to be a burden in the ecosystem in their country of asylum and complicate environmental decision-making. According to the United Nations High Commissioner for Refugees (UNHCR) the number of people forced to leave their home reached nearly 60 million in the second half of 2015. The reasons lie in natural disasters such as droughts, floods and land degradations caused by climatic changes as well as in social factors such as poverty, prosecution and armed conflicts (Lang, 2015). Often, refugees are forced to settle in resource-scarce areas, putting further pressure on trees, land, water, and wildlife.

Human evolution is fundamentally a story of human interactions with other wildlife. Our ability to survive in the face of competition from other species fueled the early stages of our eventual global domination as a "super predator" (Worm, 2015). Early hominids may have experienced selection for predator avoidance such as effective vigilance, social adaptations such as formation of small groups for protection, and intelligence to eventually develop technologies such as weapons to reduce the threat of predation (Treves, 2007). Modern vertebrates represent those that survived environmental changes and competition with early hominids (Treves, 2007).

Expansion of early human populations coincided with major changes in large vertebrate abundance. There is growing evidence that humans contributed to the extinction of large mammals during the late Pleistocene glacial period (110,000 to 11,650 years ago) (Surovell and Pelton, 2016), although the relative contributions of climate changes and human hunting to mega faunal extinctions continue to be debated (ibid, 2016).

Our earliest historical records document close interactions with wildlife. Early cave paintings on multiple continents showed people interacting with wildlife (Guthrie, 2005). Efforts to protect crops and fellow humans from wildlife are known from the earliest records in ancient civilizations of Egypt, the Indus River Valley, China, Greece, and in the Christian Bible (Conover, 2002). Records exist of elephant (*Elephas maximus*) crop raiding in Asia as early as 300 BC (Sukumar, 1989). The spread of agriculture led to new technologies such as poisons, repellents, and traps to reduce wildlife damage (Conover, 2002).

In modern times, governments developed laws and policies to address wildlife conflict. Laws were established as early as 1424 in Scotland to control bird damage, and some of the earliest laws passed in the new American colonies were bounties to eradicate wolves (*Canis lupus*), foxes (*Vulpes vulpes*), and birds (Conover, 2002). Kingdoms and colonial empires often supported predator eradication efforts because of the danger posed by wild animals. Tens of thousands of people have been reported killed and injured by tigers in Asia and countless tigers have been killed in retaliation (Nyhus and Tilson, 2010). Entire species had been vilified because of conflict with humans. In China, two millennia of tiger–human conflict resulted in an estimated 10,000 people killed or injured in four provinces of southern China, eventually leading to a "war on nature" by China's Chairman Mao Zedong and the eradication of almost all of China's tigers (Coggins, 2010).

Government support for control and eradication programs continued in many areas well into the twentieth century (Loveridge, et al.2010) and (Macdonald, et al. 2004), The "success" of eradication programs contributed to the extinction of three tiger subspecies and the near elimination of two others (Nyhus and Tilson, 2010). As well as the extinction of canid species such as the Falklands wolf (*Dusicyon australis*) (Macdonald, 2004). Other species such as coyotes (*Canis latrans*) and red foxes were more resilient, adapted better to human persecution, and expanded despite of these controlled efforts Macdonald, (Sillero-Zubiri, 2004).

Thus, a common theme from pre-history to modern history is that human populations evolved and expanded by competing effectively with wildlife for space and resources, eradicating or diminishing individual wildlife populations or entire species that posed the most serious threats, and trying to minimize threats and damage from those species that survived. In recent decades, this pattern had shifted as growing awareness about the value of biological diversity and the emergence of better information, tools, laws and institutions, and new values encouraged more creative ways to manage wildlife using a co-existence model and encouraging conservation of wildlife populations (Woodruff, 2005; Treves, 2003).

In Africa, like other parts of the world, wildlife conservation is experiencing a great challenge which is caused by an outbreak of refugees encroachments to wildlife protected areas. Refugees' activities involved cutting trees for firewood and clearing forests for cultivation. The wildlife

habitats of Lake Edward, Virunga National Park in the Albertine Rift Valley in the eastern part of DRC and Rwenzori Snow caped mountain were badly affected by refugees at a large scale (Kalpers, 2001). The civil wars in the Great lakes countries have produced a problem of refugees in protected areas (UNEP, 2005).

The larger number of refugees in a small area led to over harvesting of the available environmental resources leaving the ecosystem unproductive. From 1990 to 2005, approximately 35 000 ha of timber had been used to support officially recorded United Nations refugees in the Sub-Sahara region (Glew and Hudson, 2007).

The 1994 genocide war in Rwanda caused an influx of refugees who were resettled in refugee camps in Kigoma and Kagera regions whereby their resettlements were situated near protected areas (MNRT, 2006). The chimpanzees in Lilanshimba in Kigoma region are in eminent danger of extinction due to the Congolese refugees clearing their habitats (Ogawa et al., 2006). The decline in wildlife population, local extinction for some wild species and low productivity of ecosystems manifested the effect of habitat loss in Tanzania (Kidegesho and Maganga, 2000).

The main threats from refugee settlements regarding wildlife observed in western Tanzania included modification of the natural habitats by establishing larger settlements, agriculture development and poaching (UNEP, 2005). Mduma et al., (2003) reported that there was an encroachment in Biharamulo, Burigi and Kimisi Game Reserves whereby a camp of 540 000 refugees was established just two kilometres from the Burigi Game Reserve.

In Uganda, the forest cover across the country tremendously declined from 24% (4,933,271 hectares) of land the 1990 to less than the current 9% (1,956,664 hectares in 2018. Uganda has lost 3,000,000 hectares of forest cover in 25 years coursed by manmade or natural factors (NFA, 2018)

Pagirinya Refugees Settlement is a refugee's settlement in eastern Adjumani District in Northern Uganda. It is (as of October 2016) the most recent in Uganda's refugee settlements, launched in June 2016 after the Maaji Refugee Settlements reached capacity (UNHCR, 2016). Pagirinya settlement, stretches in grid formation over rolling hills around 25 kilometers south of the point where the White Nile separates Uganda from South Sudan. Living conditions within the

settlements are often characterized by limited resources resulting into heavy reliance on the environment.

Looking at the laws, policies and frameworks relating to the refugee settlement and wildlife habitats in Uganda, Uganda Refugee Policy, embodied in the 2006 Refugees Act and 2010 Refugees Regulations, has many impressive aspects to refugees whereby there is, Generously hosting refugees and asylum seekers from conflict affected neighborhood, including the Democratic Republic of Congo, Somalia, South Sudan, Rwanda, Eritrea, Burundi and other countries.

Uganda's open door policy to all asylum seekers irrespective of their nationality or ethnic affiliation and allowing them relative freedom of movement and the right to seek employment, Providing prima facie asylum for refugees of certain nationalities, and giving a piece of land to each refugee family for their own exclusive (agricultural) use among others continues to affect the wildlife habitat. The living conditions within the settlements are often characterized by limited resources resulting into heavy reliance on the environment as earlier mentioned above.

According to United Nations Universal Declaration of Human Rights (1948), Article 3, everyone has the right to life, liberty and security of person. Whereas, Uganda wildlife policy, (2014) also provides protection and framework within which all Government institutions, private sector, development partners, civil society and all other stakeholders in the wildlife conservation industry must operate in order to sustainably conserve and develop the wildlife resource base for national social-economic transformation. The Policy outlines Government commitment to mitigating human wildlife conflicts, eliminating illegal wildlife trade and trafficking, ensuring co exists with conservation and the community at large.

The physical removal of wildlife and or their products from their natural habitats as permitted under Wildlife Use Rights Regime, every wild plant or animal declared is protected by law to a person, community or organization to utilize wildlife in accordance with the law.

In reference to Uganda's, (1995) Constitution provides for state protection of important natural resources such as land, water, wetlands, minerals, fauna and flora on behalf of the people of Uganda.

Furthermore, APA Policy guide on endangered species and habitat protection which was adopted by the Chapter Delegate Assembly, April 25, 1999 highlighted Specific Policies in APA National and Chapters encourage all levels of government to incorporate natural community and biodiversity preservation into their planning process and utilize their authorities to protect these habitats where they exist to sustain natural processes and minimize the likelihood of species becoming extinct by maintain large contiguous areas of open space, rather than fragmented plots of land a case of Pagirinya settlement.

Policies in APA National and Chapters encourage more coordinate local habitat protection efforts throughout the region in which endangered species have been identified and restoration or creation of habitat should be a component of the protection plan although priority should be given to the protection of existing high quality habitat.

Uganda is ranked among the top ten most bio diverse countries globally with both animal and plant species. With a recorded 18,783 species of fauna and flora (NEMA, 2009), Uganda is host to 53.9% of the World's remaining population of mountain gorillas, 11% (1063 species) of the world's recorded species of birds (50% of Africa's bird species richness), 7.8% (345 species) of the Global Mammal Diversity (39% of Africa's Mammal Richness), 19% (86 species) of Africa's amphibian species richness and 14% (142 species) of Africa's reptile species richness, 1,249 recorded species of butterflies and 600 species of fish (NEMA, 2009).This show that in the presences of laws and policies in Uganda has not helped to conserve the environment and wild life. The overall aim for conserving wildlife is in line with this vision of the state as it is stated in the Uganda Wildlife Policy draft of 1999 which is to promote the long-term conservation of the country's wildlife and biodiversity in a cost effective manner that maximizes the benefits to the people of Uganda.

1.2 Problem Statement.

Rapid population growth plays a key role in declining per capita agricultural land, forest cover and water resources (Wanyonyi, 2019). Through land degradation and soil erosion fosters low productivity of natural resources (Zaman, Khan, Khan, Saleem & Nawaz, 2011). Uganda has in the recent experienced a high influx of refugees. For example, as of February 2019, Uganda is

the third largest refugee-hosting country in the world with a total of 1,223,003 refugees in Uganda with 4% living in Kampala, while the rest live in the settlements(UNHCR, 2019) which are located in rural areas. The practice in Uganda is that sometimes locals are required to surrender arable land for the construction of refugee settlement areas (UNPD, 2017; OPM, 2018) and this would mean materials such as poles for houses and latrines, firewood, medicine, thatching grasses and fodder have to be provided from the nearby forests leading to distraction of environment which is which is wild life habitat.

The Uganda's, (1995) Constitution provides for state protection of important natural resources such as land, water, wetlands, minerals, fauna and flora. Laws pertaining to refugee settlement subject to auspice of the constitution. Despite this, Pagirinya areas which were an area with natural vegetation that sustained the pastoral economy and supported wild life has turned it into refugee settlement. With a continuous concerns about the current loss of wildlife habitats particularly through destruction of the tropical forests at 10.0% of world's species became extinct.

It is noted that there has been limited research in specifically examining the effect of refugees' influx on land and wildlife beyond generalizing it to the rest of the population density (Martin et al., 2017). Therefore, this study explores the specific effects that the settlement could have causes to wildlife habitat.

1.3 Objectives of the Study

1.3.1 General Objective

The main objective of this study was to establish the effect of refugee's settlement on wildlife habitats in Pagirinya refugee's settlement, Adjumani District.

1.3.2 Specific Objective

i. To find out the effects of refugees settlement on the forest cover around Pagirinya refugee settlement, Adjumani District
ii. To establish the effects of refugees settlement on the water catchments areas around Pagirinya refugees settlement, Adjumani District

iii. To assess the effects of refugees settlement on the land around Pagirinya refugee settlement, Adjumani District

1.4 Research Questions

i. What are the effects of refugee's settlement on the forest cover around Pagirinya refugee settlement, Adjumani District?
ii. How does the refugee's settlement affect the water catchments areas around Pagirinya refugee's settlement, Adjumani District?
iii. How has refugee's settlement affect the land around Pagirinya refugee settlement, Adjumani District?

1.5 Scope of the Study

1.5.1 Geographical scope

The study was carried out within the jurisdiction of Pagirinya refugee settlement, Adjumani District north western Uganda. Adjumani district is in the West Nile sub-region, approximately 210 kilometers (130 miles), by road, northeast of Arua, Amuru in the North West. Adjumani is approximately 460 kilometers (290 miles), north-northwest of Kampala, the capital city of Uganda.

Adjumani District has 18 refugee settlements hosting approximately 239,335 refugees across the district. The majority of the refugees are South Sudanese who fled civil war and some from the Democratic Republic of Congo (DRC). 64% of the refugees are children below 18 years. Adjumani has two reception centers in Pagirinya with the capacity of 10,000 people.

Pagirinya Refugees Settlement is a refugee's settlement in eastern Adjumani District in Northern Uganda. It was opened in July (2016) after the Maaji Refugee Settlements reached its capacity Pagirinya settlement is hosting approximately 32,051 refugees by the end of 2017. (UNHCR, 2016).

1.5.2 Time scope

The time scope of the study was based on the period when Pagirinya refugee settlement was opened till now (2016 to 2019). This period provides sufficient time to understand the dynamics of settlement and its consequence on the wildlife habitat since wildlife often responds to external factors that enter their habitats. This period enabled the collection of information that informed the study findings of this study.

1.5.3 Content scope

The study focused on determining the effects of refugees' settlement on the forest cover and wild animals, it established the effects of refugees' settlement on the water catchments areas and to assess the effects of refugee's settlement on the land in Pagirinya refugee settlement, Adjumani District.

1.6 significance of the study

This study will be of great importance to local people and local leaders as it will provide information that can he used to prevent land degradation and deforestation, poaching and to protect water catchments areas.

Uganda being the leading in Africa and the third host of many refugees in the whole world, this study will be of great importance to the government of Uganda as it will help it in policy development which will be geared towards environment conservation and ways to manage refugee's settlement in order to conserve the environment.

To researchers and academicians this study will be of great importance as it will form a basis for further research studies on the effect of refugees' settlement on the natural environment and wild life habitats in Uganda. The study will also provide information that will further be used as literature review of related studies.

1.7 Justification of the study

It is naive to think that management of wildlife habitat or populations is unnecessary. Drastic landscape level alterations have substantially changed the potential carrying capacity for many species from historic times. Current problems including habitat loss and degradation, fragmentation of habitats, the spread of exotic floral and faunal species, pollution, and human

disturbance among others, are all contributing to loss of species diversity and abundance (de Sherbinnin,2002).The changes in land use are often caused by human activities through agricultural activities, settlement establishment, and setting of forest fires and construction of dams. Land converted to agriculture to meet global food demand comes from forests, grasslands, and other natural habitats (Tilman *et al.*, 2001). This pressure on the wildlife habitat is overlooked and yet it needs to be addressed.

