

**WETLAND DEGRADATION IN UGANDA; THE CASE STUDY OF
KINAWATAKA, NAKAWA DIVISION
KAMPALA DISTRICT**

BY

**NAMUYABA RINEY JUSTINE
BEM/14091/62/DU**

**A RESEARCH REPORT SUBMITTED TO THE FACULTY OF APPLIED SCIENCE
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ACRONYMS

EIA	:	Environment Impact Assessment
KCC	:	Kampala City Council
NEMA	:	National Environment Management Authority
NWCMP	:	National Wetland Conservation and Management Programme
FAO	:	Food and Agricultural Organization

DECLARATION

I Namuyaba Riney Justine, declare that I have done this dissertation. Neither whole nor part of this work has been before submitted as paper for an academic award in any college, University or any institution of higher learning.

Signed
NAMUYABA RINEY JUSTINE
BEM/14097/62/DU

Date:

APPROVAL

This is to certify that Namuyaba Riney Justine carried out this research work “wetlands degradation in Uganda: A case of Kinawataka wetland in Kampala District”, under my supervision.

Signed

.....
SEKABIRA KASSIM

Date:

..... 29/09/2010

DEDICATION

To my family, which has supported me traverse hills and valleys to this level, this dissertation is dedicated to you all. Namuyaba Riney Justine.

ACKNOWLEDGEMENT:

This work would not have been possible without the individuals, material, financial and moral support rendered to me during the execution of this study.

First and foremost, my gratitude goes to my supervisor Mr. Sekabira Kassim whose positive guidance and criticism have made this work possible.

I would also wish to express my sincere gratitude to my fellow students of Environment Management course with whom I shared a lot about this work.

Special thanks also go to all the respondents who availed me with the necessary information.

Lastly I am highly indebted to my entire family for the moral support rendered to me during this period.

ABSTRACT

The study focused on wetland degradation in Uganda: A case study of Kiwanataka wetland in Kampala District. It was carried out to examine the various causes of kinawataka wet land degradation, assess the human activities carried in and around the wet land and to establish solution for the problems brought about as a result of kinawataka wet land degradation.

The wetland of Kinawataka in Kampala was used as a sample for the study.

Questionnaires, interviews, literature review, recording, photography and observation were employed as tools in the study.

Results from the study indicate wetland degradation being on the increase to the extent that in the near future, Kiwanataka wetland resources may face extinction.

This has been attributed to uncontrolled development activities by the people, poor planning and coordination among the various stake holders namely NEMA, KCC and Industrial developers, ignorance among the people of the need for wetlands, weak legal framework and enforcement capacities among the partners involved in wetland conservation and environment generally.

From the Study therefore it is concluded that there is need for an amendment in the NEMA Act and other related laws so as to give it powers to punish offenders involved in wetland degradation. Coordination and cooperation among the environment management agencies NEMA, KCC, planning unit, developers and the local community. Community participation in the conservation of wetlands and the Environment generally should be encouraged through seminars, mass media especially up to the grassroots.

If there no is a positive change in wetlands conservation and environment generally, Kampala District will continue facing severe floods, pollution, loss of bio-diversity in wetlands and general change in its microclimate.

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CHAPTER ONE

INTRODUCTION

1.0 Background

Uganda covers an area of about 241,500 sq. km of which approximately 15.3% is open water while wetlands cover 13% of the country. In Uganda, wetlands are divided into the following categories: lakes and estuarine wetlands, riverine swamps, and flood plains. The most common type of wetland in Uganda is the papyrus swamp dominated by *Cyprus papyrus*. These areas are covered with tall herbaceous vegetation, flooded either permanently or for most of the year. (Republic of Uganda 2001)

In Kampala District alone, according to the State of Environment Report, 2000, wetlands cover approximately 33 Km², Kinawataka being part, and all part of Lake Victoria basin.

The rest of the wetlands drain into Lake Kyoga. Most of the wetlands are permanently water logged due to a combination of impeded drainage and year round rainfall. Seasonal wetlands occur mainly at fringes of the permanent ones and are normally flooded in months of peak rainfall. The common examples of wetlands in Kampala District are Kinawataka, Ntinda, Kirombe, Nakawa, Soweto (Namuwongo) among others.

According to the State of Environment Report (1996), wetlands of Uganda, particularly Kinawataka of Kampala, are of diverse values. They regulate and maintain the hydrological conditions of rivers, lakes, and streams as well as determining the water quality, reducing sediment load and preventing soil erosion. For Uganda, wetlands provide water for about five million people. They act as sources of water for domestic, industrial and livestock consumption. They are habitats for bio-diversity, and for conservation of flora and fauna, especially noted in the wetland of Kinawataka. Above all, they are a source of raw materials for handicrafts, building and fuel. These wetlands also play a significant role as agricultural buffer zones especially during dry seasons. With all these values, the pressures on the wetlands are surmountable. When you take a close look at most Uganda's wetlands are in a sorry state. It is undeniably true that wetland degradation has reached the level of national crisis. They need robust action to be saved.

Consequently, identifying the problems threatening Kinawataka wetland formed the basis of this study.

1.1 Statement of the problem

Environmental concerns have not only become national issue but also global issue. Environmental concern is one of the eight-millennium development goals. The environment has been greatly abused. Wetland environment has not escaped human destruction. Increasing human population coupled with poverty has eventually led to the undesired practice of Land fragmentation, which is a paramount root cause of wetland degradation. (Dugan, etal. (1993))

Coupled with diminishing agricultural land, and need for urbanization, population increase has caused a drastic impact on the status of wetlands.

Despite the fact that data on the extent of loss and destruction of wetlands is still scanty, it is undeniably true that wetland degradation has reached the level of national crisis. While Uganda is singled out to have made significant achievements in wetlands management, it is still too early to cerebrate success, as pursuance of a market-led development path has to be reminded that it is breaking its environment and natural resources backbone. Despite the various laws put in place by the government, and NEMA in particular being a statutory body responsible for the protection and preservation of wetlands, serious consequences such as lowered water table, changes in microclimates and loss of bio-diversity are testimony to wetland degradation. This has been manifested in form of uncontrolled development activities at the expense of wetland preservation as evidenced at Kinawataka wetland. The NOMI soap factory overlooking the wetland is a clear testimony of uncontrolled economic development activities in wetlands. (Republic of Uganda 2001)

Pollution of wetlands resulting from either untreated or rudimentarily treated industrial effluents has reached a national crisis. Poor maintenance of drainage channels and irresponsible solid waste disposal is on the increase. This poor solid disposal, has taken a serious form of polythene materials commonly known as buveras (polythene bags), which account for the greatest percentage of wetland degradation. Approaching Kinawataka wetland from Mbuya side (slum area), one will find waste dumped carelessly indiscriminately in the upper part of the wetland.

This can be evidenced by the wide spread use of polythene bags in Kampala city and other urban centers of Uganda. (Pere, etal.1996)

Further still, other destructive human activities common in wetlands include brick making, sand extraction, and papyrus over harvesting, draining and hunting of wild game. These have intensified wetland destruction.

It was with this background that an extensive study of the wetlands degradation, using Kinawataka wetland as a case study was planned.

1.2 Objectives

The study assessed Kinawataka wetland degradation with the following specific objectives.

Specifically the study is intended to;:

- (i). Examined the various causes of Kinawataka wetland degradation.
- (ii). Assessed the human activities in and around the wetland.
- (iii). To establish solutions for the problems brought about as a result of Kinawataka

wetland degradation.

1.3 Research Questions

- (i) What are the various causes of Kinawataka Wetland degradation?
- (ii) What are the human activities in and around the wetland?
- (iii) What solutions can be made to solve the problems brought about as a result of Kinawataka wetland degradation?

1.4 Scope of the Study

The study focused on assessing the causes of Kinawataka wetland degradation. This study covered Kinawataka Stream and the areas surrounding it that it is of great benefit to them.

The major key interest of this study was to find out the major causes of Kinawataka wetland degradation and what solutions can be put to solve the problem.

1.5 Significance of the study

The information generated was of great value to stake holders in enforcing laws on wetland management in Uganda.

These stakeholders include Ministry of Water, Lands and Environment, NEMA, KCC, Community leaders and local people as a whole.

The research findings of this study were used by the researcher as a reference for future research work on how Kinawataka wetland degradation affected the climate of the place.

This study was also important in that it is a source of great experience and a contribution to academic career of the researcher.

