PHD THESIS REPORT

UNDERSTANDING STAKEHOLDER PERCEPTIONS OF WETLAND ECOSYSTEM SERVICES TO SUPPORT CONSERVATION AND RESTORATION ACTIVITIES IN WAKISO DISTRICT, UGANDA

SUBMITTED TO
SCHOOL OF SOCIAL & ENVIRONMENTAL SUSTAINABILITY
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ABSTRACT

With more than one billion people directly depending on wetlands globally for their food, fresh water, and other livelihood support systems, it is crucial to conserve them for the benefit of people, climate, and biodiversity. There is a scarcity of information on stakeholder perceptions that affect wetland management, and stakeholders involved. The key objective of this doctoral research is to understand stakeholder perceptions on wetland ecosystem services and the role they play in conservation and restoration. Four research questions guided the study: What are the past and present wetland conservation and restoration legislation in Uganda? Who are the stakeholders involved, their roles and motivations? What perceptions do stakeholders have on wetland ecosystem services and how they relate to conservation and restoration activities? and how stakeholders' perceptions are integrated into wetland conservation and restoration activities and what are the missing gaps?

The research was conducted in Wakiso District Uganda using a qualitative multi-site case design. Forty stakeholders from national, district and community levels participated in the research. An ecosystem services framework provided the overarching conceptual lens for the research.

There are past and present efforts to conserve and restore wetlands in Wakiso District and these are supported by national laws and policies as well as domesticated international ones such as the Ramsar Convention on wetlands of 1971 and Conservation of Biological Diversity. Government projects to conserve wetlands are largely unsuccessful. However, more needs to be done as the rate of wetland conversion and degradation is on the increase in the district. Various stakeholders are involved in wetland conservation and restoration activities with divergent interests and motivations for their involvement. Stakeholders at the community level were found to be the least involved when it comes to planning for and implementation of wetland conservation and restoration activities. Wetlands among others are perceived as a source of services and materials, fertile lands, cheap and affordable, "God-given", not prioritized by the central government, places for spiritual practices, tourist attractions as well as being highly degraded ecosystems. Integration of stakeholder perceptions is very limited for civil society and community level stakeholders.

Perceptions play a key role in influencing human actions and need to be considered when planning any intervention. Empowerment and agency are crucial and necessary for effective wetland conservation and restoration. Without citizen agency, wetland resources are mismanaged as the stakeholders are not sufficiently empowered to demand accountability from those who are mandated by law to care for such resources.

The study offers the groundwork for recommendations relating to strengthening stakeholder agency, valuing perceptions, a call to increased participation, prioritising conservation, and restoration of wetlands as well as a realisation that government alone cannot successfully conserve and restore wetlands in Wakiso District.

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ACRONYMS AND ABBREVIATIONS USED

ACODE	Advocates Coalition for Development and Environment
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CDO	Community Development Officer
CL	Community Lutembe
CMP	Climate Mitigation Policy
CN	Community Nabaziza
CSO	Civil Society Organisation
DEO	District Environment Officer
DLG	District Local Government
DNRO	District Natural Resources Officer
DWO	District Wetlands Officer
ES	Ecosystem Services
ESF	Ecosystem Services Framework
ESIA	Environment and Social Impact Assessment
GoU	Government of Uganda
IBA	International Bird Area
IUCN	International Union for the Conservation of Nature
LWUA	Lutembe Wetland Users Association
MEA	Millennium Ecosystem Assessment
MWE	Ministry of Water and Environment
MWTA	Ministry of Wildlife, Tourism and Antiquities
NDP	National Development Plan
NEMA	National Environment Management Authority
NGO	Non-Government Organisations
SDG	Sustainable Development Goal
SOP	Standard Operating Procedure
SSA	Sub Saharan Africa
UNEP	United Nations Environment Programme
UWEC	Uganda Wildlife Education Centre
WES	Wetland Ecosystem Services
WI	Wetland International

WMD	Wetland Management Department
WWF	World Wide Fund for Nature

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AUTHOR'S DECLARATION

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I, Anthony Kadoma student number 2498151 of School of Interdisciplinary Studies of Glasgow University hereby declare that this research on ***understanding stakeholder perceptions on wetland ecosystem services to support conservation and restoration activities in Wakiso District Uganda*** is my own research work and has not been presented anywhere for an academic award. All other sources of information that I have used are acknowledged by means of complete references.

SIGNATURE:

DATE: 12th April 2023

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God bless you all.

DEDICATION

I dedicate this work to my grandmother who taught me the values of hard work, respect for elders and being environmentally conscious in all that I do. May your soul rest in peace!

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.0 Introduction to the study

This research is about understanding the perceptions of different stakeholders of the wetlands and their ecosystem services in Wakiso District, Uganda. It is assumed that perceptions inform people's views and actions especially regarding the value of the goods and services provided by wetlands. According to United Nations Environment Programme (UNEP), some 87% of the wetlands have been lost globally in the last 300 years, and more than 50% since 1900 (UNEP, 2021). In Africa, the same is happening as the size and the quality of wetlands are decreasing and has prompted the question of whether those who benefit from the wetlands know their value for the present and future generations. The study attempts to answer the question of why, despite all the available information at all levels about the importance of wetland ecosystems, they continue to be degraded at an alarming rate. It establishes the past, current, and future approaches used in conserving and restoring wetlands and considers whether approaches used do integrate the perceptions of majority players in the wetland ecosystems are working or not. An attempt is made to establish whether there is a link between inadequate participation in terms of sharing and integrating perceptions and persistent loss and degradation of wetlands.

The research aims at capturing perceptions of stakeholders that are rarely considered or less consulted during the process of policy formulation and implementation as far as wetland management is concerned. Yet, such people have a stake and are the ones that interact with the wetlands on a day-to-day basis. They may be left out because of their level of education, age, gender, or other factors when policies are being made or implemented. People have for years lived alongside wetland edges and have gathered a wealth of experience in the form of traditional and cultural knowledge on how to co-exist. It is expected that such people are not consulted, and their perceptions not considered when making policies. Peoples' knowledge and experience need not to be disregarded as it has worked for centuries and continues to work today albeit with a lot of influence from modern and imported knowledge and practices. Indeed, there is a need for a plurality of knowledge rather than considering only one form of knowledge as it has failed to produce long term solutions to problems faced by humanity. As Raum (2018) put it, stakeholders benefit from the ecosystems, and systematically identifying their stakes, knowledge, and experience is essential for effective, equitable, and sustainable

management. By having their input into the process of managing wetlands, it is expected that chances for wetland conservation and restoration will increase.

1.1 Background to the study

Globally there is a realization that ecosystems are depreciating at a fast rate and their functioning status is poor (Millennium Ecosystem Assessment (MEA), 2005; Verhoeven et al., 2006), with more than 80% of the wetlands in Europe, North America, and East Asia, being lost or severely degraded (Verhoeven, 2014). The actual data for the continent of Africa is limited (Davidson, 2014) but follows the same downward trend. In their report, Stephenson et al. (2020) observed that when it comes to wetlands in Africa there are challenges of data availability, usability and quality. Biodiversity loss is on the increase as more and more wetlands become degraded. Loss is greatest with terrestrial than marine species with a population decline of 83% between 1970 and 2014 (Open Letter by the International Organization Partners to the Convention on Wetlands, 2020). Whereas most activities that take place in wetlands are for subsistence such as small fishing and edge crop growing, there are also a few individuals who exploit wetland resources for business, such as large-scale flower farming as is the case in some wetlands in Uganda. Existing studies show that wetland ecosystems are among the most affected ecosystems compared to others (Dixon & Wood, 2003; Gardner & Finlayson, 2018; Hu et al., 2017). It should be noted that wetlands act as a natural reservoir for food, shelter, and habitat for several biological communities (Costanza et al., 1997; Junk et al., 2013; Upadhyay et al., 2020). As the need to reduce poverty and hunger in the world increases (Lubaale, 2019) more of the wetland ecosystems are likely to continue deteriorating or even be significantly changed to the extent that they will not be able to offer the goods and services that we have been accustomed to in the past (de Groot et al., 2013).

All over the world wetlands are being converted to other land uses (Davidson, 2014). These transformations have led to some level of benefit evidenced by increased food production for some regions of the world thereby reducing levels of malnutrition and in some cases improving lifestyles (MEA, 200; FAO, 2008). The gains listed above have come at a great cost and benefit only a small segment of the population (Ranganathan et al., 2008). Wetland ecosystems are replaced with aquaculture, backfilled to create space for new developments leading to the disappearance of natural wetlands along with the services they offer. A further degradation of the wetlands will without a doubt affect people especially those that directly

depend on them for their survival. In 2020, Upadhyay et al. emphasised that people would suffer if the wetlands continued to be degraded. Wetland conversion also takes place because of a general lack of knowledge of the importance of the ecosystem services provided to local communities, including buffering against natural hazards such as flooding, provision of food, and other handcrafts making materials (Zhang et al., 2019).While recognizing the important roles played by wetlands in the life of human beings, the Ramsar Convention[1] coined the metaphor '***healthy wetlands, healthy people***' (Horwitz et al., 2012 pg.2). It is thus paramount to keep our wetlands healthy if we are to live healthy lives.

Wild plants and animals provide humans with almost everything they need, for instance, food, medicine, raw materials for making clothing, tools, and shelter (Convention on Biological Diversity (CBD), 2011). Whereas one may argue that dependence on wild plants and animals reduced with the advent of agriculture and the industrial age, to-date, their contribution cannot be underestimated in many developing countries like Uganda. The benefits provided by plants and animals have led to land, rivers, lakes and other aspects of the natural environment to be communally owned in many African countries so that no one is deprived access to them (Ntambirweki, 1998). In response to the pressures and the adoption of globalization, westernization, and capitalism beliefs, the ownership systems of the natural resources (commons) have been threatened. Presently, communally owned resources have been co-opted by individuals and institutions primarily driven by the need for private and individual gain at the expense of communal benefits.

As reported in the Global Wetland Outlook (Gardner & Finlayson, 2018), wetland ecosystem produce more services to humans compared to other terrestrial ecosystems. It is because of the values and services they offer, that they have been exploited on a large scale. That is partly why there are calls to restore, preserve, or construct wetlands to conserve biodiversity and prevent or reduce wildlife loss, pollution, and water sources (Upadhyay et al., 2020). Wetlands also undergo aging, degradation, experience infilling, and their areas are ever-shrinking due to anthropogenic factors. These could partly be a result of longstanding over-exploitation and possible mismanagement. Failure to conserve and restore wetlands will lead to a great loss of the human population as well as natural ecosystems.

[1] Ramsar Convention refers to the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. It was named after the city of Ramsar in Iran where the convention was held in 1971.

Whereas some of the terminologies used in social and economic assessments of wetlands are not uniform such as wetland functions, wetland services, and wetland values, such terminologies have been used interchangeably even when they mean different things. A definition of each is offered by Heimlich et al. (1998) and will be adopted for this study.

1) Wetland functions are defined in terms of what wetlands do, such as primary and secondary production; denitrification rate; litter decomposition rate (production functions); and regulatory functions such as storage of surface water, groundwater recharge, sediment trapping.
2) Wetland services are the economic functions and or the benefits derived by individuals or society from wetlands such as the harvest of timber, thatch, peat, fur, fish, berries, clean water, pasture for domestic animals, and recreation. This study is particularly concerned with wetland services.
3) Wetland values refer to estimates of the economic worth of various wetland services to individuals (private or direct values) or society (public or indirect values) or both (mixed values).

There are significant societal shifts taking place within the field of sustainable development with a major focus on the meaning of transformation. In the latter, the poor and the marginalized of society are expected to play a key role in changing their conditions. It is not until community empowerment is realized that a fundamental shift can be seen in the community's efforts to create and sustain change. The value, services and functions of wetlands can be sustained only if well managed with sound knowledge and skills as well as cooperation from various stakeholders (Torrel et al., 2004; Sawe, 2017). Maintenance of the essential values and functions provided by wetlands is a major role of community members since they are the ones that benefit from them rather than the policymakers who live far from the wetlands and are not familiar with what goes on in a wetland.

Management of wetlands in Uganda has largely been amorphous as observed by Ntambirweki (1998) and as reported by the government of Uganda (GoU, 2016). Wetlands were placed under the crown land during the colonial times, meaning it was government land and not land owned by an individual or community. Later when Uganda got independence, the ownership of wetlands were transferred to the central government. The government of Uganda at first treated wetlands as wastelands and paid no attention to their proper use to meet society's development needs at the time. However, today there is a big risk since there

is a breakdown of African cultures and traditions to utilise these natural resources. The basis of a common management culture has been eroded by an individualistic culture and a legal system that is guided by a philosophy that puts "I" above "We" (Ntambirweki, 1998). Cultural institutions in Uganda such as Kingdoms were abolished after independence and even when some were restored, they are just ceremonial and do not hold power and influence to help in the conservation of natural resources such as wetlands as the central government has established departments such as the Natural Resources Department to manage the use and benefit from such resources.

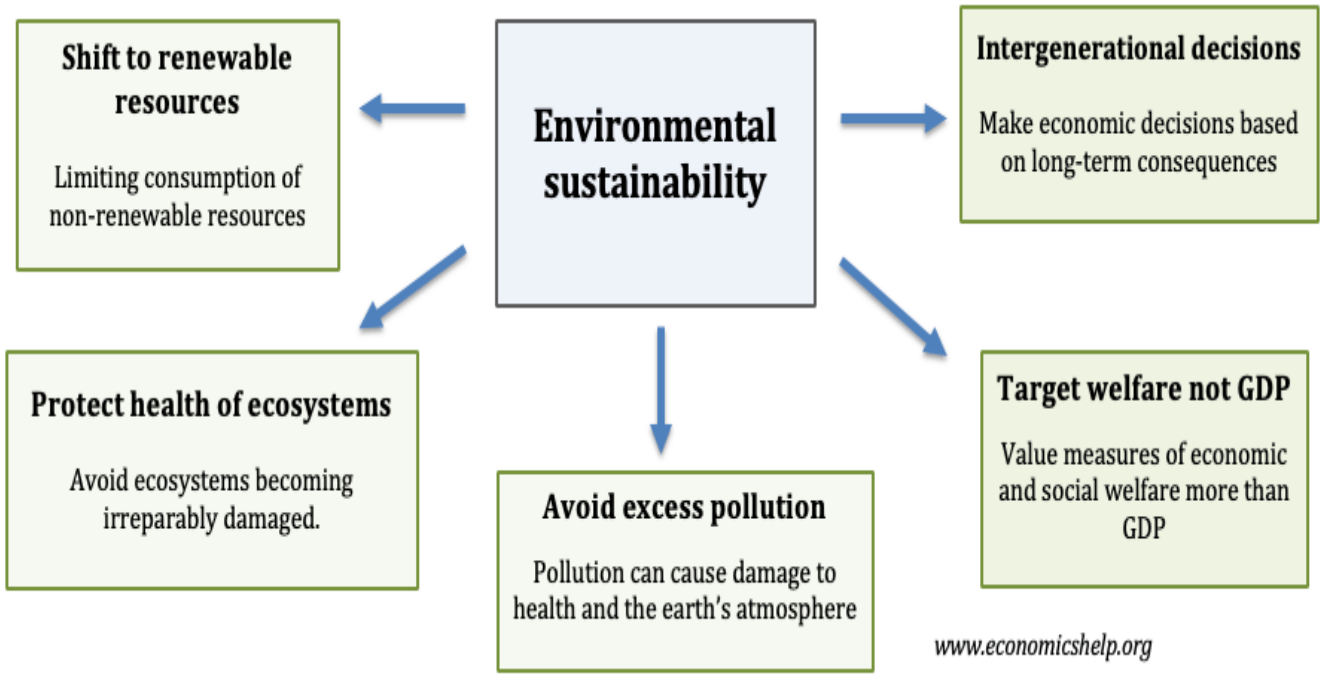
The Uganda government signed the Ramsar Convention Treaty on the conservation of wetlands in 1988. It was among the first African countries to do so and the first in East Africa with Kenya and Tanzania doing so in 1990 and 2000, respectively. The signing of that treaty led to several national level legislations to operationalize its implementation. This study therefore has considered starting from the year 1990 to 2020 a period of three decades to investigate the changes that have taken place in wetland management for Wakiso District. Important to note is the fact that in all the years under consideration (1990-2020), Uganda has been and continues to be under the same leadership of President Museveni and his party the National Resistance Army (NRA) which transitioned into the National Resistance Movement Organisation (NRMO) and thus any achievements or losses made can be attributed to his government.

It is the duty of every citizen to work towards protecting the earth given its limitations in as far as supporting life on it is concerned. Achieving such protection necessitates that there is cooperation in the process of managing resources such as wetlands, avoiding over utilization at the detriment of future generations. Available literature shows that different perceptions and attitudes stakeholders have on the environment inform how they relate with it (Curșeu and Schruijer, 2017). For instance, when individuals have increased awareness of the value of conservation, they may protect the natural resources and if they do not, then the reverse is true (Hobbs, 2016). To make matters worse, when policymakers are making laws for wetland protection, they do not do enough consultations especially with the local people whose views are never or rarely considered (Kabumbuli and Kiwazi, 2009). Ultimately, in the long run, the absence of local participation in policy making leads to a lack of appreciation of either the proposed or enacted laws, poor implementation, and hence the persistence of the problem (Rayner, 2012). Considering the perceptions of those affected by laws being passed is

necessary and a prerequisite for success and achievement of wetland conservation and restoration objectives.

The main reason for choosing this topic is personal interest. My interest arose from a realization that several scientific approaches and interventions to conserving and restoring wetlands have emerged and been promoted in the past recent decades but with limited success. Several of these approaches were spearheaded by the global north and international organizations that are interested in conservation and restoration of wetlands. Examples include the United Nations Environment Programme (UNEP), International Union for the Conservation of Nature (IUCN), Wetland International (WI), World Wide Fund for Nature (WWF) among others. The efforts of these organisations have succeeded in some countries and not in others or even in the same country with specific projects and not others (Reiter, 2018). For example, efforts have chiefly focused on the modification of the wetlands themselves and less on improving human-nature relationships, yet humans are among the major players when it comes to wetland degradation and conversion. Focusing on humans rather humans and nature would probably play a crucial role in the effort to conserve and restore wetland resources on planet earth. In my view, firstly one of the ways of engaging people is through studying and understanding their thought process which influences their behaviour and actions, and secondly designing an approach or an intervention that responds to their behaviours and actions and where possible make it context specific rather than universal. In Chapters 2 and 6, I present the various reasons as to why engagement of various stakeholders in wetland conservation and restoration processes and actions is crucial for success. Protecting the health of ecosystems such as wetlands is of paramount importance in the quest for environmental sustainability as shown in Figure 1 below.

Figure 1: Issues in environmental sustainability



Source: Pettinger, 2018.

Environmental sustainability is concerned with whether environmental resources will be protected and maintained for future generations (Pettinger, 2018). Therefore, for sustainable development to be achieved, issues of proper environmental management ought to be at the forefront. Environmental management can be achieved through thoroughly analysing the current environmental statuses, thinking long-term, changing priorities in favour of sustainability in the social, economic, and political spheres of citizens of the globe. Such developments are closely associated with the theory of de-growth. De-growth is defined by Kallis (2011), as a political and economic theory that puts emphasis on changing the priorities of society from economic growth and production to a society based on sustainability, human well-being, greater concern for the environment as well as cooperation between and among communities and countries. Pettinger (2020) agrees with Kallis above that indeed moving forward, society priorities need to be refocused if any positive and sustainable results are to be gained. This echoes what Morelli (2011) states, that sustainability is a three-legged approach as it simultaneously implicates the economy, society, and environment. The same ideas were shared by the late Wangari Maathai who explained that three pillars are used to help develop marginalized communities based on principles of good governance, equitable distribution of resources, and environmental management (Mutua et al., 2018). Maathai added that the three pillars need to be supplemented with a culture of

peace to realize sustainable development. These principles she promoted through her Green Belt Movement in Kenya.

1.2 Research problem

Wetland loss has been and continues to be a challenge for many countries including Uganda. There are reports of losing more than fifty percent of the wetlands globally (Finlayson, 2011; Hu et al., 2017; Gardner & Finlayson, 2018). In 2002, Verhoeven et. al. reported that in some densely populated regions of Europe, North America, and East Asia, more than 80% of the wetlands have been lost and those remaining are severely degraded. Davidson (2014) provides more comprehensive data on wetland loss through his studies of 189. The greatest and fastest loss was in natural inland wetlands (69-75%) compared to 62-63% of the coastal wetlands (Hu et al., 2017).

Overlooking the social and cultural dimensions of how humans interact with ecosystems can reduce community resilience and decrease or eliminate chances of success in wetland conservation and restoration. Practices like customary ownership of land if not handled well is likely to generate conflict, diminish trust, and obstruct collaborative management of natural ecosystems (Gosling et al., 2017). It is asserted that existing Ecosystem Services (ES) studies have been conducted with limited local participation of key stakeholders (Seppelt et. al., 2011). In their review of ES studies, Seppelt et al. (2011) discovered that of studies published between 1990 and 2010, 60% did not involve stakeholders and far less community-level ones. There are high incidences of exclusion of community level players in making decisions concerning their resources. In a way such a practice of leaving them out disempowers community structures, yet such structures play a key role in implementing decisions made if they are to succeed. Such scenarios bring about a lack of ownership, enthusiasm, as well as accountability, which negatively affect the chances of success in conservation and restoration of wetlands no matter how applicable the proposed measures might be.

This doctoral research was done in Uganda, an East African country, formerly colonized by Britain, and independent since 1962. The country has had a long history of treating wetlands as wastelands just as some other African countries in the past. As a result of that perception and the consequent treatment of wetlands as wastelands, wetlands were left in the hands of no one to manage well and consequently they were, and to some extent continue to be, mismanaged, and degraded. During colonial times, wetlands were owned as crown land

which was directly under the management of British government represented by the Governor (Mulira, 2020). However, at independence, the crown land in Buganda Kingdom was returned to the Buganda Land Board in 1961 (Mulira, 2020) and elsewhere in Uganda to the central government.

Interestingly, what was given to Buganda Kingdom -- a cultural institution -- was later nationalised after the abolition of Kingdoms. Then all land belonged to the government, at that time, Idi Amin's government, between 1972-1979. A review of available literature reveals that between 1962 to 1995, there was no law or policy governing access and usage of wetlands and their associated goods and services in Uganda. It was not until the negative effects of degradation started to be felt that the government started enacting laws and policies that have largely not been successful in conserving existing wetlands and restoring the already lost wetlands in the country.

Even when environmental laws have been put in place since 1995, their implementation has remained lacking. For example, it's a requirement for one intending to do any project in a wetland to pay for an Environmental and Social Impact Assessment (ESIA) before being allowed or denied access (Akello, 2007). However, once some state actors obtain such a permit to do business on a piece of wetland for a particular period, they end up processing titles and owning such plots indefinitely. There is either lack of political will on the part of the government or not being ready to support and implement ESIA reports at both central and local government levels (Cirella et al., 2018; Rwakakamba, 2009). Furthermore, the process of conducting these ESIAs is not inclusive and transparent as the participation of stakeholders is limited. The presence of weak monitoring systems from the government agencies such as National Environment Management Authority (NEMA) put the protected areas such as wetlands at great risk of being degraded and depleted.

The presence of laws and policies to manage wetlands in Uganda and Wakiso District has not stopped or reduced wetland conversion. In fact, it has instead increased as current figures shows. Part of the reasons why this is the case could be the lack of or absence of stakeholder participation. This confirms what Raum (2018) noted that,

> *"Many past efforts at managing the environment and natural resources sensitively have failed because the various stakeholders involved, and their potentially*

conflicting interests and perspectives have been given inadequate consideration by national policy-makers and regional or local planners" (*p.* 171)

Other challenges regarding wetland conservation and restoration include limited awareness on the functions and values of wetland ecosystems, ownership, and cases of corruption especially when conducting ESIAs. Also, there is inadequate adherence to the existing laws and policies, poverty, and over reliance on subsistence farming in most communities of Uganda (GoU, 2016). Population growth in urban areas coupled with uncontrolled rural to urban migration, high poverty ratios, as well as a general lack of political will are among the other hindering blocks affecting the successful conservation and restoration of wetlands (GoU, 2016; Lubaale, 2019). Considering all the enumerated challenges and with limited coordination among those mandated to protect the wetlands, it has left the wetlands very vulnerable to abuse. People with money, power, and influence, and those guided by the need for individual benefit end up converting wetlands at the expense of societal benefits that are enjoyed by the majority when wetlands are conserved, restored, or used sustainably.

In 1995, the Government of Uganda (GoU) formulated and adopted the National Policy for the Conservation and Management of Wetland Resources. The said policy was largely driven by the fact that the government had become a signatory to the Ramsar Convention and thus was pressurized to enact laws that will aid the implementation of the provisions and requirements of the convention. Held in 1971, the Ramsar Convention is a framework that brings together national and international action and cooperation for the conservation and wise use of wetlands among the member states that have signed the treaty (Gardner & Davidson, 2011). In this national policy (GoU, 1995), five key objectives were outlined including,

1. to establish principles by which wetlands resources can be optimally used now and in the future
2. to end practices which reduce wetland productivity
3. to maintain the biological diversity of natural and semi-natural wetlands
4. to maintain wetland functions and values
5. to integrate wetland concerns into planning and decision-making of other sectors

To achieve the above goals, the following principles were envisioned:

a. wetlands form an integral part of the environment and should be managed as such considering the need for conservation and those for national development.

b. *wetland management should involve all concerned parties* and especially local governments through a system of coordination and inclusion.
c. there is need to create awareness and to change *popular perceptions* to achieve sustainable management of wetlands (GoU, 1995).

To date, no study has been done to establish and analyse which popular perceptions were referred to in this important policy and this study will attempt to fill that gap.

Wetlands' role in storing carbon is reported in many publications (e.g. Nahlik and Fennesy, 2016; Tallardat et al. 2020; IUCN, 2020). Globally wetlands store almost a third of global soil carbon and supports forty percent of global biodiversity (IUCN, 2020). Other recent studies on ES have focused on the benefits that people derive from the ecosystem (Costanza, 2000; Bikangaga et al., 2007; Horwitz et al., 2012; Costanza et al., 2014; and Finlayson, 2015). This according to Asah et. al. (2014) has caused a limited understanding of how values for wetlands are shaped by the way how people perceive them, depend on them, and use them. Therefore, this study focuses on understanding and explaining the role human perceptions play in the effort to conserve and restore degraded wetlands. The views, and perceptions gathered and analyzed give a detailed picture of how stakeholders perceived wetlands in general and not merely the benefits that humans derive from wetlands.

An increasing number of studies on wetland ecosystems in Uganda have focused on the drivers of change (Namaalwa et al., 2013), wetland loss to development projects (Kabumbuli, 2016), attitudes of communities towards wetland conservation (Muwanguzi, 2018) and community based conservation of wetland practices (Barakagira & de Wit, 2019). There is a lack of research on stakeholder engagement in wetland conservation and restoration in the study region. No study has been done on the role played by perceptions in influencing actions for or against wetland conservation and restoration in Uganda and Wakiso District in particular. This is the gap this doctoral research fills. To address the identified research gap, the following research questions guided this research.

1.3 Research questions

The overall research question is to examine the role of stakeholder perceptions on wetland ecosystem services play in conservation and restoration activities? To answer this broad question, it was divided into the following specific research questions.

1. What are the past and present wetland conservation and restoration legislation in Uganda?
2. Who are the stakeholders involved, and what are their roles and motivations in wetland management?
3. What perceptions do stakeholders have on wetland ecosystem services and how are they related to conservation and restoration activities?
4. How are stakeholders' perceptions integrated into wetland conservation and restoration activities and what are the missing gaps?

1.4 Rationale of the study

It is important to understand stakeholder perceptions of wetland ecosystem services because perceptions not only inform human experiences of the world around us; they also influence the way humans act within their environment to achieve their goals among other variables (Raum, 2018). Perceptions help in understanding human behaviour because every person perceives what is before them differently and this also go for wetland ecosystem as well as their goods and services. By collating different perceptions about wetlands and the benefits that are derived from conservation and restoration, it is hoped that a holistic, acceptable, understandable, and agreeable management approach will be designed, adopted, and implemented by players in the sector.

In this study, the perceptions of men, women, youth, local farmers, sand, and clay miners, as well as hunters, among others are collected, studied and may in future be used to inform policies and or byelaws on wetland CR in Wakiso District. This way, the findings of this study will make contribution and an appreciation of the different views and perceptions stakeholders have when it comes to wetland CR in Wakiso District and Uganda at large.