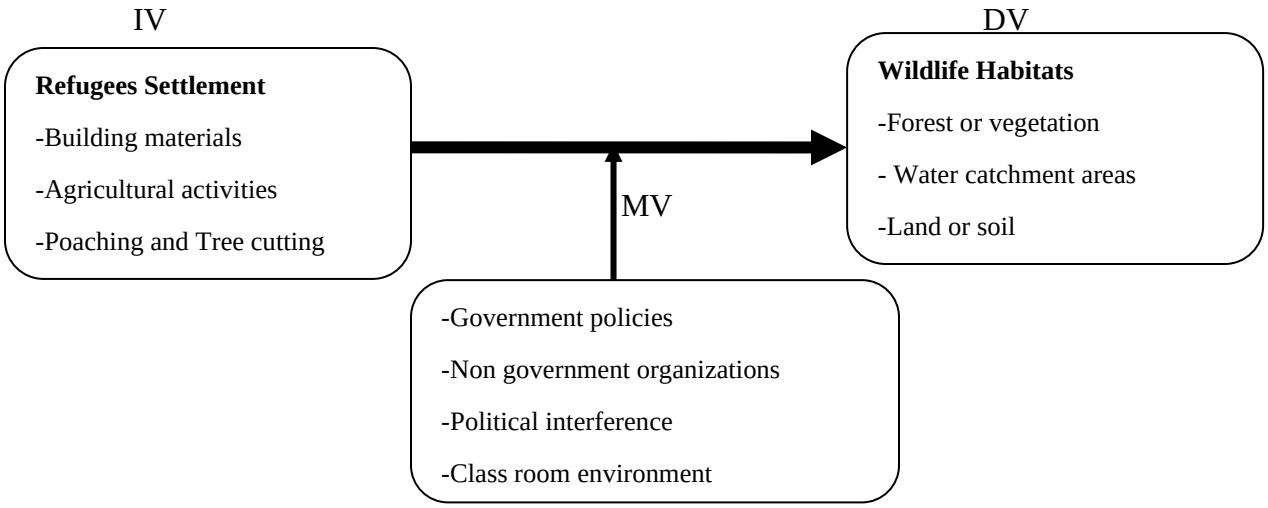
1.8 The Conceptual Framework

The conceptual frame work for this study is adopted from the work of (Edmiston et al, 2003), (Christian, 2004) and (Foreman-peck et al, 2004).

The independent variable of the study is refugee's settlement and this is evaluated to be building materials, agricultural activities, poaching and tree cutting which affect forests and wild animals, water catchment areas and land. Dependent variable therefore includes; vegetation cover, water catchment areas and land/soil.

Many other factors affect the natural environment and wild life habitats. These factors include Government policies, Non-government organizations and Political interference. However, for the purpose of this study emphasis shall be placed on how refugee settlements affect the natural environment and wild life habitats.

Figure 1.Conceptual Frame work.



Adopted from: Edmiston et al (2003), Christian (2004) and Foreman-peck et al (2004).

1.9 Operational Definition

Refugee.

Article 1 of the 1951 UN Convention, a refugee is defined as a person who is outside his or her country of nationality or habitual residence; has a well-founded fear of persecution because of his or her race, religion, nationality, membership of a particular social group or political opinion; and is unable or unwilling to avail himself or herself of the protection of that country, or to return there, for fear of persecution. (1951, UNHCR Refugee Convention).

The term refugee shall also apply to every person who, owing to external aggression, occupation, foreign domination or events seriously disturbing public order in either part or the whole of his country of origin or nationality, is compelled to leave his place of habitual residence in order to seek refuge in another place outside his country of origin or nationality (OAU, 1969)

Refugee's settlement; A refugee settlement is a temporary settlement built to receive refugees and people in refugee like situations. Usually refugees seek asylum after they have escaped war in their home countries, but some settlement also house environmental and economic migrants.

Migrant: One that moves from one region to another by chance, instinct, or plan. An itinerant worker who travels from one area to another in search of work

Natural Environment: Climate, weather, and natural resources that affect human survival and economic activity. Environment is a complex of many variables, which surround man as well as wildlife (Kalavathy, 2004).

Wildlife: traditionally refers to undomesticated animal species, but has come to include all plants, fungi, and other organisms that grow or live wild in an area without being introduced by humans, (Chandraker, 2018).

Habitat: the natural home or environment of an animal, plant, or other organism (Krebs, 1985; Jones, 1987).

Wildlife habitats; are defined as the native environment of a wild animal which ideally provide all elements needed for life and growth; food, water, cover, and space
(Maryland University, 1999).

In conclusion there for, one of the major impacts of refugee's settlement is deforestation as they look for firewood and building materials. Deforestation accelerates problems of environmental degradation and there is a significant increase in soil erosion and loss of wild life habitats.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature that some scholars have written about the topic under study. The literature review is important because it describes how the proposed research is related to prior researcher in statistics. It shows the originality and the relevance of the researcher's research problem (Hazim, 2015). The researcher considered Uganda's refugee act 2006 to understand the country's view about refugee. The theoretical facts about refugees have been highlighted. The review has been organized according to the objective of the study.

2.1 Theoretical review

Historically, migration has been attributed to temporary or permanent exodus of individuals and or groups of people from one geographic location to another for various reasons including but not limited to quest for better livelihoods as well as escape from expressed and anticipated danger including persecutions. Arguably, migration is as old as humanity itself.

However, theories about migration are fairly contemporary and continue to undergo refinement. Recent scholarly production continues to place emphasis in unpacking models and theories of migration with the aim of informing global migration discourse and interventions. As intimated by Frans (1994), 'models' are abstract representations of some portion of the 'real world', and are important for explicating not only migration but various world order. Such understandings are shared by scholars including (Burch, 2003) who argues that models are the crucial elements of scientific knowledge production.

Since then, several models have been advanced in expounding migration discourse including the 'Push' and 'Pull' factors – models that acknowledges the fact that occurrences and timing of migration can hardly be predicted with absolute degree of certainty.

The present study will rely mainly on the Kunz's Kinetic Model of Refugee Theory (1973, 1981). According to Kunz (1973, 1981), the flight and settlement patterns of most refugees conform to two kinetic types-anticipatory refugee movement and acute refugee movement (Collins 1996).

Anticipatory refugees sense danger early, thus allowing an orderly departure before the crises occurs. They are often accompanied by their entire family, with their resources intact, and have prepared for a new life. Anticipatory refugees leave as soon as they find a country willing to take them. Anticipatory refugees will seek asylum in rich western countries.

Acute refugee movements on other hand are responses to an overwhelming push where people are forced to leave their homeland on a moment's notice. They are unprepared for the journey and concentrate simply on surviving the disaster zone (Kunz, 1981).

In 1981, Kunz expanded his Refugee Theory to include the concepts of majority identified, event-related and self-alienated refugees. Majority-identified refugees are those who oppose social and political events in their home country (Collins 1996). Event-related refugees are those who must leave because of active discrimination against the particular group to which they belong. Those who flee their home country due to a variety of personal reasons are referred to as self-alienated refugees. The response of host countries to refugee applications is often based on which of these categories they belong to.

Pagirinya settlement is composed of south Sudan's refugees are majorly they were involuntary migration to Uganda due to mass expulsions, religious or political persecution Individuals or groups are unable to return to their own country. Such triggers, once identified become acute movements overwhelming push where people are forced to leave their homeland on a moment's notice and later followed by temporary asylum and eventual resettlement like Pagirinya settlement (Kunz, 1981).

The importance of the theory is that it describes the phenomenon of displacement and when you relate that's how Pagirinya settlement was opened after acute influx of refugees from south Sudan and other parts of the world.

Under the Uganda's Refugee Act 2006, a recognised refugee is provided with an identity card (ID) and is allowed to live in any part of the country. In other words, the Uganda refugee identity card serves as evidence that the bearer has been acknowledged as a refugee by the government of Uganda. The Act further states that a refugee has the right to "fair and just treatment without discrimination owing to his or her race, religion, sex, nationality, ethnic identity, membership of a particular social group or political opinion.

A refugee has the right of association with non-political and non-profit organisations and has the right of court redress, and is entitled to the same treatment as nationals with respect to elementary education, religious practice and religious education and intellectual property rights (ibid). A refugee is entitled to same treatment as other foreign nationals regarding to property rights, transferring asserts into Uganda and education beyond elementary school; the right to work, practice a profession and participate in business activities also under Uganda's Refugee Act 2006.

In Uganda, refugees are obliged to respect the Ugandan law (Uganda 2006, 35). They must not cause any security threats to the state or disturb public order. In addition, refugees must not indulge in any activity contrary to the principles of the United Nations (UN) and the state of the African Unity (AU), shall not partake any political activities within Uganda against any country including his/her country of origin.

Uganda is bound by regional and international refugee instruments and is further obliged to develop national laws and policies to respect, promote and fulfil the rights of refugees. The Universal Declaration of Human Rights, (UDHR) (1948-1998). Art 13.1 states that:

"Everyone has the right to freedom of movement and residence within the borders of each state and Article 13.2 states that everyone has the right to leave any country, including his own, and to return to his country."

Subsequent conventions instruments stipulate that every refugee is entitled to the rights and shall be subject to obligations provided for in 1951 United Nations (UN) Geneva Convention; the 1969 OAU Convention and other instruments relating to the rights and obligations of refugees to which Uganda is a party. That's why it's a mandated to host refugees and developed open door policy to all regardless of their country of origin.

2.2 Effects of refugee settlement on the forest cover

The biosphere consists of flora and fauna that are exploited by refugees wherever they have been settled. Analysis of the subject should not be drowning on the presence of refugee's settlement per se as exerting wildlife habitats effect. Displaced persons exert a lot of effect on forestry and other vegetation which in turn affect the wild animals. Deforestation is the disturbance of forest ecosystem due to Agricultural activities, grazing and Industrial development and cause shrink age of forest land, change forest cover (Constantine) biodiversity loss, change global water cycle and enhancing greenhouse effect (Chakravarty, 2012). People contribute to degradation process when they illegally cut the trees for wood and construction; as a result it leads to increase human and wildlife conflict, soil erosion, water pollution and habitat loss (Leah, 2008). Forests are the major storehouses of wildlife, e.g. tropical forests contain 2/3rd of all species and many wildlife endangered species (Chakravarty, 2012).

In two years 1994-96, Rwandan refugees from the camps plundered Virunga National Park in the Democratic Republic of Congo (DRC), cutting down about 36,000 million trees within the park boundary; between 410 and 770 tons of forest products (mainly wood for fuel) were removed daily; in Kivu Province in the same country, almost 38 square kilometers of forest were lost within three weeks of the arrival of refugees (UNEP, 2002and UNHCR, 2001).In Ethiopia, surveys of firewood intake for household energy, camp market, stove utilization and catering depleted forest cover; refugee settlements in Kenya have been stripped clean of trees and vegetation; and Malawi's over one million refugees deforested their habitat to acquire farmland, firewood and timber for construction (Lynch, 2002: 20-21). A similar situation obtained in Gambela region of Ethiopia which witnessed massive deforestation at the hands of 200,000 settlers and refugees from Sudan (Kurimoto, 2005). A UNEP rapid assessment of the impacts of refugees on the environment in Guinea, through interviews, field visits and available reviewed materials reported over-exploitation and consequent degradation of natural resources and the disruption of traditional practices in refugee-hosting areas, with the depleted vegetation cover used for the housing construction, firewood and charcoal, both for domestic use and cash generation (UNEP, 2000).

Forests also provide critical ecosystem services, particularly with regard to an area's water cycle. In 1995, Gil Shepherd described the environmental impact of Rwandan refugees in Zaire on

forestry as “intense,” just one year into the refugee crisis. Sheppard draws parallels between deforestation and the greater competition for materials as well as between the shortages of materials and shortened cooking times that result in undercooked foods, fewer available foods, and increased levels of malnutrition (Shepherd 1995). The competition for resources led to tensions between the refugee and host communities. At the time, Shepherd suggested that numerous smaller camps be established rather than fewer, larger ones, and that these camps be spread more appropriately to cover greater area of resources. Tree planting programs and similar initiatives were also suggested.

About three years ago the establishment of the Dadaab refugee camps in Kenya, UNHCR reported a “more or less circular halo of nearly absolute degradation,” an issue that continues to be of concern to local hosts (Beaudou and Cambrézy, 1999). The Royal Danish Embassy’s study of Dadaab found the demand for firewood and construction materials for the refugee community to be nearly equal in demand to that of the host population (UNHCR, 2010).

In the Bonga refugee camp in Gambella, researchers found out that refugees illegally farmed an estimated 800 hectares, clearing forest in and around the camp. Furthermore, forest resources were collected from a much broader area and placed refugees in direct conflict with surrounding communities. Both refugee and host communities rely on forested lands for hunting and building materials and both use wood for fuel and construction (Martin, 2005).

Forest cover loss has an important influence in the depletion of tropical wildlife; it has been used to estimate future reductions in population range and size and species extinction (Kinnaird et al. 2003; Soares-Filho et al. 2006). Despite local hunting, regional deforestation has caused the loss of many game species across forest fragments in Mexico (Urquiza-Hass et al. 2009) and the Brazilian Amazonia (Michalski and Peres, 2007). Nevertheless, in Amazonia, hunters catch more ungulates in primary forests in heterogeneous landscapes in the eastern region (Parry et al. 2009b), whereas ungulates hunted by local people declined in response to increasing deforestation density in another protected area in Acre (Ramos, 2005).

The overall evidence suggests that deforestation caused by refugee or displaced settlements can exacerbate the economic, water and food security of local communities as well as harm the health of the ecosystem at large.

One of the main phenomena challenging the regions affected by immigration are refugee or internally displaced people (IDP) camps where large numbers of displaced people settle down, often close to border at random sites which were not prepared for such enormous influx (Kenyon, 2006). Especially in African and the Middle-East camps and temporary settlements are a widespread phenomenon since in the last century (Castles S et al., 2009). Due to the spontaneous nature of migration host countries often lack the means to plan effective camp structures, while otherwise both refugees and the host population would benefit from a strategic design of infrastructure and social facilities by non-governmental organizations or the UNHCR (Perouse de Montclos, and Kagwanja. 2009). In addition, the exact numbers of dwellings and people, the size of the camp and the conditions of the surroundings are not documented throughout and need to be estimated. But the integrity of the environment plays a crucial role for sustaining life in the camp: Not only do the immediate surroundings provide essential resources such as drinking water, firewood, and soils for agricultural use, but also has the refugees' wellbeing and health been found to be dependent from the proximate natural conditions they perceive and are exposed too.