CHAPTER TWO

LITERATURE REVIEW

2.0 Review of related literature

Though Uganda is land locked, over 17% of the total area of the country is covered by Lakes, rivers, and wetlands, which are unevenly distributed.

The term wetlands include all those areas where plants and animals have developed in association with permanent or temporary flooding. In Uganda, wetlands come in many shapes, sizes and types. The most common types are known as swamps but other wetland places such as flood plains, Lakes, Sedges, mountain bogs and peat lands are also regarded as wetland areas.(Republic of Uganda 1995)

In Uganda, 17 types of natural wetlands have been identified and these include the large lakes such as George, Edward, Victoria, Kyoga and Kwanaia.

Specifically, Kampala District has a total area of “approximately 195 Km² of which 32Km² is covered by wetlands and most of it is part of Lake Victoria basin.”

While most of the wetlands are permanently water logged, due to a combination of impeded drainage and year round rainfall, other remnants of the once permanent wetlands still exist all over Kampala in places such as Ntinda industrial area, Bwaise, Kansanga, Luzira, Bugoloobi, and many others. (Namakambo, 2000).

Typically, papyrus (Cyprus) dominates the permanent wetlands especially those on fringes of Lake Victoria and wetland fringes of Mawanga and Kachanga. Similarly, some patches of typha (bull rush) exist in Mawanga Jajja villas. The wetlands in forest swamps are seasonal and mainly contain palms and thickets and this is common with Kirombe wetland. The seasonal wetlands mostly have mixed sedges such as *Cypress* and cyndon, however the natural vegetation of most seasonal wetlands has been widely altered by human activities. (Republic of Uganda 1998)

Traditionally, wetlands were referred to as “wastelands”(The National Wetland Conservation and Management Programme, 1999). This coupled with the belief that wetlands are a major source of diseases like Malaria and Bilharzias, had previously discouraged their utilization. Similarly, the association of wetlands with diseases like *malaria and schistosomiasis* is another factor, which has contributed to wetland degradation.

Over the last 20 years however, this notion has drastically changed. The wetlands of Kampala and Uganda generally have diverse values. It is not surprising that wetlands are now perceived as “wealth lands not wastelands”, (Namakambo, 2000). They support a diversity of plants and animals in various ways. They offer water for domestic, industrial and livestock use; raw materials for crafts industry and act as agricultural buffer zones. They perform important socio-economic and ecological functions such as ground water supplies, water purification, flood control, edge cultivation and habitat function. In rural parts of Uganda, more than seven millions of households are engaged in wetland farming, papyrus harvesting, pottery, brick making and sand mining. More than five million people and their livestock, depend directly on wetlands especially for water supply. In urban areas wetlands purify industrial, commercial and domestic effluents. (NWCMP, 1997)

Despite the values attached to wetlands, there are some issues pertaining to wetland management. Although Uganda's wetlands are protected by the National Environment Act (2000), most of them have been reclaimed and degraded. Those which are adequately protected are found within National Parks where about “2.3% of the country’s wetlands occur”(State of Environment Report for Uganda 1998). Various swamp forests especially those outside the gazetted forest reserves are unprotected especially in Kampala.

Much as data on the extent of loss and destruction of wetlands is still scanty, it is certain that the majority of wetlands in Kampala District are increasingly being converted to other uses. It is not surprising that some wetlands in Kampala are facing a threat of total destruction. In a country where on average a woman who lives through the childbearing years has 6.9 children growing up heavily dependent on natural resources, without strict laws, wetlands are at risk. According to the Kampala Urban study, high population density is one of the main causes of wetland resource degradation in the district.

Wetlands are under extreme pressure from uncontrolled development activities. In urban areas, particularly Kampala, “wetlands were the last free or cheap areas for infrastructure development”. (Wetland Sector Strategic Plan 2001-2010).

Further more, residential development has destroyed and affected several wetlands. Despite the designation of most wetlands as “green corridors”(Wetland sector

strategic plan 2001-2010), in the Kampala structural Plan (1994) many sections have gradually been converted to semi-slum residential housing and associated uses.

Pollution of wetlands has reached national crisis. Pollution of wetlands due to poor maintenance of drainage channels, irresponsible solid waste disposal, especially in and along Nakivubo channel and other poorly regulated activities, has also significantly impaired wetlands. The heavy pollution loads from domestic and industrial sewerage discharge are likely to change the quality of water in Lake Victoria basin. NWCMP (1997)

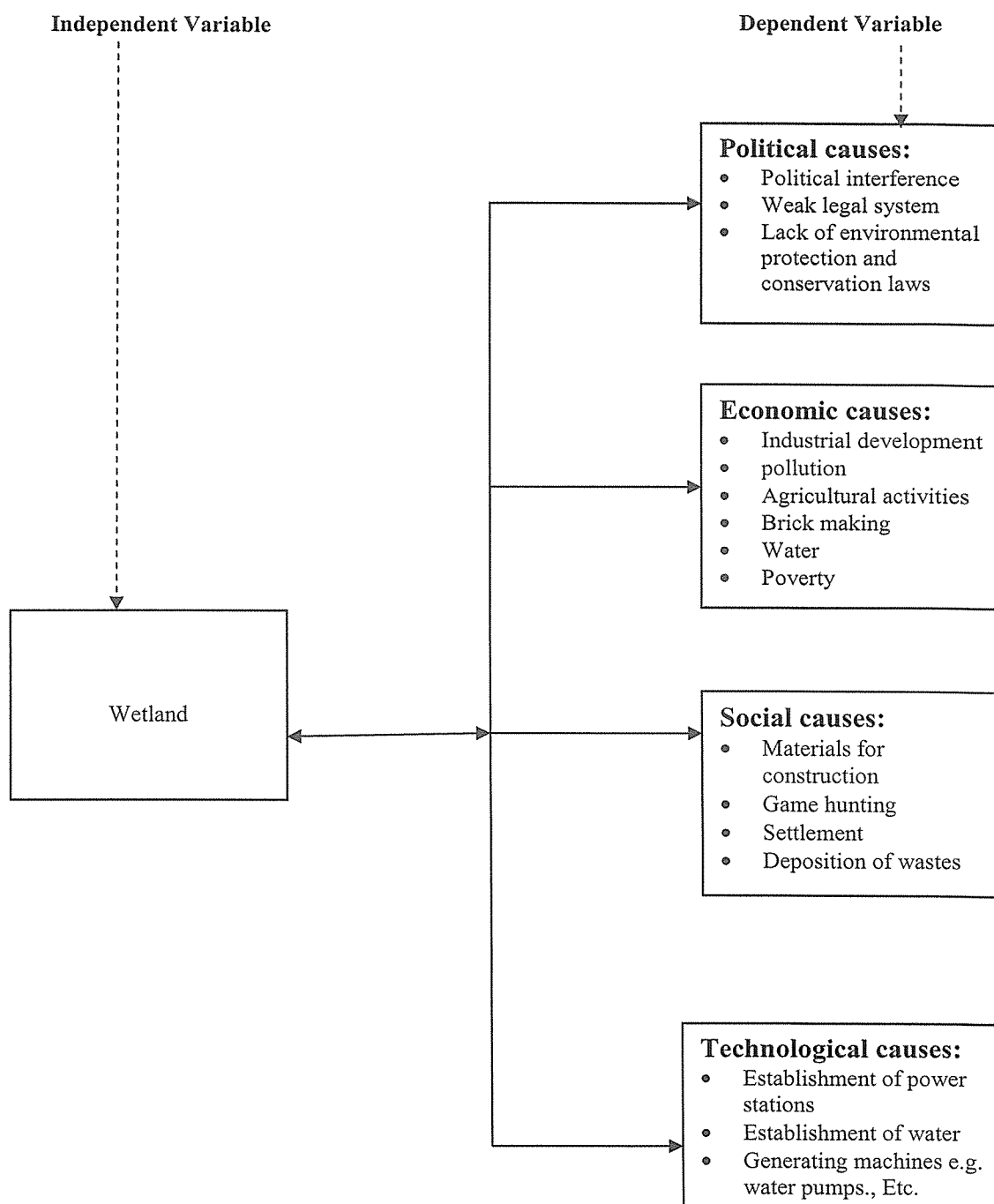
As much as solid waste disposal is a common problem in Kampala City Council, Solid waste disposal in wetlands is beyond comparison. Plastic containers and buveras (polythene papers), which go floating on Bwaise, Nakivubo channel towards the main wetland is alarming.