Given the fact that there is an increase in urbanization, economic growth, industrialization, and population growth in Uganda, there is a need to harmonize these with environmental care as failure to do so will negatively affect the achievements currently being celebrated. This study will thus contribute to a wider discussion involving stakeholders on how to create, maintain and promote the balance between nature conservation specifically of the wetlands and other human developments for the benefit of today and future generations.

By identifying, understanding, and documenting the perceptions of different stakeholders in wetland management in Wakiso and Uganda at large, it will not only increase public awareness about wetlands but also the reasons why people are involved. Public awareness is likely to bring about agreement among majority players and ultimately that will benefit stakeholders involved. With many stakeholders onboard, it is hoped that it will help in distributing and sharing the roles and responsibilities involved in efforts geared towards the conservation and restoration of wetlands in the district. This is the opposite of what is happening currently where the central government is expected and mandated to conserve and restore wetlands lead in their conversion.

I hope that with community stakeholders on board, it is probable that it will increase advocacy, support, urgency, and relevance to engage in wetland conservation and restoration activities. With stakeholders aware of their interest, they are expected to engage and safeguard their well-known and documented stakes.

The study adds to the body of knowledge and debates surrounding the management of wetland ecosystems. Of particular importance, it brings a voice from the global south which is largely limited in the current debates and construction of knowledge (Escobar, 2016). This will also increase the plurality of ideas available in the body of knowledge available to both scholars in the global north and global south.

There are opportunities for reflection on what has been going on and how or what changes need to be done to increase chances of success in wetland conservation and restoration. The findings present an opportunity to implement a new strategy in the conservation and restoration of wetlands.

1.5 Definition of key terms used in this study

Below are key terminologies used in this study along with their definitions and the specific ways in which they have been operationalized in this study.

A wetland according to the Ramsar Convention of 1971 refers to an area of marsh, fen, peat, or water whether natural or artificial, permanent, or temporary with water that is static or flowing, fresh or brackish or salty including areas of marine water the depth of which at low

tide does not exceed six meters (Ramsar Secretariat, 2005). It is an area of land that is permanently or seasonally saturated with water and acts as a transitional zone between land and water (Verhoeven et al., 2002; GoU, 2016). The wetland is also known as an area where water is the primary factor controlling the environment and the associated plant and animal life (Zedler and Kercher, 2005). Finally, The National Environment Act 1995 and 2019 of Uganda defines wetlands as areas that are permanently or seasonally flooded and where plants and animals have become adapted.

An ecosystem was first defined by Tansley in 1935 as a biotic community or assemblage and its associated physical environment in a specific place (Tansely cited in Pickett and Cadenasso, 2002). Subsequent definitions include, Sandhu (2017) defined an ecosystem as a functional ecological unit comprising biophysical and chemical components that are interacting with each other.

Ecosystem services are known as the benefits humans obtain from ecosystems (Costanza et al., 1997; de Groot et al., 2002; MEA 2005; Wratten, 2013; Sandhu et al., 2012). The four main ecosystem services as outlined by the Millenium Ecosystem Assessments are provisioning, regulating, cultural and supporting services. To Zhanga et al, (2016), ecosystem services are both tangible and intangible. Tangible examples include foods, herbs, sand, clay among others and intangible ones are cleaning air, impact on microclimate, carbon sinks among others. Maltby (2011) thought of ecosystem services as natural assets produced by the environment and utilized by humans like clean water, air, food, and other materials that contribute to their social and cultural wellbeing. Also, Boyd and Benzhaf (2007) defines ecosystem services as the benefits of nature to households, communities, and economies. The value that human beings attach to these ecosystems differ as some are based on individual perceptions, the benefits they derive, yet others see ecosystems supporting a larger goal of sustainable human well-being (Costanza, 2000).

Wetland conservation refers to protection, preservation, management of the wetland, and its neighbouring community including plant, animal, and human population. It is about managing human activities on the remaining intact sections of the wetland to benefit the current and the future generations.

Wetland restoration has been called several names including wetland enhancement, rehabilitation, replacement, reclamation, creation, mitigation, and management. All these terms have been used in past studies interchangeably. However, most activities on the wetland can be termed as wetland restoration, enhancement, and creation (van der Valk, 2012). In this study, wetland restoration refers to the restoration or reconstruction of degraded or lost wetlands, to recreate the structure, functioning, and related physical, chemical, and biological characteristics the wetlands had prior to disturbance (Zedler and Kercher, 2005).

The goal of restoration is to make the wetland self-regulating and integrated within its landscape, rather than re-establish an original condition that can be impossible to define and restore within the context of the current land use and global climatic conditions. Restoring a wetland to mimic its original self is close to impossible as it involves the need for hydrologic and morphological rejuvenation as well as chemical clean-up of deposited toxic chemicals in the targeted wetland. Indeed, Choi and Bury (2003) found out that over 97.5% of urban and sub-urban wetlands in Indiana USA were not restorable due to the social and economic costs.

Ecosystem restoration is defined by the Society of Ecological Restoration (SER 2004) as a process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. This is crucial because the plan to restore and conserve any part of the wetland ecosystem is dependent on the agreed definition and in response to the level and scale of degradation experienced by the target wetland. Indeed, according to Stanturf et. al. (2014), words such as degradation, damage, destruction, and transformation all signify nonconformities from the usual or desired state of an undamaged ecosystem.

Wetland conservation and restoration are used simultaneously throughout this thesis. The reason is that I could not talk of conservation only when the percentage of wetlands remaining in the country is less than 10% of what used to be and where conservation is reported is still poor conservation. However, bearing in mind that wetland restoration is rather a complicated process, I preferred to combine conservation and restoration to go hand in hand.

Perception is defined in the Oxford Advanced Dictionary (2000) as the representation of what is perceived, basic component in the formation of a concept. It thus includes awareness of the elements of the environment through physical sensation or reacting to the sensory

stimulus to form an action or behaviour. Operationally, perceptions are so crucial in influencing human actions. When we have beliefs about something, we use those beliefs to perceive meaning from a situation, place, or matter. It is thus key to know how humans organize, identify, and interpret information through senses. One's experience and knowledge are positioned in the interplay between person and environment. As Ingold (2000) observes, some people think that perception of the environment is a passive process which leads to the belief of objectivism. Yet, people's perception towards the environment is active as people continually seek information about the environment as per their needs and their motivations hence leading to relativism. Relativism is the opposite of objectivism. Between objectivism and relativism there is a middle point of pragmatism, as suggested by Dewey (1958). Pragmatism in this case refers to the way of looking at human perception on the wetland ecosystem services according to how useful they perceive it in relation to how it impacts their lives. Pragmatism underpinned this study because human perceptions change, evolve, and differ from community to community. Perceptions was assessed in this study through understanding of the views of stakeholders about the concept of ecosystem services. There are major aspects that characterize ecosystem service studies including, using the perceptions of stakeholders to assess the non-use value of ecosystem services, using stakeholders' perceptions for land use or landscape to assess human demand for ecosystem services and quantifying the willingness of stakeholders to pay for ecosystem services (Zhang et al., 2019).

Stakeholders are defined by Felipe-Lucia et. al. (2015) as any group, organization, or individual having a stake, interest, or who can affect a biological or physical resource, ecosystem service, institution or social system, or someone who is or may be affected by public policy. In contemporary studies, the term has been used widely in differing circumstances (Reed et al., 2009). Concerning wetland management and restoration, stakeholders are defined as people, communities or institutions that will be potentially affected by decisions taken on the management of wetlands. Additionally, those who participates in the implementation of the management decisions and are either likely to support or oppose a proposed or agreed upon plan (Waweru et al., 2019). For instance, a study by Namaalwa et. al. (2013) identified many stakeholders in the management of wetlands including- local/ wetland users (those who harvest/collect/gather resources and goods from the wetland), sub-county and municipal, District, and national level.

1.6 Researcher position and reflexivity

I am a Ugandan, mature male, married with children, Christian and living in Wakiso District where this study was carried out. Being born and raised from a rural community in Kyenjojo District, I am familiar with both rural and urban life as per the Ugandan standards. My research community also shares the same characteristics; that is some areas are considered urban and others rural. In the study sites, I was an indigenous outsider but knowledgeable in the local language spoken by stakeholders at the community level. This helped me a great deal as I easily connected with my research participants and reduced anxiety in them to be able to freely share their perceptions. Given the sensitivity of wetland conservation and restoration, at first people seemed scared to openly talk about it. It is common that some people pretending as researchers and collect information which they later use to witch-hunt residents and even chase them out of their land. To avoid that, I had to move with a local guide referred to me by the local leader of that community -- someone who was familiar with the community and its people. This made it quite easy for participants to allow the interviews after I shared with them the goals and purpose of the study.

At District and national level, English which is the official language of Uganda, was used and this made communication flow well. The experience I acquired during my bachelor's degree at Makerere University in Adult and Community Education prepared me in how to do community entry for this study. I am particularly interested in community engagements that contribute to the process of attitudinal and behavioural change. I am a strong believer in enabling people to take charge of their own actions and interpret their world in a way that makes sense to them and gives them responsibility and accountability. This in a way builds their self-agency and empowerment which they partly need to make rational decisions. As Gandhi put it, 'The future depends on what we do in the present.' Once people adopt a positive behaviour regarding how they see and interpret their world around them in terms of environmental, culture, values, and attitudes, these are expected to be passed on to their children and their children's children. The principles of andragogy clearly state that adult learners will always want to learn what they can apply immediately to solve their problems to improve their standards of living (Knowles 1984).

I am aware of the principle of 'do no harm' in research. Thus, in everything that I did during the field work, I had to guard against harming and or exploiting the participants. I did so through sharing all the necessary information about my study to obtain informed consent and voluntary participation. My participants were also made aware of their right to terminate the interview anytime they felt uncomfortable with the issues being discussed.

My current position as a PhD student from The University of Glasgow put me in a privileged position in the community. There is a tendency of people to respect others especially if they have gone to school outside Uganda. These people are associated with being exposed, informed, with a bright future after their studies as it is expected that they will find a good job and be prosperous in future. To minimize the effect of that, I did not emphasize the university but introduced myself as a student that needed to learn from the experience of my participants especially where telephone interviews were conducted. Also using the local language at the community level brought me closer to the people compared to when I was using a language that they did not fully understand.

It is said that "research is a process and not a product" (England, 1994 p 82). As a process, there are people that are involved as well as different methods and tools for data collection at various stages. Over the years, I have been engaged in that research process at varying levels and acquired valuable experience. I have previously worked as a research assistant helping with conducting interviews and focus group discussions, have trained research assistants, have transcribed interviews, coded data, and written research reports. The skills obtained enabled me to undertake this independent Ph.D. study with commitment, decision making skills, as well as problem solving.

I am inclined to an epistemological assumption that there are multiple truths, and these could be subjective in nature as individuals perceive the world differently. Therefore, the research, researched and the researcher might be transformed by the field work experience, and this required those involved to be flexible during this research study. I believe in the approach of enabling the people to use their locally available resources to contribute to solutions to their problems instead of relying on outside assistance which is rarely sustainable in nature. This may be achieved through building on the skills which people already have, helping them to

identify their abilities to solve their own problems through creating an enabling environment where creativity and integration of all available knowledge and resources are used in a collaborative decision-making process.

In conclusion, no one can be one hundred percent objective. The researcher's positionality is always there and thus their beliefs, values systems, and moral stances are as fundamentally present and inseparable from the research process. Hence it was my moral and ethical duty to ensure that I am aware of them and come up with ways to deal with them in the contextual interplay of the research process. These included following the approved research protocols.

1.7 Thesis layout

This thesis comprises of eight chapters. Chapter One presents and introduces the study by highlighting the research problem, research questions as well as the rationale for the study. It also includes my positionality, reflexivity and the definition of key terms used in the study.

Chapter Two situates the study in the literature and other research studies done in the field. In the chapter the concept of ecosystem services is covered through highlighting the global, regional, and national level contexts. It also includes various wetland services, and the perceptions stakeholders have on them, and it ends with a review and adoption of the ecosystem services concept.

Chapter Three presents the methodology clearly stating that it followed a qualitative case study approach in data generation analysis and reporting.

Chapter Four presents the findings on wetland management and policy development in Uganda focusing on the past and the present conservation activities. The chapter addresses research question one. It presents in detail what the available laws on wetland conservation and restoration are and the challenges that the law enforcers have faced in trying to protect the wetlands in Wakiso District.

Chapter Five sets out the various stakeholders involved in wetland conservation and restoration activities in Wakiso District. They are grouped into three broad categories of national level, District, and community level. Also included are the different ways they participate in the ongoing efforts to conserve and restore wetlands primarily in Wakiso District and by extent Uganda as a whole. The findings above helped in answering research question two.

Chapter Six answers research question three and is a core for this study. It presents the various perceptions that stakeholders identified in Chapter five have on wetland ecosystem services. How those perceptions inform their actions or not in as far as engaging in wetland conservation and restoration activities is also presented in this chapter.

Chapter Seven is on the discussion and synthesis of what is covered in the thesis and particularly incorporates answers to research question four of this study on how stakeholder perceptions are if at all integrated into wetland conservation and restoration activities especially in policy making and implementation.

Chapter Eight is the recommendations and conclusions of the study. It also includes possible future studies that may be very relevant in advancing knowledge and practice in the field of wetland conservation and restoration.

Enjoy reading….

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Chapter Two begins with the review of research literature related to wetland ecosystems, globally, in the African region and in Uganda specifically. Stakeholder perceptions are then taken up through a review of literature that consider human engagement with wetlands through frameworks including environmental management and education. Finally, I take up conceptual considerations, with a specific focus on the Ecosystems Services Framework.

2.1 Wetland ecosystem services

According to the Ramsar Convention of 1971, there is no agreed classification of wetland types. However, three broad types are recognized including inland wetlands, marine and coastal wetlands, and man-made wetlands (Matthews, 1993). In this study only inland wetlands are addressed and specifically river/stream permanent (riverine) and freshwater lake permanent (lacustrine) wetlands. Inland wetlands can be further subdivided into types including, but not limited to, swamps, marshes, freshwater lakes, rivers, peatlands, shrub dominated wetlands (Matthews, 1993). As noted above, wetlands may be natural or man-made for example, rice fields/ paddies, dams, reservoirs, and fishponds are examples of man-made wetlands (Namaalwa et al., 2013; Gupta et al., 2020).

According to the definition of ecosystem services (see 1.6), the importance of the benefits that people obtain from natural ecosystems such as wetlands cannot be underestimated (MEA 2005; Costanza et al., 1997; De Groot et al., 2012; McInnes, 2013; Zhao et al., 2016). Human beings have for many decades depended on the provisions from wetlands to survive and meet their basic needs (Namaalwa et al., 2013; Sandhu and Sandhu, 2014; Barakagira & de Wit, 2019). However, as human populations increase, and our relationship with the environment shifts, the rate of exploitation of wetland resources has more than doubled and led to the depletion and disappearance of wetlands (Dixon & Wood, 2003). Wetland depletion is a concern at various levels of management and for multiple stakeholders, as will be discussed in Chapter Six of this thesis. Response to such concerns is informed by the way the actors involved view and appreciate the roles and services, as well as the benefits that people obtain from the wetlands.

According to the Ramsar Secretariat, as of 2022 there are 2,400 Ramsar sites around the globe. This is an increase from 2303 wetlands of international importance in 2022. The contribution of wetlands to global ecosystem services accounted for about 47% in 2014 (Costanza et al., 2014). Wetlands cover about 6% of the world's land surface and account for 12% of the global carbon pool (meaning they help in capturing and storing of carbon from the atmosphere) (International Panel on Climate Change (IPCC), 2021) and as observed by Keddy (2010) in his work on wetland ecology, flooded soils are critical in influencing biogeochemical cycles. Wetland ecosystems harbour a high level of plant, animal, and bird diversity, hence why they need to be conserved and restored globally. According to Wetland International (2022), over 40% of species either live or breed in wetlands, confirming the importance of safeguarding and restoring degraded wetlands for biodiversity conservation as the diversity of species is required for normal functioning of ecosystems including the wetland.

Several regions of the world have adopted the Ramsar Convention treaty at different levels and times. For instance, as early as 1993, Matthew (1993) reported that North America and European countries are virtually completely Ramsar-orientated at 100%, Oceania at 93%, and Central and South America 89%. In Asia and Africa, it was 61% and 42% respectively. According to Matthew, it was in Asia and Africa where gaps remained and thus the greatest effort is needed to recruit more countries into the Ramsar family. There are differences in the global understanding and value attached to the importance of wetlands. In a synthesis of research on the current state of knowledge regarding the world's wetland and their future under global climate change, Junk et al. (2013) notes that in Europe, North America, and Australia, there is relatively high knowledge and appreciation of wetland products and services compared to other regions. Despite this indication, this does not mean that such wetlands are safe from degradation, as signing the treaty or treaties does not necessarily lead to or improve conservation practices (Gardner & Finlayson, 2018).

There are extensive studies about wetlands and their services (e.g., Gardner et al., 2015; Gardner & Finlayson, 2018; Junk et al., 2013). This includes research focused on China and countries of tropical South East Asia (Jiang et al., 2015; Xu et al., 2019;); Africa (Mitchell, 2013; Namaalwa et al., 2013; Ondiek et al., 2020; Rebelo et al., 2010; Turyahabwe et al., 2013), and Central America (Strieder et al., 2017) (see also Table 1). With these efforts, there continues to be an increase in knowledge and appreciation of the role played by wetlands in

sustaining human life. There are also important contributions from several non-governmental organisations such as the International Union for Conservation of Nature (IUCN), United Nations Environment Programme (UNEP), Worldwide Fund for Nature (WWF) and Wetland International (WI) in promoting and persuading governments to ratify the Ramsar Convention. The guiding principles and funded conservation projects led by these organisations are explored in more detail in Chapter Five. In Table 1 below, I synthesise pertinent research papers referred to in my study.

Table 1: Summary of wetland ecosystems issues raised in previous research

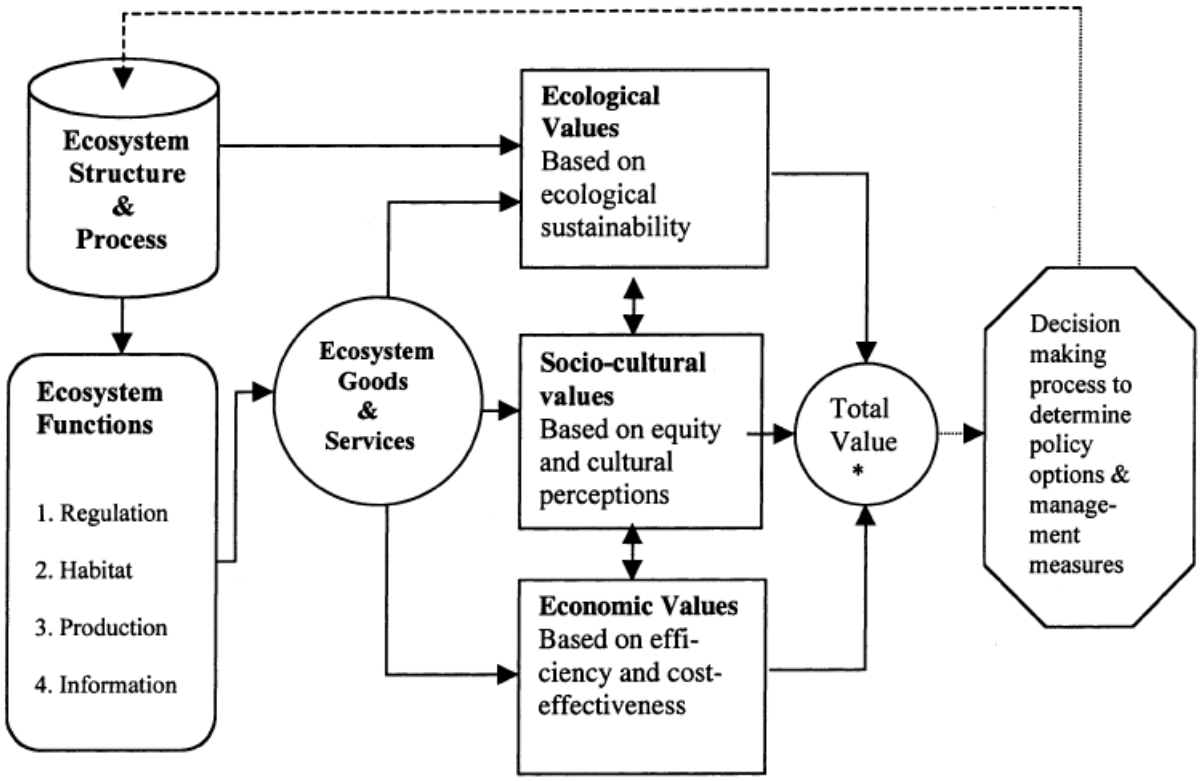
Author	Year of publication	Wetland ecosystem issues addressed
Gardner et al	2015	Because of wetland loss people are deprived of ES that wetlands provide Even wetlands under Ramsar are threatened
Gardner & Finlayson	2018	Wetland plants and animals are at crisis and with a risk of extinction Wetland ES outweighs terrestrial ES Quality of remaining wetlands is also poor due to drainage
Junk et al	2013	Wetlands provide multiple services to humankind Between 30–90 % of the world's wetlands have been destroyed or strongly modified in many countries Conserved wetlands play a key role in the hydrological cycle
Jiang et al	2015	Wetlands remain threatened because of industry, using wetlands unsustainably, and weak enforcement of wetland protection laws China using ES approach to incentivise conservation and reduce wetland loss
Xu et al	2019	Continuous loss of wetland ES with agricultural and urban expansion contributing loss of 47.7% and 13.8%, respectively, in China
Mitchell	2013	Wetland ES are affected by climate change in SSA Human activities occurring around wetlands cannot be de-linked from the causes of climate change
Namaalwa et al	2013	Drivers of change in Ecosystem services Impact of changes on ecosystem services and possible responses for management Residents depended largely on the wetland provisioning services

What the above table shows is that across the globe, wetland ecosystem services are greatly impacted by human activities, climate change and changes in hydrological cycles. Therefore, focusing on wetland conservation alone without considering other factors at play is likely to

be less productive. This calls for an integrative approach when planning for the conservation and restoration of wetlands.

Wetlands have been referred to as an indispensable resource for humans (Hu et al., 2017) and as generator areas (Zsuffa et al., 2016), from where species reproduce, spread and cover other parts of the river or lake basins. The well-being of wetlands directly affects the well-being of humans and contributes enormously towards the efforts put in place to reduce global poverty (Barbier et al., 1997; Gardner et al., 2015; Schuyt, 2005). It is also reported that over 70% of the world's poor people depend heavily on natural resources for their survival (IUCN, 2008). As noted by De Groot (2002), there is an essential relationship between wetland ecosystems, the well-being of humans, and poverty reduction.

Figure 2: Integrated assessment and valuation of ecosystem functions, goods, and services



Source: De Groot, R.S., Mathew, A.W and Boumans, R, M.J (2002 pages 393-408).

As indicated in Figure 2, the ecosystem structure is a complex one. The ecosystem goods and services are seen in three different but complementary forms including ecological values, socio-cultural values, and economic values, and when combined they create a holistic view of the ecosystem. Fast-decision-making processes in any country or community have a direct impact on the state and ability of a given ecosystem to survive and thrive.

Wetland products and services shape people's livelihoods especially those who depend on them for their survival directly. The Millennium Ecosystem Assessment categorized ecosystems services into four broad classes:

1. provisioning services (products that are directly obtained from the ecosystems)
2. regulating services (benefits obtained from the regulation of ecosystem processes)
3. cultural services (non-material benefits obtained from ecosystems) and
4. supporting services (those are essential to produce all other ecosystem services), (MEA, 2005).

In a study focused on public perceptions on papyrus, Morrison et. al. (2012) found that the largest proportion (42.1%) of perceived benefits were associated with provisioning services such as fish, herbs, and grass for either thatching or animal feeding; over a quarter (27.9%) corresponded to cultural services, and the remainder was split evenly between regulating (15.0%) and supporting (15.0%) services.

Wetland provisioning services

Extensive research has explored the food and non-food products generated by wetlands (e.g., Kakuru et al., 2013; Sandhu, 2017; Small et al., 2017). According to Kakuru et al. (2013), Ugandan wetlands provide more provisioning services than any other categories of services provided by wetlands elsewhere. Examples of tangible services and benefits include water for domestic use and livestock, providing land for vegetable and yam growing, provision of raw materials for handicrafts, building materials, wild game, and medicines. The contribution of wetland resources to household food security in Uganda is greatly recognized as it is reported that more than half of the people that live adjacent to the wetlands derive their food and other household needs from the wetlands (Turyahabwe et al., 2013; Isunju et al., 2016).

One of the commonly known benefits from wetlands and highly valued by humans is fish. Almost all the wetlands that are associated with rivers and lake systems act as breeding grounds and feeding habitat for a whole range of fish species either consumed locally in neighboring communities or sold in nearby markets by local fisheries (Verhoeven et al., 2002). Data from several studies suggest that the importance of wetlands goods and services is a good justification for their protection and restoration (Kingsford et al., 2021; Muwanguzi, 2018; Sinthumule, 2021). However, two specific areas remain a challenge and

that is 1) the understanding of how the goods and services produced by wetlands can be optimized and used sustainably and 2) the likely effects that will be brought about because of the continued degradation of wetlands to future climate change. Loiselle et al. (2002) noted that Lake Victoria provides important secondary income services through for example selling of fish and domestic water and this explains why many of the wetlands surrounding the lake have been hugely converted to other uses because of the economic opportunities that are provided by the presence of the lake.

Wetland regulating services

Regulating services have been described as the processes that regulate key ecological processes such as climate regulation by storing carbon in soil or vegetation (Plant and Ryan, 2013; Taillardat et al., 2020). The examples of regulating services are sometimes described as intangible benefits or indirect benefits and services (Loiselle et al., 2002) and they include among others flood control, water purification, and maintenance of the water table to ensure constant supply of water, microclimate moderation, and storm protection. Specifically, pristine papyrus stands can store a significant amount of carbon as well as efficiently using transpired water hence assisting in local climate regulation. Therefore, successful conservation and restoration of the wetland necessitates paying attention to its catchment area. In a research study on total economic value of wetland products and services in Uganda, Kakuru et al. (2013) suggested that protecting the catchment area of the wetland helps in reducing the water runoffs and flooding. Wetlands globally are known for acting as sponge of the natural world and for good reason as they absorb water and release it slowly but also helps in managing much of the pollution we produce (Obia et al., 2015). Wetlands filter out pollutants from water and slowly release clean water to the water sources and oxygen into the atmosphere. Even with that clear knowledge of the role they play wetlands have been and continue to be converted into other uses, hence the question of whether different people appreciate the roles they play.

Wetland cultural services

Cultural services are non-material benefits. The Millennium Ecosystem Assessment defines cultural ES as “the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences” (MEA, 2005 pg. 40). The cultural aspects of wetlands include the traditions, customs, and beliefs that various communities attach to wetlands. Some of the examples of cultural aspects include

people who go there to pray and or offer sacrifices to their spirits for healing and provisions. There are also recreation services offered by wetlands commonly including eco-tourism and bird watching. De Groot et al. (2002) reported that wetlands offer spiritual and historic information through reviewing what is found in them or what has been documented about them. People also go to beautiful and well-managed wetlands for walking, hiking, and swimming, hence promoting eco-tourism as people learn about several aspects of nature. Based on a systematic review of cultural ecosystem services and human wellbeing, Kosanic and Petzold (2020), concluded that the role of cultural ecosystem services is not well understood. But Cox et al. (2017) maintain that proximity to nature is an important factor in improving human health. Although as Kosanic and Petzold note, the link between biodiversity, ecosystem services and human wellbeing across different stakeholders is not clearly defined.

Wetland supporting services

Wetlands offer supporting services such as soil formation and leaf decay that are essential for the living organisms that live near or in the wetland areas. When erosion is controlled and humus soil is formed, crop growing is supported. There are several published studies that highlight the important role played by wetlands in capturing carbon and facilitating the water cycles (Russi et al., 2013; Taillardat et al., 2020). Mafabi (2018) demonstrated that the value of wetlands in Uganda is derived not so much from the products they deliver (provisioning) to the resource users, but from the less noticed hydrological and ecological services they support. The importance of hydrological and ecological services is more felt in communities that are characterized by high agricultural activities and freshwater wetlands (Verhoeven et al., 2006). It is so vital as any changes in the rainfall patterns directly affects the wetlands. The wetland is the immediate source of alternative water for irrigation of crops and dairy farming.