Further looking, information about the development of both the camp and the environment may better assist the planning process of decision-makers when it comes to land-use and the carrying capacity and vulnerability of ecosystems in the affected regions (Jacobsen K, 2007). While the interdependencies of refugee camps and their social and political environments are already investigated well (Nail T, 2015), their impacts on the natural surroundings are quite unexplored yet. Although it seems obvious that large camps accelerate land degradation, a clear evidence of their potential adverse effects is currently being discussed (Kibreab G, 1997). This is due to the lack of clear evidence on a relationship between the assumed impact of a settlement and other influences on the natural surroundings like climatic or seasonal variations (KranzO, 2015). Remote sensing can provide valuable information about the condition of the earth's surface in general and on the raise and influence of ephemeral settlements such as refugee camps in particular (Lang S, 2010). One of the most continuing sources for land cover information is the Lands at continuity mission (Wulder MA, 2008). It started in 1972 and almost constantly delivers images from space since then. Their use for the land-use and land cover classification

(LULC) has been widely demonstrated in the past decades (Belward AS, 2015). Especially the analysis of a series of images over a longer period reveals promising results a thorough understanding of the on-going processes. However, especially regions hosting refugee camps such as Eastern and Equatorial Africa or the Middle East are often affected by a high degree of cloud cover (Zhu Z, 2015).

2.3 Effects of refugee settlement on the land.

Environmental degradation and the associated resource depletion have been shown to sometimes create or exacerbate conflict between groups competing for these increasingly scarce resources (Homer Dixon, 2000); (Schwartz, et al. 2001); (Kahl, 1999). Although this type of conflict is not inevitable, it is still important to investigate whether the environmental degradation associated with the presence of refugee settlement has influenced the overall relationship between the refugees and the host communities and in what ways. Cassandra Veney, another scholar who undertook research in Tanzania, similarly touches on the environmental impacts of the refugees on the host communities, without looking into how these impacts shaped the relationship between the two groups. Veney's research is in fact much broader, but she devotes a small section of her book to the responses of the Tanzanian host communities to the refugees' presence, and the impact of this presence on these communities. Veney emphasizes that, unlike in other refugee situations where the refugee and host population have no history of interaction, Burundian and Rwandan refugees had historical, economic and social ties to the local communities in Western Tanzania. Veney, along with other scholars, argues that these past linkages and a shared identity make an amicable relationship likely (Jacobsen, 2002). However, Veney also notes the negative impacts on the host communities, including environmental degradation associated with the presence of the refugees and camps (Veney, 2007: 219). So, while there are historically good relations between the two groups, changing circumstances mean that other factors must be considered when understanding the overall relationship.

The loss of soil (due to rain or wind) from land surfaces affects the productivity of all natural ecosystems. Loss of biodiversity due to soil erosion is potential problem throughout the world. The food and productivity depends upon the fertility of the soil and human induced changes over

soil are significant resulted in valuable soil become unproductive. In addition the valuable plants, microbes and animals are destroyed and it leads to wildlife extinction because they depend upon plants and soil organisms for their food (Pimentel D. 2006). The characteristics of Soil are affected by pollution, land use, current activities and location. The major causes of soil pollution are human activities. Leakage of oil and chemicals also contaminate the soil. The overall soil contents and microorganisms in the soil are negatively affected by high level of contamination. Due to soil contamination the crop yield is highly reduced and it affects the organism that depends upon the plants for their food, nutrition and habitat (Shayler, 2009).

The special features (food, shelter, water, space) of an area that is necessary for the survival is the habitat of animal. When large area is converted into smaller patches and these patches are isolated from each other for the purpose of agriculture and settlement it is termed as habitat fragmentation. Habitat fragmentation includes both loss of habitat and fragmentation of habitat and it has negative impact on wildlife (Shayler, 2009). The fragmentation and destruction of natural habitat leads to reduction of population size of wild animals and abundance, change of genetic diversity and extinction of wildlife; Due to patches of habitat the food chain length become smaller, which change the species interaction and reduce the specialists and large species of wildlife; Habitat loss also affects the animal's breeding, foraging, dispersal behaviors and predation rate (Lenore, 2003).

More so there is the effects of infrastructure on nature with a particular focus on those effects that impact upon wildlife and their habitats. The construction of new roads, offices, schools, health centres in the settlement changes in land use and patterns of the landscape and creates new habitat edges, alters hydrological dynamics, and disrupts natural processes and habitats (Ellenberg *et al.* 1981).Maintenance and operational activities contaminate the surrounding environment with a variety of chemical pollutants and noise.

In addition, infrastructure and traffic impose movement barriers to most terrestrial animals and cause the death of millions of individual animals per year. The various biotic and a biotic impacts operate in a synergetic way locally as well as at a broader scale. Infrastructure causes not only the loss and isolation of wildlife habitat, but leads to a fragmentation of the landscape in a literal sense (Andrews, 1990).Habitat loss is an inevitable consequence of infrastructure

construction. Besides the physical occupation of land, disturbance and barrier effects in the wider environment further decrease the amount of habitat that is suitable or available for wildlife.

Andrew (1990), explained the disturbance Edge effects result from pollution of the physical, chemical, biological environment, Toxins and noise affect as a result of infrastructure construction and operation.

Mortality levels associated with traffic and other development in the settlement are steadily rising (millions of individuals are killed on infrastructure each year in Europe), but for most common species this, traffic mortality it is not considered as a severe threat to population survival. Collisions between vehicles and wildlife are also an important traffic safety issue, and attract wider public interest for this reason. Infrastructure restricts animals movement makes habitats inaccessible and can lead to isolation the population along infrastructure

The construction of infrastructure affects the physical environment due to the need to clear, level, fill, and cut natural material. Construction work changes soil density, landscape relief, surface and groundwater flows, and microclimate, and thus alters land cover, vegetation and habitat composition. Wetlands and riparian habitats are especially sensitive to changes in hydrology e.g. those caused by embankments (Findlay and Bourdages, 2000) and cuttings which may drain aquifers and increase the risk of soil erosion and extensive earth slides that have the potential to pollute watercourses with sediments (Forman et al., 1997); (Trombulak and Frissell, 2000).

In a nutshell,the opening of Pagirinya settlement and development of infrastructure around the settlement increased artificial lighting, traffic noise, chemical pollutants, microclimatic and hydrological changes, vibration and movement are just a few sources of disturbance that alter the habitats adjacent to infrastructure. In many situations, such disturbances are probably of marginal importance to wildlife, and many animals habituate quickly to constant disturbance as long as they do not experience immediate danger. There are limited measures to mitigate against these types of disturbance are usually inexpensive to install, they can easily be considered and integrated during the planning and design process to mitigate.

2.4 Effects of refugee settlement on the water catchments areas

Water catchments areas is an area where water is collected by the natural land scape for example dams, rivers, lakes oceans or ground water system. Healthy catchment helps to protect our rivers dams and groundwater and provides our community with clean drinking water, natural area for recreation, habitat for plants and animal and healthy environment and water ways (hunter water, 2011).

The main human activities that were reported to be impacting on the water quality in the catchment area were: agriculture as main economic activity in the region and most of the population in the catchment area depend on subsistence agriculture which involves use of poor farming methods, clearing wetlands up to the river banks hence siltation and run off banks. Cotton plantations works and out grower schemes around Pagirinya use a lot of chemicals that end up being eroded into the water bodies.

Displaced persons have a major impact on surface and ground water bodies, water being a necessity in human life and wildlife. Agricultural and urbanization are the major cause of water pollution. Phosphorus, nitrogen and many other nutrients are added to aquatic ecosystems continuously by agriculture and urban activities. Atmospheric deposition is another source of nitrogen. These inputs are very difficult to measure and regulate because these are not coming from any fixed source so these are flexible due to weather effect and these are called non-point sources. The nutrients comes from these sources cause diverse problems in aquatic ecosystem, that cause eutrophication, oxygen limitation, toxic algal blooms, loss of biodiversity and threat to important species of recreation. Due to eutrophication it spoils the water used for drinking, agriculture, industry and for other purposes. Some pesticides (organochlorine, organotin) that are used in agriculture disrupt the normal physiology of wild animals. A dioxin like compound is accumulated in the body of marine mammals and wild birds and cause risk to wildlife (Tanabe S. 2002). When carbon dioxide is absorbed by the oceans it forms carbonic acid due to the reaction of carbon dioxide and sea water which is termed as ocean acidification. Ocean acidification negatively affects the coral reefs and marine biodiversity. Ocean acidification occurs due to excessive carbon dumping into the atmosphere (R .A, Feely, 2002).

Mercy crop (2014),more than half a million Syrian refugees are now living in Jordan, already one of the world's driest countries. Water shortages have reached emergency levels in some areas, where the supply is as low as 30 liters per person per day one-tenth of what the average American uses. Jordan is running out of water. Already one of the world's driest countries, the Kingdom faces a crisis badly exacerbated by the increasing needs of those displaced by Syria's civil war. We wanted to better understand how to navigate this new environment, where a refugee crisis layers over chronic scarcity.

Daily struggle for water is a national challenge that is strikingly intimate. It profoundly affects families and communities. In northern Jordan, which hosts the largest number of Syrian refugees, water shortages have spiked. Hospitals and schools don't have enough water to maintain sanitation standards. Mosques cannot perform the necessary daily ablutions. Pipelines are running dry, particularly in the hot, dry summers. Sometimes weeks elapse before a drop comes out of the tap which affected both people and animals. However, the refugee crisis also coincided with an unexpected, rapid increase in flow in the Yarmouk Riverfrom Syria to the Al-Wehda reservoir on the Syria-Jordan border. This flow provided a small supplement to Jordan's agricultural irrigation supply, that although beneficial was modest compared to both the actual freshwater needs of the refugees and the trans-boundary flow from Syria long anticipated by Jordan.

For the one million plus refugees outside of settlement, consumption of water is much more difficult to monitor. The water, sanitation, and hygiene (WASH) division of the United Nations Children's Fund (UNICEF), which oversees all water and sanitation policies related to refugees in Jordan, operates under the assumption that refugees in cities and towns consume approximately 80 liters per capita per day (UNICEF, 2014). Whereas water was previously delivered to households once per week, now it might be delivered only once or twice per month. In such circumstances, households increasingly depend on often unreliable private water trucks.

The policy solutions that should be considered regard alternative water sources. Currently, an estimated 100 MCM/y of treated wastewater is produced in the Amman-Zarqa basin, but essentially all of it is conveyed to the Jordan Valley for cultivation of higher value crops and animals (Seder and Abdel-Jabbar, 2010).Access to improved water sources is still, ensuring poor

people's access to safe drinking-water and adequate sanitation improves the quality of life of millions of individuals. It is estimated that approximately 2.4 million deaths a year (4.2% of all deaths) could be prevented with adequate access to safe drinking water and basic sanitation (Prüss-Üstün et al., 2008). A study about accessibility to water among Palestinian refugees in the Kulandia camp re-vealed that piped water was the main source of both drinking and household water (60%) while a minority utilized tanker-trucks (30%) (Issa et al., 2015). This implies that lack of enough water in an area affect wildlife and eco-systems habitant.

Within Nyarugusu refugee camp in western Tanzania which holds 120,000 refugees from Burundi, UNICEF along with its implementing partner the Tanzania Red Cross Society, supplemented water storage within the camp through provision of seven bladder tanks during the acute emergency phase. These tanks reportedly could hold a total of 103,000 liters. In addition, UNICEF as part of the response also repaired and replaced pumps, delivered chlorine, trucked in water by road and brought jerry cans and water purification tablets to refugee households. All these interventions were aimed at ensuring that refugees obtained safe drinking water (Rowan, 2015).

In Uganda, refugees and nearby host communities are provided access to safe water through multiple humanitarian actors involved in the WASH sector like UNICEF, LWF, World Vision, DRC. The WASH actors provide the service through construction of numerous safe water sources like boreholes and motorized solar-powered water systems. For example, 18,000 refugees and 4,500 host community members at Maaji refugee settlement in Adjumani district access clean drinking water, proper sanitation and hygiene as a result of World Vision (Mukitale, 2017).Furthermore, in Uganda during the gazetting of land for refugee settlement in Uganda, the Government of Uganda through OPM, UNHCR and other humanitarian actors endeavor to ensure that amenities/infrastructure like water sources are available in all refugee settlements (Malteser, 2017, Mukitale, 2017). Adequate maintenance by Water User Committee (WUC) & WASH actors could also have contributed to the majority of the water sources surveyed having low risk scores of contamination.

Farming activities in the study area involved clearing of forests so as to have farms for both local host communities and refugees. Increased household land sizes and poor agricultural practices exercised by host Communities in the area such as cultivating in valleys and on steep slopes led to the encroaching to Ayuge and Reyu stream. However, respondents reported that refugees' influx in the area caused destruction of water sources by cultivating near the water bodies leads to environmental degradation. The same case was observed by (Dungumaro, 2006) in Kihansi catchments area in Tanzania. Poor agricultural activities most likely contributed to environmental degradation because of unplanned land use practiced in the area.

Water supply is essential for the survival of human beings and wildlife for survival. the areas where displaced people seek shelter have often limited or no existing water infrastructure and so authorities and non-governmental organisations (NGOs) find themselves struggling to provide rapid emergency responses to the settlements. The outcomes confirmed that mainly women (68%) and children (26%) were responsible for collecting water and that peak water demand especially in the morning evening referring to LWF in December (2014).

National water policy (1999) and Constitution of Republic of Uganda (1995) is mandated by the State to endeavor that all Ugandans enjoy rights and opportunities to access to education, health services, 'clean and safe water and others. National Environment Management Policy (1994) and Statute (1995) emphasize water resources conservation and management as factor of production in manufacturing industry, power generation, mining agriculture and habitat for wild animals. Protection of the catchment area is ensured that all areas upstream of a wetland are properly managed to prevent wetland degradation. Wetland plants should also be encouraged to grow at the edges of river banks.