Other destructive human activities common in wetlands include brick making, sand mining, and papyrus over harvesting and hunting.

In conclusive remarks, despite the scanty data on the extent of loss and destruction of wetlands in Kampala, evidence shows wetland degradation and threat of total destruction. As population increases on one hand, and people's expectation increase on the other, the pressure on wetlands and their resources also increase. Where there is poverty, meeting immediate short term, personal needs often of sheer necessity takes priority over protecting attributes that provide long-term, indirect general benefits. There is a great opportunity to exploit the development potential of wetlands and this may prove too strong even where they entail excessive or inappropriate modification or conversion resulting degradation or the total destruction of a wetland and its benefits. (Food and Agricultural Organization, 1996)

It is against this background that the researcher will plan to set time and materials in order to zero into the case study on Kinawataka wetland degradation in order to come up with possible recommendations for better management of wetlands.

2.1 Fig. 1: Conceptual framework



Source: Field Study 2010

In the conceptual frame work , there are both independent valuables which is the wetland and there are dependent valuables which are political causes, economical ,social and technological causes that force people to depend on wetlands in the various ways.

Wetland degradation especially in Kinawataka has been caused by socio-economic, socio-cultural and political factors. Economic activities such as edge cultivation, wetland farming, overgrazing and conversion of wetlands to development projects (agricultural expansion, hotels and resorts greatly contribute to wetland degradation. Greedy politicians with both political and economic (financial) powers would use such powers to by-pass the law and abuse wetlands. Poverty has in one way or the other contributed to wetland degradation. People view wetlands as cheap and wastelands. This has been worsened by the inefficient political system. Weak legal system and political interference has consequently encouraged people to engage in economic development that has put pressure on our beautiful and precious wetlands.

The general laxity in the conservation and protection laws has encouraged social practices of over harvesting wetland resources for crafts. These activities have an economic contribution, which also has an implication on the social activities of the people. Introduction of new technologies like establishment of power stations and establishment of water generating machines like water pumps led to over extraction of water from the wetland hence interfering with habitats for aquatic organisms and nature as a whole.

2.2 Definition of Key Terms

The National Wetland Conservation and Management Programme (NWCMP) defines a wetland as a vegetated area of land that is flooded permanently or seasonally and stays wet long enough for certain plants and animals to grow even when there are no rains .(State of Environment Report for Uganda 1996).

According to the Ramsar Convention 1971, “wetland loss “is defined as the loss of wetland area due to its conversion to a non wetland area, while degradation is the impairment of wetland functions as a result of human activities.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter will discuss the methods that were used to collect data. It intends to focus on the research design, organization of the study, data collection, data collection procedure and data analysis.

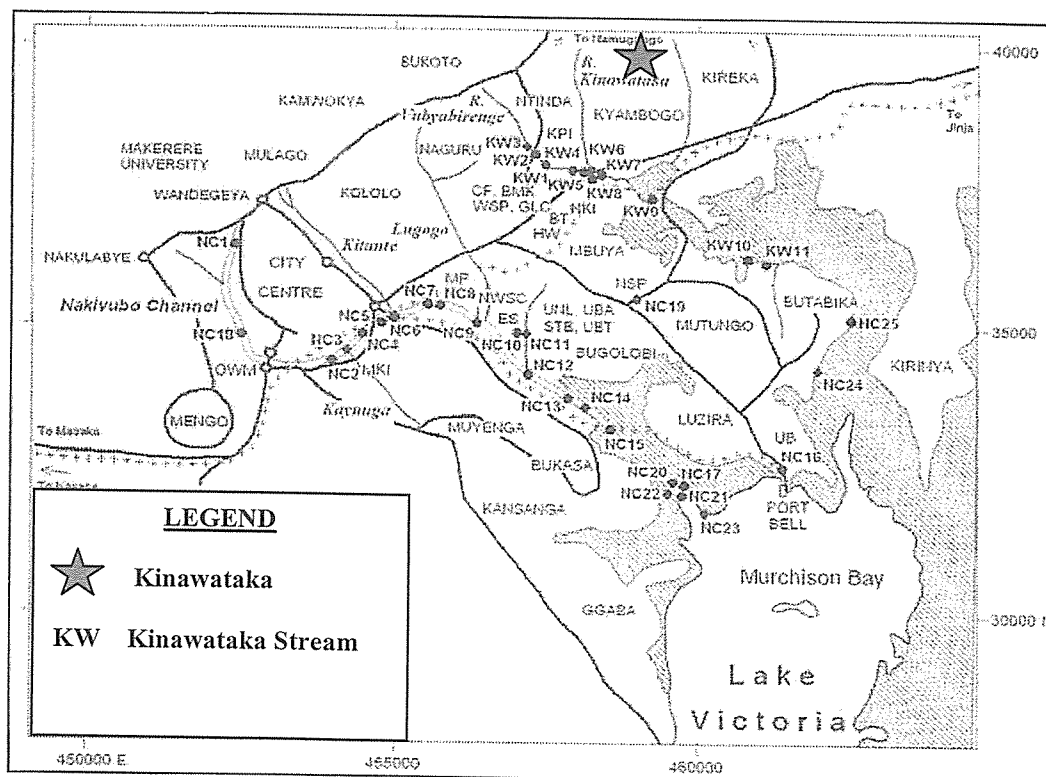
3.1 The description of the study area methodologies

3.1.1 Study Area and location

The study area was Kinawataka wetland in Kampala District. Kampala has a total area of approximately 195 Km² of which 32Km² or 16% is covered by wetlands. Of all the wetlands in Kampala District, the study was carried out on only in Kinawataka wetland.

It is located at about 13Km from Kampala City,. It is boarded by Bweyogerere in the West, Mutungo in the East, Bukesa in the North and Kireka in the South. Kinawataka wetland is located on a latitude 0. 33° and longitude 32.65° as shown in the map below;

Fig 2: A sketch map of Kinawataka showing the study area



Source: Google Maps 2008

3.1.2 Study Population

Kinawataka village has a population of over four hundred people both working and residing in this place and both the young and adults.

3.2 Research Design

3.2.1 Sampling technique

This study involved selecting various people in the population of Kinawataka whereby different households had a chance of being selected randomly to answer the research questions. Purposive sampling was also be used in selecting the study sample. Different categories of people were needed in the approach. However, since the area under study is a high density mixed commercial and residential area, it was difficult to give each house a code and therefore every five households were used until the intended number of 40 respondents was obtained as a representative sample.

3.3 Sample Size

A sample size of 40 respondents was considered. The table below gives the number of respondents who were interviewed.

Table1: Showing the number of respondents who were interviewed

Target Group	Number of questionnaires	Number of Males	Number of Females
Community members	20	10	10
NEMA Officials	4	2	2
Health Workers	8	4	4
LC.I	1	1	0
Kampala City Council (KCC)	7	3	4
TOTAL	40	20	20

3.4 Data Collection Instruments

3.4.1 Questionnaire method

The researcher interviewed 40 respondents of Kinawataka area who helped to strengthen the information got from the other tools.

3.4.2 Observation and photography

The researcher used standardized methods of gathering data and information on the nature of land, vegetation, the kind of economic activities carried out, waste disposal, and the state of drainage through taking photographs and keen observation during transect walks so as to have a clear picture of what existed on the ground.

3.4.3 Documentation

The researcher got data from the KIU library and NEMA library. This method helped the researcher to gather data more especially for the background, a literature review on the study carried out. The internet was also extensively used during the study.

3.5 Data Gathering Procedures

The researcher obtained a letter of introduction from KIU for the introducing her and the research to be undertaken. Key informants were purposively selected during the administering of the questionnaire. The questionnaire were administered to 40 respondents. The structured questions there in were expected to elicit answers that enabled the researcher come up with solutions for the causes of Kinawataka wetland. The interview schedule for the 40 informants was expected to enable narration and free expression of informants and to facilitate deeper probing into the causes of Kinawataka wetland and other issues not otherwise captured in the other techniques mentioned above. The technique also enabled the researcher to learn new information relevant to the study, which had not been incorporated in the design of the instruments.

3.6 Data Processing and Analysis

Quantitative data processing and qualitative data were analyzed after the field study. The researcher edited, coded and tabulated the findings, interview responses were basically used to form to confirm to the documented information from the

questionnaire. The researcher used percentage as the statistical tool for data analysis.