2.2 Wetland Ecosystems in Africa

Wetlands are estimated to cover about 7% of the entire land of the African continent. They cover an area of approximately 30.3 million km^2 and harbour a population of about 944 million people (Junk et al., 2013). The African wetlands are known to be situated around major river channels including the Nile, Zaire, Niger, Zambezi, and Okavango with fringing floodplains and internal deltas that dominate the setup of the continent's wetlands (UNEP, 2007). In Sub Saharan Africa (SSA), wetlands are estimated to cover an area of 2,072,775

km^2 accounting for approximately 9.01% of the total landmass (Mitchell, 2013). A total of 190 wetlands are designated wetlands of international importance also known as Ramsar sites[2] in the sub-region covering an estimated area of 789,620.8 km^2 (Ramsar, 2011). Ramsar sites refers to wetlands that have gone through a rigorous process of assessment to be considered as wetlands of international importance in a given country that has ratified the Ramsar Convention.

In Africa, the exact cover of papyrus wetlands - the most common type of wetlands on the continent, is not known (Simaika et al., 2021). There are estimates for the East African region where it is believed they cover 40,000 km^2 (Ondiek et al., 2020). There is no doubt that wetlands in many developing countries are at great risk of encroachment and indeed conversion because of inadequate alternatives for survival. This is particularly so with the ever-increasing number of people that derive their living through exploiting wetland resources. From the National Wetland Policy of Uganda, Mafabi (2018) observed that in many communities, wetlands cannot be conserved without other economically viable livelihood options, incentives, and benefits. It can be argued that with linked enterprises where community members can have alternative sources of livelihood, people will love and value the contribution of natural resources and work towards conserving them.

Wetlands in East Africa are dominated by papyrus (*Cyperus papyrus*) and is one of the largest plants in the world. Recent studies show that wetlands dominated by papyrus are experiencing severe stress from a combination of human population pressures; drainage in favour of agriculture; over-harvesting; ineffective management; destruction by large mammals and the effects of climate change (Ondiek et al., 2020; Magumba et al., 2014; Morrison et al., 2013). Recent studies have called for a restoration of these wetlands, emphasizing the need for sustainable harvesting strategies to be put in place, although few have provided suggestions as to how this might happen in practical terms and, crucially, with the consent and active participation of local communities as key stakeholders (Morrison et al., 2012).

Whereas substantial research has been done on ecosystem services, much of it has been conducted in the global north rather than the global south. Fewer studies have assessed the

[2] A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention, also known as "The Convention on Wetlands", an intergovernmental environmental treaty established in 1971 by UNESCO, which came into force in 1975.

degree of ecosystem awareness and perceptions attached to them in developing countries and particularly so in sub-Saharan Africa where a large percentage of people derive their living from wetlands yet struggle to get out of poverty (Zhang, 2016).

Uganda is a country that is well endowed with an estimated 37,575 km^2 (13%) of the total land surface (241,555 km^2) being wetlands (Bosma et al., 2017; NEMA, 2019). Wetlands are a widespread, complex, and extremely valuable ecosystem to the country (Mafabi, 2018; Namaalwa et al., 2013). Recognizing the great value of wetland ecosystem services, the Government of Uganda (GoU) established the Wetland Management Department (WMD) in the Ministry of Water and Environment (MWE) with a major mandate to manage all wetland resources in the country on behalf of the citizens. The goal of the department is to sustain the biophysical and social-economic value of wetlands for present and future generations. It should be stated that even with that mandate and a well stated goal, the WMD reported that from 1994 to 2008 the country's wetland resources reduced from 15% to 10.9% of the total land area (MWE, 2019).

Despite the many functions and uses offered by wetlands as reported by Wasswa et al., (2013), many of the urban wetlands like in Wakiso District are indiscriminately being encroached on largely for establishing settlement, establishment of industries, increased waste disposal and pollution as well as establishing infrastructure (NEMA, 2019). On the other hand, in the rural areas, wetlands are converted into grazing lands, brick making, crop farming especially yams, rice and sugar canes, increased demand for domestic water making it hard for the wetlands to survive (GoU, 2016).

2.3 Stakeholder perceptions on wetlands

> "To study the world means to study perceptions and ideas we created, and the world is mainly the world of perceptions, images or ideas. Thus, when we want to study something, first we should know where, when, and how to meet and learn it. But that is not enough if we can find the answer to the question about sources and procedures of cognition, we will be able to relevantly answer the questions about its legitimacy, validity, nature, and limits. The certainty of any statement is based on the trustworthiness of the authority that postulates it. Thus, if we want to believe our knowledge, we must know, where it is coming from, how it was being formed and

how it was subsequently being proliferated. As said in Descartes style: we must verify the knowledge principles themselves" (Démuth, 2013, p. 13).

According to Démuth (2013), perception is one of the basic ways of meeting reality, and for many, it is the reality. Naturally, humans search for knowledge and reality throughout their lives. For more about meaning of perception see Chapter One under the definition of key terms used in this study.

There is an increase in demand and advocacy for ecosystem conservation and restoration described as 'sustainable use of natural resources' (Wasswa, 2008; Suding, 2011; Blignaut et al., 2013). The ever-increasing use and misuse of the available natural resources have led to their immense degradation and depletion in terms of the goods and services they offer. Wetland degradation has increased weather and climate change along with its negative consequences to mankind both in developed and developing countries (IUCN, 2020). The effects of climate change have been more felt by the rural and vulnerable communities. To overcome ecosystem degradation, several strategies are needed including bringing on board stakeholders to encourage conservation and restoration projects as part of a climate change adaptation and mitigation strategy (Erwin, 2009). On the other hand, Denny (2001) called for local involvement along with national/ regional know-how to create ownership of the proposed strategies to wetland ecosystem restoration.

Studies have shown that environmental conservation and restoration activities contribute to a wide range of job opportunities for the rural and poor populations (Kaggwa et al., 2009 and Edwards et al., 2013). Jobs are more created in inland wetlands, coastal wetlands, and tropical rain forests respectively. There is a high value of return to those that are employed to work in the conservation and restoration projects of the above ecosystems (De Groot et al., 2013). The high value of return is partly attributed to the many goods and services that are derived from them which presents many opportunities for employment. Unfortunately, most of the goods and services provided by wetland ecosystems have not been attributed a true economic value resulting in neglect or underestimated by various stakeholders leading to their degradation and mismanagement (Small et al., 2017).

Studies have further shown that for sustainable wetland management and restoration efforts to succeed, it is of great importance to understand stakeholders' perceptions of the services

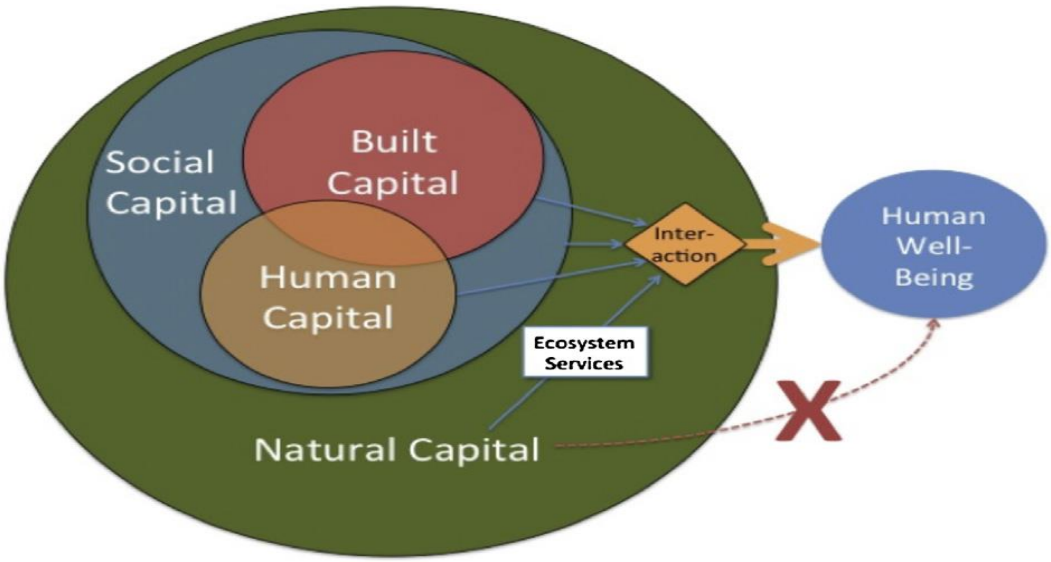
and benefits obtained from restored and well-managed wetland ecosystems (Bosma et al., 2017). Hartter and Ryan (2010) observe that what governs local resource use is a combination of prescriptive national legislation and regulations, local by-laws, and perceived ownership. For such a situation to be arrived at and maintained, it calls for concerted efforts to identify, engage and increase the interest of those involved with the use and benefit from such a protected resource both directly and indirectly.

Studies on wetlands have long been associated with natural science rather than social science. Natural scientists are perceived to play key roles in the conservation and restoration of degraded wetland ecosystems. Maltby (2006) for example, called on hydrologists and biologists to be active in the restoration activities. Working across natural and social science is necessary because of the role of human beings in wetland degradation and conversion. This research particularly emphasises the need for social scientists to be integral in studying the cultural social, economic, and psychological challenges that push human beings to use the wetlands in an unsustainable manner. Without interdisciplinarity, no sustainable solution may be arrived at as far as wetland conservation and restoration is concerned. The need to work together is backed by a study in Luxemburg where the authors concluded that public discussion is central to overcoming the main obstacles to restoration, namely finances, land availability, and the motivations of those who own and value open spaces (Schaich, 2009).

The role played by wetlands globally and their contribution to human well-being is quite complex. As observed by Costanza et al. (2014) and presented in Figure 3, it would be unrealistic to think that the public clearly understands that complexity. It is because of such complexity that there is a need for information gathering, analysis, and sharing between different stakeholders.

It is worth noting that for ecosystems to provide services there must be human beings (Human Capital), their communities and villages (Social Capital) and their built environment (Built Capital). Natural capital serves to meet or contribute to human wellbeing after interacting with the social and built capital. Such relationship calls for harmony and proper planning such that the use or overuse of one does not lead to the degradation of the other.

Figure 3: Capital required to achieve human well-being



Source: Costanza et al. (2014)

Ecosystem services are the benefits and contributions from nature to humans. Depending on how the natural capital is used, it impacts on the social and built environment. This makes ecosystem services central to the well-being of humans and the nature (Costanza et al., 2014)

Over the years, there has been, and continues to be, mixed feelings regarding the role of Africa's freshwater and inland wetlands. As a result, many of the wetlands have been mismanaged and degraded because of greed and or the need for short term gains by specific individuals (Miti et al., 2021). The presence of water-borne disease-causing agents such as mosquitoes and black flies in most wetland ecosystems has contributed to the negative image of wetlands in many rural communities in Africa (Zsuffa et al., 2016). As described in Chapter One, in the recent past, wetlands were categorized as wasteland, and in this light considered unwanted and at worst a source of diseases in many communities of Africa (Ntambirweki, 1998). Such attitudes may still be held. The categories of people anticipated to be still holding such attitudes include rural crop farmers, animal grazers and those who have not had the opportunity to undergo formal education (Ntambirweki, 1998). For this category of people, the reclamation or drainage of wetlands to provide more land for their crops or animals to graze is seen as preferable. Given the global trend where there is an increase in flooding among others, it is essential that such information gap between those who know the values and wider ecosystem services benefiting non-humans, but the entire planet be shared with others who seem not yet to appreciate such. Indeed, Rijsberman and De Silva, (2002),

observed that when that gap is bridged, it will lessen the ongoing and future destruction of the wetlands in most developing countries.

Almost every wetland in Africa is encroached on and thus not functioning optimally. The encroachers may include rural subsistence farmers especially when there are droughts and people want to have food that will take them through the season. Also, the poor people in the urban centres find themselves constructing their temporary houses to sleep in or do business along the wetlands as they cannot afford prime plots of lands (Kiggundu and Ssenkabirwa, 2018). The rich also do backfill the wetlands to establish monoculture farms, commercial houses or factories and industries. These practices reduce wetlands in size and blocks them causing water blockage and flooding. As Scholte et al (2016) put it, gathering support for wetland restoration is essential to ensure social commitment towards sustainable use, management, and restoration of wetlands. However, this is often derailed by the existence of a lack of complementary goals to ecological restoration but rather competitive ones (McShane et al., 2011).

For a long time, Africans have traditionally lived alongside and relied on wetlands for water to use at home, small fishes, construction material (papyrus) for both dwellings and furnishings, pots from clay mined in wetlands and seasonal grazing of domestic animals including goats, cattle, sheep among others (Crisman,1999). Unfortunately, this relationship is being disrupted in direct response due to the rapid increase in population. Human beings have increasingly encroached on wetland margins for the development of a small garden to produce vegetables and rice in response to an expanding cash economy and the development of regional markets. In response to the dwindling availability of construction materials such as timber due to progressive land clearance and the high cost of cement, wetlands are being mined for clay to produce good quality bricks as well as sand to support the growing construction industry, especially in urban centres.

The East Africa region has several of the global freshwater ecosystems with the world's largest tropical Lake Victoria being shared by Uganda, Kenya, and Tanzania. The lake for years, has been surrounded with an extensive papyrus wetland network that supports not only social and economic aspects of the communities where it belongs but also act as sources of food improving the nutrition of the people (Loiselle et al., 2002). In their study on Anyiko wetland in Kenya, Ondiek et al. (2020) found out that one of the major factors for conversion

of the wetland was the level of socio-economic standing in the community rather than the perception of the benefits derived from the wetlands. They went on to recommend that where necessary people especially of the low-income group should be compensated to support the success of the restoration project. With the immense values and benefits associated with wetlands (Agol et al., 2021; Barbier et al., 1997), wetlands are considered as zones of conflict. Referring wetlands as zones of conflict necessitates conflict resolution mechanisms among various stakeholders that are involved if wetlands are to be conserved and restored.

2.4 Wetland management in Uganda

The history of wetland management in Uganda is recent, starting from the early 1990s. Before that time, there were no known or legal documents governing the use and management of wetland ecosystems in the country as we know them today. Even when wetland resources cover slightly over 10% of Uganda's total land surface area (Mafabi, 2018), wetland resources have not been regarded as a priority for governance. The then government did not prioritize the management of wetland resources as it was pre-occupied with other needs. With the presence of ineffective government, wetlands remained a property of nobody for many decades and thus were prone to mismanagement especially in areas where population increase was taking place. The absence of a clear management plan of Uganda's wetland led to wetlands being drained, the introduction of new crops like rice, pollution especially from copper mining that affected many wetlands in western Uganda. There was also over-harvesting especially of the seasonal wetlands, reclamation for industrial developments, human settlements contributed significantly to the reduction in the size and quality of wetlands in the country (Ntambirweki, 1998).

Responding to international calls, the country acceded to the Ramsar Convention on the 4th of March 1988, and by July 4th, 1988, it came into force. By this time, Uganda did not have any rules that protected the wetlands and for her to be able to implement what was agreed on during the Ramsar Convention, the country had to embark on making laws and policies to align with the terms and conditions described in the Ramsar Convention treaty.

After realizing that wetlands are of great value and importance yet in great danger, the GoU started enacting laws and policies like The Environmental Act 1995, Land Act 1997, Local Government Act 1997, Environment Impact Assessment Regulations 1998, the wetland Regulations 2000, and the Constitution 2010. For more details about laws governing wetlands

in Uganda see Table 4. The purpose of these laws is to ensure that there are protection and wise-use of wetland ecosystem services. Uganda has also become a signatory to several international treaties on environment and wetland protection, but the results are still minimal or invisible as conversion and degradation of wetlands continue to take place. The issues highlighted most for the continued disregard of the laws on wetland is weak enforcement of the existing laws and impunity (MWE, 2014). This study thus intends to understand the perception of different stakeholders including law enforcement officers on the value they attach to the wise use and restoration of wetlands in Uganda. Further details are covered in Chapter Four which is on wetlands policy development in Uganda.

2.5 Examples of wetland restoration projects

Several examples in previous research highlight wetland restoration projects that have both succeeded and those that have not. While referring to the Prairie-pothole region of South Dakota USA, van der Valk (2012) noted that it is practically impossible to restore a wetland that has been destroyed back to its original state. He attributed this to the several changes that cause what he called 'irremovable constraints' that may be biological and environmental. Some of the wetland species may for instance be completely extinct, new wetland species established, changes in water chemistry, nutrient level changes may have occurred, changes in precipitation patterns among others making it hard to restore a wetland to its original state. Thus, the goal of restoration projects should not be to establish the wetland as it was before but to ensure that the restored one preserves as much biodiversity and genetic diversity as much as possible.

The state of Iowa, USA has been reported by Maltby (2009) as a place with modest results regarding wetland restoration. But he adds that this increase in wetland area is still an anomaly and not the norm around the world. He attributes those modest results in a wetland restoration to a complete change in public perception about the value of wetlands in the last 30 years. Other restored wetlands include Mesopotamia Marshlands, that involved the whole river basin, and it is reported that by 2005 over 50% of the former destroyed marshland had been restored (van der Valk, 2012).

One of the key examples of ecosystem restoration is the Everglades. According to Richardson et al. (2014) South Florida's Everglades are a unique and complex system of interdependent ecosystems comprising of subtropical wetlands that has historically provided a wide range of

direct and indirect benefits to people. The continuous access and exploitation of ecosystem services since the 1800s, and a prolonged time of drainage and hydraulic changes has led to immense changes over time. For quite some time, the managers of this great resource prioritized development in agriculture, settlement and developing a viable economic base for the state (Choe and Schuette, 2020). This has led to massive degradation of the wetland. However, in 1999 a comprehensive plan to restore the Everglades was created to reverse the threatened or endangered status of the flora and fauna, restore water, land, and the ecosystem (Perry, 2004; Richardson et al., 2014). What is important to note is the fact that the Comprehensive Everglades Restoration Plan (CERP) is to last for 100 years (Choe and Schuette, 2020), estimated to cost the Florida state a $7.8 billion (Clarke & Dalrymple, 2003). Given this long period of time, participation of stakeholders is vital yet quite challenging to maintain as stakeholders have different motivations and intentions which may themselves change with time. Some measures put in place to achieve restoration of the Everglades include allowing a large section of the Everglades to be publicly owned and protected from development both onsite and offsite, stakeholder engagement, listing the ecosystem on the list of Ramsar sites among others. Over the years, the Everglades have gained global recognition as a World Heritage Site and an International Biosphere Reserve (Maltby and Dugan, 1994). Because of such efforts, the Everglades have continued to significantly contribute to the quality of life of Florida residents, visitors, and consumers who depend on the ecosystem services such as drinking water, recreational opportunities, agriculture, seafood, and much more. A clear example that conservation is cheaper than restoration when it comes to delicate ecosystem such as wetlands.

Another example of a wetland restoration project is the Okavango Delta. This is a natural wetland found in the North-Western part of Botswana covering about 16,000 square kilometres (Mendelsohn & El Obeid, 2004). The delta was declared a Ramsar site in 1997 and a World Heritage Site in 2014 (UNESCO, 2014). The Okavango Delta is one of the largest wetlands of international importance and home to more than 152,000 people of which more than 95% rely on the natural resources obtained from the delta for their livelihoods (Gaodirelwe et al., 2020). Several challenges face the Okavango Delta and pose a real threat to the survival of those that depend on it through the fast-growing population in Ngamiland district, expanding tourism sector, pollution, alteration in the water flow regime, as well as the destruction of the habitat for rare and endangered species (Jansen & Madzwamuse, 2003). To conserve and restore the delta, community-based natural resource management

approaches were adopted as a new conservation and development strategy where several community-based organisations around the Delta are given responsibility to utilise and manage the resource (Magole & Delaney, 2017). The management of the Delta is distributed among three different but related bodies. First, 7% of the area falls within the Moremi Game Reserve and is protected under the 1992 National Parks Act, 65% is protected under the same Act as a Wildlife Management Area (WMA 2000) allowing for both consumptive and non-consumptive use of wildlife. The last area of about 28% is zoned for agricultural and residential development.

2.6 Stakeholder participation in wetland management

Public participation has been defined by Beierle and Cayford (2002) as any of the several ways intentionally instituted to involve the lay public or their representatives in administrative decision-making processes. On the other hand, Wandersman (1990), defined citizen participation as a process where individuals take part in decision making in their institutions, programs, and environments that affect them. Public involvement takes different forms including face-to-face deliberation, problem-solving, and consensus-building, public hearings and public comment procedures, policy dialogues, stakeholder advisory committees, citizen juries, and facilitated mediations (Beierle and Cayford, 2002).

Several recent studies have demonstrated that collaborative management (co-management) is one of the best approaches to managing ecological systems. Co-management has been defined as the sharing of responsibilities, rights, and duties between the primary stakeholders in particular local communities and the nation-state; a decentralized approach to decision-making as equals with the nation-state (Carlsson and Berkes, 2005). Other researchers have understood co-management as 'a situation where two or more social actors negotiate, define, and guarantee amongst themselves a fair sharing of the management functions, entitlements, and responsibilities for a given territory, area, or a set of natural resources' (Borrin-Feyerabend et al., 2000 cited by Carlsson and Berkes, 2005 p.68). As opposed to a centralized, state-led, and protectionist approach to natural resources management (Cinner et al., 2012), co-management seeks to share decision making with the people dependent on natural resources. This practice assumes that those who derive their livelihood on the target natural resource are more likely to be committed to its sustainable use if such decisions to sustainably use are taken at the local level.

There are calls for involving stakeholders in making environmental related laws and policy decisions (Collins et al., 2019). This call has not been answered in most communities. My research is partly about gathering such views and amplifying them so that they can be considered in future policies and programs.

Stakeholder engagement is key for the success of wetland conservation and restoration efforts. Broad engagement is one of the principles of the UN Decade on ecosystem restoration (FAO, IUCN CEM & SER, 2021). Some of the highlighted underrepresented stakeholders in the policy making processes regarding conservation include local communities, indigenous people, ethnic minorities, women, and youth. There needs to be a special effort to ensure that those from these categories are equitably provided with opportunities to be integrated in meaningful, free, and active ways (FAO, IUCN CEM & SER, 2021).

Multi-level governance of wetland resources is another emerging concept in as far as the management of wetlands ecosystem services globally is concerned. This concept emphasises the allocation and execution of power between and among multiple centres of policy and decision making. It calls for a holistic approach to the effective management of wetland resources that have multilevel and multidimensional stakeholders with varied expectations. It has been argued that due to the many players involved, effective wetland management is a tragedy of the commons (Pantshwa and Buschke, 2019). Pantshwa and Buschke suggest that one of the ways to resolve the challenge could be to come up with collective-choice rules where users of wetlands design and enforce their own rules on how to share the resource sustainably. Even when the emphasis is put on users, seldom are they included and even where they are, their concerns are rarely integrated into the projects which diminishes their cherished attachments to for example a wetland they have lived with for so many years. However, managing wetlands need not to be a tragedy of the commons if the individuals involved work for the common good and not for individual benefits, cooperate rather than compete in their use of wetland resources, empowering and strengthening traditional and clan leaders to take decisions on how wetland resources are used as well as clearly differentiating between open access resources and common property resources (Mudzengi & Chapungu, 2016).

Most of the research on wetlands has focused on their roles, service and benefits that are derived from them (Hempattarasuwan et al., 2021; Janse et al., 2019; Mandishona & Knight, 2019). Less research has focused on stakeholders and their perceptions, let alone how those perceptions affect the effort towards conservation and restoration. The more people from diverse backgrounds participate in wetland management activities, the more participatory and responsive a wetland conservation and restoration intervention is expected to be. Engaging stakeholders especially in decision making[3] is expected to contribute towards identifying and meeting the felt needs and expectations of those involved hence impacting positively on the planned intervention.

In a study on structured approaches to evaluating wetland management options in data-poor contexts, Johnston et al. (2013) identifies four basic practices of wetland management including wise use, adaptive management, integrated water resource management, and participation of local communities. All these practices or deliberate actions offer a chance for as many people as possible to participate in the conservation and restoration of wetlands in their midst. What is interesting is that not all of them may be known or applied in a given effort to conserve or restore a particular wetland. One may even argue that the above practices have been the various interventions promoted at a particular time though not arranged in a particular order. What is not in doubt though is that there are positive outcomes when many players are actively engaged in the management of natural resources (DeCaro & Stokes, 2008). However, the drive to maintain natural resources and their conservation as well as the need for development has led to the integration of stakeholders a master key when it comes to conservation of natural resources and hence the need for creating a balance between conservation of say wetlands and meeting the development needs of people and governments.

Engaging stakeholders does not come without challenges. Organizing different actors for wetland restoration activities across the globe is complex work. One challenge lies in the short term loss that people may experience when a wetland is to be restored as observed by Naughton-Treves et al. (2005). Wetland restoration efforts are likely to undermine the income of the local people because of controlled access to natural resources, or conversion of farmland to natural land cover after restoration. This affects more the majority poor since

[3] Decision making by stakeholders is considered fundamental in the handbook for the participation of stakeholders and the civil society in the basins of rivers, lakes, and aquifers. March 2018. www.iowater.org

they are majorly the ones who depend on subsistence farming growing food crops in small plots of land or constructing small houses in wetlands as they cannot afford prime land plots. Additionally, there are national and international forces that want to convert conserved wetland through establishment of factories and other businesses in wetlands (Kiggundu, 2021). So, for wetland restoration to happen, leaders and community members should be willing to incur a loss or to pay the price to strike a balance or get a win-win situation and create harmony between the local community members and those who are destined to conserve or restore the wetland. In some cases, the government or donor community may have to compensate the people neighbouring the wetland to enable them to leave their homes and gardens that are already in the wetland that is to be restored (Kolyangha, 2019).

For resource management to be achieved governance is key. Natural resource refers to the norms, institutions, and processes that determine how power and responsibilities over natural resources are exercised, how decisions are taken, how rights-holders and stakeholders secure access to and participate in the management of natural resources (Commission of Environmental, Economic and Social Policy, 2019). Evidence shows that there is limited government engagement in conservation and restoration projects and thus little is known about how it facilitates community members to manage their own natural resources. However, Omoding et al., (2020) have highlighted the role of participation in landscape governance in Uganda. Others stakeholders have been reported to engage through attending workshops (Dick et al., 2018). Yet, for sustainable wetland management to be achieved, it calls for the input of a wide range of players including those at the community level (Darradi et al., 2005). It is key to note that decision-making processes anywhere are the vehicles through which stakeholders come together to deliberate on issues and resolve natural resource management challenges.

2.7 Role of education in environmental management

Research shows that education is a key facet of life for many people and communities. Education is referred to as a human right (Lima & Bastos, 2019; NDP III, 2021-2025) and it is culturally expected here in Uganda that an educated person ought to behave well or in a good way in what they do. They are assumed to be well informed compared to the uneducated ones in the society in which they live. Educated people are perceived to have the know-how of doing things and are expected to act as role models in most of the communities in countries of the south where rates of illiteracy are still relatively high compared to

developed nations. Education is highlighted as an important tool for conservation in several international reports and agreements (CBD, 1992; UNESCO, 1992; WCED, 1987) and for Uganda, at national level in for example the Vision 2040, the National Development Plan III, and the Environment Act, 2019. It is not surprising that the United Nations declared 2004 to 2015 the "Decade of Education for Sustainable Development" (UNESCO, 2005). Environmental education was first defined by IUCN in 1970 as a process of changes in behaviour because of acquired knowledge at a personal, societal, and global level (IUCN,1970). Conservation education is a branch of the broader environmental education, and may include formal curriculum, specific training, raising public awareness using various media such as posters and leaflets, workshops and discussion groups, community forums among others. As stated by Jacobsen et al. (2006), the goal of conservation education is to provide the target learners with the opportunity to gain an awareness or sensitivity towards the environment as well as the knowledge and experience of the issues surrounding the environment while acquiring values, attitudes, and skills to identify and solve environmental problems. Therefore, education is key in influencing perceptions towards environmental conservation and management.