The policy also emphasizes the recognition of water as being both a social and economic good, whose allocation should give first priority to domestic use. The Policy is based on the principle of "some for all, rather than all for some". The policy also highlights the key role played by women in all water management and development activities (National water policy 1999). Generally, the Constitution makes provision for natural resources of which water forms an integral part. It clarifies that water resources management is the duty of the state unless otherwise decreed by parliament. Include; taking all practical measures to promote good water

management systems at all levels; Promoting sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations, and utilization of natural resources in such a way as to meet the development and environmental needs of present and future generations.

This National Environment Act, (1995) establishes the National Environment Management Authority(NEMA) as the overall body, charged with responsibility of coordinating, and monitoring all environment management issues in the country. The Act empowers NEMA, in consultation with lead agencies, to issue guidelines and prescribe measures and standards for the sustainable management and conservation of natural resources and the environment in general.
However, District authorities control all activities in wetlands and all water catchment area by regulating in accordance with the National Policy on the Management of Wetland Resources National Wetland Policies Uganda (1995).Latrine construction is a very big problem in the settlement due to lack of enough land where by (30*30) is the only plot of land allocated. In some cases latrines have been constructed very close to the water shores. The few pit latrines that are constructed still get filled very fast due to the big numbers that use them.

The National Water Policy (NWP), adopted in (1999), provides the overall policy framework for the water sector promotes the principles of integrated water resources management as a means to ensuring sustainable management and utilization of Uganda's water resources.Wetlands is habitats for a variety of biological resources some of which depend entirely on water catchment area especially wetlands for their survival. All in all, the presence of all policies and laws in place the refugees and host communities continue to encroaching on water catchment areas and when practicing agriculture which affect wildlife habitat.

Last but not the list, Different efforts have been conducted to arrest the effect of refugees settlement on natural resources in different parts of the world. Mitigation measures to conserve the degraded environment always involve different stakeholders, since conservation is a nexus of relationship between large organizations and governments, between scientists and local people and so forth (Brousius, 2006).

In order to avoid environmental degradation the Government of Uganda had to put in place strong policies to avoid environmental destruction and for efficient service delivery, management and monitoring, so as to avoid imminent pressure on natural resources and minimize the burden placed on the shoulders of local authorities. Furthermore, where trees are cut there must be corresponding tree planting activities. In order to improve the declined wildlife habitats due to refugees' activities much effort should be directed on rehabilitating the environment.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter explains the Research methodology that was followed in this study. The Research Methodology was selected by the nature of the problem of this study. According to Silverman (2005), Methodology in research means the systematic analysis of the method applied to the field of study. This approach was helpful in interacting with respondent directly in the settlement. Methodological approach used is important to ensure that the study remains on course to meet the informed assessment of the finding of the study (Oso and Onen, 2008).

This chapter consists of the research design, study area, population study, Sampling Techniques, Data collections methods, Quality control (Validity and reliability), Data Processing and management, Data analysis, Ethical considerations and Limitations and delimitations.

3.1 Research design

A design according to Bryman (2012), a design is the criteria employed when evaluating social research. This study approached the study using qualitative method and employed a case study design. Qualitative research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols and description of things (Berg, 2007). Qualitative approach emphasizes the qualities of entities, processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity or frequency (Denzin and Lincoln, 2000). Qualitative data-gathering techniques include interviews, focus groups, ethnography, sociometry, unobtrusive measures, historiography and case studies, among others.

This approach was adopted because it provided direct interaction with the people in their settlement and community around which led high level of intrusiveness, opportunity to review during collection process and amount of bias in my presence (Creswell, 2009). The information collected from the respondents have been presented using text audio or video files, photographs and field notes. Also the findings collected by examining documents, observing behavior and interviewing participants' in-depth investigation during that period.

The approach was further helpful with the employment of a case study design. Case study refers to a fairly intensive examination of a single unit such as a person, a small group of people or a single company. It entails understanding what is there and why it is there (Creswell, 2009). In this study a thorough and in-depth analysis of Pagirinya refugee settlement was the focus. That is the case considered in this study. The case enabled exploration and understanding of the problem associated with refugee settlement, particularly its impact on the wildlife habitat. This was helpful in generating the findings of the study.

3.2 Area of Study

The research was conducted in Pagirinya refugee settlement. The findings show approximately 99% are South Sudanese staying in the settlement. Girls range from (0-17) are 34%, Boys range from (0-17) are 32%, Adult females range from (18-59) are17%, Adult males range from (18-59) 11%, Elderly females range from (60+) are 4%, Elderly males range from (60+) are 2%. This location was found suitable since there was adequate number of refugees to elicit the desired information. The population of Pagirinya refugee settlement consists of 198 semi-permanent shelters which have been constructed hosting approximately 32,051 total population in the settlement. I discovered that out of 32,051 refugees 23% are males and 77% are Females, according to Settlement Fact Sheet: Pagirinya August 2018. Other minority tribes include Ethiopians.

The population of Pagirinya refugee settlement is engaged in various income generating activities. In the commercial Centre businesses that exist range from supermarkets, shops, eating houses, bars, lodges, saloons, kiosks, stalls to individual hawkers, metal fabrication and carpentry. A majority of the people sell consumable goods while a minority sells non consumable goods. Other people practice agriculture especially vegetable growing and rearing animals on small scale to a smaller scale. It also has other private health clinics/ drug shops.

3.3. Population of the Study

This study was conducted in Pagirinya refugee's settlement, Adjumani District. According to (Enon Julius Ceasar, 1995). Target population consisted of 59 respondents taking Refugee representatives, Members of the public, District Environmental officer, Local Councilors, Uganda wild life (officers and rangers), Staff of NGOs found in Pagirinya settlement and

Opinion leaders. Pagirinya is among refugee settlements in Adjumani district Uganda that is constructed near the wildlife habitat which include; (Ajasi, East Madi wildlife reserves), (Mt kei, Otze Forest wildlife sanctuaries).

3.4 Sampling Procedure

3.4.1 Sample size

According to Bryman, (2012), a sample size is projected scope and resources, the act of choosing the number of observations in statistical form. This study sample size was comprised of the following:

Category of respondents	**Sample size**	**Sampling technique**	**Data collection method**
District environment officer	1	Purposive sampling	Interview
Uganda wild life authority (Officers and rangers)	6	Purposive sampling	Interview
Members of the public	16	Random sampling	Focus group discussion(FGD)
Refugee representative members,	16	Random sampling	Focus group discussion(FGD)
Local Councilors	5	Purposive sampling	Interview
Opinion leaders	10	Purposive sampling	Interview
staff from NGOs in Pagirinya settlement	5	Random sampling	Interview
Total	**59**		

Table 2 *showing sample size*

3.4.2 Sample Techniques

This is the process of used to collect information and data for the purposes of making good decisions. This study employed simple random sampling, purposive sampling to select the sample as discussed below. It was helpful for this study to use two Sample Techniques because it ensures that each member of the target population has an equal and independent chance of being included in the sampling.

3.4.3 Simple Random Sampling

Hayes (2019) define simple random sampling as sub set of statistical population in which each member of the subset has an equal probability of being chosen. This techniques was applied in the selection of refugee representative and the family member. This was helpful because it involved selecting the required sample without bias from the population since it provided an equal chance for them to be selected (Creswell, 2009). This sample was drawn through randomly selecting required sample from a list of respondents whose details were obtained from the field. The camp commandants were helpful in providing the list of households and families that aided this process.

3.4.4 Purposive Sampling

Amin (2005) define Purposive sampling as preferred in selecting people holding positions that allow them to be more knowledgeable with issues in their areas, and this is applicable to this study. (Nsubuga, 2013). This techniques was applied to selection of informed respondents because they had the information about the subject under study. They are also respondents who have participated in refugee resettlement sector and are the representatives of people at different levels. Those selected using this technique include; District Environmental officer, Local Councilors, Uganda wild life authority representative, staff from Non-Governmental Organizations and Opinion leaders.

3.5 Data collection methods and instruments

The study used interviews, observation, and document analysis and focused group discussions as the main tools for collecting data. These techniques are appropriate in the study in a sense that they enable the researcher to reach out to all categories of respondents that is both illiterate and literate

3.5.1 Interview

This involved asking questions, listening to a recorded answers from the respondents indicated in the table (2) above. A semi-structured interview were particularly employed and this helped in providing an in-depth discussion regarding the subject of the study (Creswell, 2009). The semi

structured instruments enabled the study to have qualitative information that gives opportunity for probing and analyzing the problem.

The rationale behind using interview was because it enabled analysis and construction of meanings regarding the phenomenon by asking people to talk about it (Mason, 2002). This method was used to obtain information from the following respondents. District Environmental officer, Local Councilors, Uganda wildlife authority representative, staff from Non-Governmental Organizations and Opinion leaders. These form part of the key informants, those who had information regarding the theme of this study.

An interview guide was developed with guiding questions to aid the interview. According to Bryman (2012, p.712), an interview guide is "brief list of memory prompts of areas to be covered that is often employed in unstructured interviewing or to the somewhat more structured list of issues to be addressed or asked in semi-structured interviewing." Interview guide was used in the latter sense.

3.5.2 Observation

This technique helped to gain information and accumulating knowledge on the physical world surrounding us. Observation is the process of gathering open-ended, firsthand information by observing people and places at a research site. As a form of data collection, observation has both advantages and disadvantages. . This approach was adopted because it provided direct opportunity to record information, behavior, ideas and fecal expression of the respondents as it occurs in the surrounding environment, (Hammersley & Atkinson, 1995). However the limitation with observations limits those sites where you cannot access only to depend on the information from focus group discussion.

This approach helped to observe environment around, fecal expression of all respondents on how they answer the questions. The study observed that, Waste disposal and bare land in Pagirinya refuge settlement affected the wild life habitat see Figure (5) below. The increased rate of bare land and rock in the settlement increased temperature which have contributed to wildlife habit distraction.

3.5.3Focus Group Discussion

A focus group discussion is the process of collecting data through interviews with a group of people, typically four to six. A focus group discussion involved gathering people for a similar experience together to discuss a specific topic of interest (Herd, 2016). Through FGD the researcher obtained small homogenous groups of people and brought them together to informally discuss the topic under the guidance of a moderator. The researcher used this method because in Focus group members interacts among themselves which yielded the best information. It also allowed the interviewees with similar opinion to cooperate in the analysis of the key questions and sharing experiences. It also brought different arguments among discussants and clarified fabricated information in obtaining vital data from the participants. Nevertheless, the researcher conducted four FGD; 2 with the Refugees representative and 2 other with representatives of host communities. Each FGD was composed of 8 respondents.

3.5.4Document analysis

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic (Bowen, 2009). This was used to trace the past events in relation to the study and to make comparisons with the current situation being studied.

3.6 Quality control

Data quality control refers to reliability and validity of the instruments used for collecting data. Validity and reliability are two important concepts in the acceptability in the use of an instrument for research purpose (Amin, 2003).

3.6.1 Validity

To ensure validity, the questions in the instruments were subject to expert opinion and finally approved by the supervisor. It was as tested with different groups of people to check if the results matched. The results that show similarity made the researcher conclude that the instruments were valid (Kathuri and Pals, 1993). In other words, Validity is the extent to which research results can be accurately interpreted and generalized to other populations. It is the extent to which

research instruments measure what they are intended to measure (Oso and Onen 2005). On this ground, the expert opinion and pretest with 10 different groups validated the tools.

3.6.2 Reliability

Reliability refers to the use of different instruments on the same person but producing the same results. Reliability is the extent to which an experiment, test, or measuring procedure yields the same results on repeated trials (consistence of the measure). Thus, to ensure reliability for study in Pagirinya refugee's settlement, a pre-test was carried out with 10 different groups at different venues to ensure that the instruments were valid and consistent in providing the needed information.

3.7 Data management and Processing

Data analysis in this study refers to the systematic way of arranging, organizing, categorizing, and ordering, manipulating and summarizing data to obtain answers to the research questions. Qualitative data analyzed qualitatively using data analysis based on analysis of meanings and implications emanating from respondents information and documented data. As Observed by Gray, (2004) qualitative data provides rich descriptions and explanations that demonstrate chronological flow of events as well as often leading to chance findings. After all the data was collected, the study conducts data cleaning, which involves identification of incomplete or inaccurate responses which was corrected to improve the quality of response.

3.8 Data analysis

Data Analysis is the process of systematically applied statistical or logical techniques to describe and illustrate, condense, recap, and evaluate data. Various analytic procedures provided ways of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise present in the data (Shamoo and Resnik, 2003).

While data analysis in qualitative research include statistical procedures, many times analysis becomes an ongoing iterative process where data is continuously collected and analyzed almost

simultaneously. The study generally analyze patterns by observations through the entire data collected, ethnography content (the description of people and cultures with their customs habits and mutual differences), oral history, field notes, documents, and audio tape. To ensure data integrity to accurate, appropriate findings is reflected with proper statistics. Wrong finding can mislead casual readers (Shepard, 2002), and may negatively influence the public perception of research. Analysis of data was involved to create applicable codes to the data collected.

The Coding of data from the interview transcript, field notes, focus group discussion (FGD) and policy documents was analyzed through open and relational coding methods (Miles and Michael 1994).

3.9 Ethical consideration

According to the Collins Dictionary (1979 cited in Kumar, 2011), ethical means in accordance with principles of conduct that are considered correct, especially those of a given profession or group. Informed consent was got from all the participants both primary and key informants. Before getting the informed consent from participants was made adequately aware of the type of information needed from them, why the information was being sought, what purpose was to be used for, how they are expected to participate in the study findings, and how it was directly or indirectly affect the study? This consent was voluntary and without pressure of any kind. The information shared by the participants was confidential and incase of any sharing informed consent was first sought from the participant. Names of the participants was also kept confidential and alphabetical letters was used instead of names.

The introductory letter from the School of arts and social science Uganda Martyrs University which were presented to Office of Prime Minister (OPM), seeking permission to carryout research in the Pagirinya settlement, Adjumani district. However, few cases with sought consent was quoted in this report.