In this process, the researcher before leaving the field had to make sure that she had edited the data in order to cross consistency, legibility and comprehensibility of the result.

Finally, manual sorting out of questionnaire and interview guide answers was counted, interpreted and the report written in form of a dissertation on wetland degradation in Uganda with Kinawataka wetland as a case study.

3.7 Ethical Consideration

The researcher placed emphasis on confidentiality of information collected. At the introduction of each interview, it is emphasized that persons were handled with great care and utmost confidentiality. In this respect, no names for identification were collected for the respondents and although for the focus group discussants names were collected, information from them was only referred to in an aggregate form. All participants in the research were informed of the objectives of carrying out the research. Letters of introduction were collected from the Local Council to allow the researcher to conduct the interviews.

3.8 Limitations

Many of the respondents give false information about the wetland that is to say where waste disposal sites were located, presence of latrines or toilets, and their main economic activities.

The researcher also faced a problem of language barrier whereby many were only known to Luganda and little English. Hence, communicating to them became difficult.

Some of the areas in Kinawataka were very dangerous to walk through due to the poor waste disposal including sharp instruments like broken bottles and glasses, needles and nails.

The questionnaires were very lengthy and therefore it took the respondents a lot of time to fill in the questionnaires.

The questionnaires were self administered and hence it was a limitation that some key informants are unable to read and write or sometimes unable to fully comprehend the questions asked.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter dealt with data presentation, analysis and interpretation of the findings collected from the community of Kinawataka Village on the causes of degradation of Kinawataka, the activities carried in and around the wetland and what has been done to reduce the problem of degrading the wetland. This was done according to the research questions that aimed at achieving research objectives.

4.1 Data presentation, analysis and interpretation

4.1.1 Meaning of wetlands degradation

Different people have perceived the term wetlands degradation differently.

From both the interview and questionnaires administered to the Environmental technocrats and local people, wetland degradation means misuse and abuse of wetlands especially by man.

From the critical analysis of the above, it should generally be noted that man has been the main factor for wetland degradation through his selfish pursuits to satisfy his numerous needs. From the conceptual framework, man's selfish pursuits have been expressed in his efforts to meet his economic, political and social cultural needs.

4.1.2 "Wetlands as wasteland"

From the interview conducted among the local residents consisting of majorly illiterate and semi illiterate respondents, most respondents concede with this notion. To them, wetlands cannot support any serious economic activity. To Youth Chairman LC II Kalerwe zone residing near Kinawataka wetland, "wetland areas are the cheapest compared to upland areas because ownership is either not very clear or not serious".

Through observation, in these wetland areas, it is usually the poorer section of the population who are residing there and this supports the above arguments. The North Eastern part of Kiwanataka wetland is dominated with poorly structured houses that belong to the relatively poorer section of the Kampala population. This does not however mean that wetlands are wastelands. People attach great value to wetlands. In a country where on average a woman who lives through the childbearing years has 6.9 children growing up dependent on natural resources, wetlands cannot be referred to as wastelands.

From 40 questionnaires administered, to officials involved in wetland conservation, all the 4 questionnaires were returned. Out of the 40 respondents, 30 respondents, with is 75% were against the above idea.

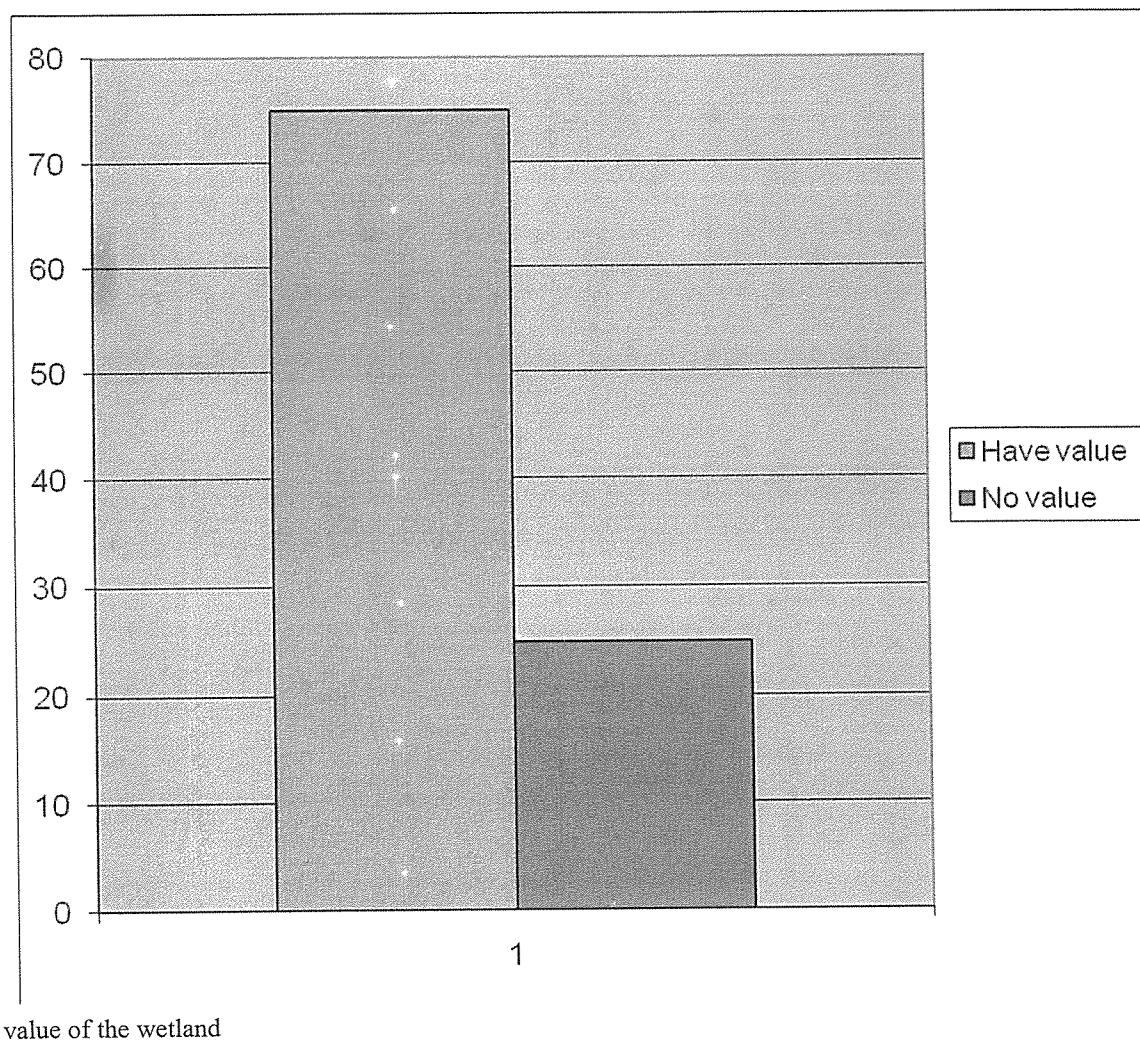


Figure 3: showing the gratefulness of wetlands

30 people out of 40 argued that wetlands are not wastelands but a resource to man. To them, wetlands are of great value to man. In fact this notion is of the past premised on peoples’ ignorance on the value of wetlands. This therefore necessitated the exploration of the values people attach to wetlands. This formed a basis to access whether the degradation and final extinction of wetlands has, or has no implication on the people.

4.1.3 Resources got from the wetlands

From both questionnaire and interviews conducted, there was a general consensus on diversity of resources man derives from wetlands. The benefits vary from direct, indirect, optional and non-use values as summarized in the table on the next page.

DIRECT VALUES	INDIRECT VALUES	OPTION VALUES	NON-USE VALUES
Production and consumption of goods and services such as: <ul style="list-style-type: none"> • Fish. • Wood fuel. • Building poles. • Sand gravel and clay. • Thatch. • Water. • Wild food. • Medicines. • Agriculture/cultivation. • Pasture/grazing. • Recreation. 	Ecosystem functions and services such as... <ul style="list-style-type: none"> • Water quality. • Water flow. • Water storage. • Water purification. • Water recharge. • Flood control. • Storm protection. • Nutrient retention. • Microclimate regulation. • Shore stabilization. 	Premium placed on possible future uses and applications such as... <ul style="list-style-type: none"> • Pharmaceutical. • Agricultural. • Industrial. • Leisure. • Water use. 	In terms of... <ul style="list-style-type: none"> • Cultural value. • Aesthetic value. • Heritage value. • Bequest value. • Existence value.