Educational systems are credited for bringing about behavioural changes in societies and communities. Education can also be used to bring about the required changes in conservation and restoration of wetlands and ensure their sustainable use for the present and future generations. Indeed, in their study on the role of wetland management agencies, Barakagira & de Wit, (2019) reported that there is an association between one's level of education and their perception of who owns the wetland. Following the principles of adult education, as stated by Freire (2000), education can play a key role in influencing behaviour of people so that they can act and bring about change to solve or address the challenges that they are facing. This education should be characterized by its emphasis on problem-posing and problem-solving where learners are not only taught facts and information as in banking education but are rather encouraged to put in practice what they learn to change their living conditions. Learners are expected to learn along with the teacher on how to think, reflect on their lives, share experiences, and act accordingly. Combining thinking, reflecting, and sharing helps those involved to come up with a holistic approach to solving problem(s) at hand as they are now aware of their situation. By actively participating, learners appreciate the fact that their voices are heard, understood, and acted upon. Unfortunately, there is a dearth of information regarding the role that education plays in the management and conservation of wetlands.

However, in a study by Gumm, on the use and misuse of wetlands in Kampala, she asserted that education on the values of wetlands is not sufficient in changing stakeholders views and perceptions about wetlands (Gumm, 2011) and more needs to be done.

Moreover, additional targeted research studies need to be done in wetlands management specifically and ecosystem management in general. More research in ecosystems ought to be transdisciplinary in nature to accommodate and clearly understand factors at play (Bennet et al., 2015). Importantly, those involved should harmonize development objectives, poverty reduction and conservation interests (Akello, 2007; Lubaale, 2019). There is a growing interest in restoring urban ecosystems (Elmqvist et al., 2015). No wonder, Obeng et al. (2019) stated that understanding local communities' willingness to participate in environmental restoration activities can help to increase the chances of success. In the same way, Newaz and Rahman (2019) reported of an increasing focus on the local community towards the management of wetland resources.

2.8 Principles of ecosystem restoration

The United Nations declared the years 2021-2030 as the UN Decade on Ecosystem Restoration (FAO, IUCN CEM & SER, 2021). These ten UN principles have implications for any individual and or country that is planning or conducting an ecosystem restoration exercise. They can guide planning, implementation, monitoring and sustainability. Table 2 describes the ten principles for ecosystem restoration as proposed to guide the UN Decade on restoration, as well as their implications for wetland restoration.

Table 2: UN Principles of ecosystem restoration FAO, IUCN CEM & SER. (2021)

Key principle	**Expanded principle**	**Implications on wetland restoration**
Global contribution	Ecosystem restoration contributes to the UN sustainable development goals and the goals of the Rio conventions	• No matter where a wetland is located once it is conserved or restored it contributes to global efforts. • Successful restoration makes achievement of some SDGs a reality. • It is a shared responsibility among stakeholders.
Broad engagement	Ecosystem restoration promotes inclusive and participatory governance, social fairness, and equity from the start and	• All stakeholders especially underrepresented should be given the opportunity to participate meaningfully and actively. • Participation should be from start to end and not on certain aspects and not others. • Ensure there is equal access to information for all stakeholders.

	throughout the process and outcomes	• Strengthen the capacity of the underrepresented categories. • Strive for voluntary participation with informed consent. • Where applicable incentives should be used, respect rights. • Co-management, decision-making and sharing of benefits should be perceived as fair. • Trust, respect, and transparency is key.
Many types of activities	Ecosystem restoration includes a continuum of restorative activities	• Activities should result in net gain for biodiversity, ecosystem health and integrity. • Improve human well-being. • Sustained production of goods and services • Restoration can be done on any part of a degraded wetland.
Benefits to nature and people	Ecosystem restoration aims to achieve the highest level of recovery for biodiversity, ecosystem health and integrity, and human well-being	• Restoration activities should aim at increasing the ecosystem services and goods, biodiversity. • Improve human wellbeing at local, national, and global scale. • Restoration activities should not lead to further degradation at all costs. • Natural recovery process should be favoured to engineered ones.
Addresses causes of degradation	Ecosystem restoration addresses the direct and indirect causes of ecosystem degradation	• Activities should aim to address the direct and indirect causes of degradation. • Check land uses and property regimes that promote ecosystem degradation. • Plans and policies to reduce degradation should promote the cultural and socio-economic wellbeing of people. • Stakeholders involved should always avoid confusion, conflict and be transparent.
Knowledge integration	Ecosystem restoration incorporates all types of knowledge and promotes their exchange and integration throughout the process	• Restoration requires all types of knowledge (indigenous, traditional, local, and scientific). • Aim for inclusive decision making all times through engagement of local stakeholders. • Mutual learning and knowledge sharing among stakeholders is vital for success. • Successful efforts should be captured, shared, and replicated elsewhere. • Ensure that there is limited mistakes and an effort to never repeat them.
Measurable goals	Ecosystem restoration is based on well-defined short-, medium- and long-term ecological, cultural, and socio-economic objectives and goals	• Short-, medium- and long-term objectives should be made for restoration. • Ensure to include ecological, economic, cultural, and socio objectives and goals should be established. • Clearly state the expected results, outputs, and outcomes from restoration • Clearly include co-management issues
Local and land/ sea scape contexts	Ecosystem restoration is tailored to the local ecological, cultural, and socioeconomic contexts,	• Restoration projects should cover a relatively larger area to create the desired impact • Aim at meeting local needs of the stakeholders • Target at addressing land/ catchment issues

	while considering the larger landscape or seascape	
Monitoring and management	Ecosystem restoration includes monitoring, evaluation, and adaptive management throughout and beyond the lifetime of the project or programme	• Monitoring is key to ensure that the set objectives and goals of restoration are being met • Monitoring ought to start at the beginning of the intervention • Engagement of stakeholders in monitoring promotes social learning and builds capacity • Restoration is a long-term project and thus adaptive management should be incorporated
Policy integration	Ecosystem restoration is enabled by policies and measures that promote its long-term progress, fostering replication and scaling-up	• Establish intersectoral policy coordination • Employ most government instruments • Need stakeholder mobilization and coordination • Ensure that government systems are well-functioning

These principles are directly applicable to the restoration of wetlands. Four principles, namely "broad engagement", "many types of activities", "benefits to nature and people" as well as "addressing the causes of degradation" are fundamentally relevant if wetlands are to be restored in Wakiso District. Broad management for instance encourages the participation of underrepresented stakeholders in all aspects of restoration project from start to the end. People who claim to have bought plots of land in the wetland legally, seeking compensation should be considered as it is recommended in the principles of ecosystem restoration in respect of one's rights. Such practices need to change in respect of the broad management principle if it is to be implemented in Wakiso District wetland management efforts.

It can be stated that the sustainable use of wetland ecosystem services contributes directly to the achievement of some SDGs including SDG2 on ending hunger, achieve food security and improved nutrition and the promotion of sustainable agriculture. Wetlands if managed well provide spaces where rice is grown which is used as a staple food for many communities, act as breeding places for most types of fish which when caught improves nutrition of the people, as well as providing water that is used for irrigation and increase food security. SDG11 aims at making cities and human settlements inclusive, safe, resilient, and sustainable and thus very applicable in this case where Wakiso District is highly an urbanizing area of Uganda. Wetlands are known for offering regulatory services such as helping in flooding, absorbing excess water which would otherwise lead to the displacement of many people. So as cities develop and population increases, wetlands offer protection from death that would result in uncontrolled flooding. SDG12 on ensuring sustainable consumption and production patterns,

as they provide vegetation used in mulching of gardens, used as grazing grounds as well as places for aquaculture which all supplements food crops grown elsewhere on other types of lands. SDG13 on taking urgent action to combat climate change and its impact, through acting as carbon sinks (Taillardat et al., 2020), helping in storm management, and providing nutritious soils that support the growing of vegetation and trees that play a key role in influencing the microclimate of that community neighbouring the wetland. SDG14 relates to the conservation and sustainable use the oceans and marine resources for sustainable development. Finally, SDG15 protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. There are indeed more SDGs related to wetlands and natural ecosystems in general that are critical to the achievement of sustainable development and human wellbeing (CBD Press Brief, 2015).

Stakeholders involved in wetland conservation should acknowledge that there are many types of activities that can be done to restore an ecosystem. The options are not limited to only asking encroachers to vacate forcefully, yet some of them derive their livelihood from the wetland. Activities engaged in to conserve and restore wetlands should not only be seen to favour or benefit the ecosystem at the expense of the people, but both should be helped to co-exist harmoniously. When this harmony happens, then ecosystem health, integrity as well as human well-being will be achieved. It is this balance that is wanted in the case of wetlands in Wakiso District. Achieving that balance necessitates stakeholders involved to always avoid confusion, conflict and be transparent and as much as possible get politics out of wetland conservation and restoration for the outcomes of their degradation do not know or respect political differences.

2.9 Theoretical and conceptual framework

This research study is guided by two theories. The major one is the Ecosystem Services Framework that supports an understanding ecosystem management issues. In addition, I draw on multiple theoretical approaches to the subject of perception and focus particularly on the theory of direct perception.

2.9.1 The Ecosystem Services Framework

The framework was brought to the fore in the Millennium Ecosystem Assessment report 2005. It had been earlier conceptualized by for example, Daily et al. (1997). It focuses its attention to the goods and services that humans benefit from the ecosystems (MEA, 2005).

The wetland ecosystem is made up of biotic and abiotic components. According to Muller (2000), biotic components are the active, living parts of the ecosystem including plants, animals, and micro-organisms. These form the essential objects of self-organising processes. The wetland ecosystem serves three key functions that are interconnected including the environmental, the social, and the economic spheres of the society (Sandhu and Sandhu, 2014). Focusing on any one of the three (environment, social or economic) while leaving the other two out leads to an imbalance and brings about unsustainability in the long run. Thus, when planning for wetland conservation, issues of the environment, as well as social and economic systems must go hand in hand (FAO, IUCN CEM & SER, 2021). The Convention on Biological Diversity (CBD) considers the ecosystem approach as the primary framework for achieving the set Sustainable Development Goals (UN, 2015). The ecosystem approach refers to a strategy for the integration of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD, 2004). This is because the ecosystem services concept calls for the need for managers to interface with multiple stakeholders from sectors such as ecology, sociology, economics, political science, and cultural backgrounds (Eiseltova, 2010) to reach a consensus and harmony on how to manage ecosystems such as wetlands. It should be stressed here that the main objective of CBD is to achieve environmental sustainability, economic prosperity, and social well-being (CBD, 2003). There is a call to have open communication between and among the different actors as this makes it clear to the parties involved that wetland conservation and restoration is an ever-evolving field. There is also a realization that there is no standard process and therefore steps or activities suggested for one wetland or region may not entirely apply for the success of another (Eiseltova, 2010).

While studying the benefits and limitations of the ecosystem services concept in environmental policy and decision making, Hauck et. al. (2013) observed that effective planning for the management of ecosystems is possible. Indeed, according to Small et al. (2017) in their study on the challenge of valuing ecosystem services that have no material benefit, confirmed that goods and services that an ecosystem delivers are defined by society

and thus differ from society to society. The framework is recognized and commended for improving decision making processes especially those related to natural resource management (Bull et al., 2016). It is only when policies to manage the environment are made with the meaningful participation and collaboration of majority stakeholders that they will contribute to the well-being of human beings and their livelihoods. This aligns with what Zhang (2019) reported that understanding the complexity of the relationship between society, economy, and ecosystem as well as establishing a bottom-up knowledge sharing system, can help to support decision-making and reduce decision-making errors that cost the sustainability efforts.

As already noted above, the ES framework integrates three elements of ecology, society and economy and the benefits that people obtain from the ecosystems. There are three more key characteristics that distinguish it from other approaches, concepts, and frameworks: 1) It identifies and classifies the benefits that people derive from ecosystems; 2) it describes and communicates these benefits in concepts and language that are understood by a wide range of stakeholders at different levels; and 3) it explores linkages between sustainable management of ecosystems and human well-being (DEWHA, 2009). This makes it holistic in as far as addressing and creating a balance between humans, the environment, and the economy (Luthman et al., 2022). However, ensuring that plans and policies cater for all the three equitably is very challenging and oftentimes the environment conservation is side-lined at the expense of people and the economy hence the continuous decline in the state of the environment and wetlands.

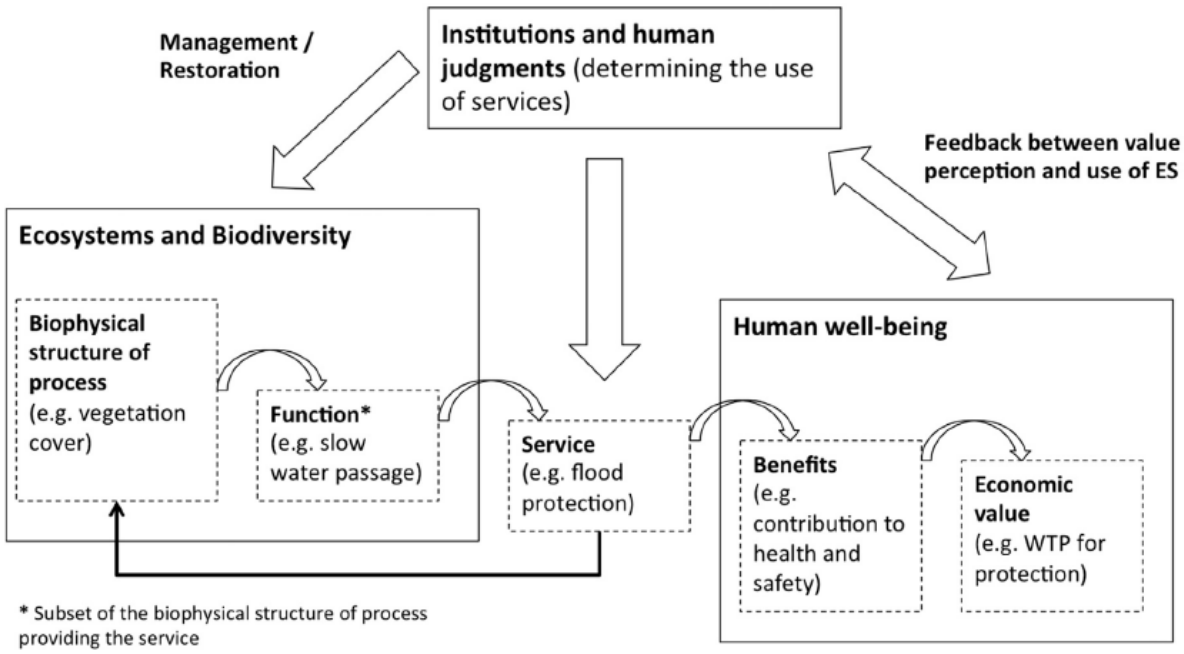
Humans are inseparable from their environment. This is a key challenge with the ES because for the humans to survive, they often interact or exploit nature. Humans cannot be completely prohibited from interfering with nature doing so without care can lead to several forms of environmental degradation (Sadhu and Sadhu, 2017). Regulating every aspect of human activity is almost impossible for any single government or institution. It is for this reason that stakeholders need to be fully involved for them to identify ways to enable their activities to co-exist with wetlands in the long run; to attain dual survival.

The Ecosystem Services Framework is very applicable in this study concerning stakeholder perceptions because it does not limit itself to only economic valuation of ecosystems but rather integrates aspects of social and cultural benefits derived from ecosystems (Martín-

López et al., 2014). Recently, the ecosystem services concept is used and promoted by many stakeholders including scientists, governments, civil society organisations and individuals (Barnaud & Antona, 2014). The concept itself has been defined as a 'boundary object' as it can be understood and interpreted variously in different disciplines (Star and Griesemer, 1989). Information shared across a variety of stakeholders can thus be incorporated into policymaking and implementation for the conservation and restoration of wetland ecosystems so that they can meet human and nature needs (Kenter et al., 2015) to improve their well-being. Information available on this framework highlights the benefits that come with its application although it is not well publicized (Groffman et al., 2010), hence benefiting a few. Thus, the ESF is perceived as an approach aiming at informing the public about the benefits human beings get from nature with specific emphasis on wetlands and forest ecosystems (Costanza et al., 1997; de Groot et al., 2002).

As shown in Figure 3, humanity is part of the natural world and as such humans are part of the ecological processes that take place in the ecosystem. We humans along with our established institutions determine how the ecosystems are used by us. Therefore, we have the power to save them or use them sustainably or ignore and use them unsustainably. There exists interdependence and the potential for a symbiotic relationship between humans and the environment. This conforms to what other scholars like Harding (2018:41) observed that *"…choices made by each culture have effects on other cultures and their knowledge systems as one culture's choices bring about changes in the environment…"*. It goes beyond cultures to individuals and social classes.

Figure 4: Schematic representation of the ecosystem services Concept



Source: Reproduced from Bull et al (2016).

The schematic representation in Figure 4 shows the ES framework as a cycle with one step leading to another. Thus, a breakdown in one of the stages affects the entire cycle. Where decisions are made for example, at personal, household, community, and government level to conserve a chosen ecosystem, is where most of the challenges are regarding conservation and restoration of wetlands. Sadly, many of the decisions taken at these levels are rarely pro-wetland conservation and restoration, as they are more influenced by the desire to attain economic benefits and gaining political capital and business. With the establishment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the call to engage a number of stakeholders from the natural, social, humanistic, and engineering sciences, indigenous peoples and local communities in whose territories lie much of the world's biodiversity (Díaz et al., 2018) including wetlands is becoming appealing and louder. For instance, in 2012, IPBES was established with a goal to strengthen science-policy interface for biodiversity and ecosystem services (http://www.ipbes.net) and their contribution to human societies primarily focused on forming policies that address the challenges facing the management of earth and its biodiverse ecosystems (Díaz et al., 2018). IPBES promotes the notion of Natures Contribution to People (NCP), which builds on the ecosystem services framework. The main departure between the ESC and NCP is that the latter emphasises the central role people's culture plays in defining the relationship and links

between people and nature. Again, NCP promotes the role of indigenous and local knowledge in understanding the contribution of nature to the wellbeing of people.

Two important aspects are presented on Figure 4 that represent social sciences thinking in relation to natural science. Both social and natural scientists are presented by the various roles they play when it comes to issues of environment management (Braat and de Groot, 2012). From an ecological point of view, ecologists (natural scientists) are concerned with the ecological sustainability of the wetland ecosystem. Their key issue is how to ensure that human needs are met without compromising the health and functioning of the wetlands. For the economic sustainability proponents, their concern is that current economic activities on wetland ecosystems should not disproportionately burden future generations (Foy, 1990). For the advocates of social sustainability of the environment they are concerned with creating and sustaining positive conditions within communities which may be achieved through ensuring equity of access to key services, equity between generations, a system of valuing different cultures, and political participation of citizens particularly at local levels (Foy, 1990).

2.9.2 The Theory of Direct Perception

This theory was proposed by Gibson in 1979. Gibson believed that our cognitive apparatus was created and formed by a long evolutionary influence of external environment which is apparent in its structure and abilities (Gibson, 1979). Humans learnt to precisely extract the information which is necessary for our survival. The core of Gibson's theory of direct perception is a conviction that our perception is based on information from sensory inputs, which we further process only via revealing and explaining the available information. In fact, perception cannot be understood in isolation, but only in the context of an environment (Warren, 2005). Gibson realized that, to some extent, our perception is affected by our active approach. Such interpretation of perception is called the ecological perception because it attributes the determinative role of the environment to its influence on the whole process of perception (Michaels & Carello, 1981). Indeed, Gibson believed that all necessary information is already contained in optic arrays, that is, directly on the retina. This Information is in the form of structured light, sound, or other medium that specifies objects, places, and events to an animal (Gibson, 1979). It is from this basis that his theory was named direct perception.

In direct perception, the most significant factor is movement because it allows us to see some other objects or the same objects from a different angle hence creating different stimuli which causes the change of position of our body and receptors that is key in environment mapping. Perception is not a passive process but rather leads to some action, "*we perceive in order to move, but we also move in order to perceive*" (Gibson 1979, 223). Humans perceive reality which is independent of us, and our position is only a slight determinant of what we can capture from the world. So, if we change our position, we are changing a set of information that is available to us, but we are not changing reality itself. Information structures such as texture gradient, optical array and horizon–ratio relation is some of the key points of our environment from where some of our perceptions are derived from. As observed by (Michaels & Carello, 1981), perceiving is a process in an animal environment system, not in an animal. Wherever we look, the texture of individual elements increases with their increasing distance and becomes more and more dense. Gibson concluded that by detailed analysis of data collected from the environment we may acquire all the essential information about objects by direct perception of their perceivable qualities. And this is not only information about their size or structure, but also about their importance and potential application.

This theory of direct perception supports this study on stakeholder perceptions on wetland ecosystems. Intertwined with this, our beliefs, desires and intentions influence our behaviours and responses (Gallagher, 2008). Humans are an inseparable part of the environment as we live with and co-create it throughout our lives. I recognise that behaviour emerges from more than just visual perception and includes our belief system that are inherent to most people. The life orientation we go through as we interact with our environment informs what is "believed to be"; emotion, energy, intuition, relationships, all of these come from an engagement between the human and the world around them, but through multiple senses - not just sight. Lived experience includes not only what is perceived but also what is felt and understood by someone.

2.9.3 Criticisms of the ecosystem's services framework

The key challenge and criticism of the ESF is that of its inconsistency in application (Bull et al., 2016) and the fact that its successes largely depend on political will. Sufficient funding to

sustain the community level conservation initiatives is rare. Additionally, the framework has been critiqued for putting too much focus on anthropocentric perspectives (Barnaud & Antona, 2014; Morelli & Møller, 2015; Schröter et al., 2014). In their study, Barnaud and Antona (2014) deconstruct ecosystem services and identify five domains of controversies including the multiple understandings arising from the concept of ES itself. It is also not clear in terms of definition as well as promoting the view that nature is just another commodity with a price tag and not an intrinsic value (Morelli & Møller, 2015). This portrays nature as a commodity (Schröter et al., 2014) that can be traded. This makes it hard for developing economies that are struggling economically to choose nature conservation as opposed to development and modernization. It is clear that wetlands and environmental sustainability in general, lead to improved human well-being (Chan et al., 2012; Nicholson et al., 2009). The question is why might we attempt to place an 'economic' value on nature? One of the key arguments for this is to speak to economists (who dominate resource use management). In most cases the value of a 'good' is only determined in terms of its use in production. Whereas the ES approaches shows the value beyond its utilitarian value for example, in flood control, soil erosion control, carbon sequestration among others that cannot easily be costed.

Work published on wetland ES shows that there is a visible inadequate contribution from scholars and researchers from the global south. The reasons for their exclusion are not documented. Undoubtedly such absence of contribution from the global south negatively affects the receiving, understanding, adoption and implementation of the framework as it is alien to them. For knowledge, skills, and innovations to be accommodated and applied, there is a need for mutual intelligibility from the diverse experiences of the world, rather than from one region to another. Also, as Santos (2012) put it, the absence of input in terms of ideas and experiences from the global south presents a sad reality where one culture may end up over influencing the others thereby rekindling feelings of colonialism and neo-colonialism. Again, when it comes to the applicability, such Eurocentric developed frameworks work better or are more applicable to the contexts (Social, Political, Economic and Environmental) of the global north and may only be partially applied to the global south albeit with revisions and improvements by adding epistemologies of the south (Santos, 2012, Escobar, 2016).

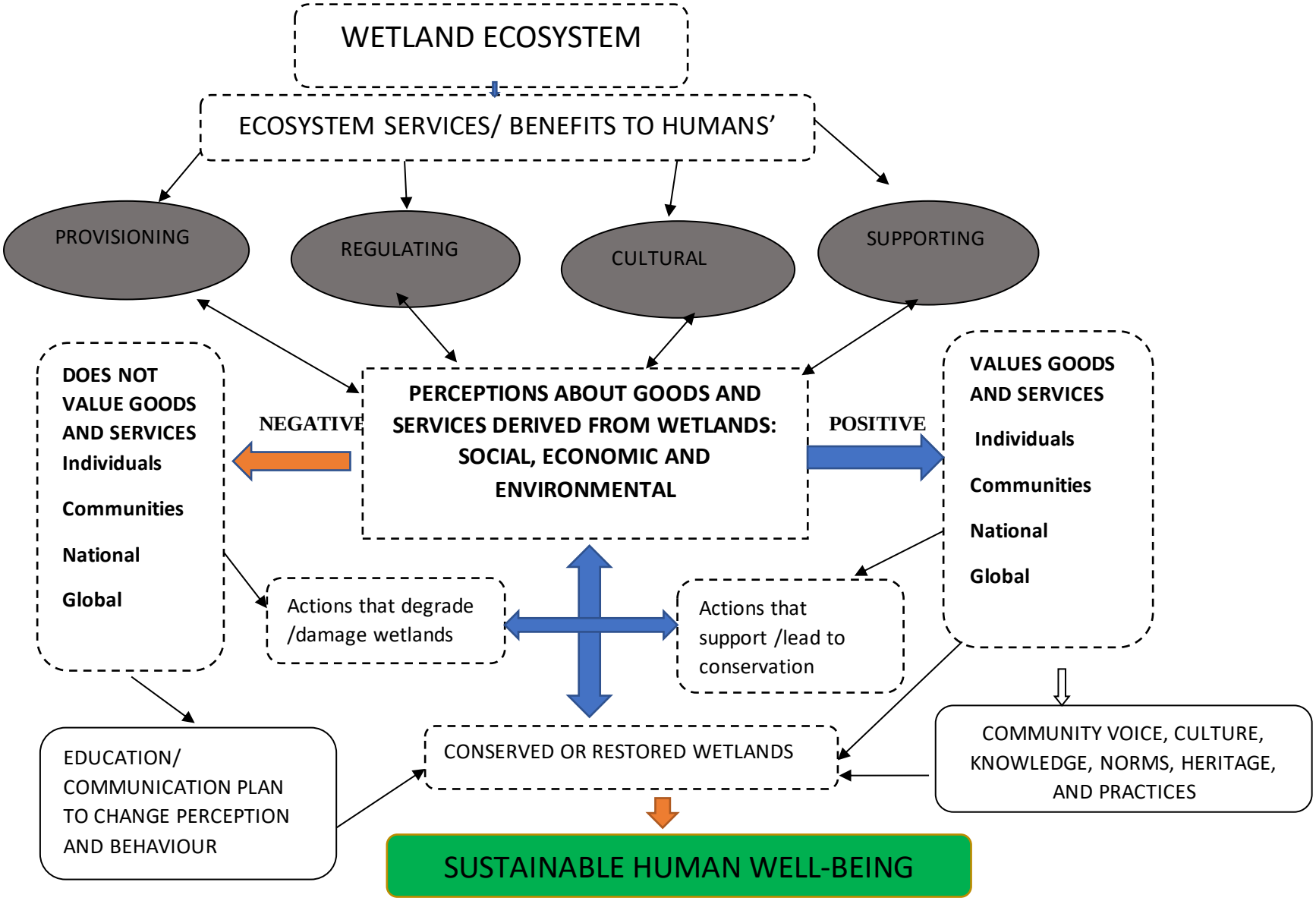
Whereas many of the proponents of the ESC recognize humans as an integral part in the management of ecosystems (Müller and Burkhard, 2012) their contribution or interaction

with the ecosystem is largely exploitative to survive, and this contributes to the modification of ecosystems especially wetlands. In Uganda where there are reported high rates of population growth at 3.32% and approximately 40.3 million people as of June 2019 (NDP III, 2021-2025), much pressure is exerted on the natural resources. Ugandan population is characterized by high poverty ratios with almost three-quarters of Ugandans living on less than $3.20 per day (UBOS, 2019). Earning or spending less than 3.20 dollars per day is a sign that many people are not able to meet their daily needs of life either as individuals or as families. Low earning and spending pose a big challenge in the effort to conserve wetlands as people will want to convert them to supplement their meagre incomes. Uganda has a history of conflict relating to resource management and the presence of a fragile political terrain resulting from having the same government and President since 1986 which makes it rather difficult to come up with long lasting solutions to reduce wetland degradation. Increased rural to urban migration has been occurring resulting from an ever-increasing population, especially of young people (GoU, 2019). It conforms to the UN and World Bank (2017) statement that approximately 60% of the global human population will be living in cities by 2030, and over 90% of that population will be in developing economies. The above factors have a significant influence on the efforts to conserve and restore wetlands in the country as an increase in the urban population also means an increase in stress on the existing ecosystem services.