3.10 Limitation and Delimitations of the study

Because of the nature of the study which was qualitative in nature;

- The biggest challenge was the language barrier. Most of refugees in Pagirinya are from south Sudan speaking maddi language which was had for mi to understand. It was expensive for me to hire an interpreter to help mi to understand my respondent

- The study undertook a qualitative study looking at the effects of refugee settlement on wildlife habitats a case of Pagirinya settlement, Adjumani district. From 2016 up to now it was limiting because there is no appropriate solution we can give to solve the distraction of wildlife habitats.
- The study encountered a problem of the respondents requesting for assistance in form of rent and food from the interviewer and also over concentrating on the challenges they were facing in the settlement. Because the study was qualitative in nature and it requires hearing from the respondents, many of them were drifting away from what was been asked and responding to what they felt met their demands, this in a way affected the quality if their response and much of what they said was not relevant to the study.
- Setting up a focus group discussion was also a challenge because many refugees are busy during the day trying to make ends meet, hence bringing them together with no facilitation in terms of transport refund was quite a challenge to the study, those who managed to come where in a rush to go back and continue with their daily struggles of life and hence gave less time to discussion which affected the study.
- Another limitation to the study was the high expectation from the respondents mainly refugees who expected their problems to be solved by the researcher made the research to drag on for long. The researcher had to explain the reasons he was carrying out the research and the possible outcome but many respondents wanted tangible assistance.

Despite the above limitations, the study is still informative and it highlighted the dynamics of the effects of refugee settlement on wildlife habitats on destroyed environment in Pagirinya settlement, Adjumani district.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter contains a detailed presentation of the primary data, analyze discussion of the findings from the field work conducted in Pagirinya settlement in Adjumani district. The study findings are organized and presented in line with the research objective questions under the following major headings: To find out the effects of refugees settlement on the forest cover around Pagirinya refugee settlement, To establish the effects of refugees settlement on the water catchments areas around Pagirinya refugees settlement and To assess the effects of refugees settlement on the land around Pagirinya refugee settlement, Adjumani District. The main objective is to determine the effect of refugee's settlement on wildlife habitats in Pagirinya refugee's settlement, Adjumani District.

4.1General Information

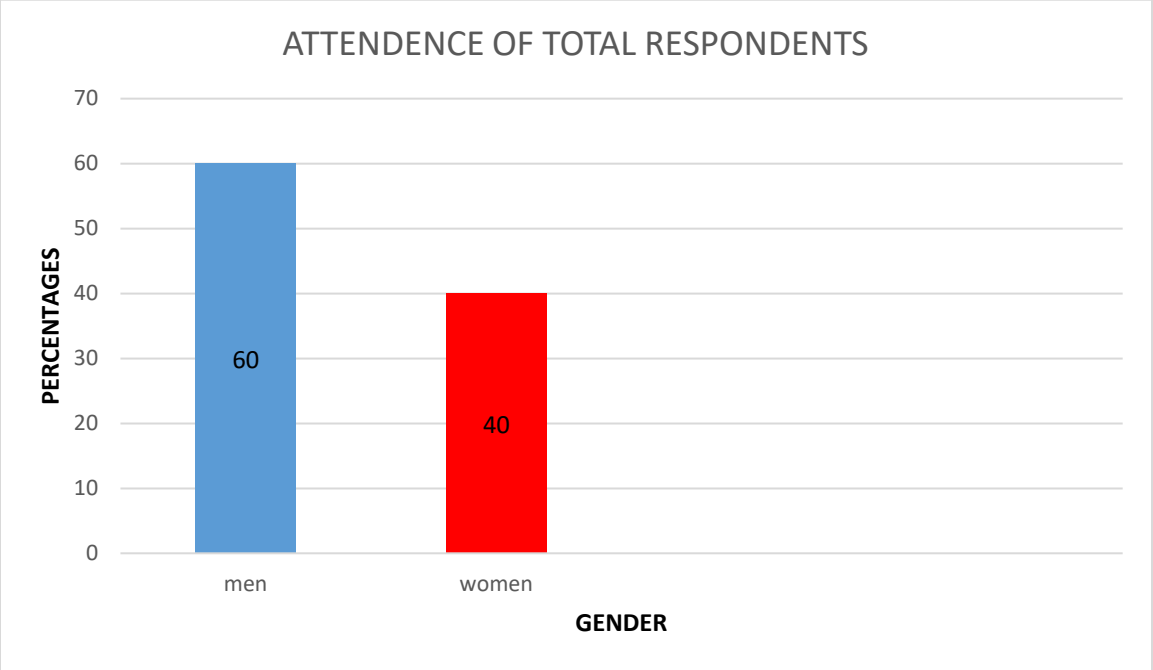
Before the refugees influx the environment around Pagirinya was covered with natural forests. The major socio-economic activities of the local people were farming for subsistence and cattle rearing here in Pagirinya Adjumani district. Pagirinya settlement was opened in July 2016, hosts more than 32,000 refugees displaced from South Sudan. Pagirinya settlement is now hosting 36206 registered refugees by June 2018, Adjumani district have 170029 national and is hosting 236,034 refuges in the district (Pagirinya Settlement factsheet June(2018).

The study find out that population increased leads to demand for resources to use from the natural environment for example; construction poles and ropes, thatching grass, fuel wood, medicinal plants and various wild and cultivated foodstuffs. The arrival of this large number of people into a small area of which previously hosted few people created intensive pressure on the environment (URT, 2003b).

Although this findings the study found out demographic variables of the sample and to assess for any influence on the research findings. The demographic data consisted of seven groups of respondents.

4.1.1 Seven groups of the Respondents

Out of the 59 individual respondents, 60% were men and 40 % are women



Graph 1 *showing number of respondents*

From the graph above I discovered that that men accepted to response than women also I found out that men were at list informed about the environmental degradation and wildlife habitat than women this mean that there is lack of enough sensitisation about the environment that habits wildlife surrounding the settlement by government or other partners.

4.1.2Marital status of the Respondents

The study revealed that all respondents interview in focus groups have their family, all respondents are married and living with their spouse (100%) in the settlement. The rest of the respondents that is leaders and district representatives did not open up for their marital status. This indicates that all the respondent were mature and informed about their environment and its surroundings

4.2 The effects of refuges settlement on the forest cover around Pagirinya refugee settlement

With reference to "the World Refugee Day (20 June 2019), 16 non-governmental organizations call for urgent action to prevent and mitigate the impact of environmental degradation around refugee settlements in Uganda. To do so, Adjumani Environment Officer mentioned;

> "We call on international partners to direct resources towards programs that address environmental degradation and promote peaceful co-existence among communities hosting refugees. International commitments to share responsibility with major refugee-hosting countries like Uganda to real action and financial support."(Interview with district environment officer Adjumani, on 13th June 2019 at Adjumani district headquarters)

More refugees continue to arrive, and large-scale returns to their country of origin remain untenable in the short time, given the protracted situations in Uganda's neighboring countries. Without a significant increase in investment, environmental degradation in refugee-hosting districts will have serious consequences for many years to come" (World Refugee Day, 20 June 2019 Kampala)

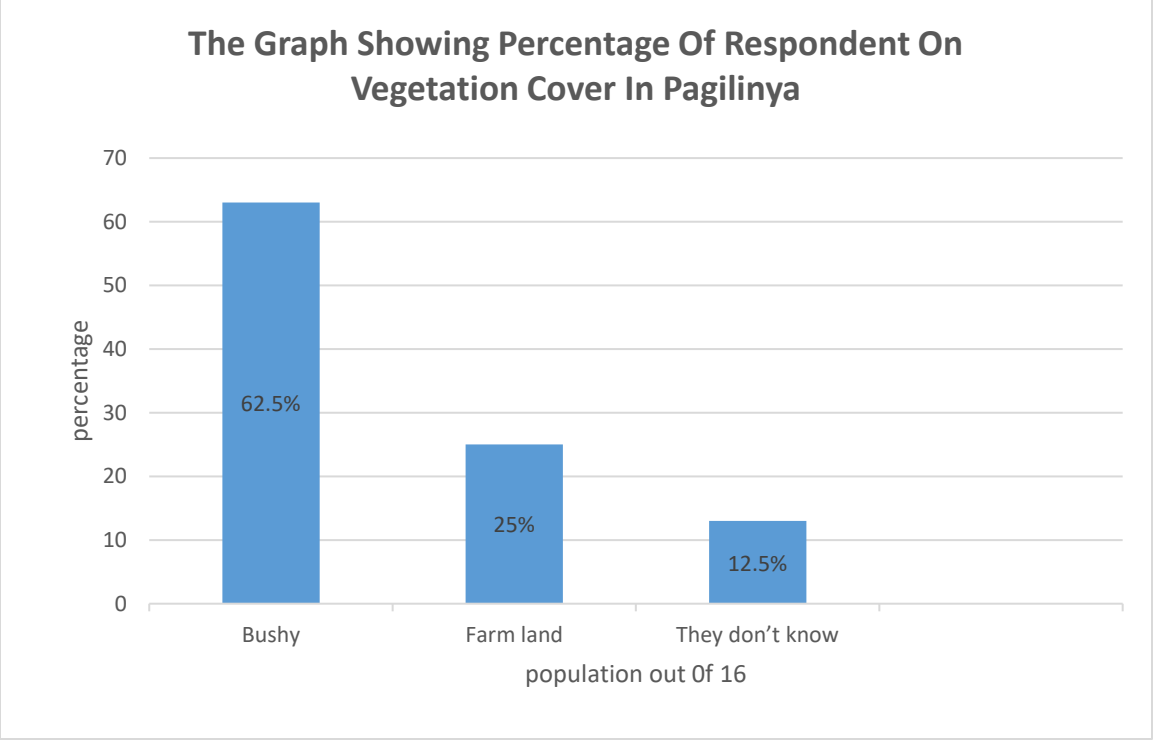
4.2.1 Establishment of Pagirinya refuges settlements

In 2016, south Sudan refuges influx in Uganda were allocated in Pagirinya refugee settlement. The total population in Pagirinya settlement is approximately 34,254 refuges.

Figure 1 Photo graph showing land without vegetation cover (top soil is exposed)

4.2.3 Land without vegetation

From the figure (1) above shows that Pagirinya refugees settlement in Adjumani the land is not covered with vegetation which was reported by all of the response from refugee settlement, However, out of 16 respondent from the community 10 of the local people interviewed said it was bushy, 4 said it wasn't bushy because we used to farm graze from there, 2 said they don't know because it's far from their village. The field study indicates that after refugees lived in the area the place was left with open land". (Interview with respondent on 12th June 2019 in Pagirinya settlement)



Graph 2 *showing percentage of respondents on vegetation cover*

From the graph (2) above the study revealed that 62.5% said that the vegetation was bushy, 25% said it was farm land and 12.5% they don't know. This indicates that the Pagirinya settlement was a place with forest covered and green vegetation. However, due to various degrees of human pressure on the land like, farming, poaching, trees cutting, grazing, and fire wood collection in

order to acquire their daily basic needs they utilized any available forest resource within their vicinity of the settlement. Utilization of vegetation by refugees. The findings shows that it started with in around the settlement and later on moved into the nearby wildlife reserves and community natural forests.

Adjumani Environment Officer mentioned;

> …an estimated 15 million trees have been cut by both the host communities and the refugees but only around 1 million have been planted to replace them which is a big environmental imbalance as per now.(Interview with district environment officer Adjumani, on 13th June 2019 at Adjumani district headquarters)

The findings shows there are polices and guidelines followed at national and district level.The presence of Uganda Forestry Policy (2001) which highlights Uganda's approach to habitat and species conservation around all National Parks, Wildlife Reserves and Forest Reserves whereby Adjumani district respect and enforce them but it not protecting the forests and environment.

4.2.4Laws protecting forest and game reserves in Pagirinya Adjumani

Findings from Pagirinya settlement in Adjumani district there are laws and policies protecting forest and game reserves for example, National Forestry and Tree Planting Act (2003), Uganda Forestry Policy (2001) among others. According to the Adjumani Environment Officer;

> Section 29 (1) of the National Forestry and Tree Planting Act (2003) provided for the conservation and management of all forestry biological resources and their derivatives, whether naturally occurring or naturalized with in a forest, for the benefit of the people of Uganda in accordance with this Act and any other Law relating to biological resource. But it is not sustainable to supervise land encroachers, tree cutting and many others due to lack of enough funds from central government and other partners.

The Environment Officer further mentioned that,

> The dominant vegetation in Adjumani which consists of savannah woodland and the common tree species which are Shea nut butter tree, locally called "awa" in Madi Language, Oli (*Acacia species*), Adu/Emeku, mahogane tree and the common grass species include spear grass, elephant grass among others which was safe haven for wildlife habitat. All mentioned species were destroyed in the presences of the laws and policies implemented by government of Uganda. However LWF tries to mark tree species but all in vain. (Interview with district environment officer Adjumani, on 13th June 2019 at Adjumani district headquarters)

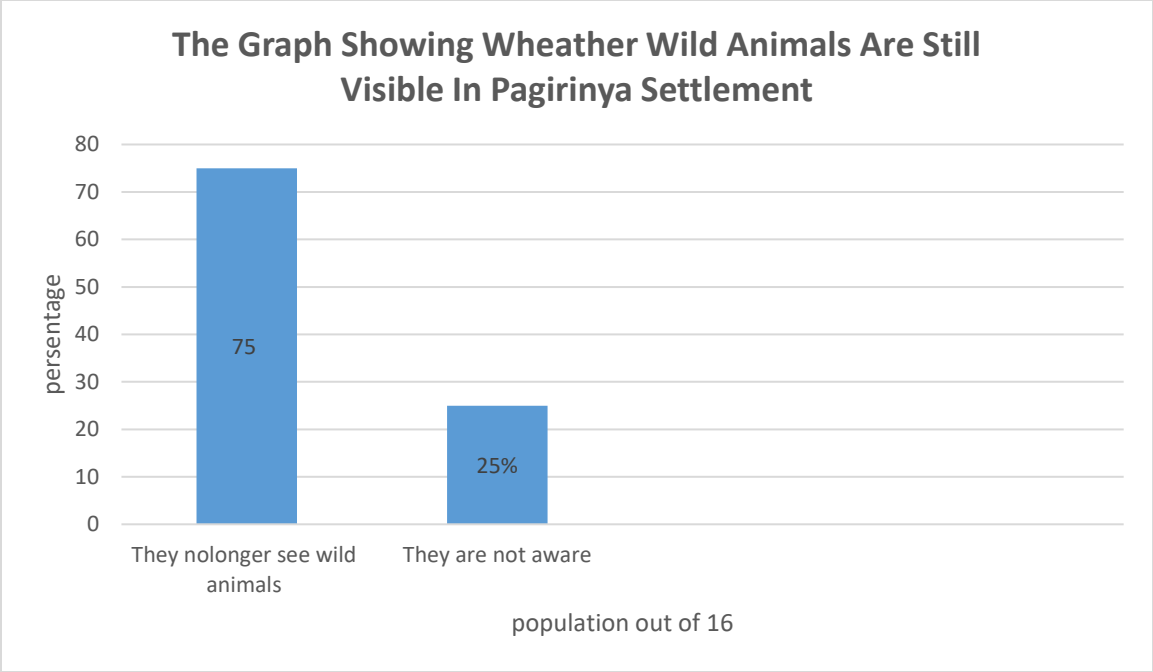
This ultimately, the verbatim above shows the grave impact of the human settlement to wildlife. Arguably, the more humans settle in a place, the likelihood that they will become aggressive and make use of the resources around the surrounding. This is normally for construction, framing and hunting activities. The drawback of this usage is when there are limited resources and the communities have limited choices. Andrews (1990) provides that infrastructure construction contributes to habitat loss is an inevitable consequence. Infrastructure causes not only the loss and isolation of wildlife habitat, but leads to a fragmentation of the landscape in a literal sense. Besides the physical occupation of land, disturbance and barrier effects in the wider environment further decrease the amount of habitat that is suitable or available for wildlife. This further exacerbated when the existing laws and institutional framework are not working or not being implemented adequately.