Table 2; showing wetland values

Source: State of Environment Report for Uganda 2000-2001: Pg 40.

Additionally, from the literature reviewed, it was revealed that there are “22 species of edible wetland plants, 35 species of medicinal values, which include *Mondia whites* (*Mulondo*) and *Phoenix reclinata* (*Omukindo*) which are said to provide remedies for impotence among men” (State of Environment Report for Uganda 1998 Pg 142).

Similarly, they provide raw materials and act as agricultural buffer zones. The upper side of Kiwanataka wetland (just below the slums of Mbuya are dominated with banana plants. (Plate 1)



Plate 1: Banana plantations, yams, sugarcane and cassava grown in the wetland.

4.1.4 Causes of wetland degradation

Several factors have been attributed to wetlands degradation, especially Kiwanataka wetland. From observation, and in depth Interview carried out, uncontrolled development activities have been cited as being one of the causes of wetland degradation(plate1). The most affected wetland is that of Kinawataka. This was due to ignorance of Town/country planners. To them, according to one official from Ministry of Water Lands and Environment, they look at wetlands as industrial areas, cheap to acquire and act as dumping ground for the bye products from those industries.

As you move from Kampala towards Kiwanataka on Jinja road, you will notice that the former Ntinda wetland is now the Ntinda industrial area dotted with Spear motors Ltd, Crown Beverages, GM Tumpeco Ltd, Oscar Industries among others, which are strategically located in the wetland area (*Plate 2*).

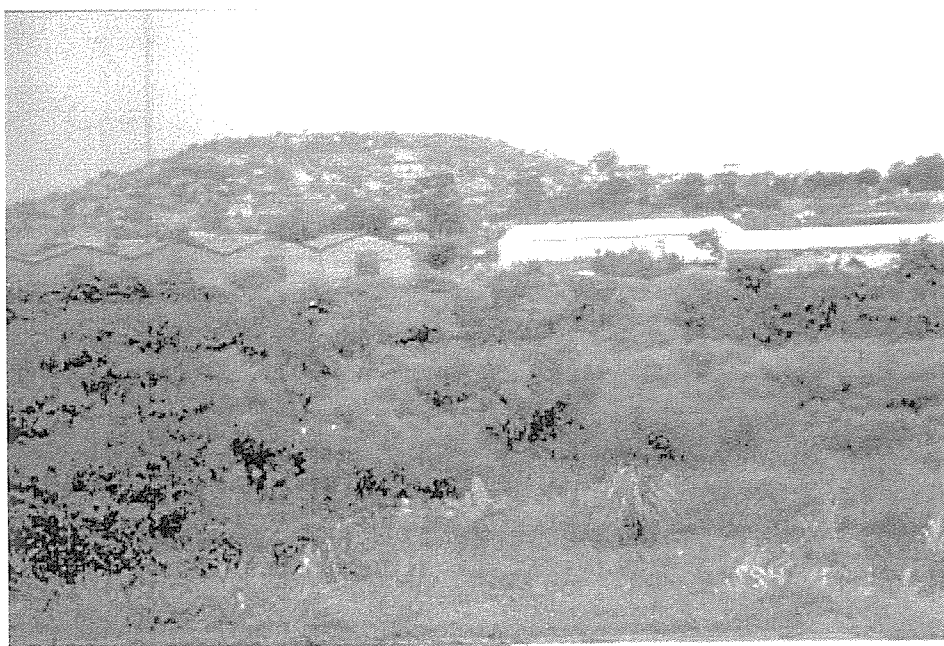


Plate 2: Industries in wetland areas

In particular, when you reach Kinawataka wetland, you clearly see the NOMI factory that has been constructed and strategically located in Kinawataka wetland(plate2). The main issue here is that all these developments have taken place without a well-developed legal framework that regulates wetland use. One wonders what role the Wetland Inspection Section in the Ministry of Water Lands and Environment is doing and even if it claims to be playing a role in wetland conservation, what explains the establishment of such a factory in a wetland.

The development of Residential places due to the ever-increasing population as a result of rural urban migration has also encouraged wetland degradation. Through interview and observation method, the poor section of the population has been attracted to the wetlands since they are cheap to purchase and sometimes considered to be free.

Similarly small-scale farming has been identified as one of the causes of wetlands degradation in Kampala District. Most of the seasonal wetlands have been modified through drainage for crop production especially maize, yams, sugarcane, beans, and vegetables among others.

Through observation, the North Eastern part of Kiwanataka, there are evident signs of agriculture where the wetland is dotted with yam growing, matooke and sugarcane. Worse still, the growing of eucalyptus trees has accelerated the drying up of Kinawataka is a clear manifestation of this.

Pollution of wetlands has reached a national crisis. Pollution of wetlands due to poor maintenance poor drainage channels, irresponsible waste disposal and other poorly regulated activities has also significantly impaired wetlands. Through questionnaire method, out of the 40 questionnaires returned, 30 of the respondents conceded with this idea.

The by products of NOMI automatically find their ways into Kiwanataka wetland. To them, the heavy pollution loads from domestic and industrial sewerage discharge, are likely to change the quality of water in the wetlands. Domestic sewage from the slums just above the wetland as well as Mbuya barracks all find their way into the wetland. There are evident valleys that lead into the wetland. Further through observation, it was revealed that the dumping of broken bottles and bottle tops by Uganda Breweries in Kinawataka wetlands is eminent (*Plate3*).



Plate 3: Broken bottles dumped in residential area by Uganda breweries (Poor dumping in wetland)

One cannot imagine how such a plant can continue dumping its broken glass bottles and tops yet in a few meters distance, there is a clear well labeled sign post prohibiting pollution and dumping. This shows how weak the legal frame is, as far as wetland conservation is concerned.

Lack of planning and coordination has been also been identified as one of the causes of wetland degradation. The various players like Kampala City Council, Uganda Investment Authority, NEMA and Industrial developers are supposed to work hand in hand but there is conflict in who is to do what and when.

According to the LCI Chairman Kalerwe zone, Mr. Kigozi lamented that there is total lack of coordination between the top and lower officials especially local people in Environmental management. Furthermore, one official from NEMA asserted that for any developer to be given occupational permit, there are some conditions to be fulfilled. One of such conditions is carrying out Environmental Impact Assessment study, which should be in line with Environment Conservation and wetlands in Particular.

Due to poor planning and coordination however you will find the city planners giving such developers occupational permits before assessing compliance. Brick making and sand extraction has also contributed to wetland degrading in Kampala. A good example of brick making in wetlands is at Kinawataka wetland. Here, day in and day out, brick making has greatly led to the draining of the wetlands in search for soil and water. This has contributed to wetland degradation.

Ignorance among the people of the value on wetlands, for a long time, wetlands were perceived as “wastelands”. It was not until recently that most people are beginning to realize the value of wetlands and how they function. From the Interview conducted among the local residents consisting of majorly illiterate and semi-illiterates, most respondents concede with this idea. Even by the mere fact that planners used to allocate wetland areas as industrial plots illustrates this further. To most respondents, wetlands are considered as areas where less economic activity can take place and even if it is to take place, it will somehow tend to be expensive in terms of draining the waters, leveling and filling and worse still, all these will need a lot of construction materials so as to make the foundation ground firm. Public awareness through mass media is doing some good job in as far as creating awareness among the general populace is concerned.

Generally, from the interviews conducted, respondents were probed to rank the causes of wetlands degradation according to their magnitude (*Table3 below*).

Table 3 Showing the magnitude of the causes of wetland degradation

No. Of respondents out of total number (30)	Causes of wetland degradation	Percentage (%)
18	Industrial development.	60
6	Residential development.	20
4	Pollution.	13
2	Others.	7

This therefore indicates that industrial development is the major cause of wetland degradation followed by residential development and pollution.

In terms of magnitude, industrial development, without recourse to sustainable environmental protection, has greatly led to the degradation of Kiwanataka wetland. This is followed by residential development, pollution and other activities such as agricultural and cultural activities.

4.1.5 Impact/effect of wetland degradation on the environment.

The effect of wetland degradation in Kampala and Uganda generally vary from human to physical effects.

Flooding in Kampala during rainy seasons has tremendously increased as result of wetland degradation. On the contrary, long spells of drought during dry seasons are eminently signs of wetland degradation.