After a review of the above literature, the framework of ecosystem services was found to be most appropriate for this study. As observed by Morelli & Møller (2015), the framework was created to narrow the communication gap between various stakeholders on issues concerning the sustainability of social-ecological systems such as wetlands that are central to this research. Additionally, ES is anticipated to establish and promote the formation of relevant and meaningful connections between people and nature and thus call upon them to act decisively in ensuring that nature is not destroyed as people watch or participate in the same (Schröter et al., 2014). Wetlands provide services that are a double-edged sword for the same services necessitate that they be conserved and restored, and yet at the same time exposes them to too much pressure leading to their degradation. ES also shows the link between ecological integrity and human survival and wellbeing (Orenstein and Groner, 2014). Humans have a big influence on the state of the environment and yet the state of environment also has a big impact on the wellbeing of human beings, hence a symbiotic relationship. Understanding, documenting, and analysing human perceptions and their eventual actions

towards wetlands may help in establishing a joint process that will aid the design of an approach or an intervention to wetland conservation and restoration. Figure 5 presents the various aspects of this framework in the context of this research.

Figure 5: A conceptual framework showing wetland ecosystem services and benefits to man.



Naturally, in a complex system, for one wetland, there will be stakeholders who will value ES and others who will not. A given perception at a particular time informs their decisions either to value conservation and restoration, or use, misuse and degrade the resource. There is a plurality of perceptions so in the end, degradation or conservation outcomes may be decided by a "balance" between all perceptions as well as other factors such as the power to act. Perceptions are informed by one's culture, knowledge, experience, norms, age, gender, and practices. Some authors such as Barnaud and Antona (2014) argue that ecosystem services do not exist per se but instead they are socially constructed and thus their interpretation and understanding reflects one's perceptions and interests at that time.

2.10 Summary of research questions and the knowledge gap

Table 3 below presents the research questions of this study along with the knowledge gaps addressed in the field of wetland conservation and restoration particularly in the context of Uganda and Wakiso District.

Table 3: Research questions, data/ knowledge gaps and how this research will fill the identified gaps.

Research question	**Data and knowledge gap**	**How this research will fill knowledge gaps**
What are the past and present wetland conservation and restoration legislation in Uganda?	• There is no clear understanding and connection between the various pieces of legislation guiding wetland conservation and restoration in Uganda. • It is not clear what has worked and failed. Plans for future conservation and restoration of wetlands are not known to most stakeholders.	• Establishes connection between the past and current legislation context in Uganda. • Establishes connection between national, regional, and international laws, policies, and conventions. • States what has worked and not and proposes a strategy.
Who are the stakeholders involved, and what are their roles and motivations in wetland management?	• Lack of clarity on who the actual stakeholders are • No register or record of CBOs and NGOs engaged in conservation and restoration work	• Comprehensively identifies stakeholders in wetland conservation and restoration. • Understand the important roles

	• Lack of clarity on the role played each stakeholders • Absence of clear data on what motivates the different stakeholders to engage in wetland conservation	community level stakeholders play in wetland conservation and restoration. • Identifies motivations, interests of stakeholders • Identifies who else to bring on-board.
What perceptions do stakeholders have on wetland ecosystem services and how are they related to conservation and restoration activities?	• Not known whether perceptions play a role in wetland conservation and restoration in Wakiso District • Whether demographic differences influence perceptions of wetland ecosystems	• Explore stakeholders' perceptions of wetland ecosystem services • Establish the supportive perceptions • Identifies the non-supportive perceptions • Document the role played by stakeholder perceptions in wetland management efforts
How were the stakeholders' perceptions integrated into wetland conservation and restoration activities and what are the missing gaps?	• Lack of evidence of integrating stakeholder perceptions in policy making and implementation • Challenges faced in efforts to integrate stakeholder perceptions	• Confirms whether stakeholder perceptions are integrated or not. • How integration is done or may be done better • Establish practical ways of reducing degradation of wetlands

In this Chapter, I have reviewed and explored existing research studies and other types of literature regarding wetlands' ecological, social, and economical dimensions; wetlands' conservation and restoration, and the conceptual frameworks used attend to the complexity and the diverse goods and services they offer.

In the next chapter I present the methodology that was used to plan, generate, and analyse data to respond to the research questions.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

Chapter Three describes in detail the design of the study and how it was conducted. It presents the general approach of the study, the geographical coverage as well as the methods and approaches used for data generation and analysis. The chapter concludes with a discussion on ethical considerations and fieldwork, as well as a data generation matrix.

3.1 General approach to the research

Being driven by the need to conserve and restore wetlands in Uganda and Wakiso District in particular, I set out to learn about the different stakeholder perceptions that inform their actions when it comes to wetland conservation and restoration. I designed this research with a qualitative approach in mind. This approach positioned me to immerse myself into the lived experiences of the target stakeholders at the community level, to learn, observe and document their knowledge, skills, attitudes, and behaviours concerning their nearest wetland. Qualitative methods of research have been known to offer a deep understanding of the issues being studied as the views of the researcher and the research participants are brought into perspective during the analysis and report writing process (Brinkmann & Kvale, 2018). Qualitative research design also constitutes a distinctive means of studying what is behind a decision (Heyler et al., 2016), attitudes, behaviour, or other phenomena. Indeed, Ritchie et al. (2014) state that qualitative methods are used to address research questions that require explanations or understanding of social phenomena.

Studying stakeholder perceptions of wetlands has become of interest to researchers given the great importance stakeholders play in the sustenance of wetlands and improving their functionality (Orenstein and Groner, 2014). Indeed, this research sought to understand stakeholder perceptions, views, ideas, and the values they attach to the availability and usage of wetland resources. Studying wetlands in most cases calls for an integrative approach involving considerations to ecological, economic, and social analysis to get a complete picture and that is what guided this research (Burkhard et al., 2010). Studying what motivates or discourages stakeholders from engaging in actions that promote the conservation of wetlands is at the heart of this research.

3.1.1 Qualitative case study approach

A case study is defined by Creswell (2007) as a qualitative approach where the researcher investigates one case or many cases through detailed, in-depth data generation involving multiple sources of information such as observations, interviews, audio-visual material, documents, and reports. Gary (2021) agrees with Creswell on the point of in-depth data generation but adds the exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme, or system in a real-life context. I adopted Gary's view of generating data from multiple cases during this research. Qualitative case study is thus evidence-based as it studies the nature and complexity of a given case (Stake, 1995). In this case, the evidence collected revolved around the reasons that stakeholders have for participating or not in wetland conservation and restoration activities in Wakiso District. Yin (2003) mentions six sources of data including documents, archival records, interviews, direct observations, participant observations, and physical artefacts. Data collected using a case study method is normally descriptive and explorative, hence appropriate for this research focusing on stakeholder perceptions. The case study approach saves time and occurs in a natural setting, leading to context-based knowledge, beliefs, traditions, and concerns (Zainal, 2007).

Case studies are categorized as intrinsic, instrumental, and collective (Creswell, 2007; Stake, 1995). For a study to fall under one of these categories, it largely depends on the intent of the study. In this research, the collective, also known as multiple case study, was adopted where the issue of concern was stakeholder perceptions. I conducted an embedded case study as opposed to a holistic one where I examined some aspects of the selected wetlands and their ecosystem. The focus is on community level experiences, knowledge, practices, and attitudes towards the presence of the wetland, as well as paying close attention to what goes on in the selected communities. It is hard to study an ecosystem like a wetland in totality; indeed Muller (2000) observed that no one can give a full description of an ecosystem because of its complex nature.

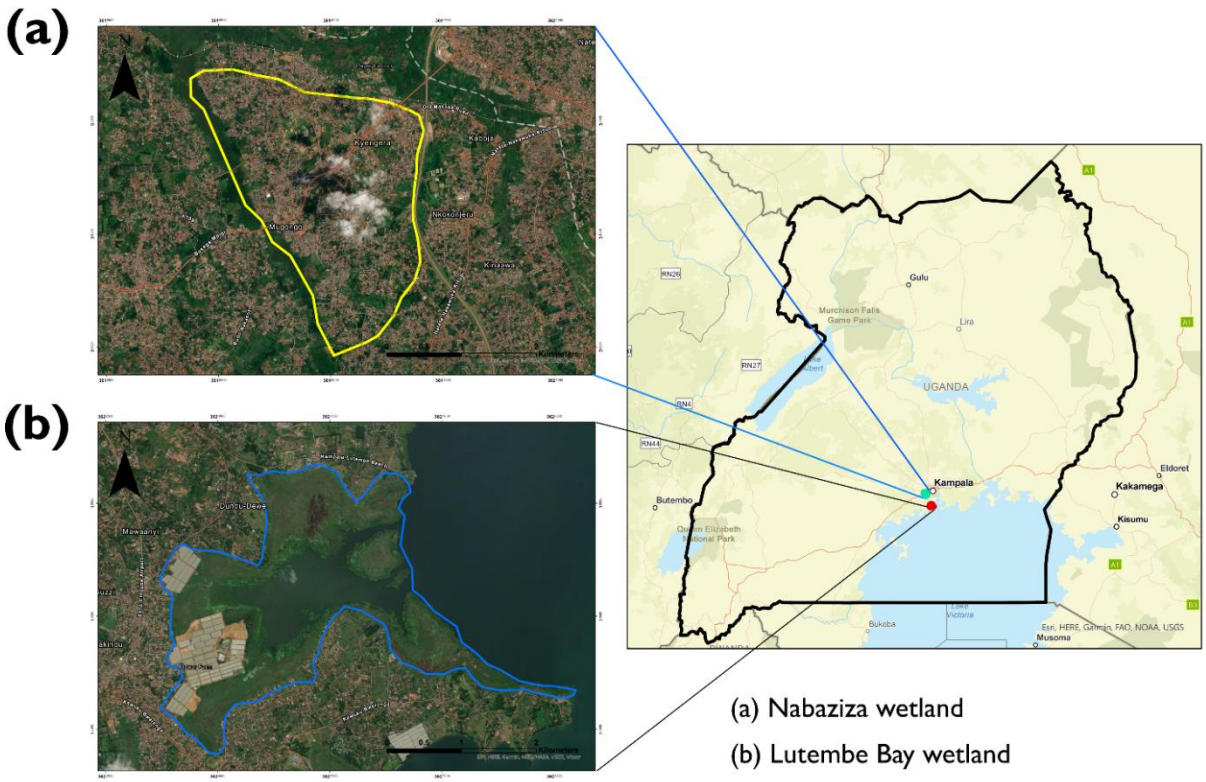
There are several reasons for the case study design in this research. First and foremost, it is a qualitative design and has a long and respected history among a range of disciplines (Creswell et al., 2007) including sociology, anthropology, psychology, medicine, political science, and others. It allows the use of several qualitative methods of data collection making it very flexible. I am also driven by the need to draw from many ways of knowing (Smith,

2015) hence the application of various methods of data collection. It also emphasises depth rather than breadth, highly necessary during this COVID-19 pandemic era as accessing many people, particularly in groups was seriously discouraged. With the case study design, it is possible to study and collect data on sensitive issues such as land (wetland) in the sensitive and precarious context of the COVID-19 pandemic.

3.2 Geographical location of the study areas

Geographically, the research took place in Uganda, the central region, and Wakiso District Local Government (DLG). Wakiso District is one of the districts that make up Kampala City Metropolitan Area, the others being Mukono and Mpigi. Wakiso District shares borders with the Districts of Mpigi, Luwero, Nakaseke, Mityana, Mukono, Kampala city and Kalangala. It is the second most densely populated district in the country as reported by the Uganda Bureau of Statistics (UBOS, 2014) with a population of 2,007,700 according to the National Population and Housing Census of 2014 and experiencing a 4.9% population growth rate. The district also shares borders in some of its communities with Lake Victoria - the largest freshwater lake in Africa. Figure 6 shows the two wetland communities as well as the district location in Uganda.

Figure 6: Map of Uganda showing study sites



Source: Adapted from Google Earth Images on 23 June 2022.

Two specific wetland sites were selected from Wakiso District for this research. One is Lutembe Bay Wetland and the second one, Nabaziza Wetland. Lutembe Bay wetland is estimated to have an area of 1,769 ha and is in the Kajjansi Town Council along the edges of Lake Victoria. It became a Ramsar site in 2006. As an internationally recognized wetland, it ought to be managed under international standards as per the Ramsar Convention of 1971. The wetland is popularly known for bird watching as migratory birds settle there after migrating from Europe. Lutembe Bay wetland has an association of users known as Lutembe Wetland User's Association found in present day Kajjansi Town Council. This Town Council, as of 2020, was estimated to have a population of 135,600.

In contrast, Nabaziza wetland is found in Kyengera Town Council, Kyengera Ward and Nabaziza Cell. As of 2020, Kyengera Town Council had a population of 285,400. It is smaller in size compared to Lutembe Bay wetland and is bordered on both sides by human settlements. Its management is not clear, and this leaves it at the mercy of those who live and work in and around it. Nabaziza does not have an organized association of users, and this increased my curiosity to learn about how people perceive its presence, access it, and share the benefits that come from it. Although these two wetlands have various and different stakeholders, they are faced with similar challenges, as observed during this study, as will be presented in the following chapters.

3.2.1 Rationale for selecting Wakiso District:

Reports from Wakiso District local government (DLG) state that by 2016, the district had slightly over 13% of its land covered by wetlands. The district has 2,807.75 km^2 of the land of which 384 km^2 are wetlands. Unfortunately, there has been consistent and increasing reports of the disappearance of wetlands due to developments that are taking place in the district (Kariuki et al. 2016; Tumusiime 2013). In the same district there are wetlands of international importance managed following international laws stipulated under the Ramsar Convention, as well as others managed under national laws. Most of these factors work to influence the ways people interact with the wetlands.

Wetlands in Wakiso District play a significant role in sheltering Lake Victoria by cleansing the water runoff from Kampala and the neighbouring districts. Lake Victoria is locally known

as Nalubaale and is the world's second-largest freshwater lake and the largest in Africa. The lake shares boarders with Uganda, Kenya, and Tanzania. It is the only source of water for both domestic and industrial use in Kampala city, Wakiso, Mukono and Mpigi districts and other surrounding areas. Given its proximity to the capital city, Wakiso District accommodates a big percentage of people that work in Kampala. As reported by Tumuhimbise (2017), most of the permanent wetlands in Wakiso District are found in Entebbe Municipality and Busiro County along the shores of Lake Victoria. With the ever-increasing rural to urban migration in the country, coupled with the ever-rising cost of living in Kampala and surrounding areas, many of the people who have migrated to the city from other areas of Uganda find it easy and relatively affordable to live in Wakiso, where the cost of living is still considered relatively low compared with living in Kampala city. Undoubtedly, this increases the pressure on the available resources in the district and calls for proper planning, including how to conserve the remaining natural wetlands (Muwanguzi, 2018) scattered in various parts of the district.

Another reason for selecting Wakiso District was that its rate of urbanization is rapid, and a diversity of population in terms of class, level of education, employment status, different cultures and tribes live and work in the district (Wakiso DLG, 2017). There are also many upcoming commercial farms such as those of flowers, fish farming, and vegetables targeted to benefit from the ready market available in the communities and district because of the high population. The nearness to Kampala city makes the availability of market for the produce more reliable and hence increases demand. There are also industrial parks established by the government and this has seen an increase in the number of factories established in wetlands in the district.

3.3 Research methods

This section presents the process of identification and selection of the study participants, the methods, and tools of data collection, and describes how the generated data was organized, processed, analysed, and reported.

3.3.1 Research participants

The population of this study included diverse stakeholders that in one way or another participate in the business of wetland conservation, restoration, or live and work within a

five-kilometre radius of the selected wetlands. Ten participants were identified and selected from each data collection level. Ten participants at each level was considered a relatively representative sample given the case study nature of the research. The fact that data collection was done during the time of COVID-19, there were also restrictions on the number of people that could be met for interactions. The levels were national (i.e., holding a national government level interest in the wetland); District (i.e., holding a district local government level interest in the wetland); and community (i.e., holding community level interest in Lutembe and Nabaziza wetlands). Altogether, forty participants took part in the research. The diverse positions of the participants ensured a wide range of views and perceptions regarding the existence and conservation of the wetland or the lack of it. At the community level, all those selected to participate in the study lived or worked in or near the wetland and hence they had a direct stake and interest in what goes on in the wetland. The representatives from community-based organisations and nongovernmental organisations were those who were directly involved in wetland conservation and restoration. Representatives from government were selected from those departments that are mandated to protect the wellbeing of wetlands in the country including from the wetland management department.

3.3.2 Sampling strategy of participants

Initial preparatory meetings were held with the Wakiso District Environment Officer (DEO). The DEO is a technical person appointed by public service and the position originates from the National Environment Act and the National Environment Management Policy. The major role of the office is to advice district council on matters of environment and act as a link between the district and Ministry of Water and Environment. These meetings served four purposes, including: 1) introducing the research to the district officials; 2) identifying and agreeing on the two study sites; 3) encouraging district level leaders' buy-in and later adopting the study recommendations; and 4) gaining legitimacy and authorisations to be able to interact with the rest of the stakeholders in the district. Employing a qualitative case study design, I focused on conducting detailed and intensive interviews with participants to gather as many views, reasons, thoughts, and actions as possible. I focused on the depth rather than breadth of the data that was collected.

Purposive sampling was the main method used for identifying the research participants. With the help of the district environment and wetland officers as well as the local leaders at

the community level, I identified, visited, and sought consent from specific individuals to participate in the research. Consistent with the method (Raymond et al., 2009), the participants selected were those who, by virtue of what they do, where they live or the office they occupy, have a relationship with one of the selected wetlands and in some ways participate in environmental conservation activities. However, in this research emphasis was on participants whose work is geared towards wetlands conservation and restoration. Unlike what Guetterman's (2015) observed that quite often case study samples are inclusive of all participants, in my case, I had even to sample from outside the case study area. Table 4 shows the lists of stakeholders generated through desk review exercise.

Table 4: Preliminary list of research participants developed through literature review

Data collection level	**Target participant(s)**	**Data collection tool**	**Total**
1. National	1. Ministry of Water and Environment 2. National Wetland Department and NEMA 3. National NGOs (Nature Uganda, ACODE, NAPE etc.) 4. International NGOs (WI, IUCN, Ramsar Secretariat and WWF) 5. National Environment Police 6. Rep Makerere University Environment Dept 7. Media representative(s)	KIIs guide Document review	10
2.District	1. District Environment Officer 2. District Wetland Officer (Technical) 3. District Sec for Environment (Political) 4. District Community Development Officer 5. District Lands Officer 6. District level NGOs/ CBOs reps 7. Industry/ factory owner in a wetland 8. District Environment Police	KIIs guide Document review	10
3.Community	1. Representatives from (NGO/CBO) 2. Fishermen and women 3. Animal grazers 4. Crop/ flower farmers 5. Sand and clay miners 6. Handcrafts harvesters/ makers 7. Washing bay 8. Brick Layers 9. Traditional/ cultural leader rep	In-depth interview guide Documents reviews Photography	20

	10. Religious leader reps 11. Industry/ factory owner near the wetland 12. Parish/ Ward Development committee	Observation	
Total			**40**

Table 5 shows the list of study participants developed with the help of gatekeepers at the district. Gatekeepers in this case were the district officials in the department of natural resource management in whose docket this study fell.

Table 5: List of research participants developed with gatekeepers

Lutembe	**Nabaziza**	**District**	**National**
Farmer -flowers	Farmer- crop	DNRO	WMD
Fishmonger	Fishmonger	DEO	NEMA
Sand and clay miner	Brick maker	DWO	WI
Water fetcher	Water fetcher	DCDO	WWF
Herbalist	Herbalist	District politician	IUCN
Handcraft maker	Handcraft maker	Catholic Church	NU
Beach management	Religious leader	UCOTA	ACODE
Tour guide	Environment officer	Lands officer	Makerere HEI
Local leader	Local leader	Environmental police	UWEC
LWUA leader	Secretary for info	Industry/ factory	NMG
Ramsar official	Animal grazer		NAPE

The purpose for the two lists was triangulation such that if a person or office appeared on both lists, they were prioritised to participate in the research. The biggest discrepancy in proposed research participants happened at the community level. The participants at the district and national level remained consistent across both processes of selection, as shown in the list that was generated with my research gatekeepers. The two lists above supplemented each other as some suggested study participants belonged to both lists, such as the fish mongers and water fetchers. Others, like the brick layers, were not found for instance in Lutembe bay wetland, and flower farmers were not present in Nabaziza wetland.

Purposive sampling was used to make the study as representative as possible and to ensure that individuals who are often overlooked in most of the existing research, such as

fishmongers, tour guides, and handcraft makers are purposively included in the research population sample. The reasons for their previous exclusion are many and may include not being easy to reach, language barriers, and deliberate exclusion and bias so that their diverging views are not captured, among others. My intention however was to explicitly include the views and perceptions that have been left out in previous efforts and debates around the conservation and restoration of wetland ecosystems. Even when it was difficult to access such stakeholders, the adopted sampling method was effective for identifying and reaching participants that are not usually accessed, such as hunter-gathers, seasonal fishermen and fisherwomen, those that collect grass for thatching their houses, and traditional healers and herbalists that collect their medicinal plants and herbs from the wetlands.

Snowball sampling was taken up in some cases to collect additional information to supplement data generated. This occurred when someone was mentioned and suggested because of their engagements with the wetland but were missed on the list of participants already generated. During the interaction with participant, when he or she recommended another potential participant, such a person was put on the list and was considered when one of the original target respondents could not be reached for participation. In total, three of the forty participants were identified using this approach.

3.4 Data generation methods and tools

As the research was conducted during the COVID-19 pandemic (2021), there were Standard Operating Procedures (SOPs) put in place by the government of Uganda that had to be followed during the process of data generation. Particularly there were restrictions on the number of people that could meet at one time when such people were from different homes. There were other procedures such as use of face coverings, hand washing, social distancing, as well as avoiding crowded places. At district and national level because of the total ban on travel in the country, telephone interviews were conducted.

While generating data for this research, I was guided by the call by Easterby-Smith and Thorpe (2012) who recommend that data collection and generation methods be transparent, believable, and accessible by other researchers with ease. The presence of COVID-19 during the fieldwork period informed the methodological practices I used. In this way, methods that require fewer people to interact, such as interviews, were preferred to group activities such as

focused discussions and meetings. Therefore, because of the COVID-19 pandemic I had to change the research methods and dropped those approaches that would require gathering more people or that exposed me or the research participants to the spread of the disease.

Interview method

Key informant interviews

A key informant interview is one of the oldest methods of qualitative data collection. Fontana and Frey (2008) state that interviewing is historically, politically, and contextually bound. Yet, Kong et al. (2002) observed that as history, politics, and culture change, so does the interview method as it responds to the present narrative or ways of thinking. This poses a big change to the objectivity of the interview as a method of data collection as it must be contextualized for every study where it is applied given the state of politics, culture, and socio-economic status of the participants. For this study, different sets of interview questions were prepared that guided the interviews at different levels. For example, the questions asked to community level members were not the same as those of the national level, yet they maintained the key features of the method such as depth instead of breadth, descriptive instead of numbers and percentages among the others. Research participants that were targeted for key informant interviews included those at national level and district levels because of their experience and nature of work. The District Environment Officer, and representatives from civil society, as well as officers from the Ministry of Water and Environment, the wetland department, the DEO, and the District Wetland Officer (DWO) of Wakiso District, were interviewed using this method. Others included a university lecturer and a researcher focusing on wetlands in Uganda, a representative from Ramsar Secretariat; IUCN; WWF and Wetland International Secretariat.

From the listed stakeholders' information about trends in wetland conservation, those involved in wetland conservation and restoration work, their motivations, successes, and challenges were discussed. Other issues included access to benefits, decision making, available laws and byelaws that support or hinder wetland conservation and restoration in Wakiso District and Uganda at large. The data generated with those study participants enabled me to understand the views, beliefs, and perceptions of identified players in the wetland ecosystem conservation and restoration activities and ultimately help to provide a detailed and deeper understanding of the topic under study (Gill et al., 2008).

In-depth interviews

In-depth interviews were conducted with the stakeholders at the community level. These participants live their lives largely on the goods and services provided by the wetland and thus have the first-hand experience of what goes on in the wetland. Examples of such participants at the community level include traditional healers/ herbalists, hunters, seasonal fishermen and women, sand miners, as well as owners of some sections or entire wetlands. While talking about their approach to in-depth interviewing, Rubin and Rubin (2012) refer to it as response interviewing because according to them, researchers respond to and then ask further questions about what they hear from the interviewees rather than exclusively following pre-determined guides.

From the interview method, I specifically gathered stakeholder views, thoughts, assumptions, expectations as well as attitudes that they have towards the wetland ecosystems. To capture these, I used a variety of questions about participant views and feelings. These interviews were accompanied by observation of the non-verbal cues and surrounding contexts.

The key feature of the qualitative interview, as stated by Ritchie et al. (2014), is that of their depth of focus on the individual and thus the opportunity for a detailed investigation of an individual perspective. With these types of interviews, the participants can bring out their personal history and experience regarding wetlands, their functioning as well as conservation efforts implemented over the years. Understanding participants' perceptions is a complex task that requires a lot of attention and an opportunity to probe and seek clarification from those involved. Both key informant and the in-depth interviews were digitally audio recorded with the permission of the study participants. After the interviews, the audio files were immediately transferred and saved to an encrypted Laptop.

Document review

Data were also generated and reviewed from documents. Of key interest were publications in the media, especially the official and nationally circulated newspapers. Additionally, online trade and academic publications were also targeted during this study to learn about what has been published regarding wetlands ecosystem services especially in terms of their access and

benefit sharing by those who live or work near them, policy makers and other categories of people in the area.

Participant observation and photography

Participant observation is a key social science method of data collection as the study subjects are observed in their natural settings (Rubin & Rubin, 2012). The observation enabled me to learn about the stakeholder community's language, their way of life, the key survival and development activities they engage in, problems they face and how they attempt to solve them, group dynamics, and power relations. These are crucial elements in giving a clear understanding of my study participants, what influences their thoughts as well as perspectives regarding the subject matter. The observations were done for one month in each of the two selected communities. During each month, I spent at least six hours during weekdays and about eight hours during the weekends observing. While observing participants and their activities, I engaged more than one sense, for instance I would focus on what I saw people engaged in during the day, listened to sounds of not only what people said but also other sounds in the community, for example from music or birds or other animals both domestic and wild. I smelt scents, felt sensations, and tasted food and drink where it was necessary, especially during my rapport building moments. As Ritchie et al. (2014) observed, while conducting interviews with study participants, capturing their non-verbal cues, gestures, expression, jokes, tone of voice, verbiage and body language helps enrich the data. Observing the situation as it was first-hand was paramount in this study of human perceptions and feelings about wetland ecosystem services as it exposed elements of their felt needs, concerns, and fears that elude spoken language used in interviews. Therefore, the role I played was that of a participant observer and not observer as a participant. This categorisation of my role is because I did not participate in specific community tasks or day-to-day activities (like an observer as participant), but my presence in the community was felt, I was an engaged visitor and took part in cultural protocols of greeting and partnership building and informal exchanges appropriate to my status in the community.

I documented the state of the wetland through photographs, showing portions of it that are still intact, harvested, damaged, or filled with soil among others. These photographs were printed out and showed to research participants during the interviews so that they could

describe them or use specific words to characterize them. This practice was followed by further inquiry about how and what they felt about such photographs.

3.5 Data acceptability and usability by stakeholders

In a bid to increase acceptability and usability of the research findings by the various stakeholders that participated, I had to ensure that only recognised tools and guides were used to facilitate the interviews. I also encouraged the participants to express themselves in any language that they felt comfortable with. Indeed, even when using English language at the national and district level, vernacular terms, phrases, and proverbs were also incorporated to enrich their responses. Many of these are included in the thesis as verbatim statements in the ensuing chapters. As the research was about stakeholders' perspectives, cultures, relationships, and the complex intersections of their needs, values, faiths, and politics, participants were encouraged to be as free as possible to share their views after being assured that what they shared with me was to be treated with utmost confidentiality. After the official submission and defence of this thesis, a validation and dissemination exercise will be done with and among the key stakeholders involved in wetland conservation and restoration. During these meetings, a summary of the findings and recommendations will be shared with attendees and call them to action to conserve the remaining sections of the wetlands in the district.

3.6 Research procedure and participant recruitment

3.6.1 Preliminary steps

While waiting for ethical clearances from Makerere University, I introduced myself to Wakiso District Local Government Chief Administrative Officer (CAO) and sought official permission and acceptance to work in the district. His acceptance letter was necessary when applying for clearance from the National Council for Science and Technology. Once I obtained clearance from the CAO, I then proceeded to introduce myself and seek authorisations at the community level of Nabaziza and Lutembe Bay. Once cleared and accepted to work in the district, I met with the DEO to plan and strategize how to proceed with data collection both at district and community levels.