4.2.5 Wildlife habitat

The discovered the creation of Pagirinya settlement threatened wildlife habitats in the area. Human settlement and population pressure threaten away wildlife animals due to lack of natural habitat. One of the respondent said;

"I used to see animals when we passing along that village, they used to be around were Pagirinya settlement is; animals like; elephant, antelopes, waterbuck, big snakes, impala, dik dik among others. However since 2016 the arrival of refugees in this area and started putting up houses animal started reducing" (Interview with respondent on 12th June 2019 in Pagirinya settlement).

Out of 16 respondents from the host community 12 said they used to see animals until when refuges start settling in Pagirinya they do not see wild animal again. Four said they think there are still there. This implies that wild animals are hardly been seen.



Graph 3 *showing whether wild animals are still visible in Pagirinya settlement*

It was found out that from graph (3) animals are not visible in Pagirinya settlement. Both refugees and the host communities used the resources around their living environments for their basic needs. The refugees extensively cut down both dead and live vegetation for fuel wood, temporary house building poles, and thatch for roofing materials this led to the opening up the forest cover which used to habitats the wildlife in Pagirinya this led to forced wild animal to move far away from the settlement. (Observation on 12th June 2019 in Pagirinya settlement)

4.2.6 Wildlife Population Changes Before and After Refugees

One of the Respondent from wild life authority highlighted;

> The influx of refugees to Adjumani and the opening of Pagirinya settlement between 2016 up to now 2019. Wildlife survey conducted indicated decrease in wildlife populations in the protected forests and Game Reserves near settlements. Therefore it is likely that the presences of a large number of refugees in this area caused a rapid decrease in wildlife populations animals like elephants, impala, antelopes, DikDik, water backs, snakes and many more are not usually see or meet".

> My assumption is that, maybe there is poaching practice that is going on silently by both the refuges and hosts. There are policies and guidelines followed to protect and preserve wild life in Uganda, for example, elephant conservation action plan for Uganda 2016-2026 that protect elephants however, the ratio of the poaching elephant in Uganda is still very high.(Interview with respondent from Uganda Wildlife Authority on 13th June 2019 at Adjumani district headquarters)

The study found that the constitutions of the republic of Uganda (1995) provides the state to protect the natural resources such as land, water, wetland, minerals , fauna and flora on the behalf of the people of Uganda. The state is obliged to protect the natural recourses so as to safeguard the biodiversity of Uganda. The Uganda Wildlife Authority main Policy goal is "to conserve wildlife resources of Uganda in a manner that contributes to the development of the nation and the well-being of its people"

The presence of the above laws and policies deforestation, water sources destruction, poaching, opening land for settlement and infrastructure development in the settlement destroyed wildlife habitats.

4.2.7 Energy for cooking

According to the UN High Commissioner for Refugees (UNHCR), Uganda's refugees consume at least 1.1 million tons of firewood every year, as fuel wood is the primary source of energy security. Each individual in the refugee community is estimated to consume up to 1.6 kg firewood per day, compared with host community members who consume up to 2.1 kg per day. This puts a strain on the availability of wood, grass and other resources for domestic fuel, construction and livelihoods. This call for urgent action to prevent and mitigate the impact of environmental degradation around refugee settlements in Uganda (World Refugee Day, 20 June 2019 in Kampala)

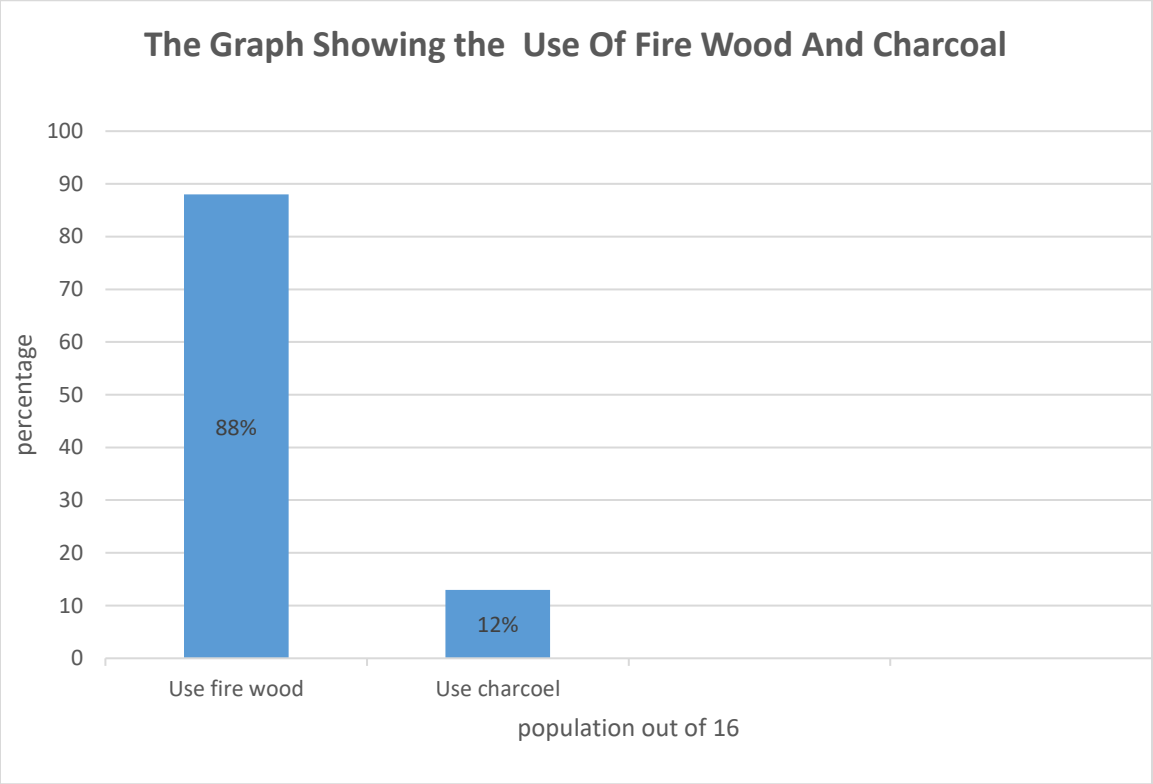
The study found that households in Pagirinya settlement and host community firewood is commonly used as source of energy for cooking.

From the focus group discussion the research discovered that in the settlement and host community they both use fire wood and few use charcoal for cooking. Shortage of fuel for

cooking is one of the major problems faced by people in Uganda, especially those hosting refugees.

Refuges and host community have resorted to charcoal burning as a coping mechanism to be able to get what to use in cooking and earn income as shown in figure (2) below.

Out of 16 respondent from host and settlement 14 of them use firewood and 2 use charcoal for cooking.



Graph 4 *showing the use of fire wood and charcoal*

From the graph (4) above it shows out of 16 households 13% use improved stove only because charcoal are also expensive to buy. More so 88% use fire wood and is also very hard to get after the host community stopped refuges from collecting fire wood from their farm land.

The Adjumani District Development Plan (2017-2020) notes high rate of deforestation. More than 99.7 per cent of the population in Adjumani use wood fuel which is dangerous to the

environment. Refugees and host community with support from UNHCR, NGO and other donors are tackling this issue through the use of more fuel-efficient stoves.

Figure (2) the photograph of a refugee woman showing broken charcoal saving stove and solar light

The figure (2) above shows a refugee woman showing broken charcoal saving stove.

> "It is expensive for mi to buy one. I exchanged my food ratio to get charcoal saving stove. Now it is broken, I got only solar light panel which I use at night from UNHCR". (Interview with respondent from refuges settlement on 12th June 2019 in Pagirinya settlement).

The study found that her statements contradict what LWP and other partners said that the charcoal saving stones are both affordable and easy to use in the refuges situations in the settlement

Respondent from LWF reported that;

> Tree planting in and around the refugee sites has been significant, but remains insufficient. Am calling Government of Uganda, UNHCR and its partners to increase funds for effective reforestation process, and ensure follow-up. Less than 20% of the refugee population and host community use energy-saving stoves,
>
> Community and settlements sensitization have yielded results, but need to be scaled up to allow refugee and host community leaders to adequately detect, prevent and address tensions around natural resources and habitat for wildlife(Interview with Respondent from LWF on 12th June 2019 in Pagirinya settlement).

The study found that, UNHCR and implementing partners like LWF supported tree nurseries to prepare seedlings for planting in the community and around Pagirinya settlement. LWF sensitized refuges on environmental protection & energy conservation. LWF promotes tree planting by offering refugees tree seedlings to conserve the environment through reforestation. Refugees receive poles to use in constructing shelter. By giving them seedlings for planting to replant the trees cut during contraction of settlement.

Adjumani district uses 850 tons daily of woof fuel per month and 310,259 tones wood fuel per Annual year (Robinson, 2018).However, the biggest challenge mentioned during interview was lack of pesticides to kill termites that disturbs plated trees a case in Pagirinya. One could easily see dried trees cut down by the termites.

National environment act 1995 provides guidelines for conservation of biological diversity. The act gives mandate the national environment authority (NEMA) to work with other agencies to put measures to conserve and protect diversities from threatened extinctions. The study found that LWF participated in marking of trees in the settlement, species like mahogany trees are marked with blue color as a means of conserving the environment as shown in the figure (3) below

Figure 3 Photo graph showing reserved marked trees in Pagirinya settlement

4.3 The effects of refugee's settlement on the water catchments areas around Pagirinya refugee's settlement

4.3.1 Encroachment to protected areas

Water catchments areas is an area where water is collected by the natural land scape for example dams, rivers, lakes oceans or ground water system. Healthy water catchment helps to protect our rivers dams and groundwater and provides our community with clean drinking water, natural area for recreation, habitat for plants, animal, healthy environment and water ways (hunter water, 2011).

The findings from one of focus group discussion with refuges, it was revealed that the refugees staying in block F and block E near Mukoto Yoro Village leave near Ayugi stream, Reye stream

and Engwe streams. Refuges in those blocks encroach to Panyara forest and wetland reserves along that water bodies.

> District environmental officer reported about refuges encroaching on protected reserves in Pagirinya settlement and the whole district at large without being noticed, the refugees used the available resources to meet their daily needs by acquiring them from the water bodies, forest Reserve and others (Interview with District environmental officer on 13th June 2019 at Adjumani district headquarters).

Figure 4 Photo graph showing encroachment on the protected Water bodies

From figure (4), focus group discussion in the settlement reviled that refugees encroach to protected areas for hunting, fishing and collecting of firewood as well as cultivating near water bodies. Over cultivation along water bodies was said to have left the ground bare which causes Soil erosion also poor sanitation and west disposal along water bodies due to high population in the settlement coursing water pollution which effect environment and human health

Human beings and animals depend on the water directly yet some cultural groups do not want to use pit latrines hence the frequent out breaks of cholera in the settlement. These problems were identified to be caused by; weak enforcement of existing environmental legislations, Conflicting regulations, negative attitude towards enforcing regulations and inadequate water resources information. Population pressure was also acknowledged as a serious sthreat.

The main augment is that agriculture is the main economic activity in the region and most of the population in the catchment area depend on subsistence agriculture which involves use of poor farming methods, clearing wetlands up to the river banks hence siltation and run off banks.

From observation, Cotton plantations works are seen around Pagirinya settlement uses a lot of chemicals that end up being eroded into the water bodies.

One respondent said;

> I walk over 9 kilometers towards mukoto yoro village where I have my garden. The soil that side is more fertile than here in the settlement and I don't hire it is near the forest. However, the wild animals destroy our crops especially elephant. And some time forest rangers arrest and harass us.(Interview with respondent from refuges settlement on 12th June 2019 in Pagirinya settlement).

How should refugees co-exist with the neighboring environment in the community? This is the key question one has to deal with when such issue articulated by the respondent above arises. Never the less another respondent added another voice that;

> "Mainly women and children are responsible for collecting water in the morning and evening hours which puts women and children at risk of sexual violence. This is due to long distances looking for water around the settlement"(Interview with respondent from refuges settlement on 12th June 2019 in Pagirinya settlement).

The Constitution of Republic of Uganda (1995) provides policies that all Ugandans enjoy, 'clean and safe water National Environment Management Policy (1994) and Statute (1995) Water resource conservation and management are manage and develop by national water policy (1999) Government is fully mandated to Protected Wetlands areas because of its biological diversity importance.

4.3.2Water sources and supply situation

The study found out that, during the gazetting of land for refugee settlement in Uganda, the Government of Uganda through OPM, UNHCR and other humanitarian actors endeavor to

ensure that infrastructure like water sources are available in all refugee settlements that can contributed to the majority of the water sources surveyed having low risk scores of contamination in the settlement. Water supply Pagirinya settlement include hand pumps, tap, boreholes and water trucking which is very expensive.