Through observation and interviews conducted among the local people, most of them conceded with this. The reason they gave was that wetlands act as water catchment's areas for run off after heavy rains. Once these run offs find no place for their temporally or permanent course, they will end up flooding on roads, residential and industrial development areas. Of recent, this has become a common Phenomenon in Kampala.

It interferes with traffic flow, destroys property and at times encourages spread of diseases like Diahoria especially in some areas where sanitation is very poor.

Loss of bio diversity has been noted as one of the effects of wetland degradation in Kampala. Several species of both flora and fauna find wetlands as habitats and this means that any destruction or serious encroachment on wetlands will have an impact on them. From the questionnaires administered to wetland conservation technocrats, they were of the fear that in the near future, some wetland species will reach extinction. Papyrus over harvesting in Kiwanataka wetland is a good example.

Further, through interview and questionnaires, respondents literally acknowledged the fact that wetland degradation has an impact on the climatic conditions of any locality. They asserted that the recent increase in temperatures in Uganda and Kampala in particular is a testimony to this. The wetlands are influential in the modification of climate due to the cooling effects they assert on the climate.

Gullies as a result of sand mining and brick making especially in Kiwanataka wetland cannot go without mention. Through observation, several gullies were seen and this may in the near future make these areas prone to soil erosion.

From interviews, respondents were required to prioritize the effects according to magnitude. The effects identified included flooding, loss of biodiversity, climate change and development of gullies. 38% of the respondents ranked flooding highest, followed by climate change at 36%, loss of biodiversity at 16% and lastly gullies at 10%. This was expressed graphically as bellow:

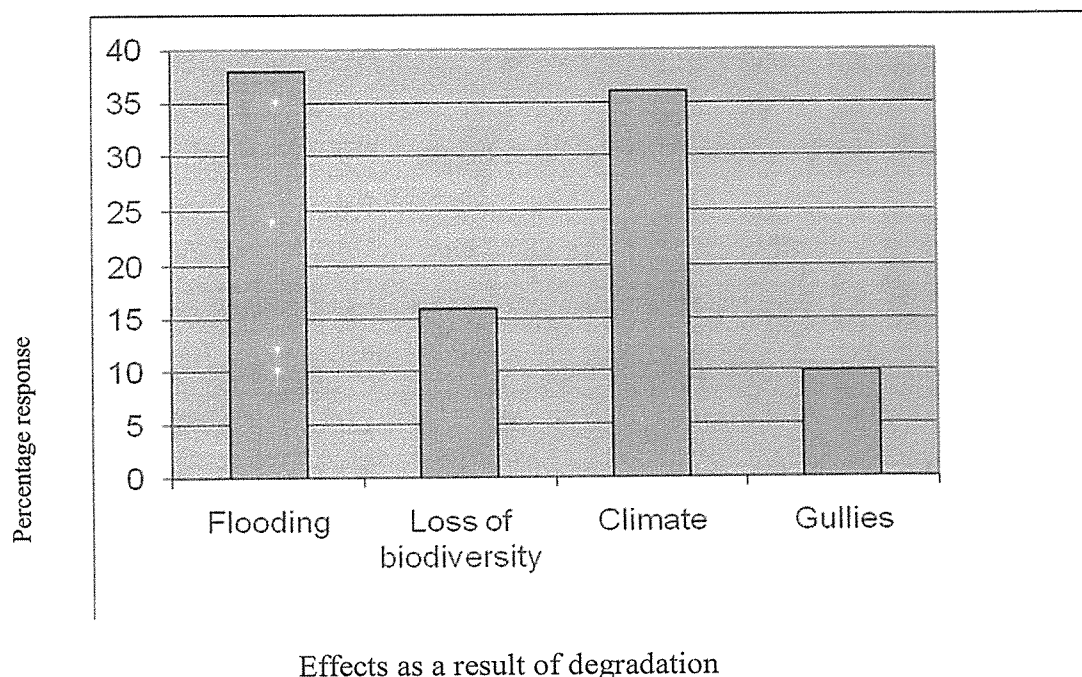


Figure 4: Showing the effects of wetland degradation according to magnitude

From the graph above, it can be concluded that People are very much aware that wetland degradation has a very serious effect on climate change and accounts greatly to the current flooding in Kampala in particular and Uganda generally.

4.1.6 Measures put in place to preserve wetlands

From the literature reviewed, it has been revealed that in a country where on average a woman who lives through the childbearing years has 6.9 children dependent on natural resources, there is need for working policies and flexible resource management strategies that reflect national and international development objectives. Uganda has moved a step in this direction. In reference to question 3 section III of the questionnaire, out of 40 respondents to the distributed questionnaires, 32 consented that there is a legal framework put in place to protect wetlands. 6 people however said that there is no legal framework in place, while 2 were ignorant of either. This was presented in a pie chart form as below:

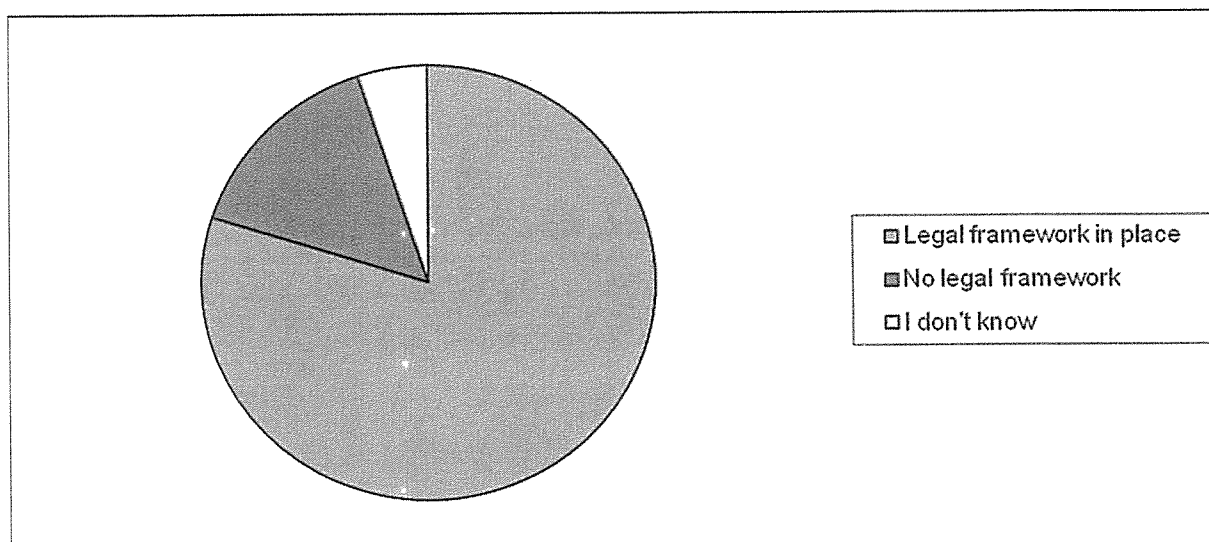


Figure 5: Pie chart showing the existence of legal framework

From the above, it was discovered that there is a legal framework in place. In terms of percentage, those who said yes constituted 80%, those who said no constituted 15% while those who did not know were 5% (figure5). Those who said centrally were merely ignorant of the law. In Uganda, the constitution is the key legislation for environmental protection and use. It provides for the protection and preservation of the environment from abuse, pollution and degradation. It also allows government or local government to hold natural resources, which include natural lakes, rivers, forest reserves, wetlands, game reserves, natural parks and others in trust for the people of Uganda. (Article 237b). Generally, wetlands in Uganda are now protected in Law under the constitution of Uganda and specifically under chapter 15 and clauses 37 and 38 of the National Environment Statute, 1995. The statute states that,” without written approval, from NEMA, it is now an offence

for any person to do the following; reclaim or drain any wetland, erect, construct, alter or demolish any structure under or over any wetland; deposit in, on or under any wetland any substance that has or is likely to have any adverse effects on it. Further, there should neither be nor destroying, damage, or disturb any wetland in a manner that is likely to affect the fauna and the flora of any wetland. Even introducing or planting any exotic or introducing any plant or animal species in a wetland. However, NEMA can exempt traditional uses of wetlands from these restrictions and the authority shall, in consultation with the leading agency, in this case, local Environmental committee, District Environment committee establish guidelines for sustainable management of wetlands in Uganda.

Through questionnaires administered to Environmental technocrats, the National Policy, for Conservation and Management of wetland resources further enhance NEMA statute 1995.