Field work activities were approached sequentially where I started with two months of immersion in each of the wetland communities. During January and February 2021, I was in Lutembe Bay community, and March and April I was in Nabaziza community. During those four months, I visited the two communities three times in a week for purposes of immersion, conducting community and participant observation, rapport building, identifying community groups, observation of what activities go on in the community, as well as identifying the target participants for the study. I also visited and introduced myself to the local leaders using an authorisation letter from the district. The two months spent in each community made me familiar with the community members as I interacted with them, including those who did not participate directly in the research. By the time I conducted the interviews, I was not seen as a total stranger as my face was not new in the community. Interestingly, some of the days I could walk and be with the group leaders and together visit sections of the wetland, an exercise that enriched my experience of what goes on in the community.

Field notes were taken to further supplement language focused data, to encourage my reflection and increase rigor and trustworthiness of the research findings. These were taken following the structure suggested by Phillippi and Lauderdale (2018) that includes obtaining consent, observing the non-verbal cues, as well as a general description of the setting where the observations took place. This was followed by a deliberate reflection on the notes taken to facilitate expansion of the field notes. The data I gathered during this time supported the interviews I did later and enabled me to reach data saturation. Data saturation is a point beyond which no new information is being generated after exhausting the key aspects of the research. Indeed, Fusch and Ness (2015) stated that, data saturation is arrived at when no new information is collected to answer the research question and there is enough information to replicate the study by others. Focusing on one wetland at a time enabled me to concentrate and carry out the planned activities with undivided attention that was crucial in fully understanding each case.

After triangulating with a few methods asking the same questions, I reached a level at which I could not get new responses known as saturation. This was a point beyond which no new information was collected as most of the perceptions and views were exhausted by those I had interacted with or through my observation as well as literature review.

3.6.2 Data collection activities at district level

Data collection started at the district level in the month of May 2021. According to the district records, Wakiso became a district in 2000. A district is the second administrative level in Uganda's administration system. It is predominantly occupied by the Baganda people as it is in the central region, but also a home to almost every tribe in Uganda since it is a peri-urban area belonging to the greater Kampala Metropolitan Area. At the district level interviews were done with both technical and political district officials. Given the fact that environmental management and wetlands are managed centrally with delegated powers at the district level, most of the interviewees were from the technical side and included among others the District Natural Resources Officer (DNRO), DEO, DWO and CDO. From the political side, the district Councillor in charge of environment participated in the research. Others were representatives from NGOs that operate in the district. The interviews at the district level were conducted using the telephone as there was a total ban on travel in the country due to the COVID-19 pandemic in June and July. As a result of the ban, it was not possible for non-medical and non-security people in Uganda to move freely and thus, I had to look for a different way to reach out to my participants. For these interviews, accepting to be audio recorded was one of the criteria to participate in the study and all the participants did give this consent.

3.6.3 Data collection activities at community level

Upon completion of the district level interviews, I proceeded to my first community of Lutembe Bay wetland to conduct in-depth interviews in June 2021 with the already identified participants after the lifting of the travel ban established due to the COVID-19 pandemic. In this village I worked with the Chairperson of the Lutembe Wetland Users Association (LWUA) as my gatekeeper to introduce me to participants, some of whom were members of the association. Gatekeepers are key in research as they help connect the researcher to the research participants. They are people that are well known in their communities and generally trusted so when they introduce a researcher, he or she finds it easy to access research participants. I was particularly interested in the views, attitudes, and ideas of these community members and probed as much as possible to tap into their rich traditional knowledge and experience in as far as wetland engagement is concerned. We also discussed previous and current interventions regarding wetland conservation, the players involved, challenges and achievements among others.

In July 2021, I proceeded to Nabaziza community where I replicated the same procedures as in Lutembe Bay for consistency, albeit without a dedicated association for this wetland. Then, I contacted the area Chairperson who assigned me his secretary for information to work with me for the days of data collection.

As already noted, ten participants were interviewed in each community. On the interview date, my gatekeeper guided me to the participant's home or workplace where the interviews were conducted. Upon arrival to the agreed venue for the interview, I would ask my guide to excuse themself and allow me to interact with the participant in privacy. Then, the purpose of the research and its nature was explained in detail to ensure that the participant had the right information to enable them to decide to participate by granting the interview or not.

3.6.4 Data collection at national level

At this level interviews were done with government officials that represented the Ministry of Water and Environment and representatives from civil society and NGOs that operated at a national level. These were national level players in issues of environment and wetlands conservation and restoration. Having conducted interviews at the district and community levels, by this time I was more aware of key issues and questions that I wanted to follow up with interviewees at the national level. This consequently made my interviews flow well throughout the process of interviewing even those carried out via telephone.

3.7 Data management and analysis

Data management started from the first day of data generation. The data generated through observation and photographs were stored as field notes. The interview data were downloaded from the recorder and saved on an encrypted laptop and then uploaded to the University of Glasgow Cloud after being well labelled for easy identification. At the end of each day, the generated data were arranged and saved according to type and source.

I wrote and kept a daily journal that assisted me in keeping track of my reflections, progress in relation to what emerged from the day's work. These journals helped me to track what has been covered and what was remaining, hence enabling me to plan accordingly for the days of

fieldwork. On any given day, I conducted no more than two interviews, when possible, this included one in the mid-morning and another in the afternoon.

After data were safely downloaded and saved, recordings were transcribed. The transcribed data were then saved using the following format for easy identification: 1) Date of the interview; 2) Level of an interview (National (N), District (D) or Community (C); 3) For community-based interviews a distinction of location (Lutembe (L) or Nabaziza (N)); and 4) Category of the interview (Government official department, NGO representative or community stakeholder). The above details were meant to maintain the privacy and confidentiality of the respondents' personal data and identification.

A thematic and inductive content analysis approach was used during data analysis and eventual report writing (Raymond et al., 2009). With thematic analysis I started with familiarizing myself with the data, generated initial codes, then sought themes. The steps used were suggested by Michelle and Varpio (2020) and were adapted for the specific context of this study. NVivo software for analysing qualitative data was used.

Data coding included the following steps:

Preparation and organisation of data: I printed the typed transcripts, gathered, and arranged my field notes, and named the photographs that I took during the process of data generation.

Review and exploration of the data: This step involved actively reading through the transcripts for a thorough understanding. While doing this I kept track of what emerged to inform the themes that later structured the different sections of my thesis report and other forms of sharing.

Creation of initial codes: Using the NVivo software for analysing qualitative data, I connected with my data by creating patterns using different colours of highlighting. From these codes and their contents, I was able to identify major themes and the keywords used to describe perception by stakeholders at different levels. At this point, data cleaning began to ensure that inconsistencies are identified and addressed as necessary to improve data reliability, validity, and dependability.

Finally, I used the codes and themes as well as some verbatim statements in the writing of my research report. Verbatim statements were derived from research transcripts (Poland, 1995) and these were taken as a true record and as an embodiment of a certain truth notwithstanding the challenges involved in capturing the non-verbal cues in the recorded interview.

3.8 Data collection matrix

A data collection matrix shows the different data sets gathered to address each of the research questions. It shows the method or tool used for data generation as well as the target audience. The purpose of the matrix is to help identify key research participants and ensure that most of those identified are interviewed. The data source clearly shows with whom the data is generated as shown in Table 6.

Table 6: Summary of research data collection plan

Research question	**Type of data**	**Method of data collection**	**Data source**
What are past and present wetland conservation and restoration activities in Wakiso District?	▪ The current state of wetlands ▪ Quality of the available wetlands ▪ Current threats to wetlands ▪ Current efforts towards conservation ▪ Past and current efforts to conserve and restore ▪ Strategies that work or worked ▪ Success stories of conserved/ restored wetlands or parts of it	▪ Key Informant Interview (KII) ▪ Observation ▪ Photography ▪ Narrative ▪ Review of documents	▪ District environment/ wetland officer ▪ Representatives from NGOs and CBOs on environment/ wetlands ▪ Chairperson LCI ▪ Chairperson/ Mayor LCIII ▪ Community members ▪ Publications (Print and online) ▪ Selected elders
Who are the stakeholders involved, their roles and motivations in wetland management?	▪ Institutions governing wetlands at different levels ▪ NGOs and CBOs ▪ Participation by individuals and groups ▪ Level and form of participation ▪ Decision-making processes ▪ Level and style of cooperation	▪ KII ▪ IDI ▪ Narrative	▪ Environmentalists ▪ Sand and clay miners ▪ Crop farmers ▪ Businessmen and women ▪ Politicians ▪ Environmental journalist(s) ▪ Environmental police
What perceptions do stakeholders have on	▪ Positive/ supportive perceptions ▪ Negative/ destructive perceptions ▪ General men, women, and youth perceptions ▪ Government-led institutions	▪ Literature review ▪ KIIs ▪ Observations ▪ Narratives	▪ Community members ▪ Government reports ▪ NGO/CBO report

wetland conservation and restoration activities?	▪ Community structures ▪ NGOs and CBOs		
How were the stakeholders' perceptions integrated into wetland conservation & restoration activities and what are the missing gaps?	▪ Establish existing laws/ policies and by-laws. ▪ Identify various activities by stakeholders on wetlands. ▪ Views on wetland conservation/ restoration ▪ Success achieved ▪ Challenges met in past and present conservation and restoration efforts	▪ Document review ▪ KIIs ▪ IDI	▪ NGO/CBO reports ▪ Environmental Activists ▪ Community members

3.9 Research ethics and approval

The ethical processes were lengthy and involved five levels, including four in Uganda and one at the University of Glasgow. In addition to the multiple levels of approval needed, processes were delayed due to the interruptions caused by the COVID-19 pandemic.

It is a requirement for anyone from the University of Glasgow who intends to collect and use primary data from human subjects in their studies to seek and attain ethical clearance from the University. The outbreak of the COVID-19 Pandemic led to an increase in the level of precaution and vigilance to the extent of prohibiting group activities such as focus group meetings and community meetings that this research could have benefited from. The purpose of this ethical clearance process is to ensure that there is appropriate alignment with legal obligations and respect for privacy, individuals, groups, and communities in the process of research.

In Uganda, the process of ethical clearance was lengthy and involved seeking approvals from four different offices. The *first approval* was sought from Makerere University School of Social Sciences. Here the application was submitted to the Research Ethics Committee (REC). Based on approval at this first level, the *second approval* was sought and obtained from the CAO of Wakiso District where the data collection exercise was to take place. The CAO is the head of the district and therefore the one to authorise any activity to take place in

the district under his or her jurisdiction. The *third level of approval* was that of Uganda National Council of Science and Technology (UNCST) the body under the office of President that authorises research studies for Masters, PhDs and from corporate bodies. The *fourth and final level of approval* was at the Local Council One office who is the leader of the communities where this research was done. Without authorisation of this office, I would not be able to interact with community members legally. Manoeuvring those four levels of authorisation took time and had impact on the study but were necessary and unavoidable. It was for my own safety as well as the safety of the research participants.

For security reasons I endeavoured to leave the field and reach home within daytime. This enabled me to ensure the data and equipment used were safe throughout the fieldwork. During the time of this fieldwork, the government of Uganda had issued a curfew whereby no one was expected to move or be outside their home beyond 7:00pm and before 6:30 am.

Data collection for this study took place when Uganda was struggling to prevent the spread of COVID-19 and thus the government kept revising their SOPs. The outbreak of the COVID-19 pandemic had started normalizing new research methods of data generation and thus I quickly adopted the use of the telephone to conduct interviews. I was amazed at how the participants found it easy to accept the interview although for some they needed more assurance and requested that I send to them approvals and study protocol via email prior to the interview.

Given the situation and effect of COVID-19, I was very careful and considerate when conducting interviews. I was very careful not to put pressure on the participants as many people in the country were already under stress, fear and anxiety caused by the uncertainty that came with COVID-19. Many people were struggling to survive from COVID-19 but also its effects such as loss of employment and means of livelihoods. Coupled with poverty levels at the community level, this called for extreme patience and caution during the process.

In Chapter Four I present the findings and discussion based on the study objectives and questions. Specifically, the chapter outlines the history of wetland management and policy development in Uganda. It highlights what efforts were there in the past, what is being done currently and what needs to be done in the future regarding the conservation and restoration of wetlands in Wakiso District and Uganda at large.

CHAPTER FOUR: WETLAND POLICY DEVELOPMENT IN UGANDA: PAST AND PRESENT

4.0 Introduction

In this chapter, I address the first research question: what are the past and present wetland conservation, and restoration legislation in Uganda? I highlight the principles of wetland management, regulated, and prohibited activities in wetlands, government capacity to manage wetlands, success achieved so far, challenges that exist in efforts geared towards conservation, and restoration of wetlands. The key research methods that were used to derive the results for this chapter were document review and key informant interviews with government officials at national and district level.

4.1 The state of wetlands in Uganda

Uganda is a country that was famously described by Sir Winston Churchill as the 'Pearl of Africa'. What earns Uganda this title are its unique natural features including the many wetlands. The presence of these wetlands keeps the country green through the year even in the dry/ seasons, which makes wetlands critical for wildlife.

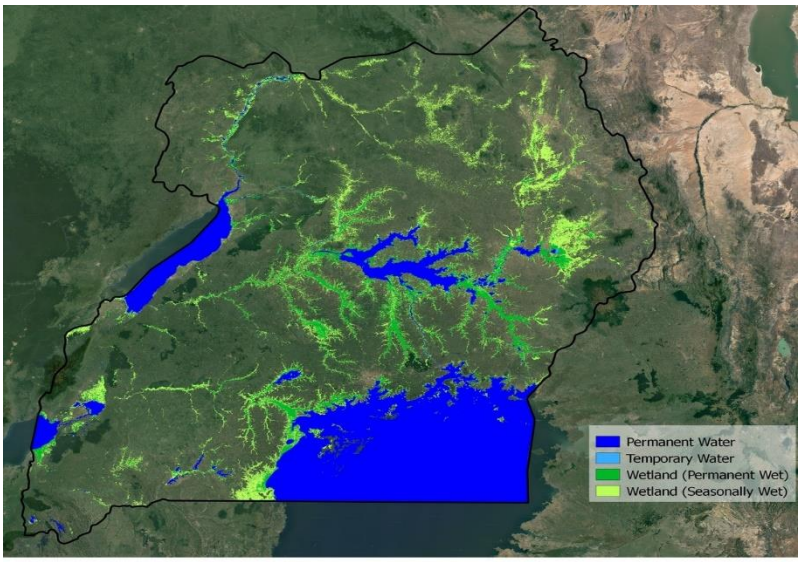
There are many types of wetlands in landlocked Uganda, and wetlands have been identified as one of Uganda's main land covers. Swamps, marshes, seasonally inundated grasslands, swamp forests, floodplains and riparian wetlands are the most common. As reported by the Ministry of Water and Environment in 2014, out of 241,555 km^2 of land in Uganda, wetlands were estimated to cover an area of 37,575 km^2. However, that area declined to 26,308 km^2 (UBOS, 2020) and since then, there has been a reducing trend (National Development Plan (NDP) III 2020/21-2024/25).

Nowadays, wetlands in Uganda are protected by law specifically under clauses 37 and 38 of the National Environment Statute, 1995. In this statute, it is clearly stated that without written

approval from the National Environment Management Authority (NEMA), it is an offense for any person to a) Reclaim or drain any wetland, b) Erect, construct, place, alter, extend, remove or demolish any structure that is fixed in, on, under or over any wetland; c) Disturb any wetland by drilling or tunnelling in a manner that has or is likely to have an adverse effect on the wetlands; d) Deposit in, on or under any wetland any substance in a manner that has or is likely to have an adverse effect on the wetlands; e) Destroy, damage or disturb any wetland in a manner that has or is likely to have an adverse effect on any plant or animal in a wetland and f) Introduce or plant any exotic or introduced plant or animal in a wetland.

Figure 7 shows the distribution of various wetlands across Uganda. With numerous challenges regarding getting NEMA permission for any activity in the wetland, many people are systematically denied a chance to benefit from the wetland and thus do so illegally. This threatens the ability to conserve, manage or protect the wetland as few people meet the requirements to obtain a permit from NEMA. With NEMA having full responsibility to guide and control activities that are to take place in a wetland officially, many sections of the wetlands that were previously conserved by the community members, are now leased out to investors on a large scale, thereby increasing wetland degradation especially in Wakiso District. It is not certain why big companies and investor always meet NEMA requirements to access permits to do their activities in the protected wetlands. Due to their limited capacity and lack of advanced machinery, poor community members living around the wetlands have fewer chances of adversely converting the wetland on a large scale compared to rich investors and businesspeople that have access to heavy machinery such as vehicles and excavators.

Figure 7: Map of Uganda showing distribution of wetlands in the different regions



Source: ESA- Wetland Map of Uganda- 21st July 2021

It is estimated that about 126,000 species of mammals and reptiles rely on freshwater ecosystems globally. However, according to the IUCN Red List, 27% of accessed wetland species are at the verge of extinction worldwide (Gardner & Finlayson, 2018). There has been loss of fish species in Lake Victoria (Pomeroy et al., 2017), and a detailed report covering the major taxa including mammals, birds, amphibians, reptiles, butterflies, dragon flies and vascular plants has been developed to confirm their state of decline (MTWA, 2018). The loss and disappearing of species result directly from increased wetland conversion leading to an ecosystem breakdown. As stated in the NDP III (2021-2025), about 846 km^2 of wetlands are lost annually. The research findings explain the sadness, concern, and a sense of despair amongst participants concerning what is going on in the wetlands management sector. Many participants, especially at district and national levels, are dissatisfied with the pace, energy and investment directed to wetland conservation and restoration activities. Concerns about what will happen in the future if the status-quo remains were well expressed as captured below.

> "*I would say the state of wetlands in Uganda is threatened*." (Interview community level stakeholder)

> *"… my view is that the wetlands are disappearing very fast and whatever effort seems to be put in place is failing because there seems to be no commitment on the part of those who are in power to support any measures." (*Interview national level stakeholder)

> *"…we all know the state of wetland degradation is really alarming and we now stand at only 8% as a country."* (Interview national level stakeholder- Government official)

According to the Ministry of Water and Environment (MWE, 2019), wetlands are a source of livelihood to many Ugandans and hence directly contribute to the NDP III, Vision 2040, and the attainment of SDGs. The National Environment (Wetlands, Riverbanks and Lakeshores Management) Regulations (S.I 153-5) regulate the management of the wetlands. According to these regulations, a minister may declare a wetland as 1) fully protected; 2) partially protected; or 3) subject to conservation by the local community. Partially protected and regulated activities may be carried out provided the person obtains a wetland resource use permit. Again, a developer desiring to carry out a project that may have significant impact on a proposed wetland, riverbank or lakeshore shall be required to carry out an environmental impact assessment before embarking on the implementation of the proposed project. Only NEMA can issue the permit regardless of where the project is to be implemented.

According to the National Environment Act (2019), a fully protected wetland is defined as

> "An area of international and national importance because of its biological diversity, ecological importance, landscape, natural or cultural heritage or touristic purposes in which the following activities may be permitted (a) research; (b) tourism; and (c) restoration or enhancement of the wetland." (p. 56).

Basically, what that means is that most wetlands that are considered of international importance are fully protected wetlands, those of national importance as partially protected wetlands, and local wetlands as those subject to conservation by the local community. Lutembe Bay wetland falls under the first category of international wetlands and Nabaziza wetlands falls in the last category of those that are subject to conservation by the local community. Despite this, at the time of the study, there was no wetland in Wakiso District that was not experiencing conversion whether be it of international, national, or local importance.

A partially protected wetland is as an area where regulated activities are allowed to take place upon conducting an environmental and social impact assessment and acquiring a permit from

the National Environment Management Authority. On the other hand, a wetland subject to conservation by the local community is an area where a person may carry out traditional activities such as (a) harvesting of papyrus, medicinal plants, trees and reeds; (b) fishing using traps, spears and baskets or other method, other than weirs; (c) collection of water for domestic use; and (d) hunting subject to the provisions of the Uganda Wildlife Act (National Environment Act, 2019).

Upon completion of an Environmental and Social Impact Assessment (ESIA), this assessment report is to be shared with the public and concerned stakeholders before a permit is issued. Rarely have the public however engaged in the process and this study found that most, if not all, the processes are handled in NEMA by a section that is charged with handling of ESIA. In this way, many stakeholders are alienated despite the conservation ambitions of wetlands for the common good of citizens.

There are three sets of policies and conventions that focus on wetlands in Uganda. These are at national, regional at the East African Community level and international.

At the international level, after signing the Ramsar Convention in 1988, Uganda was under an obligation to implement the convention and that came with a need for local laws that would aid the implementation of recommendations from the convention. This was particularly so for the recommended concept of wise-use of wetlands, as it was not embedded in the country's legislature at that time. Wise use of wetlands is defined as the maintenance of the wetland's ecological character achieved through the implementation of ecosystem approaches (Finlayson et al., 2011; Gardner and Davidson, 2011).

Other international treaties that Uganda has voluntarily signed to help in the management of environment in collaboration with other countries and global organisations include: the Convention on Biological Diversity (CBD); the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention); the Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA or African-Eurasian Water bird Agreement); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the Convention Concerning the Protection of the World Cultural and Natural Heritage; the

United Nations Convention to Combat Desertification (UNCCD); the United Nations Framework Convention on Climate Change (UNFCCC); and, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (MWE, 2016).

Even though Uganda was among the first countries in Sub Saharan Africa (SSA) to put in place a national wetland policy, joining other countries in becoming a signatory to the Ramsar Convention on Wetlands, her record on wetland conservation does not reflect that. There are still very high rates of wetland conversion and conflicts over the protection and use of wetland resource in the country (Kiggundu, 2021). Sadly, they even seem to be on the increase in many parts of the country, but particularly in the central region where Lake Victoria is located (Sabano, 2015; Kiggundu and Ssenkabirwa, 2018) with the highest concentration of population in the country. The conservation and restoration of wetland ecosystems has remained a controversial issue and has been at the centre of political debates and decision-making process especially at central management level (Miti et al., 2021).

Uganda's situation clearly shows that it is not about how many laws, policies, and regulations are in place, whether local, national, or international, that makes a difference in the effort to conserve and restore wetlands; but rather other factors also play a role. Namaalwa et al. (2013) point out that "existing policies have not been fully utilized to achieve the desired results" (p. 53). Some of those other factors may include willingness of stakeholders to be involved, issues of community buy-in and ownership of the natural resource, political will, access to resources, among others.

Uganda, at a regional level, is part of the East African Community (EAC) with member states including Burundi, Democratic Republic of Congo, Kenya, Rwanda, South Sudan, and Tanzania. As a region, there are some wetlands that cut across the boundaries and thus are affected by human actions that include those of the neighbouring country. Consequently, to manage some wetland resources well in Uganda necessitates the presence of good cooperation between Uganda and the neighbouring countries. A case in point is Lutembe Bay that is located on the shores of Lake Victoria, a lake that is shared by three East African countries. Therefore, what happens in each of those countries has a direct effect on the

functionality of wetlands found in each of the member states. Harmonization of the regional laws is a key factor for success in the conservation and restoration of wetlands. Some of the binding policies and regulations put in place to sustainably manage natural resources as outlined in the Uganda Wetland Atlas Volume II (GoU, 2016) include:

1. The African Convention on the Conservation of Nature and Natural Resources
2. The African Initiative for the Conservation of Migratory Water birds and their Habitats in Africa (the AEWA African Initiative or African Initiative)
3. The Nile Basin Wetlands Management Strategy
4. East African Community (EAC) Strategies for Wetlands Management
5. EAC Protocol on Environment and Natural Resources
6. The EAC Regional Environment Impact Assessment Guidelines for Shared Ecosystems

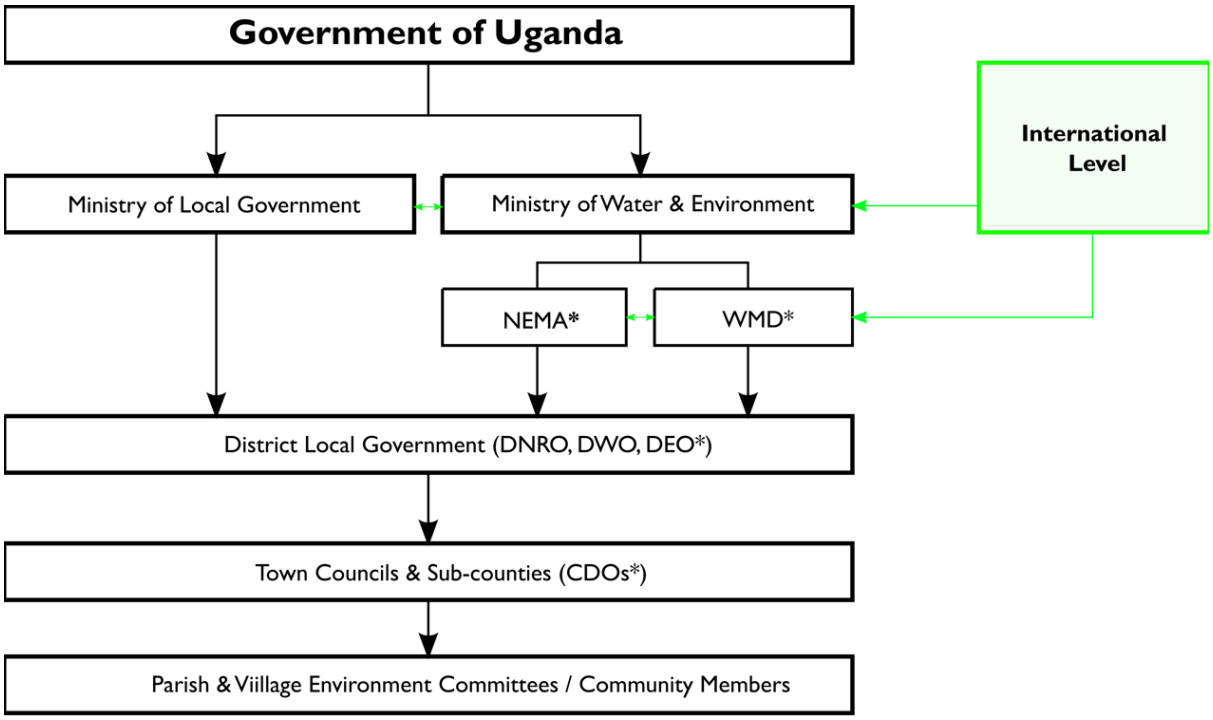
At the national level, there are also many laws and policies meant to bring about effective management of wetlands in the country. Uganda is ranked among the best in Africa when it comes to having good laws and policies for environment conservation. This, according to Mafabi (2018), originated from the fact that Uganda was the first African country to enact and adopt a national wetland policy. At the apex of wetland management are the two institutions namely, the National Environment Management Authority (NEMA) and the Wetland Management Department (WMD). NEMA is the principal regulator for environmental issues in the country including wetlands. It is charged with the responsibility of monitoring, supervising, and coordinating all aspects of the environment in collaboration with other agencies of government as provided for in the National Environment Act (2019). There is also the WMD in the Ministry of Water and Environment charged with the responsibility to manage wetlands in the country. The department manages wetlands through assisting central and local governments to implement the policies geared towards the conservation and management of wetland resources and to ensure sustainable conservation. It also has a mandate to optimize socio-economic and ecological benefits from wetlands to local, national, and international communities.

Finally, at the local government and community level there are legislations governing wetlands. At the District and sub-county levels are technical officials that report directly to the concerned ministry or its autonomous bodies and departments such as NEMA & WMD.

Even when some wetlands are managed at national level and some at the district and sub-county level, what is key is that according to the national constitution, all wetlands are held by the government on behalf of the citizens. At district level, there are technical officers headed by the DNRO, and the department of natural resources covers the environment, wetlands, lands, and the forests. It is crucial to note that, at the district level there is an environment committee headed by a politician as the secretary for environment and natural resources. It is the responsibility of the secretary to report and update the district council on matters concerning environment and natural resources in the district.

The Town Council is the third level of administration in Uganda's decentralization structure, and it handles most of the local challenges and is expected to guide the implementation of government programs. At this level matters of environment are managed by the CDO who reports to officials at the district level. There are also political officers at this level that deliberate on matters of environment. At this level, the CDO is mandated to prepare work plans and mobilize the people to conserve natural resources through voluntary self-help activities such as planting of trees and monitoring of other environmental activities in the community. The CDO also receives reports from the parish and village environment committees who know what is happening on the ground. The above information is summarised in Figure 8 showing the structure from the national government to the parish and village level, including who reports to who in as far as wetland management is concerned in Uganda.