Majority of the respondents from the refugees reported that Boreholes are the major water sources used by majority ofthem. This finding was consistently reported by LWF and other WASH sector actors in refugee settlements boreholes as the main sources of water

In addition to this, Adjumani district where Pagirinya settlement is located usually suffers dry spells during which boreholes dry up and others yields become reduced which affect also domestic and wild animals . The study found a medium level of safe water practices among the respondents. There is need for knowledge and awareness campaigns among refugees. This will contribute to a comprehensive knowledge or approach in terms of water safety from source to point of consumption.

National water policy (1999) and Constitution of Republic of Uganda (1995) is mandated by the State to endeavor that all Ugandans enjoy rights and opportunities to access to education, health services, clean and safe water and others. National Environment Management Policy (1994) and Statute (1995) emphasize water resources conservation and management as factor of production in manufacturing industry, power generation, mining agriculture and habitat for wild animals.

District environment officer pointed reported that;

> Protection of the catchment area is ensured that in all areas upstream of a wetland are properly managed to prevent wetland degradation. Wetland plants should be protected to grow at the edges of river banks. But there is lack of serious commitment from us leader to sensitize and enforce the laws and policies that are exiting to save the wetlands in Adjumani district (Interview with District environmental officer on 13th June 2019 at Adjumani district headquarters).

The study reviled that Latrine construction is also very big problem in the settlement. Due to lack of enough land where by (30*30) is the only plot of land allocated to every household and in some cases latrines have been constructed. The few pit latrines that are constructed still get filled

very fast due to the big numbers that use them and others constructed close to the water shores as shown in the figure (5)below,

Figure 5 showing pit latrine constructed near running water ways.

4.4The effects of refuges settlement on the land around Pagirinya refugee settlement.

According to World Refugee Day, 20 June 2019 in Kampala, National and international actors responding to the refugee situation in Uganda, including signatories to this statement, are investing in alternative measures and efforts to mitigate environmental damage. Environmental protection has been identified as a key priority for Uganda's refugee response. The Ugandan government developed a water and environment response plan to address environmental and land degradation in refugee-hosting areas, under the Comprehensive Refugee Response Framework (CRRF) and support from humanitarian response led by the Office of the Prime Minister (OPM) and UNHCR.

The study found out that before refugees resettled on this land, the land was covered by green vegetation after the influx it is indicated that it was left with no forest cover. The refuges settlements threatened wildlife habitats in Pagirinya. Similar observation has been reported by

Barve *et al.,* (2005) who underscored the fact that human settlement, populations increase are a threat to wildlife conservation in Southern India.

The refugees and the local communities used the resources around their living environments for their basic needs. The refugees extensively cut vegetation for fuel wood, temporary house building materials, and thatch for roofing materials and left land bare. This consequently are a threat to wildlife conservation within where the refugees have settled.

4.4.1 Bare land and west disposal

The report from the respondent shows that the effects of refuges settlement on the land around Pagirinya refugee settlement the first one is deforestation.

Deforestation increased the rate of bare land/rock after refugees' influx is due to the increase population pressure and cultivation, infrastructure development and waste disposal around the Pagirinya settlement. The refugees like the host communities, also depended on the natural environment around the settlement were established in order to acquire their daily basic needs. Moreover, field observation revealed that areas around where in the settlement the land is bare as shown in the figure (5) below.

Figure 6 Photo graph showing Waste disposal and bare land in Pagirinya refuge settlement.

The effect of increased rate of bare land/rock by refugees settlements in Adjumani district increased temperature in the area. These findings are supported by high temperature around Pagirinya settlement and persistent drought in Adjumani district. The increased temperature may be contributed to the drying up of the grass and so increased the bare land/rock that cannot habit wildlife.

One of the respondent reported that;

> Constant cultivation on the same land cause soil extortion and lead to low agricultural production on the small plot of land given to us. More so, the waste disposal including plastic bottles and polyphone bag also affected the land among others which ended up in the wetlands and farm lands where agricultural is practiced figure (5) above.(Interview with respondent from refuges settlement on 12th June 2019 in Pagirinya settlement).

4.4.2Infrastructure development

The influx of refugees was coupled with the multiplication and growth of urban centres along the Settlements infrastructure developments like road, schools, and health centers mention them which left the vegetation cleared destroying wildlife habitat as shown in the figure (6) below

Figure (6), showing infrastructure development in the Pagirinya settlement.

Large scale infrastructure development is often extractive by nature. For example, site planning, roads and hospital construction are major causes to environmental damage. Consequently, the loss of natural habitat for plants and animals due to such construction not withstanding road network have cumulative effect in the landscape.

In most European countries, the allocation of space for new infrastructure is a significant problem for land use planning. It is not surprising therefore that land take is a fundamental consideration in Environmental Impact Assessment studies and forms a baseline for designing mitigation and compensation measures in modern infrastructure projects (OECD, 1994). Unfortunately this rarely done with the case of refugees as further discussed below.

LWF Respondent said;

> I think disturbance during infrastructural development in and around the settlement affect wildlife habitat, like air and noise pollution, artificial lighting road and traffic characteristics, landscape which scare way wild animals. However, improved infrastructure helped both refuges and host community for the host Governments' development.(Interview with respondent from LWF, on 12th June 2019 in Pagirinya settlement).

Inclusion the study found out that infrastructural development in the settlements has big role in in improving the well-being of refugees host community, but this doesn't happen in isolation, refugees need to settle where there are other developments like hospitals, markets to do business for national development. But all this doesn't happen without the involvement of the host community, starting with the LC's who play a very important role in allowing them to settle in their location and the host community which constantly interact with them and make them feel at home.

4.4.3 Land fragmentation in the settlement

Fragmentation imply the subdivision of farm land into undersized units which are too small for rational exploitation. Secondly, it can refer to the situation whereby an individual holding is split land into many non-contiguous parcels (Sanderatne, 1972). The setting up of Pagirinya settlement land was divided into different pieces of land for refuges plots (30*30) meters per households, where to put offices other infrastructures. In the process all land was cut into small plots which affected land use.

Fragmentation in the first sense undersized farms constitutes a problem of wide ranging implication, linked to issues of overpopulation, polarized land ownership and to processes of land redistribution as in a conventional land reform.

District environmental officer said;

> The construction of infrastructures and opening of Pagirinya settlement affected physical environment due to the need to clear, level, fill, and cut natural material on land. Construction work changes soil density, landscape relief, surface and groundwater flows, land cover, vegetation and habitat composition(Interview with District environmental officer on 13th June 2019 at Adjumani district headquarters).

The photo graph below shows how homesteads are settled in their (30*30) plots of land in congested manner that cannot allow further expansion or other development

The figure (7) showing how close homesteads in Pagirinya settlement

In conclusion the opening of Pagirinya settlement and development of infrastructure around the settlement increased artificial lighting, traffic noise, chemical pollutants, microclimatic and hydrological changes, vibration and movement are just a few sources of disturbance that alter the

habitats adjacent to infrastructure. In this situations, such disturbances affected wildlife habitat and many animals was forced to move away due to constant disturbance as long as they experience immediate danger.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides the summary of the findings from chapter four and conclusions based on the findings. The chapter further gives recommendations in line with the objectives of the study. The objectives of this study were to; establish the effect of refugee's settlement on wildlife habitats in Pagirinya refugee's settlement, Adjumani District.

The findings from this study show the effect refugees settlement on the forest cover, water catchments areas, and land resulted into a distraction of wildlife habitats around Pagirinya refugee settlement.

5.1 Summary of Findings

It was discovered that the populations of wild animals like elephant, impala, dik dik, antelope, hyenas waterbuck was negatively impacted by refuges settlement activities in Pagirinya. These species were forced to reallocate due to increase of population of the people in the area, also hunting for meat by refugees to supplement on their rational given WFP.

This could be attributed to the settlement being close to the forest reserves and water bodies.

For instance, block F and E in Pagirinya is just near Ayuge stream and Panyara (Otze) forest reserves.

These wildlife habitats were destroyed through cutting down all the forest cover and grassland in the process of thatching their houses during settlement around Pagirinya refuges settlement. The study found out that infrastructure development also destroy existing habitats and affect the species that lived there. Degradation of the surrounding environment during construction, operation or decommissioning through noise, vibration and light pollution or waste (e.g. dust created during construction) also disturb habitats and wildlife. The infrastructure projects may hinder the movement or disturbance of animals through its habitat. This can impact on species population dynamics e.g. distribution and abundance resulted to species extinction.

Policies/regulations in Uganda exist to protect and promote environment and all its surroundings. They work hand in hand For example, National environment act 1995 provide guidelines for conservation of biological diversity. Wild life act 2000 and the constitution of republic of Uganda 1995 protect all the natural resources and all protected reserves on behalf of people of Uganda. The Challenges are lack of enough funds to implement, follow up the mentioned polices.

5.2 Conclusion

The findings from this study show that the establishment of Pagirinya refuges settlement has effected wildlife habitats in Adjumani District. Farming, hunting, grazing, tree cutting, setting of forest fire and encroachment to protected areas resulted into a decrease in wildlife populations and habitats near the settlement. Results of this study derived from land cover analysis showed that wildlife habitat were affected by refugees by deforestation around the settlement and cutting grasses for thatching their houses from grassland that was famous for wildlife habitat, Government bodies, district, local communities failed to implement laws and Policies that exist to protect and promote environmental sensitisation among the host and surroundings of the settlements.

The assumption is that, Government of Uganda and international actors should invest in alternative sources of energy to refugees to mitigate environmental damage. Environmental protection has been identified as a key priority for Uganda's refugee response.

The findings from this study show that, Tree planting in and around the refugee sites has been significant, but remains insufficient. The government of Uganda, UNHCR and its partners should increase reforestation efforts, and ensure follow-up. As less than half of the refugee population and 20% of the host community use energy-saving stoves, the same actors should increase their distribution and the efficiency of their use. Community dialogues and sensitization have yielded results, but need to be scaled up to allow refugee and host community leaders to adequately detect, prevent and address tensions around natural resources.

To do so, we call on international partners to direct resources towards programmes that address environmental degradation and promote peaceful co-existence among communities affected by

displacement. International commitments to share responsibility with major refugee-hosting countries like Uganda have to be translated into real action and, crucially, financial support.

The populations of elephant, bushbuck, waterbuck, dik dik, and antelope was negatively impacted by refuges activities in Pagirinya settlement.

5.3 Recommendations

The following recommendations are based on the current study: UNHCR primarily mandated is to provide international protection and humanitarian assistance other standard functions have included relief distribution, emergency preparedness, and special humanitarian activities. This implies that UNHCR is mandated to work with the top level of Government up to lower levels to fill the humanitarian needs.

5.3.1 To the Government of Uganda

The Government of Uganda has put in place administrative levels starting from the LC1 to LC5 to help with the administrative of the areas in the village levels. So that Refugees' settlement should be established at least fifty kilometers from boundaries of protected areas to reduce the negative impact of refugees on protected natural resources. The government also should work with wildlife authority, NEMA and all other organs of the state with UNHCR to do Environmental impact assessments before settling the refuges in any given land. In so doing it will help to mitigate the effect of refugees on the environment which can also affect wildlife.

Mitigating the loss of wildlife habitats and biodiversity need conservation sensitization through authorities, institutions, politicians, academicians and all local communities around Pagirinya settlement. That is host government, wildlife authority and NEMA to work together settlement and the community to reduce environmental degradation.

5.3.2 To UNHCR and Other Refugee Aid Agencies

Both refugees and host community members wish for a peaceful co-existence. For this to effectively happen, international agencies UNHCR, WFP and other relief international organizations should provide refugees with fire wood or other varieties mechanisms to use in cooking their food like gas, energy saving stoves to supplement on little fire wood. Fire wood is

a necessity like another essential needs of a person so the partnership with UNHCR with host Governments should at list provided a charcoal saving stove to every family as long lasting solution before picking their food ratios. This will reduce the rate of cutting trees in and around settlements

This should start from a participatory needs assessment where the two groups are involved right from identification of their needs, prioritizing them, planning, implementation and even evaluation of such a program. Most importantly, the refugee agencies should raise funds aimed at offering their needs

5.3.3 To the Donor Community

The donor community should re-examine its commitment to addressing the needs and concerns of refugees and the hosting community by recognizing the action of Tree planting in and around the refugee sites has been significant, but remains insufficient. The recommendation to government of Uganda, to work closely with UNHCR and its partners to increase funds for reforestation, and ensure follow-up not forgetting pesticides to kill termites that disturbs plated trees a case in Pagirinya were I so that challenge of the pests. In so doing Funds allocation to the tree plantation should be increased to hosting districts by local Governments working with UNHCR and other partners this will enhance coexistence between the refugees and host community and environment.

5.3.4 To the Host Community

Refugees do not live in vacuum but within the host community, In view of that it must be recognized the presence of refuges in their communities. The host community through UNHCR, WFP and other relief international organizations should exchange food items with refugees to balance the diet for example, beans to peas, posh to mattoke within themselves this could minimize temptations for them to poach wild animals. This will help to protect wildlife populations of the host countries. The host should be part and partial of the refugee community because good coexistence leads to development and their opportunity.

5.3.5 To the Refugees

The refugees should get involved in community policing and community service to sensitize both local and refuges themselves on Environmental conservation through authorities,

institutions, politicians and academicians around Pagirinya settlement. Host Government, UNHCR and LWF should also consider the situation of the host communities that live next to the settlements to avoid future tensions on the environment and wildlife, especially where assistance is given to settlements for example tree seedlings to plant also neighboring communities could also be given some seedlings to plant, thereby improving their living conditions and promoting social cohesion and coexistence.

Working together as a team without leaving the burden to the government only on how to rehabilitation the degraded areas, thorough environmental impact assessments. By involving key stakeholders starting from village level to national level, instead of leaving this activity to conservation organizations, NGOs, UNHCR and central government only.

Further ecological studies should be undertaken in order to understand the importance of maintenance of vegetation cover in the environment. NFA, NEMA and all other agencies should work together to protect the environment and habitat for wildlife

5.4 Area for further Research study

“How wildlife can be restored in settlement areas when the refuges have repatriated”

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APPENDICES

Appendix I:

Interview Guide for District Environment Officer, Uganda Wild Life Authority (Officers and Rangers), Local Councilors, Opinion Leaders and Staff from NGOS in Pagirinya Settlement

Introduction

My name is **Tumusiime Paul (2016 M202-20003)** a student from Uganda Martyrs University from school of arts and social sciences are perusing degree in master of refugees and migration studies.