Additionally, NEMA in an effort to carry out its statutory obligation, it has gone further to carry out public awareness on the need to preserve wetlands through the mass media; namely radio and TV stations, sign posts, newspapers, drama.

Specifically, in Kampala District, KCC undertook environment reconnaissance studies in 1993 under World Bank funded Uganda's' first urban project. The aim of this study was to provide inputs on what was considered "valued environmental components" to the urban planning process. Accordingly, wetlands were identified as one of the critical issues that face very serious risk of being destroyed due to uncontrolled urbanization processes. It was a result of this study that the KCC Environment Action Programme on Wetlands was undertaken in 1993. Its major objective was to promote sustainable wetland management.

It is worth noting, however, that much as decentralization brings power and services nearer the people, this can only be achieved when there is transfer of finances too. The 1995 Uganda constitution and the local government Act provide for decentralization. This means that the central government seizes to monopolize power but gives it to the district to manage their natural resources such as wetlands. There is emphasis on integrating Environmental activities in both central and local government budgets. Districts have been encouraged to appoint District Environment officers. This however has not been implemented in some districts due to financial constraints. This is as a result of trying to reduce the workload on the NEMA personnel at the central government headquarters. Unfortunately, leaving districts to manage their natural resources without adequate financial support is like withdrawing a wheelchair from a lame person and then telling that person to run. There are hardly any resources at the districts and at the sub counties that are allocated to the management of wetlands. As a result, wetlands have been neglected and are now a free common good exploited indiscriminately and unsustainably by people since they do not understand the wetland laws and policies.

4.1.7 Effectiveness of existing laws on wetland conservation.

Generally, in Uganda there are existing laws on wetland conservation however their effectiveness leaves a lot to be desired. Responses to question seven of the interview

guide showed an inclination on the ineffectiveness of the law. The outcome of the question showed that 78% of the response said that the existing law is ineffective, 18% said it is effective while 4% had no side. This was expressed in a bar graph as below:

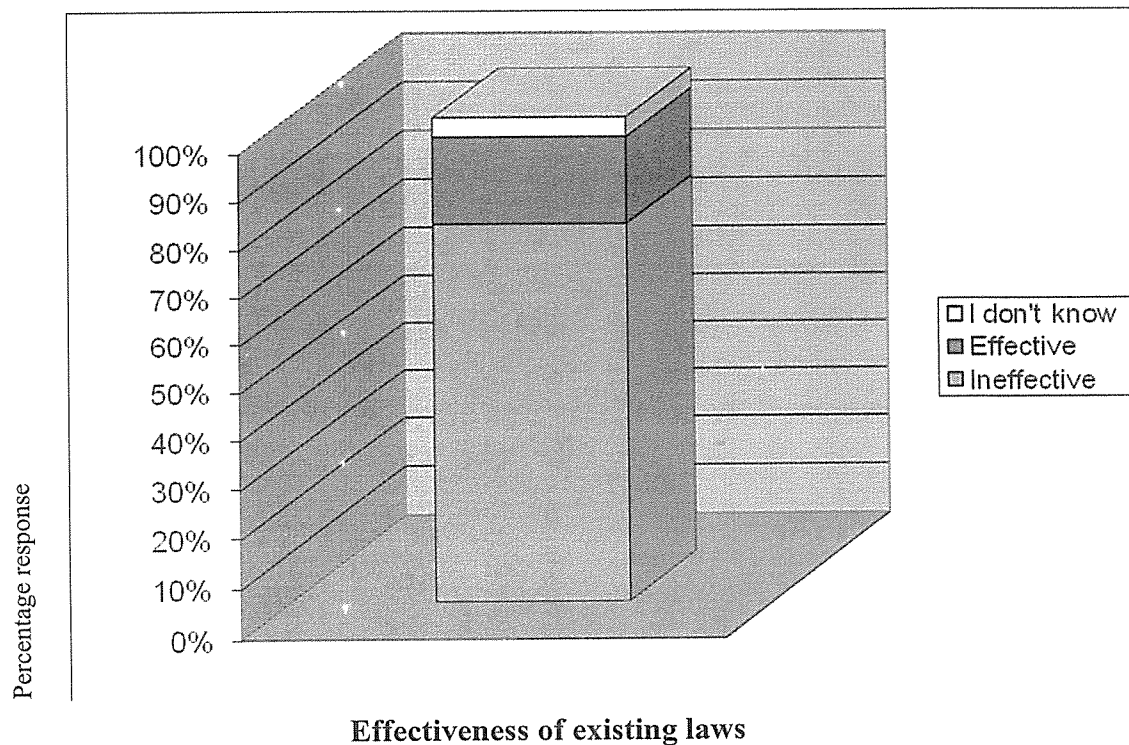


Figure 6. Showing the effectiveness of the existing legal framework

From the graph, a big portion of the bar represents ineffectiveness of the law while upper part represents responses from those who said that the law was effective and those who had no side(Figure6).

Furthermore, according to one official from the Ministry of Water Lands and Environment,” the existing laws and regulations on conservation and management of wetlands are a mere paper tiger”. To him, NEMA does not have the capacity to evict an

industrial developer in a wetland. This was echoed further by most respondents when interviewed. They argued that NEMA statute should be amended to include this clause. Many policies are scattered in different government departments and are made independent of each other thus causing constant duplication of work and misuse of resources.

Additionally, KCC being a partner in wetlands conservation have to a greater extent not lived up to their expectation. Various laws and regulations put in place to plan the city and manage wetlands have proved to be contradictory, vague and this makes it impossible to implement some policies without conflict with the affected parties. Due to constant interventions in policy work, many policies are made for specific political interventions that do not necessarily take into consideration environmental protection and there is no clear ministry to take charge of the policy.

Further to one official from NEMA asserted that, "leases on wetlands which are being given out now were concluded long time ago before the NEMA Statute came into effect". To him, NEMA Statute prohibits the issuing of new leases on wetlands but since the other ones were concluded sometime back, they have continued being issued thus creating controversy.

Further still, the KCC Environment Action Plan of 1993 has not also achieved its objectives. Wetlands degradation has in fact increased from 25% to 46% between 1993-1999, (State of Environment Report 2001), and recent statistic may suggest even a bigger increase. This therefore required for further research in the challenges that were being encountered by environmentalists.

4.1.8 challenges encountered by environmentalists in addressing wetland degradation

Environmentalists of wetland conservation are faced with a lot of challenges, which range from Financial, political, technical, legal. Results on this were generated from question six of the interview guide. The outcomes were as follows:

Table 4: Challenges in order of magnitude:

Number	Challenges	Percentage
1	Political interference	46
2	Legal system	25
3	Financial	15
4	Technical	14

From the table above, political interference determines the legal framework, financial allocation and technical support needed for wetland conservation and protection. Political interference has also affected the efficiency of Environmentalists in the course of addressing wetland degradation in Kampala. Most people interviewed asserted that most offenders of wetland abuse are usually prominent political individuals. To the staff from

NEMA and Ministry of Water Lands and Environment in the Course of carrying out their duties, they risk losing their jobs if that development in a wetland area belongs or is linked to “political bureaucrats.” Therefore, those who would have protected the wetlands are the same greedy politicians with the financial and political power to make them by-pass the existing policies.

Legally, environmentalists especially from NEMA and wetland division in Ministry of Water Lands and Environment asserted that the existing law on wetland conservation should be amended to give them power to execute offenders. They say that it is not a matter of advising or scrutinizing compliance of any development with environment laws but for cases where the developer has failed to comply with setting standards/laws, such a development should be cancelled if it is in a wetland area.

Also noted is the low enforcement capacity among the institutions with environmental management planning of the city. The wetland inspection division has limited staffing required to cover the whole country. In fact they are insufficient. Similarly, the NEMAs’ monitoring department is also under staffed and yet has a countrywide mandate to advise and implement environment related issues. One can wonder how such insufficient work force in both NEMA and Ministry of Lands Water and Environment can do an effective job.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter dealt with conclusions and recommendations for the study.

5.2 Conclusions

Basing on the findings of the study, the following conclusions can be drawn. It is noted that wetland degradation is not only a common phenomenon in Kiwanataka wetland but it is wide spread across the country.

Increasing demand for land as a result of human development activities has been responsible for Kiwanataka wetland degradation. This accounts for wetland degradation in Uganda and Kampala District in particular.

Weak legal framework and enforcement of laws on the environment has greatly contributed to Kiwanataka wetland degradation.