Figure 8: Institutional hierarchy of wetland management in Uganda



* NEMA - National Environement Management Authority
WMD - Wetland Management Department
DNRO - District Natural Resources Officer
DWO - District Wetlands Officer
DEO - District Environment Officer
CDO - Community Development Officer

Local Environment Committees are at the village level responsible for documenting and keeping track of the state of the environment and wetlands in their areas of jurisdiction. They are also expected to report any form of abuse on the wetlands in their area but also be consulted whenever a part of their wetland is to be allocated to an investor or for any project. However, as one of the participants observed, "*Stakeholders engagement need to be effective and not a mere ritual or procedure*" as has been the case where it has been done especially at community level, as people are just given information quickly and asked to consent after they are offered refreshments and transport refunds. People are rarely given the necessary information or time they need to engage in decisions affecting their local wetlands. This leaves many community members unaware or disempowered, despite the impacts of such proposed projects in the wetlands.

The various stages that legislation for wetlands has gone through in Uganda is presented in Table 7. This representation begins in 1954 when the country was still under the colonial government, it progresses through the 1970s and through to the current government which came to power in 1986.

Table 7: Major events in the history of wetland legislation in Uganda

Legislation	**Year**	**Researcher's Comment**
Gibb study recommends drainage of wetlands for agriculture (Gibb 1955 cited in MWE, 2016)	1954	In this study the colonial government recommended drainage of key wetlands especially those that would support crop growing to be managed by Uganda Land Commission
A government policy calling on Ugandans to increase crop production (Kabagambirwe, 1972 cited in MWE, 2016).	1970	This policy saw many wetlands in the country degraded as there was a rush to increase production
Government put a ban on wetland degradation	1986	This resulted from a glaring impact of wetland degradation in areas where the wetlands were encroached. One of the study participants noted that it had had effect on water table and caused sporadic weather changes (Interview with national level stakeholder).
Signing of the Ramsar convention	1988	This signing started the process of many subsequent laws, policies, and regulations on wetlands in Uganda
National Wetlands Conservation and Management Programme	1989	The program was charged with developing a long-term policy for the sustainable management of wetlands. It was to produce wetland inventory, values, and services from wetlands, identify the threats to wetlands, conduct EIAs of government

		projects and increase public awareness of the economic and social benefits of wetlands.
National policy for the conservation and management of wetlands	1995	This was the first elaborate policy on wetlands in Uganda and had five major goals to 1) establish principles by which wetlands resources can be optimally used now and in the future; 2) end practices which reduce wetland productivity; 3) maintain the biological diversity of natural and semi-natural wetlands; 4) maintain wetland functions and values; and 5) integrate wetland concerns into planning and decision-making of other sectors.
The National Environment Management Act	1995	Since wetlands are part of the environment in general this statute also covered aspects of wetlands especially in sections 37 and 38.
Uganda promulgated a new constitution	1995	In this new constitution, the protection of the country's wetlands was clearly spelt out.
Uganda Local Government Act	1997	This Act gave districts authority to manage wetlands that are in their jurisdiction
National Environment (Wetlands, Riverbanks and Lake Shores Management) Regulations	2000	These regulations stated how the wetlands, riverbanks and lake shores are to be managed sustainably.
Guidelines for Wetland Edge Gardening	2005	These guidelines help farmers to follow recommended practices when using wetland edges to do their farming.
Uganda Wildlife Education Centre (UWEC) Act	2016	The Act provides for UWEC to promote conservation education and protect breeding areas of endangered and endemic wildlife species and Lutembe wetland happens to be inhabited by some

		unique species of birds and some of them are migratory.
The National Environment Act (Revised).	2019	This is the most current law on environment in Uganda. It is an Act to repeal, replace and reform the law relating to environmental management; to provide for the management of the environment for sustainable development; to continue the NEMA as a coordinating, monitoring, regulatory and supervisory body for activities relating to environment, climate change among others.

However, difficulties arise when one attempts to implement the above laws and policies.

4.2 Wetland conservation and restoration efforts

Efforts to conserve and restore wetlands have been ongoing for some time now. As indicated in Table 7, a ban on wetland reclamation was first issued in Uganda in 1986. Since then, several efforts have been and continue to be put in place to ensure that the country's wetlands are not completely lost. The efforts towards wetland conservation and restoration in Uganda are summarised in Table 8.

Table 8: showing the past, present, and future Wetland conservation and restoration activities in Wakiso District (Source: Analysis from field data– 2021).

Past activities	Present activities	Future activities	Supportive activities
Designing laws for wetland conservation	Cancellation of land/ plot titles in wetlands	Evict individuals whose titles were cancelled, not issuing new titles, or renewing expiring ones	More public sensitization and awareness on wetland conservation and restoration
Formation of user association	Preventing and discouraging dumping of wastes	Stopping new users from building houses or growing crops on severely degraded sections	Increase routine monitoring of wetlands
Minimal use of wetlands and hence no massive degradation	Tree planting and allowing the cut grass and papyrus to regenerate	Regulate sand and clay mining and ban use of machines	Inculcate more love for the protection of wetland
	Support of limited alternative enterprises such as mushroom growing and poultry	Establish and clearly mark wetland boundaries	Promote conservation education in formal schools
	Discouraging indiscriminate use of herbicides and pesticides	Establish and empower Environmental Committees at community levels	Translate wetland conservation laws into local languages
	Limited waste collection and management especially plastics	Promote more alternative enterprises to diversify sources of income.	Increase resource allocation required for wetland conservation
	Forceful eviction through house demolition and crop cutting	Support organic farming along wetland edges	Network with other concerned institutions NGOs, CBOs, and individuals
	Not selling more plots neighbouring the wetland	Strengthen waste collection, sorting, and management	Do away with major forms of corruption especially among government officials
	Limited wetland demarcation from private land	Create and support more wetland user associations	Cooperation from judiciary and security agencies
		Plant more trees and avoid bush burning	
		Invest more in efficient and affordable energy cooking technologies	

The contents of Table 8 show that some work has been going on to try and scale down the rate of wetland conversion. Many laws have been enacted to guard against wetland misuse, but the reality on the ground show that these laws are not being implemented in the present. There is a need to avert the mistakes that have already been detrimental to the wetlands. The good news is that going forward the need for wetland conservation and restoration is not only a national effort, but rather a global concern. More and more organisations are working to ensure that what is remaining of the wetlands is not also converted, while promoting activities that will ultimately lead to the restoration of damaged wetlands. The above activities take place at the community, District, and national level with differently perceived effects. Table 9 presents the wetland conservation and restoration activity, where it is done, and the impact as indicated by the research participants of this study.

Table 9: Wetland conservation and restoration activities, level of implementation and perceived effects derived from analysis of interviews held with research participants. (Source: Analysis from field data– 2021).

Activity	**Level**	**Effect/ impact**
Preventing and discouraging illegal dumping of both domestic and medical wastes	Community	Reduces plots for crop farming but increases coverage of wetland Changes wetland structure
Routine monitoring and supervision of wetlands	Community, District National	Prevent new encroachers Keeps community members' alert See changes on the state of wetland Collection of up-to-date information
Stakeholder sensitisation and public awareness	Community District National	Through radios to increase awareness In schools to build cadre of future use Influence attitude/ perceptions positively
Tree planting, no cutting down of trees and allowing the harvested papyrus to regenerate	Community District	Restore the ecosystem Conserve what is remaining of the wetland Instill the culture wetland conservation and restoration through forming environmental clubs in schools
Loving and protecting the wetland for instance not setting it on fire	Community	Not setting it on fire to limit loss of biodiversity

Discouraging indiscriminate use of herbicides and pesticides	District	Prevents death and loss of organisms Reduces chances of further encroachment to wetlands as same plots will be used repeatedly Facilitates growth of wetland vegetation
Occasional wetlands clean up exercises where polythene and plastics are collected	Community	Picking of plastic bottles, polythene papers and other wastes prevents chocking of the wetland, flooding, and bad smell
Cancellation of titles, not giving new ones or even renewing expiring ones	National	Facilitates regeneration Minimal degradation Improves ecosystem functioning
Resisting new users from building houses or establishing gardens	Community	Minimizes pressure on existing wetland Allows for more wetland restoration
Regulating sand and clay mining especially using machines	District	Avoids over exploitation of resource Ensures sustainable use of sand & clay Allows papyrus to flourish
Forceful eviction through house demolition and crop cutting	District National	Scares away new encroachers Enables wetland to regenerate and serve original purpose
Not selling more plots neighbouring the wetland	Community	Reduces new entrants into the wetland Scares buyers away Improves conservation and restoration
Establishment of Environmental Committees at community level	District	Respond to cases reported by communities on wetland degradation
Promoting alternative enterprises (Liquid soap making, mushroom growing, handcrafts, tourism etc.).	District National	With other sources of survival, it reduces pressure on wetland resources. Improves chances of conservation Flourishing of biodiversity
Refusing backfilling of soil to expand one's plot	Community	Prevents irreversible changes in the wetland Reduces biodiversity loss Increases wetlands functions such as controlling of floods

Community level actions outnumber those at national and district levels. This is possibly because ideally, there are many players at the community level even when they lack the

powers to make effective decisions regarding how they feel the wetland resources should be conserved, restored and or shared among the beneficiaries.

4.3 Principles of wetland management in Uganda

According to the National Environment Act (2019), there are four principles that guide wetland usage and management in Uganda. These include: -

(a) wetland resources shall be utilised in a sustainable manner compatible with the continued presence of wetlands and their hydrological functions and service.

(b) an environmental and social impact assessment shall be carried out for all activities that are likely to have an adverse impact on wetlands.

(c) special measures are essential for the protection of wetlands of international, national, and local importance as ecological systems and habitats for fauna and flora species, and for cultural and aesthetic purposes, as well as for their hydrological functions.

(d) wise use of wetlands shall be applied in national and local approaches to the management of wetland resources through awareness campaigns, dissemination of information and environmental literacy.

Principle (b) is the most strongly contested by stakeholders especially on the way how the exercise has been carried out, used to inform decisions, and monitored all over the country.

The above do not violate the Ramsar principles especially 'd' that specifically gives mention to the wise use of wetlands. Also, wetlands that are on the Ramsar list [wetlands of international importance] are meant to be accorded measures that agree with other Ramsar sites globally (Ramsar Convention Secretariat, 2007). Unfortunately, that is not always the case as confirmed by what is going on in Lutembe Bay wetland with a large part of the wetland being leased out to flower farmers. These farms backfill the wetland with soil and debris and have no measures in place to ensure that the pesticides used do not end up in the wetland to affect other organisms.

In the revised National Environment Act of 2019, there are regulated activities that can take place in the wetland and are well described in Schedule 6 (The National Environment Act, 2019). These include 1. Brick making; 2. Recreational activities, including spot fishing and maintenance of green spaces; 3. Cultivation; 4. Sand and clay mining; 5. Drainage; 6. Commercial exploitation of wetland resources; 7. Sewerage filtration; 8. Fishing; using

fishing gear and weirs, fish farming and other aquaculture; 9. Construction of transport and communication facilities, including roads, railways, and telephone lines; 10. Burning; and 11. any exploitative activity which is of a commercial or trade nature, including harvesting of papyrus for commercial purposes (National Environment Act, 2019, page 163).

There is a clear policy on the wise use of wetlands from the government's point of view and that is not conserving them for the sake but rather use the wetlands to help in causing development and reducing poverty. That is why the above list of regulated activities were put in the law. However, such an approach or interpretation differs significantly from what was intended during the Ramsar convention and given the current circumstances in Uganda regarding the state of wetlands. As one of the government officials stressed during the interviewed that,

> "*Get it from me that wetlands are not supposed to be protected entirely we are expected to promote what is called wise use of wetlands. Wise-use looks at using but not destroying. That means activities that do not compromise the state of the wetland are acceptable.*" (Interview with national level stakeholder).

This is in conformity with the ecosystem services concept (Braat & de Groot, 2012) that puts the needs of human beings at the centre of ecosystem conservation activities. According to Asah et al., (2014), when people see no benefit from conserving a wetland, they will not participate in its conservation but are also likely to engage in activities that lead to their degradation.

It is by law acceptable for some regulated activities to be carried out, but in situations where those regulated activities begin to threaten the very survival of that wetland, then they should be suspended to allow the wetland to regenerate as highlighted by the respondents of this study. In the absence of that, the wetland ecosystem with its associated services is at stake of being lost. As observed by one of the study participants, sometimes the state of wetland conversion is alarming,

> *… we all know the state of wetland degradation is alarming and conversion is so much, and we now stand at only 8% as a country as reported in the wetland atlas. The trend is alarming, and it is not about to stop and those most affected are those*

wetlands where there are settlements yet that is where they are needed most to play their[wetlands] vital roles such as ecological, social, and environmental related functions". (Interview with national level stakeholder).

In circumstances where the threat of total conversion of the wetland is high and likely, it would be prudent for some wetlands to be left purely for conservation and others be left to be used for dual purpose that is conservation and other projects. Now, such an arrangement is missing and has resulted into massive encroachment across wetlands in the country. One of the reasons why many participants of this study believed that in the next ten years, there will be no remaining wetlands in Wakiso and Kampala areas if the current conversion continues. This calls for efforts to conserve what is remaining of the wetlands in the said areas and beyond. Examples of a converted and degraded wetland and a conserved wetland are presented in Figure 9. The differences are quite clear and show that wetland conversion is mostly detrimental to the functionality of the wetland and may lead to its total transformation.

Figure 9: Converted and conserved inland wetland.

Photo taken during fieldwork in Wakiso District depicting two wetlands one degraded and another still intact- 2021

It is a misconception that some people do not benefit from the presence of the wetland because they do not engage directly with it. Those who feel that they do not benefit from the wetland do not directly involve themselves in activities that take place in and or around the wetland, such as fishing or fetching water from the wetland, wetland edge farming, among

others. But as clearly shown in chapter two, wetland offers both tangible and intangible benefits to human beings.

The main challenge with the above list of regulated activities allowed in a wetland is that the term "regulation" is not operationalized. This stems from a lack of adequate monitoring and supervision mechanisms at the ministry and at the various accountable departments. However, as per the ministry, it is NEMA that is mandated to spearhead the development and implementation of environmental related policies, laws, regulations, standards, and guidelines. Indeed, NEMA is mandated to guide the ministry and GoU on sound environment management practices as stipulated in the National Environment Act of 2019 (MWE, 2019). But observations such as those presented in Figure 10, suggest that NEMA has neglected its mandate of conserving and protecting wetlands in Uganda.

Figure 10: Encroachment on a Ramsar wetland site with a signpost clearly stating no dumping yet soil is dumped with no action taken. (Source: Field photograph -2021).

4.4 Government capacity to engage in wetland conservation and restoration

For the government to be able to engage effectively in the conservation and restoration of wetlands, it requires various capacities in relevant departments. The GoU has elaborate structures to produce laws and policies that guide wetland conservation and restoration interventions. Indeed, over the years it has enacted relevant laws to that effect. The

government has three arms including the Executive, the Legislature and the Judiciary working hand in hand in managing the affairs of the country. The legislature produces the conservation regulations, the executive implements them, and the judiciary handles the offenders of those who don't adhere to those regulations. For success to be achieved and sustained, the three arms of government need to cooperate. At the time of this study, several stakeholders complained about the reluctance exhibited by some judicial officers when handling cases involving wetland degraders.

Wetland conservation and management requires multi-sectoral approach given the centrality of wetland ecosystems. In Uganda, there are ministries that have vested interests in the conservation of wetlands such as the Ministry of Tourism, Wildlife, and Antiquities as well as Ministry of Water and Environment. The Ministry of Lands Housing and Urban Development also has a keen interest in what goes on in wetland conservation especially the urban wetlands. These are further supported by the decentralised administrations (Oosterveer & Van Vliet, 2010). The government at district level such as Wakiso have a duty to legislate on matters concerning the environment specifically around their areas of jurisdiction. At this level, there is a secretary for environment who is a member of the district council where laws and regulations are made and plans for their execution designed and monitored. The major purpose of decentralizing natural resource management was to increase local resource ownership as well as improving the chances of successful implementation of the laws (Oosterveer and Van Vliet, 2010). The main limitation of this approach is that it is quite often overridden by central level politics. There is little evidence to show that this decentralisation has achieved its intended objectives of improving efficiency, transparency, effectiveness, and ownership of decisions taken at the district level regarding natural resources management (Mushemeza, 2019).

The fear of politicians to go against the will of their voters keeps them from implementing agreed upon decisions and activities that would conserve the wetlands. In particular, the most controversial activity is that of evicting wetland encroachers because it can involve the use of force by destroying crops or demolishing illegal structures. In some cases, some politicians also fear attending events that are aimed at raising public awareness at the community level for fear of being associated with their eventual evictions. Although it may appear as cheap politics, it has significant implications because issues of wetland management are highly

political as one may be punished or rewarded by the people who are involved in various forms. Indeed, as stated by one of the study participants, while in office both technical and political staff speak in solidarity but when it comes to actual implementation of agreed actions, they act primarily in self-preservation,

> "*There are issues to do with political will. When you are in office and in meetings people are willing to support you but when it comes to go into the field, they leave you alone. The laws are there enacted by parliament; we have some at the district level but going to the practice very few of the politicians would want to stand with us the technical officers*" (Interview with district level stakeholder).

Ideally, a 'good politician' should be willing to tell people the truth about what the effects of a mismanaged environment are to the people, work towards behavioural and attitudinal change. These may be achieved through trainings, community meetings, public engagements, and actual field visits. There is a tendency in Uganda for people to trust in their elected leaders more than government officials and this is pronounced in Wakiso District where most of the elected leaders at the time of this study are from the party that is in opposition (National Unity Platform – NUP).

An analysis of the interview data shows that the central government decentralized roles and responsibilities to manage wetlands and other resources to the district level but did not follow it with the necessary resources to bring the responsibilities to fruition. As one of the research participants observed a lot needs to be done.

> "*The change in government priority is urgently needed and more resources be put in wetlands management, train more people, let the people be custodians of these wetlands, let people be exposed to what is happening in other countries so that they can replicate what is good from there. In many countries, their wetlands especially when intact are their treasure, but for us here we still treat wetlands as wastelands which is absurd."* (Interview with national level stakeholder).

Resources in terms of finances, technical know-how and staff are inadequate to be able to carry out the delegated responsibilities. Consequently, the central government exonerates self

and puts blame or failure on the local government, yet the local government also blames the central government for not rendering sufficient support and the blame game continues as wetlands continue to be converted.

In Uganda, there are very elaborate structures in place for executing plans, laws and regulations running from the national level through to the community level. There are technical public service officers at every level mandated to execute government programs. Most of these technical officers are supervised by the politician in their respective areas of work. For example, at district level, technical officers such as the natural resources officer, environment officer, and the wetlands officer are all supervised by the district secretary for environment and the district chairperson who are political leaders. It becomes a challenge for the technical officers to meet the requirements of their employers - central government and their supervisors who occasionally give contradicting guidance. This research found out that when such collisions happen, the technical staff side with the central government because that is where their salary comes from and hence many times may disregard the advice and requests made by the district level leaders. In my view, this challenge could be overcome if the central government accepted to cede some powers so that local government could act independently and be held accountable for their decisions and actions. One of the participants stated,

> *"Who are you to oppose the decisions of your bosses, we are a nobody. When you look at the enforcement mechanisms the police the soldiers and others guarding the encroachers what do you do?"* (Interview with district level stakeholder).

> *"…the central government must step up and empower the local government because it is us at the local government who are on the ground. We need the power to enforce the proper management of wetlands. Otherwise, this practice of designing policies and pass them to local government and when they come to enforce them then you cite orders from above it does not make sense."* (Interview with district level stakeholder).

In Uganda, security forces are mandated to implement law and order. Owing to the many challenges that have thwarted the environment department and the continuous degradation of wetlands, the government established a special department called the Environmental Protection Police Unit (EPPU) in 2011 to manage environmental matters, more especially for the wetlands and forests in Uganda. With this police unit in place, one would assume that no

one would break the law by engaging in activities that are not authorised to be conducted in a wetland. However, the police have largely not been effective due to lack of facilitation to enforce the law. For instance, when they are called upon to come and act, they ask for facilitation in form of fuel, yet the district itself is not well funded. As expressed by one of the study participants,

> "…*when you invite the police to evict someone, you have given them a deal to make money as the culprit will pay a bribe and be released and come back and start where they had stopped*" (Interview with district level stakeholder).

> "*We have like the big flower farms which bring like eighty trucks of marram and pour it in the wetland over the weekend they have soldiers guarding them with guns so what do we do? We can only report to our superiors and that is where the story ends. So, the laws are there but implementation is not balanced.*" (Interview with district level stakeholder).

Throughout this study, several questions emerged from the participants relating to the various misnomers that exist in the wetland management processes. Some of the questions raised included: why should a government paid soldier or police officer be hired or deployed to guard an illegal activity of wetland conversion? who deploys them? what is the motivation? is it only corruption, or it also has to do with disrespect of the laws and undermining government institutions and efforts to conserve the wetland and by far the environment? How can such officers and those who deploy them be made to account for their actions? Who will save the wetlands? It is the repetitive occurrence of such acts against the wetlands that demoralize other staff and cast a lot of doubt among the general population as to any seriousness on the part of government to safeguard the environment, particularly so the wetlands in Wakiso District.

With a realization at government level that wetland degradation is at worrying levels, it has come up with plans and strategies to restore degraded wetlands and conserve those remaining, but action is yet to be seen (NDP III, 2021). Interestingly, when the reduction in wetland coverage was realized, the government came up with three main strategies as outlined in the NDP III. According to this document, by 2030, the wetland coverage in Uganda should have increased from the current 8.9% to 12% through 1) restoring the degraded wetlands 2) clearly

demarcating the remaining wetlands for easy identification and separate them [wetlands] from other peoples' land and finally 3) come up with management plans that guide wise use where communities should be involved. It is assumed that if the above strategies are implemented, they will take the country to 13% of wetland cover by 2030 as explained by one of the research respondents,

> *"... we have three strategies to restore wetlands in Uganda including 1) to restore the degraded wetlands 2) to clearly demarcate the remaining wetlands for the would-be encroachers to understand where the wetland starts and stops as people are always claiming that they don't know the boundaries of the wetland and finally 3) to come up with management plans that guide wise use where communities now must be involved. So, we hope that if we implement these three strategies, they will take us back to the original 13% of wetland cover by 2030."* (Interview with district level stakeholder).

Going by the third strategy from the above quote, it clearly shows that the community members are to be involved actively in making management plans and decisions regarding wetlands in Uganda. It is hoped that by doing so, local knowledge and expertise of people will be incorporated into the management of wetlands.

The Ministry of Water and Environment is hoping to achieve the above through two current projects as revealed by one of the staff. One of the projects is funded by the Green Climate Fund and the other by the GoU. From the two projects, it is hoped that at least 3% of the wetlands will be restored by 2025. Restoring 3% of the currently degraded wetlands is good news if achieved. The threat is if more degradation occurs compared to what is conserved and restored. The National Development Plan states that in Uganda wetland degradation is over 70 times the rate of their restoration (NDP III, 2021), hence 3% restoration is not adequate. It is a huge challenge for the GoU to produce national wide projects due to limited human resource especially those that are determined to achieve the set objectives. As a result of the above factors, it is concluded that,

> "…our environment is increasingly under threat from both natural and man-made drivers of change including poverty, rapid population growth, unplanned urbanisation, expansion of informal settlements, industrialisation, unregulated mining, low levels of awareness, inadequate information on critical issues and the impacts of climate change and variability among others. Fragile ecosystems including hilly and

> mountainous areas, riverbanks, lakeshores, wetlands, forests, and rangelands are facing encroachment and degradation" *(*NDP III 2021-2025, pg. 109).

It is important to note that achievements made with wetland conservation or restoration are hard to sustain. For instance, the environmental officials may succeed in evicting encroachers today but because they cannot be there all the time, after some time the same encroachers will likely return and continue with business as usual. To prevent those evicted from returning, efforts are now on informing the community members of the need to conserve the wetlands and the benefits that accrue from that. It is hoped that this way people will buy-in and start appreciating conservation and restoration of their wetlands. If the reasons for conserving and restoring wetlands are not clear in the minds of the population, particularly those who are interested in encroaching it, efforts and resources spent on such activities are likely to go to waste or yield limited positive results in the long run. This also partially explains why the rate of degradation is seventy times more than that of conservation and restoration. This situation was expressed by one of the study participants who observed that,

> *"… it is challenging to sustain wetland conservation achievements in Wakiso District because even when we use the enforcement officers and evict people, you cannot stage them there forever 24 hours a day, seven days a week. No that is not practical you get a success story and move out and expect the community to comply and sustain what has been achieved, but sadly that is not happening. We do our work and when we leave the scene people come back and continue. What I can say is that the communities that we are working with are not cooperative"* (Interview with district level stakeholder).

It may not be true that the community members are not cooperative when it comes to wetland conservation and or restoration activities, instead it may require more discussion and active involvement in deciding how the wetland should be conserved. People's interests need to be catered for to a larger extent for it is a common belief that if human basic needs such as food and water are not met, a human being can do anything no matter how unthinkable it may be or look.

There is a dearth of information about wetland conservation and restoration in the country even when there are 53 television stations and three hundred radio stations registered with the

Uganda Communication Commission and operating in Uganda (UCC, 2020). There are very limited Information and Educational Communication (IEC) materials. Where these exist, they are only in the offices of the district Environment and Natural Resources or at the district and town council levels. At the level of the community there are hardly any such materials whether at the district, Town Council, or communities that I visited during the fieldwork. Without access to modern information regarding ways to conserve and restore wetlands, people will remain uninformed making them susceptible to being misinformed and duped into either selling their land or having them evicted to pave way for development projects. Responding to this topic, one of the participants shared, "*... to me the government has not taken a good initiative to educate the masses that a swamp can benefit us in so many ways than when they are converted to growing rice".* In some way, this could be interpreted as blaming the government for not doing its work, yet the government also expects the members of CSO to carry out that task as they complement government programs. One of the participants' observed that,

> "*I really take long to hear on radios or even television any program targeting wetland conservation and if it is there, it is just an advert and people do not need adverts they are short, we need programs so that we can hear in detail. It is funny in Uganda they put big billboard for condoms use and everything which do not help us much. Let us put up big billboards for wetland conservation also. If you can put a big billboard for condom, why not for wetland conservation?*" (Interview with district level stakeholder).

There is a clear need to increase access to information using various ways on the benefits of conserving and restoring wetland. With a high number of citizens appreciating conservation of wetlands it is expected to increase the likelihood of many people perceiving it positively. The same resonates well with Ubuntu, as those involved will start caring for wetlands not only for themselves but others as well. Ubuntu as defined by Kamwangamalu (1999) refers to an indigenous philosophical perspective of African people that symbolizes a collective responsibility among human beings to distribute the life force for the benefit of all. Ubuntu comprises of one of the core elements of a human being and is expressed in different forms among different tribes. For example, there are several words used to refer to a person in different African communities. For example, '*umundu*' among the Kikuyu of Kenya,

'*Omuntu*' among the Bantu tribes in Uganda, '*bumuntu*' in kiSukuma and kiHaya, Tanzania, '*vumuntu*' in shiTsonga and shiTswa, Mozambique, '*bomoto*' among the Bobangi in Democratic Republic of Congo and '*gimuntu*' in giKwese, Angola (Museka and Madondo, 2012). To make such information understandable, every effort should be made to have it in the native languages that are used by the target population or community of the wetland. This can be supplemented by constant publications in the local dailies, information sharing in public spaces, advertisements, posters, social media and even word of mouth.

There are many regional and international organisations that operate in Uganda both in urban and rural areas. They take different forms such as companies, CSOs and faith-based organisations. These individuals and organisations make significant contributions in many areas of development and fill the gaps left or the needs that are not met by the government. At District level, there are efforts to tap into the support that may be offered by these non-state actors to help in the facilitation of environment management activities. Indeed, as the adage goes, 'no man is an island', officials in government need to know that alone without the cooperation and support of citizens they can hardly achieve much when it comes to wetland conservation. People are the custodians of their natural resources and as such should be deliberately and consciously engaged when planning for how to conserve them. People not in government ought to stop perceiving and looking at wetlands as if they belong to the government and thus abandoning their responsibility to care and conserve them. Stakeholders were of the view that everyone who has a stake needs to be part of the wetland management process ranging from policy formulation, implementation and more importantly in monitoring and reporting abuses. For everyone to participate, stakeholders were of the view that government needs to be perceived as acting in the interest of its people rather than antagonizing with them when making key decisions that affect their wetlands.