My study is about **"The effects of refugee settlement on wildlife habitats. A case of Pagirinya, Adjumani District"**

I am hereby seeking your consent to conduct my study which is for academic purpose to fulfillment the requirement for award of the degree of master of refugees and migration studies, Uganda Martyrs University**.**

All the information given will be treated confidentially for purely academic purposes and there is no need to write your name.

Paul Tumusiime Paul

0779146990, 0702637513

Bio data

Place of Interview ……..……..

Date of interview ……..…….

Occupation/Position of interviewee……

Time of interview……..……..

Objective 1:

The effects of refugee's settlement on the forest cover around Pagirinya refugee settlement.

- How does district refugee settlement management involve the local community in management of settling refugees in wildlife habitats?

- You live here in Pagirinya with refugees, what can you say about their presence on the environment in your community?

- What do you hear about the main activities the refugees engaged in around forest and game reserves? [probe for which activities involved]

- How does what they engage in affect the environment? [probe for effect on forest cover – decrease and increase]

- What extent has the refugee presence access or use local environmental resources around Pagirinya settlement?

- Are people aware of laws protecting forest and game reserves in Pagirinya? [Probe for is there enough sensitization about environmental conservation to the public in Pagirinya Adjumani].

- What recommendations can you give on the effects of refuges settlement on the land around Pagirinya refugee settlement?

- What are the contributions of the refugees to this society around Pagirinya Settlement?

Objective 2:

The effects of refugee's settlement on the water catchments areas around Pagirinya refugee's settlement

- Presence of refugees has led to irreversible land degradation, loss of biodiversity and economic value of the environment in Pagirinya. What is say?
- How many wetlands sites were there in your village before the refugees lived in the area? [Probe fro, from your observations how many wetlands remained after the refugee's influx the area?]
- What local mechanisms are refugees putting in place to co-exist with the host communities without destroying water catchments areas around Pagirinya refugees settlement
- What has Government and NGOs done in regard to wildlife habitat loss? [Probe for in the presence of laws and policies which are in place?]
- What recommendations can you give on the effects of refugee's settlement on the land around Pagirinya refugee settlement?

Objective 3:

The effects of refugee's settlement on the land around Pagirinya refugee settlement

- Does the district involve the native community in management of wildlife habitats
- What are the effect of construction of infrastructure in the settlement to the wildlife habitat
- What are the key drivers of distraction of wildlife habitat in around Pagirinya refugee settlement? [Probe for how to improved land and forest management in each of these areas?

- Can u tell mi parts in Pagirinya settlement where reforestation is taking place?

- Do you believe the presence of refugees in the region affects the land given out by communities to Pagirinya refugee settlement?

- What are the challenges that you encounter in the course of your environmental conservation operations?

- Are there any grants from government to restore or conservation environment in Adjumani district that host the refugee? [Is that government grant enough to restore or conservation environment?]

- What recommendations can you give on the effects of refuges settlement on the land around Pagirinya refugee settlement?

Appendix 2:

Focus group discussion for refuges representative and members of the public

Introduction

My name is Tumusiime Paul (2016 M202-20003) a student from Uganda Martyrs University from school of arts and social sciences are perusing degree in master of refugees and migration studies.

My study is about **"The effects of refugee settlement on wildlife habitats. A case of Pagirinya, Adjumani District "**

I am hereby seeking your consent to conduct my study which is for academic purpose to fulfillment the requirement for award of the degree of master of refugees and migration studies, Uganda Martyrs University**.**

All the information given will be treated confidentially for purely academic purposes and there is no need to write your name.

Paul Tumusiime Paul

0779146990, 0702637513

Bio data

Place of focus group discussion ……..……..

Date of focus group discussion ……..……..…….

Occupation/Position of focus group discussion respondents……..……

Time of focus group discussion……..……..……..

Objective 1:

The effects of refuges settlement on the forest cover around Pagirinya refugee settlement.

1. What was the vegetation cover status before and after the refugees living in Pagirinya settlement? [Probe for which plant species, birds and wild animals are no longer found in your village after refuges influx in this area?]

2. To what extent has the refugee activity negatively impact the ecosystem in and around Pagirinya refugee settlement in the presence laws and policies protecting them?

3. From environmental resources which food supplement do you gather from it? [Probe for what human activities cause environmental degradation in your area?]

4. What are the sources of fuel energy for refugee Pagirinya refugee settlement? [Probe for What quantity of fuel wood needed by each refugee per week, per month and per year?]

5. What recommendations can you give on the effects of refugee's settlement on forest cover around Pagirinya refugee settlement?

Objective 2:

The effects of refuges settlement on the water catchments areas around Pagirinya refugees settlement

1. How many wetlands sites were there in your village before the refugees lived in the area?

2. From your observations how many wetlands remained after the refugees in fluxed the area?
3. Are there any grants from government to restore or conservation environment in Pagirinya, Adjumani district that host the refugee? [probe for is the money available always and enough for such activity]

4. What has Government and NGOs done in regard to wildlife habitat loss? [Probe for in the presence of laws and policies which are in place?]

5. What local mechanisms are refugees putting in place to co-exist with the host communities without destroying water catchments areas around Pagirinya refugee's settlement?
6. What recommendations can you give on the effects of refugee's settlement on the land around Pagirinya refugee settlement?

Objective 3:

The effects of refugee's settlement on the land around Pagirinya refugee settlement

1. Is the presence of Pagirinya refugee settlement led to high levels of deforestation or land degradation?

2. Is the soil status before and after the refuges influx in Pagirinya the same?

3. Is there any project in Pagirinya settlement you have seen doing reforestation on large scale?

4. What are the key drivers of improved land and forest management in Pagirinya?

5. Did the refugee's activities in the area have negative impact to the wildlife habitat in this community at large?

6. What recommendations can you give on the effects of refugee's settlement on the land around Pagirinya refugee settlement?

APPENDIX 3:

TIME FRAME

A time frame refers to the period the researcher will take to finish the research. It will enable the researcher to conduct a study within existing limits.

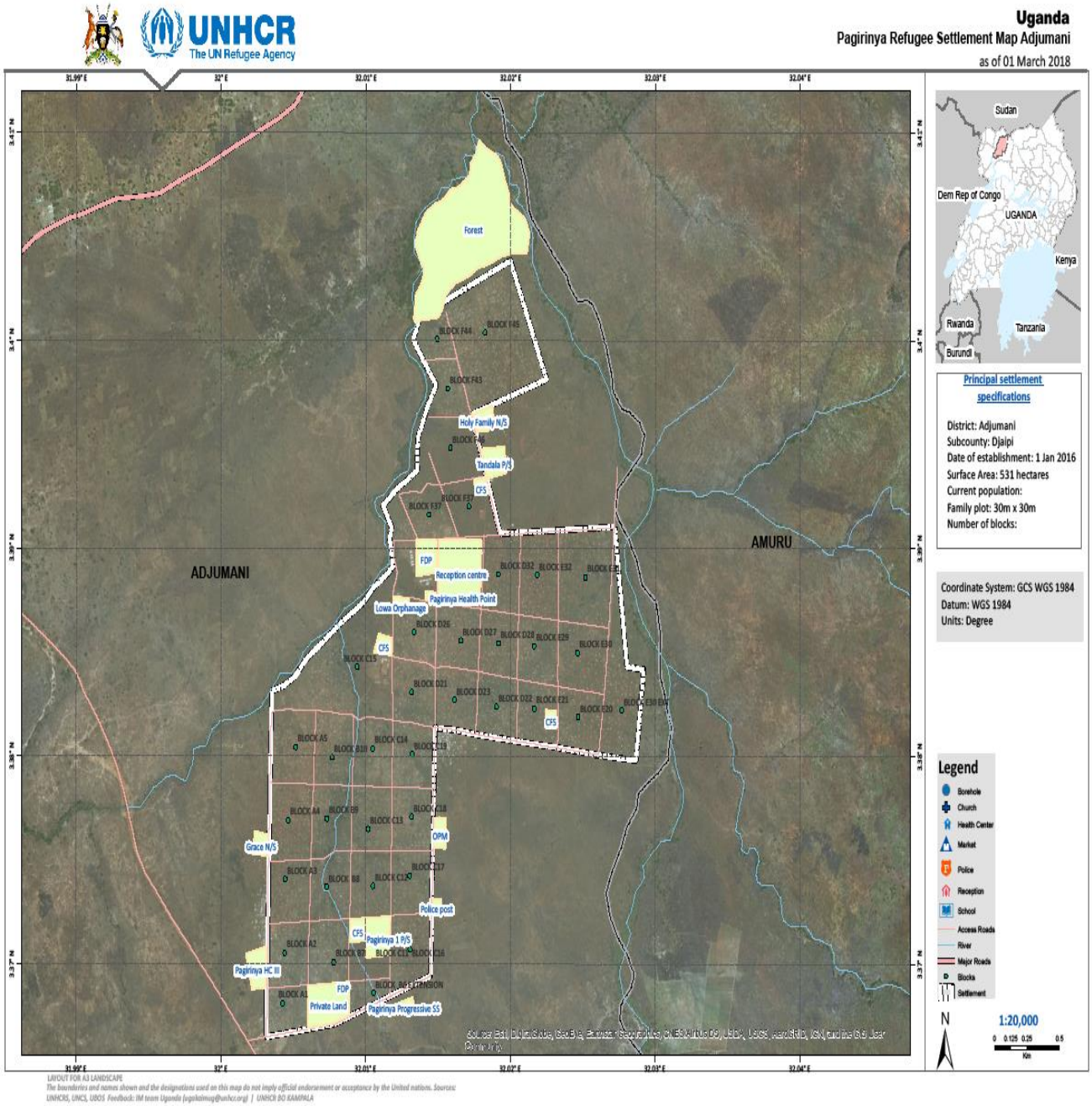
NO.	ACTIVITY	DURATION	DUE DATE	PERSON RESPONSIBLE
1.	Developing research proposal	2 months	August, 2018-June 2019	Researcher and supervisor
2.	Data collection	1 week	June 2019	Researcher
3.	Data analysis	1 week	June 2019	Researcher
4.	Report writing	2 weeks	July 2019	Researcher
5.	Submission of final report	1 day	October 2019	Researcher

APPENDIX 4:

BUDGET

Unit / Items and stationary	**Quantity**	**Cost**	**Total**
Printing	2 reams	20.000/=	40.000/=
Binding	4 copies	20.000/=	80.000/=
Photocopy	70 pages X 4	100/=	28.000/=
Collection of data			
Printing	3 papers X 6 copy	500/=	9.000/=
Photocopy	12 copies X 3 papers	100/=	36.000/=
Travel to the field for data collection	5 days	X 40.000	200.000/=
Report preparation and submission			
Typesetting	4 copies	25.000/=	100,000/=
Spill Binding	4 copies	20.000/=	80.000/=
Hard cover Binding and printing			50,000/=
Travel to the university			100.000/=
Contingency			50.000/=
Grand total			**773,000/=**

MAP SHOWING PAGIRINYA SETTLEMENT



Uganda Martyrs University

making a difference

SCHOOL OF ARTS AND SOCIAL SCIENCES
Department of Governance, Peace and International Studies
Email: sassadmin@umu.ac.ug

Your ref:
Our ref: MRMS field introduction letter 2018-2019

Nkozi, 16th May, 2019

Dear Sir/Madam,

Re: Letter of Introduction

This is to introduce to you **TUMUSIIME Paul** Reg. No. **2016 - M202 – 20003** who is a master's student in the Department of Governance, Peace and International Studies at Uganda Martyrs University - Nkozi. He is required to carry out research on a topic of his interest "***The effects of refugee settlement on wildlife habitats. A case study of Pagirinya settlement***"
This is as a requirement for the award of Masters Degree in Refugee and Migration Studies.

I would like to request you to render him assistance in collecting the necessary data for writing his Dissertation.

Thank you in advance for your assistance.

Yours Sincerely,

Mr. Ika Lino
Assoc. Dean

UGANDA MARTYRS UNIVERSITY
15 MAY 2019
ASSOCIATE DEAN
School of Arts and Social Sciences

THE REPUBLIC OF UGANDA

OFFICE OF THE PRIME MINISTER

PLOT 9-11 APOLLO KAGGWA ROAD, P.O. BOX 341, KAMPALA, UGANDA
TELEPHONES: General Line 0417 770500, Web: www.opm.go.ug, E-mail: ps@opm.go.ug

Uganda Vision 2040

In any correspondence on this subject, please quote No: ***OPM/R/107***

May 30, 2019

Mr. Tumusiime Paul
Uganda Martyrs University

RE: PERMISSION TO CARRY OUT RESEARCH IN PAGIRINYA REFUGEE SETTLEMENT

Reference is made to your letter dated May 28 2019, in regard to the above subject matter.

This is to authorize you carry out research on ***"The effects of refugee settlement on wildlife habitats, in Pagirinya Refugee Settlement"*** from June 3 - 7, 2019.

You are requested to observe the rules and regulations governing the settlement. Office of the Prime Minister authorities in the settlement are hereby requested to accord you the necessary assistance.

Gerald Menhya
FOR: PERMANENT SECRETARY

C.C. Refugee Desk Officer
Adjumani

C.C. Settlement Commandant
Pagirinya

The ASC/RWC/Partners
Please avail all
Necessary information
Permission has been
Granted

THE REPUBLIC OF UGANDA

OFFICE OF THE PRIME MINISTER

PLOT 9-11 APOLLO KAGGWA ROAD, P.O. BOX 341, KAMPALA, UGANDA
TELEPHONES: General Line 0417 770500, Web: www.opm.go.ug, E-mail: ps@opm.go.ug

Uganda Vision 2040

In any correspondence on this subject, please quote No: ***OPM/R/107***

May 30, 2019

Ms. Arach Oyat Sharon
Uganda Martyrs University

RE: PERMISSION TO CARRY OUT RESEARCH IN PAGIRINYA REFUGEE SETTLEMENT

Reference is made to your letter in regard to the above subject matter.

This is to authorize you carry out research on "***The Influence of Migration on Cultural Identity of Children in Pagirinya Refugee Settlement***" from June 3 to June 7, 2019.

You are requested to observe the rules and regulations governing the settlement. Office of the Prime Minister authorities in the settlement are hereby requested to accord you the necessary assistance.

Gerald Menhya
FOR: PERMANENT SECRETARY

C.C. Refugee Desk Officer
Adjumani

C.C. Settlement Commandant
Pagirinya