Increasing flooding in Kampala has been associated with wetlands degradation due to encroachment on the water catchment's areas.

Low enforcement capacity and staffing among the institutions charged with the responsibility of promoting environmental sustainability and conservation has contributed to inefficiency of these institutions.

Resources got from wetlands will face extinction in the near future unless sustainability and conservation are taken into account.

Ignorance among the people on the value of wetlands has also encouraged Kiwanataka wetland degradation.

5.3 Recommendations

The following recommendations are made for effective and better wetland management in Kiwanataka in particular and Uganda in general. They have been presented in reference to particularly Kiwanataka and to Uganda in general.

5.3.1: Recommendations from the community.

Need for Better disposal of both Domestic and Industrial wastes. Factories should be encouraged to treat their waste before disposal. The community on the other hand should be trained in proper garbage disposal.

Public awareness should be encouraged so as to reduce people's ignorance on the need for wetlands this can be done through the mass media; radio, TV programmes, News Papers Published both in English and other local languages. The community should be encouraged to take a lead in the fight against wetland degradation and environment in general. Workshops on Environment should take place at the grassroots not in posh hotels.

The community participation must be highly observed in any new development introduced within the community they are well assured of the very sensitive parts.

5.3.2: Recommendation from the researcher.

There is need for an amendment in the NEMA statute and other related laws so as to give powers to NEMA and other implementing agencies to execute/punish with either cancellation of their developments if they have failed to comply with the established environmental standards. NEMAs' powers should not only be limited to policy planning and supervisory.

There is need to increase staffing and enforcement capacities among the institutions involved in wetlands management and conservation.

There is also need to make NEMA and other environmental management agencies autonomous if they are to achieve their objectives. Political interference should be reduced to a minimal level.

Coordination and cooperation are a prerequisite among environmental management agencies such as NEMA, KCC planning unit, and the developers. This will go a long way in easing the implementation of environment conservation policies.

Need for integrating environmental activities both in central and local government budgets. Districts should be encouraged to recruit District

Environmental Officers who will go a long way in monitoring advising, supervising and implementing Environment Management policies instead of relying on the few staff of NEMA.

Generally, NEMA, wetlands inspection division in the Ministry of Water, Lands and Environment should be strengthened in both staff and their low enforcement capacities if wetland conservation and management is to be realized.

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Lands and Environment.

APPENDICES

APPENDIX I: INTRODUCTORY LETTER



KAMPALA
INTERNATIONAL
UNIVERSITY

Ggaba Road, Kansanga
PO BOX 20000 Kampala, Uganda
Tel: 256 41 267813, 267604
Fax: 041 501974
E-mail: admin@kiu.ac.ug

SCHOOL OF ENGINEERING AND APPLIED SCIENCES DEPARTMENT OF ENVIRONMENT

Date: 16/09/2010

To: THE L.C. MBUXA I. PARISH,
NAKAWA DIVISION
KAMPALA DISTRICT

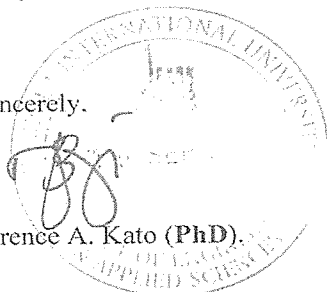
This is to introduce to you NAMUYABA RINE-I JUSTINE who is a bonafide student of Kampala International University. S/he is working on a research project entitled: WETLAND DEGRADATION IN UGANDA; THE CASE STUDY OF KINAWATAKA, NAKAWA DIVISION KAMPALA DISTRICT as a partial requirement for the award of a Degree. I hereby request you in the name of the University to accord him/her all the necessary assistance s/he may require for this work.

I have the pleasure of thanking you in advance for your cooperation!

Yours sincerely,

fw

Dr. Lawrence A. Kato (PhD)
DEAN



"Exploring the Heights"

CENTRE ZONE A

MBUYA 1 PARISH, NAKAWA DIVISION
KAMPALA DISTRICT

Our Ref:

Your Ref:

Date: 16/09/2010

REF: RECOMMENDATION FOR INTERACTION
WITH THE PEOPLE OF KINAWATAKA

I hereby recommend Mrs -
Nannyalsa Riney Lushine to carry
out the research in my area regarding
WETLANDS DEGRADATION IN UGANDA;
THE CASE STUDY OF KINAWATAKA, NAKAWA
DIVISION KAPCHA DISTRICT.
Your due co-operation will
be highly appreciated.

Yours Faithfully
Chairman HCI
Byungasa Stephen

TEL-0776934092



APPENDIX III:

WORK PLAN

Activity	Duration
Proposal writing	2 nd April – 3 rd June
Collection of Data	4 th June – 10 th July
Analysis of the data	11 th July – 30 th August
Typesetting and Binding	31 st August – 9 th September
Submitting the dissertation	20 th September

APPENDIX IV:**PROPOSED BUDGET**

Name of Item	Expenditure in Uganda Shillings
1. Stationery	
4 reams of papers	44,000
2 dozens of pens	6,000
Sub-total	50,000
2. Traveling	
10 trips to the field	30,000
Typing, printing, binding	35,000
Sub total	65,000
3. Subsistence allowance	
For research each for 7 days	7,000
Other expenses	20,000
Sub total	27,000
GRAND TOTAL	142,000

APPENDIX V

QUESTIONNAIRE FOR KCC, NEMA OFFICIALS AND RESIDENTS OF VARIOUS LOCALITIES:

This questionnaire is about the research on wetland degradation in Kampala District. Please be assured the information you will give will be treated with maximum confidentiality. Respond positively to that you are capable to answer by writing, circling or ticking the answer that best applies to you.

SECTION I: CAUSES OF KINAWATAKA WETLAND DEGRADATION

1. What are the various causes of Kinawataka wetland degradation?

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.....

2. What do you understand by wetland degradation?

.....
.....
.....

3. Name any wetlands you know in Kampala district.

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.....
.....

4. What are the importances of Kinawataka wetland?

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.....
.....

5. How has poverty contributed to Kinawataka wetland degradation?

.....
.....
.....

6. Many people say that the common flooding of Kampala City is due to wetlands are being drastically degraded. What is your view?

.....
.....
.....

7. (i) Wetlands in Kampala are heavily degraded.

Yes ☐ No ☐

(ii) Support your answer above

.....
.....
.....

(iii) If yes in 7(i) above, how does wetland degradation in Kampala District affect the environment?

.....
.....
.....

SECTION II: HUMAN ACTIVITIES IN AND AROUND THE WETLAND

8. What are the human activities in and around the wetland?

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.....
.....

9. What are the common features of wetlands?

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.....

10. Mention any resources people get from wetlands.

.....
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.....

11. How has drainage of this wetland to carry out farming led to the degradation of the wetland?

.....
.....
.....

12. Many people say that the common flooding of Kampala City is due to wetlands are being drastically degraded. What is your view?

.....
.....
.....

13. How has wetland drainage affected the climatic change in the place?

.....
.....
.....

14. How has excessive extraction of papyrus for art and crafts contributed to the destruction of the water shade?

.....
.....
.....

15. To what extent has drainage of the wetland for both agriculture and construction affected the habitats of aquatic organisms within this wetland?

.....
.....
.....

16. Brick laying and sand construction have contributed to creation of ditches within the wetland. How have these ditches affected people's lives?

.....
.....
.....

SECTION III: SOLUTIONS THAT CAN BE MADE TO PREVENT DEGRADATION OF KINAWATAKA WETLAND

17. What solutions can be made to solve the problems brought about as a result of Kinawataka wetland degradation?

.....
.....
.....

APPENDIX VI:

INTERVIEW GUIDE FOR LOCAL RESIDENTS AND COMMUNITY LEADERS (LOCAL COUNCIL LEADERS)

1. In your opinion, how do you understand the term “wetlands”?
2. Some people say wetlands are “waste lands”. What is your opinion about the same?
3. Mention any resources people get from wetlands.
4. What are some of the causes of wetland degradation in Kampala district?
5. In your opinion, how does wetland degradation affect the environment in your area? What could be some of the effects in order of magnitude?
6. What challenges if any are encountered by environmentalists in course of addressing wetland degradation in Kampala District? Arrange in order of magnitude.
7. Do you think the existing laws for wetland conservation have been efficient in Uganda generally and Kampala District in Particular? Give reasons for your answer.
8. What suggestions can you recommend for better management of wetlands in Kampala District?