4.5 Successes in wetland conservation efforts

Responding to the growing concerns about the state of our environment particularly so the wetlands in Uganda, the government has put in place legal systems that should facilitate their conservation and restoration. Furthermore, the old laws on environment and conservation are revised to cater for the emerging national and global challenges facing the environment. For instance, now Uganda has the 2019 National Environment Act the recently revised Act with an aim of catering for the emerging opportunities and challenge in the environment sector.

As a result of continued citizen lobbying and advocacy, the government has suspended issuance of land titles in wetlands to conserve what is remaining. Additionally, existing leases that include areas of wetland can no longer be renewed (Sabano, 2015). This is meant to correct the anomaly made during the colonial era and previous governments when large portions of wetlands were leased to private companies and individuals. Despite this claim, the perception of many stakeholders who participated in this study is that there has been more degradation of wetlands under the current government that took power in 1986 than all the previous governments combined. To date less than three hundred titles in wetlands have been cancelled in Wakiso District, out of the seven hundred that were identified during the Bamugemerire Land Commission[4]. This is a good success though alone may not lead to the restoration of the wetland as some of the wetland sections had been converted beyond repair or will take a lot of time to regain the same ecosystem as before. The president of Uganda has been single handily calling upon wetland encroachers to vacate peacefully and this shows that now he and his government are starting to appreciate the challenge at hand. However, it would make more sense if the President's pronouncements were followed with actions.

4.6 Challenges facing wetland management in Uganda

There are land ownership challenges in Uganda that are widespread. These challenges thrive even when there are many laws enacted to ensure that they are addressed. Wetlands in particular are not spared as in most communities their ownership is highly contested (Kalanzi, 2015; Kabumbuli, 2016; Bamwesigye et al., 2020). According to the constitution of Uganda 1995, wetlands are not owned by anybody. This poses a big challenge for the government to manage them because although they are ostensibly held in trust by the government of Uganda on behalf of the citizens, the findings of this research reveal a different reality. Quoting the Environmental Act, one of the respondents stressed that "…*wetlands are public goods and do not belong to individuals*". Available information shows that there are three legal ways of land ownership in Uganda. What is common is that on some of that land there might be a wetland which becomes a private property yet meant to serve as a public good for the benefit of the wider society. This is common for small wetlands but also applies to big wetlands

[4] This was a commission instituted by the President of Uganda to unearth and settle land ownership matters in the country and it made several recommendations including cancelling of all titles offered in wetlands.

including Lutembe. Nabaziza is not spared either as one of the Princes from Buganda Kingdom and Uganda Railways Corporation claim ownership of a long stretch of the wetland.

Challenges relating to degraded wetlands being too big to be handled by GoU alone. This is partly because there are a host of factors that contribute to such scenarios like increases in population, changes in weather patterns, crop failures to mention but a few. There is need for a deliberate effort to bring on board other key stakeholders especially when it comes to the implementation of the laws and policies that have been put in place by the government. Collective efforts will ably avert the mind-blowing conclusion made by Kabiri et al (2020) that Kampala and Wakiso have been losing 2,500 hectares of wetlands annually for the last 30 years and if this rate is not halted, there will be no wetlands in the two areas by 2029. If this is left to unfold it will cause untold suffering for the citizens not only in the two areas mentioned in the study but the country at large.

The challenge of the need for industrial development, settlements, agriculture, sand, and clay mining is common in Wakiso District. Most of these degrading activities are perceived to be of greater importance than wetland conservation for some and a source of survival for others. There are some big investors who less value the wetlands in their natural setting and prefer converting them into other uses for their investments. A case in point are the many investors in flower farming in Lutembe Bay wetland. It is unfortunate as Lutembe is a wetland of international importance. It points also to the failure of GoU to fulfil its national and international obligation to conserve it, as it has promised and committed itself.

> *"…yes, we have challenges like if you went to Lutembe wetland, we have the issue of investors who do not value the wetlands and there are so many flower farms. So, our challenge is that investors look at these wetlands as investment areas. Some people still do not see the value of these wetlands.*" (Interview with national level stakeholder).

There is inadequate political and government willingness to fulfil its promises and obligations to conserve and restore wetlands. However, as Taillardat et al., (2020) observe the cost of conservation and restoration should be affordable and be seen to be cost effective for policy makers to support them. Calls for communities to produce wetland management plans have

largely not been responded to, and where they have been designed, as is the case with Lutembe Bay wetland, plans have not been implemented. Wetland management plans provide a road map of how different stakeholders would participate in the conservation and management of wetland resources. GoU seems to be incapable of funding such interventions and thus relegate such roles to CSOs. The challenge with CSO led conservation projects is that they come in piecemeal form and last for a short time, mostly between six months and two years, with a limited focus or target community. The Ministry of Water and Environment (MWE) has not been in position so far to support and spearhead the formation of wetland management plans for majority of the wetlands in Wakiso District on account of limited funding. The process of forming wetland management plans presents an opportunity for integrating community level stakeholders' perceptions as it will entail capturing their knowledge and experience in as far as wetland conservation is concerned. Interestingly, the idea of having wetland management plans is not limited to Uganda or Wakiso District alone, it is prevalent in other sub Saharan Africa countries like Zimbabwe (Mandishona & Knight, 2019). One of the study participants, who happened to be among those contracted to help Lutembe community produce a wetland management plan, expressed his frustration noting that,

> *"… well, we did work in Lutembe community to help them have a wetland management plan, and people were excited about it. But sadly, they did not get a lot of support, and I think the MWE through the wetland management department got excited and established a number of wetland user associations, but unfortunately most of the funds were spent on forming the associations and less on sustaining these associations. Of course, the people are happy to be belonging to an association, but what use is the association if it does not accomplish the objectives for which it was started?"* (Interview with national level stakeholder).

Most of the wetlands in Uganda are not gazetted or demarcated, a state that greatly exposes them to encroachers. Not separating wetland from other people's land has remained a problem across all wetlands in the country. According to one stakeholder at the district level, less than 2% of all wetlands in Wakiso District are clearly marked.

> *"… yes, we have not done well in wetland demarcation. At present less than 2% of our wetlands are demarcated and we are constantly challenged because even when you establish those clear boundaries, by the time you come back after as little as three*

months, you will find all the pillars uprooted by those who want to encroach on the wetland." (Interview with district level stakeholder).

Lack of coordination between and among government ministries and departments tasked with the responsibility to manage wetlands. This results into clashing when it comes to execution of duties as technical staff are confronted by the politicians. The major form of disconnection has largely been between the Ministry of Lands and Urban Development and that of Water and Environment. It is a policy that land titles should not be issued in areas regarded as wetlands, but the ministry of lands persists in issuing legal titles in wetlands. This becomes very difficult when staff from ministry of water and environment want to evict wetland encroachers only to find that he or she has legal documents authorizing them to be on that piece of land. As Magole (2008) notes in trying to implement the Okavango Delta Management Plan, it was challenging because of a lack of an integrated system that would help to streamline actions, challenges in actualising centralised and decentralised roles, adoption of sectoral approaches by the various ministries and departments of government and a general lack of both financial and human resources made it difficult to implement the plan. What is required therefore is to have in place an integrated plan, execution and monitoring of wetland conservation efforts by all stakeholder with clear roles and responsibilities. This frustrates efforts and if force is to be applied, then it would involve the judiciary and compensation making it very complex to evict someone from a wetland. Sometimes, even within the same ministry, there are uncoordinated activities as expressed by one of the respondents:

"*...there are issues with NEMA because I hear when we confronted one of the investors [owner of one of the flower farms in Lutembe wetland] he arrogantly told us that he had a permit. For us we are complaining that he is encroaching on the wetland for him he is proudly telling us that he has a permit from NEMA allowing him to do his illegal activities. So, we demonstrated and blocked Entebbe-road and now the government instead of standing with us to fight the just cause, government security was looking for us to be arrested*". (Interview with district level stakeholder)

Another participant added that, *"Lack of clarity in roles and responsibilities in government departments is what breeds impunity".* These statements clearly show that government ministries and departments work in isolation instead of collaboratively -- a recipe for failure

to achieve wetland conservation and or using them sustainably. Again, in some government institutions, individuals act to the contrary of the set aims and objectives. Indeed, their actions contribute to a perception that the government is behind the failures of wetlands management in Uganda.

> "*… I do not want to look at NEMA as an institution it is just individuals there. As an institution we have good people, but there are individuals there who are very corrupt people, and I do not want to say NEMA alone even the wetland department itself even Wakiso as a District has issues, so it is most government structures and the people that manage them".* (Interview with national level stakeholder).

Lack of clarity about whose responsibility it is to conserve and manage wetlands. When asked about who manages wetlands in Uganda, it was interesting to note that no one was clear on whose duty it is to manage wetlands. The constitution of the republic of Uganda says it is the duty of the government to conserve wetlands on behalf of the citizens for today and future generations. Many government departments are connected to that role, but not effecting change. This has partly contributed to the degradation that the country is recording in the wetland sector. To make matters worse, the same government officials are implicated when it comes to abuse of wetlands, and this sends a very negative message to the other stakeholders who are interested in working with government to conserve the remaining wetlands. For example, there is confusion as many government departments like the Uganda Land Commission, the Uganda Investment Authority, NEMA and the district Land Board may each grant permit and or titles for one to access the wetlands. Each one of these institutions have a separate mandate and quite often work independent of one another, yet their actions affect the functionality of wetlands, more so in Wakiso District. While encouraging members of the environmental police department, the Minister of State for Environment stated that "*We know people going for the natural resources are also armed like you, which puts your life at risk. The natural resources you are protecting are for our common good*." It is only the government that has monopoly of access to guns and other coercive forces through its security agencies. The government protects itself when converting sections of the wetlands as no one can stop it if it decides to do so. Sadly, that great protection is extended to some of its associates in the name of investors, politicians and other bureaucrats that have contributed much to the conversion of wetlands in the district.

Too many agencies on wetland management are problematic to coordinate. that is why most of the study participants were of the view that mixing of roles and responsibilities is deliberate and intended to weaken institutions so that there is no single powerful one that can claim responsibility, and, in the end, none can be held solely responsible and accountable if things go wrong as they have done in Wakiso regarding the state of wetlands. In addition to the above confusion, there are some districts that have municipalities like Wakiso and at that level there is also an environment officer. In the end, there are many people employed by the government to ensure that the environment including wetlands are conserved, but the situation on the ground as observed during this study says the contrary as wetlands for example continue to be converted. Having many players would ideally be a good development, but it is not achieving its purpose and, in some ways, becoming a burden by reducing the amounts of financial resources that must be divided and shared among the many players leaving almost nothing for the actual work of wetland conservation and restoration. Therefore, it is not rare to find one official expecting the other to do the work that ought to be accomplished by him or her thereby creating complacency and a lack of accountability.

Lack of adequate awareness about the relevant policies concerning wetland conservation is a big challenge. Due to this lack of awareness both the would-be wetland conservers and degraders end up engaging in activities that they would ordinarily not engage in. So, lack of awareness is both at the community level, with investors and sometimes the government representatives, as there are some government projects that are implemented in a wetland. This sends a very bad signal to the people who are trying to conserve their sections of the wetland albeit with sacrifice:

> *"… for me I see there is a lot that can be achieved when people are aware. For example, if people in the communities where the wetlands are, are aware of the value of these wetlands and what they can do to protect them, that will be great, and it is the awareness that we need. If I have my wetland and I know what it does in terms of values, benefits I get from there I will labour to conserve it for the values that accrue from its presence"* (Interview with community level stakeholder).

Increased awareness of the roles of wetlands is also anticipated to reduce the number of people that sell their land bordering the wetland to new buyers who do not have attachment with the wetland. The buyers of such lands need to be made aware of the value of the wetlands, and how they can sustainably use them. Members of organised groups such as user associations should ensure that this is done for new members that come to reside in their communities.

Challenges of inadequate money to compensate people whenever a government project is to be implemented. The need by government to undertake construction projects without compensating landowners has pushed many of those projects to be implemented in the wetlands. In the wetland the government compensates no one as it is 'public land.' Examples of such projects include road construction, factory establishment and now the recently proposed East African Oil Pipeline anticipated to start from western Uganda to Indian Ocean in Tanzania.

> "*The percentage of wetland cover in Uganda will continue going down and we could be even at 2% within a time frame of ten years. I can give you an example the East African crude oil project and if it goes through most of the areas where the pipeline is suggested to pass are protected areas and largely wetlands, the many new roads being constructed and or planned to be constructed whether ground or fly overs are in the wetland, our level of impunity is so high and I have no doubts that all wetland will be gone".* (Interview with national level stakeholder).

True the project will come with some short-term gains as some Ugandans will be involved in the construction of the pipeline and the government will earn from the export of oil, but it is unlikely that the returns from the sale of oil will be reinvested in the conservation of the wetlands whose ecosystems were tampered with during the construction process.

In summary, Chapter four addresses the first research question and has clearly highlighted the operating environment when it comes to wetland management in Wakiso District and Uganda. It also covers the processes involved in policy formulation, implementation regarding wetlands for the past, present and the future. There is no doubt that the prevailing state of legislation influences the perception and participation of stakeholders in wetland

conservation and restoration. An analysis of whether stakeholders participate in the making of such policies was conducted and it became clear that stakeholders at the community level were hardly engaged in the processes which means that their voice, knowledge, experience as well as their culture were left out yet key for successful implementation of the law targeting the conservation and restoration of wetlands.

Legislation for wetland conservation and restoration is very important as stakeholders need to be directed and guided on how to act when it comes to the management of wetlands. Most of the legislation is passed by the government on behalf of the people and should be implemented for the benefit of the target population. As shown in my theoretical framework (Figure 5) such policies either are in support of people's norms, culture, and heritage or against them. Either way legislation paves way for support or refuse to support wetland conservation and restoration. What needs to be aligned is the fact that policy makers do not act in their own interest or the interests of a few at the expense of the majority given that wetlands are still perceived as public goods meant to benefit majority and not individuals. This agrees with what Asah et al. (2014) noted that laws and policies on ecosystem management are about regulating human action through prescribing what kind of persons or entities that can engage in the management and to what extent.

Taken together, the findings and analysis made in this chapter suggest that there is an urgent need for revising legislation and action to tackle wetland conversion. All possible avenues need to be employed whether by coercion or seduction to compel large scale wetland degraders especially those that use heavy machinery to stop immediately. When this is done, the current level of wetland conversion will be halted. The government using its national laws, policies, and guidelines as well as the regional and international domesticated ones should prioritise the conservation of natural wetlands. Support is currently lacking from government to actualize the available legal system and that partly explains why more and more wetlands are being converted to other uses. Major stakeholders need to be brought on board to participate actively in the management of the wetlands in line with the recommendations of the Ramsar Convention, Uganda National Development Plan, and the Uganda Vision 2040. Indeed, as presented in the conceptual framework, there is a strong link between valuing and respecting people's voice, culture, knowledge, norms, heritage, and

practices if wetlands are to be sustainably benefited from for the current and coming generation.

In Chapter five, I detail the various stakeholders that are involved in this crucial work specifically for Wakiso District and in some cases the nation at large.

CHAPTER FIVE: STAKEHOLDERS IN WETLAND CONSERVATION AND RESTORATION

5.0 Introduction

The chapter identifies and presents the stakeholders involved in wetland conservation and restoration in Wakiso District and explores their roles, motivations, and interests. It specifically answers the research question two of this study: Who are the stakeholders involved, and what are their roles and motivations in wetland management? The focus was on stakeholders that had direct contact with the two wetland cases of Lutembe Bay and Nabaziza. Some of the national level participants especially those from nongovernmental organisations also had engagements with other wetlands and/or were in broader wetland and environment conservation efforts in the country and beyond. In the last section of the chapter, new stakeholders to bring onboard are identified and suggested for increased support and potential success in as far as wetland conservation and restoration is concerned. The main methods of data collection for this chapter were key informant and in-depth interviews and literature review.

5.1 Stakeholders' profiles

While conducting studies involving several stakeholders, it is crucial that a proper identification process is in place to ensure that the widest range possible are targeted for inclusion. In this study, several groups of people and institutions they represent were considered to participate (See section 3.4.1). Two existing studies supported my ability to identify stakeholders that operate in Uganda, namely: Valensuela, (2018) and Zingraff-Hamed et al. (2020). Examples of stakeholders suggested including, members of civil society, government/public bodies, user organisations as well as considering those users that are not organised in any form. Key in the selection and integration process of stakeholders is the presence of a robust and transparent system on how such were identified and enrolled for their participation to be considered legitimate. This information was supplemented by informal meetings with District officials and the community leaders who acted as my gate keepers. Participants for this study were drawn from various socio-economic backgrounds. The motive was to capture various perceptions from divergent groups of people with differences in education, income, employment status, culture, gender, and beliefs. They

included those who are considered highly and moderately educated and some with only basic or no formal education at all.

Overall, 29 men and 11 women participated. Most of the men, as presented in Table 5, were from the community level compared to those at district and national level. Multifaceted representation was achieved through engagement with the study participants, literature review, observations documented and experienced during field work. This approach gave me confidence that the information gathered from the participants was representative of the wider stakeholders in the wetland communities. In Table 10, I present the individual stakeholder profiles of those interviewed covering their gender, level of formal education and their employment status.

Table 10: Stakeholder profile for the research participants

Gender		Male	Female	Total
	Community	17	04	21
	District	05	05	10
	National	05	04	09
Level of formal education	Primary	07	03	10
	Secondary	07	05	12
	University	10	08	18
Employment status	Public sector	08	03	11
	NGOs/ CBOs	08	03	11
	Self-employed	13	04	17
	Retired	01	-	01
Interview type	In-person/ face to face	17	04	21
	Digital/ by telephone	10	09	19

Source: Primary data from the field-2021

The data presented in Table 10 show the different characteristics of stakeholders that participated in the research. The research was conducted in Buganda region where some women are prohibited from engaging in some activities due to cultural norms and expectations. As a result, the number of women stakeholders to participate in this research was slightly fewer than that of men. Some activities, such as clay and sand mining, are conducted principally by men. Similarly, brick laying is predominantly carried out by young men. In contrast, women most commonly sell fish caught from the lake or wetland and carry out handcraft making with papyrus. As for levels of formal education, stakeholders with university education made up the highest number overall, followed by those with secondary education. Ten participants had primary level education only. All the stakeholders that participated in this study at district and national levels had university degrees. With this level of formal education, it can be assumed that wetland management policy formulation and implementation is done by technical officials who are appropriately trained and informed. However, the perception among the research participants, especially those who represented government and NGOs at national level, show that even when they know what they should do and how, their capacity to do so largely depends on the politicians who allocate resources. Without adequate resources, the technical staff are left with no option other than just talking about what should be done, for they cannot use their private resources to do government work. The efforts of stakeholders bent on conserving and restoring wetlands in Wakiso District is further frustrated by some government security agents who impede their operations, and on many occasions are seen protecting the wetland degraders.

Turning to employment status, seventeen out of forty stakeholders were self-employed running small businesses to sustain their livelihoods and that of their households. Eleven public servants and civil society organisation employees at national level were interviewed, with only one being retired. Religious leaders were included in the civil society category because they are not public servants or self-employed; they are resources to do their work by the church. As per the Uganda Bureau of Statistics (UBOS) (2016), over 80% of Ugandans belong to one of the religions. Religious leaders are key and influential figures that inform citizens perceptions. They teach doctrines and beliefs that are rarely questioned, and so capturing their perceptions as well as that of the people they lead, was paramount.

5.2 Wakiso District stakeholders in wetland management

Several groups of stakeholders were involved in wetland conservation and restoration activities in Wakiso District. Participants in this study include government officials, civil society members, community members and a private sector employee. As already explained in Chapter 2, stakeholders have been defined variously (Freeman, 2010; Felipe-Lucia et al., 2015; Centre & Jeffery, 2009). Therefore, stakeholders could be individuals, households, communities, or even larger entities, such as companies, regions, or countries. In the field of wetland management, Waweru et al (2019) stated that stakeholders are those that will participate in the implementation of management activities, support or oppose them. What is common across definitions of stakeholder is that whether they support or oppose an intervention, they are affected by it, or can affect it, positively or negatively. Stakeholders' support of an intervention can contributes to its success and survival. But they can also be a stumbling block when they withdraw their support or oppose the intervention. Thus, stakeholders can influence a wetland conservation project in many ways, influenced especially by the extent to which their interests are considered by the planners and implementers.

This study sets out to look for stakeholders that were considered 'marginalised', 'left out' or their views 'inadequately' represented when it came to enacting and implementing laws concerning wetland conservation and restoration. Some of the participants in this category include farmers, fishermen, hunters, water fetchers, brick makers, clay, and sand miners. Government laws, policies and plans are debated and passed at district and national councils. However, many of the people in the above category rarely achieve higher levels of formal education which is a constitutional requirement for anyone to be elected Member of Parliament or a district councillor. In addition to this, English is the official language of use in Uganda, and thereby the language through which decisions at district and national policy level are made. It is also the language that mediates most research on the wetlands. A lack of translation into local languages limits participation of those who cannot ably express themselves in English. This relates to most community level stakeholders, in particular the fishing communities where the wetlands are found. Finally, politics in Uganda is tied to commercial interests, and the poor are therefore unlikely to be elected to powerful positions. Furthermore, their views, ideas and concerns are relegated to the least of issues to be debated on whenever there is a matter of national importance.

The goal of involving participants across the three levels of community, district, and national was achieved. I was able to interview stakeholders who had rarely been consulted on the issues, including herbalists and grass harvesters. In these cases, participants thanked me saying they had wanted to share their views, but no one had ever approached or offered them a chance to do so. For example, one stakeholder at the community level had this to say at the end of the interview,

> "*Thank you for coming to speak with me. I have been experiencing these things and they were giving me painful feelings but had nowhere to talk about them. You have given me an opportunity to talk about what I feel, and I hope it will make a difference"* (Interview with community level stakeholder).

In a way, the above quotation shows that the stakeholder felt empowered and given a voice to express her ideas to someone. However, stakeholders at community level tend to differ in perspective and ways of life depending on what activities they are involved in. Indeed, there have been attempts to identify stakeholders in wetland management in Uganda, for instance Namaalwa et al. (2013) in eastern region. The issues in the Eastern region are quite different from those in the Central region especially regarding the level of urbanisation and population. Many wetlands in Uganda especially in the eastern region are known to be used for rice growing, yet the ones in Wakiso District in the central region suffers from different challenges such as flower farming, house construction and over exploitation of papyrus. Therefore, Namaalwa's study enabled stakeholders to express their long-held views regarding matters of wetland conservation and restoration in their communities.

Ordinary citizens in a community can be considered the primary stakeholders in any given wetland because they directly derive their livelihood from it (Gosling et al., 2017). Even when the government has the most powerful role to play in policy making and implementation as a requirement from the national constitution, many of the policy makers lack adequate information about the goods and services that wetlands offer people (Adekola et al., 2012). Therefore, to be effective they should do so with the support and agreement of the citizens who are most directly impacted. Sadly, that has not been the case, as is detailed in chapter six of this thesis. Citizens are at risk of conserving or degrading the wetland in equal measures unless they are made aware of the repercussions of their actions. Again, when the wetland is degraded, the effects thereafter and the cost to life and property is borne by the poor citizens who are land-dependent (Maclean et al., 2011). Thus, participation of every

stakeholder in wetland conservation and restoration activities is of utmost importance irrespective of one's social, economic, or political status.

5.3 Categories of stakeholders

Geographically, stakeholders in this research are classified at three levels of community, district and national. At national level, most of the stakeholders were representatives of largely international environmental focused organisations. These stakeholders had engaged with the wetlands in Wakiso District either through policy formulation or implementation. In Table 11, stakeholders are classified according to whether they are local, that is they live in the selected wetland community, or are external, that is, they live outside the target wetland community but work on wetland conservation and restoration projects. Active stakeholders were those who perceived themselves to be directly involved and affected by any intervention or project on the wetland. Passive ones are those who are not directly affected, and the neutral ones are those who play a facilitative role such as academia and media in as far as wetland management is concerned.

Table 11: Stakeholder classification

Stakeholder	**Local**	**External**	**Active**	**Passive**	**Neutral**	**No.**
Crop farmers	√	-	√	-	-	2
Fish mongering	√	-	√	-	-	2
Sand and Clay miners	√	-	-	√	-	2
Handicraft makers	√	-	√	-	-	4
Herbalist/ traditional medicine	√	√	-	√	-	2
Politicians/ policy makers	-	√	√	-	√	4
Policy implementers	-	√	√	-	-	10
Religious leaders	√	-	-	-	√	3
Civil society	-	√	-	√	√	6
Tour guide	√	-	√	-	-	1
Media	-	√	-	-	√	1
Academia	-	√	-	√	√	1
Elder	√	-	-	-	√	1
Beach Management Unit	√	-	√	-	-	1

Source: Field data 2021

The detailed description of stakeholders that participated in this study is provided in Annex 1.

It was surprising to find out that not a single community-based organisation currently exists that focuses on wetland conservation in Wakiso District. In my view it speaks volumes about the perception that stakeholders have on wetlands and their survival. The lack of such an organisation result in stakeholders at the community level not being in any way organised to conserve their own wetlands. Secondly, some participants think that there is no need to conserve the wetlands, as doing so in the past has led some of them to controversies and political conflicts against those in authority. Working or acting individually makes the stakeholders weak and easy to be influenced by the powerful ones who want to use the wetlands. Indeed, a quick search on the Uganda NGO Forum, where civil society organisations operating in Uganda are registered (UNNR, August 2021), shows that out of 203 organisations in Wakiso, only one, the Environmental Women in Action for Development, appears to be targeting the environment. A closer look at the organisation website, shows that this organisation was founded for the exclusive purpose of collecting and distributing donations to the underprivileged, vulnerable, and poor individuals, families, and communities. As stated, it has nothing to do with environmental conservation and far less wetlands. The same concern of a lack of local organisation was raised by one stakeholder at the district level who stated that "*There are not many NGOs in Wakiso because they think all is well. They do not believe in me when I tell them we have a problem. Do I have to split myself to an atom for one to believe that am saying the truths*?". This comment came about while the respondent was expressing disbelief that some civil actors do not believe that Wakiso District also has challenges like other rural areas in Uganda.

5.4 Interactions between these stakeholders

National level stakeholders in this research included representatives from organisations that operated at a national level on matters of wetland conservation and restoration or environment management in general. Three of the organisations I engaged in this research are under government control (Wetland Management Department, Uganda Wetland Education Centre, and Makerere University). Employees of these organisations are therefore public servants and employed to initiate and implement policies and programs that are sanctioned by the government. Two of the organisations I engaged (Nature Uganda (NU) and Advocates

Coalition for Development and Environment (ACODE) are private not-for-profit organisations that are at liberty to operate in any part of Uganda on issues of environment conservation and other areas of priority. The Nation Media group is a regional organisation operating in Eastern and Southern Africa. The final group of stakeholders at National level included international agencies that focus on the environment from various angles, and they include International Union for the Conservation of Nature (IUCN), Worldwide Fund for Nature (WWF), and Wetland International (WI). What is central to all the organisations at this level is that they participate in policy formulation and fundraise resources to implement environmental conservation and restoration projects. Those under government rule may receive direct funding from the government to implement environment projects. Quite often international agencies do not engage in direct implementation but work hand in hand with national and district level organisations to ensure that conservation and restoration projects are implemented according to plan. They also support national organisations to implement international agreements, monitor, and report progress at a global level.

District level and community level stakeholders work in their areas of jurisdiction and may source funds from the national level organisations. Quite often, district and community level stakeholders live or work in that area alone and are not permitted by law to work beyond their defined geographical locations. Their main task is to implement what has been agreed at the national level by engaging the target beneficiaries either as individuals or communities in actions that lead to the improvement in the state of wetlands within their areas.

Most of the stakeholders that participated in this research work cooperatively and in a complementary manner to ensure that the environment and specifically wetlands are conserved and restored in Uganda. The cordial working relationship is partly achieved through sharing of conservation related information and materials, building trust among various stakeholders, and engaging in joint advocacy and lobbying when there is need for policy changes. Considering that the organisations and individual stakeholders work in a developing country, they also share similar goals when it comes to working on poverty reduction through engaging in activities that lead to wealth creation and improving the standard of living of communities and individuals they work with.

5.5 Roles played by various stakeholders in wetland conservation and restoration

Stakeholders participate in wetland conservation and restoration activities in different ways and forms. The list below in Table 12 highlights some of the ways that stakeholders from Wakiso District and Uganda at large participate in conservation and restoration of wetlands in no specific order.

Table 12: Stakeholder contributions towards wetland conservation and restoration in Wakiso

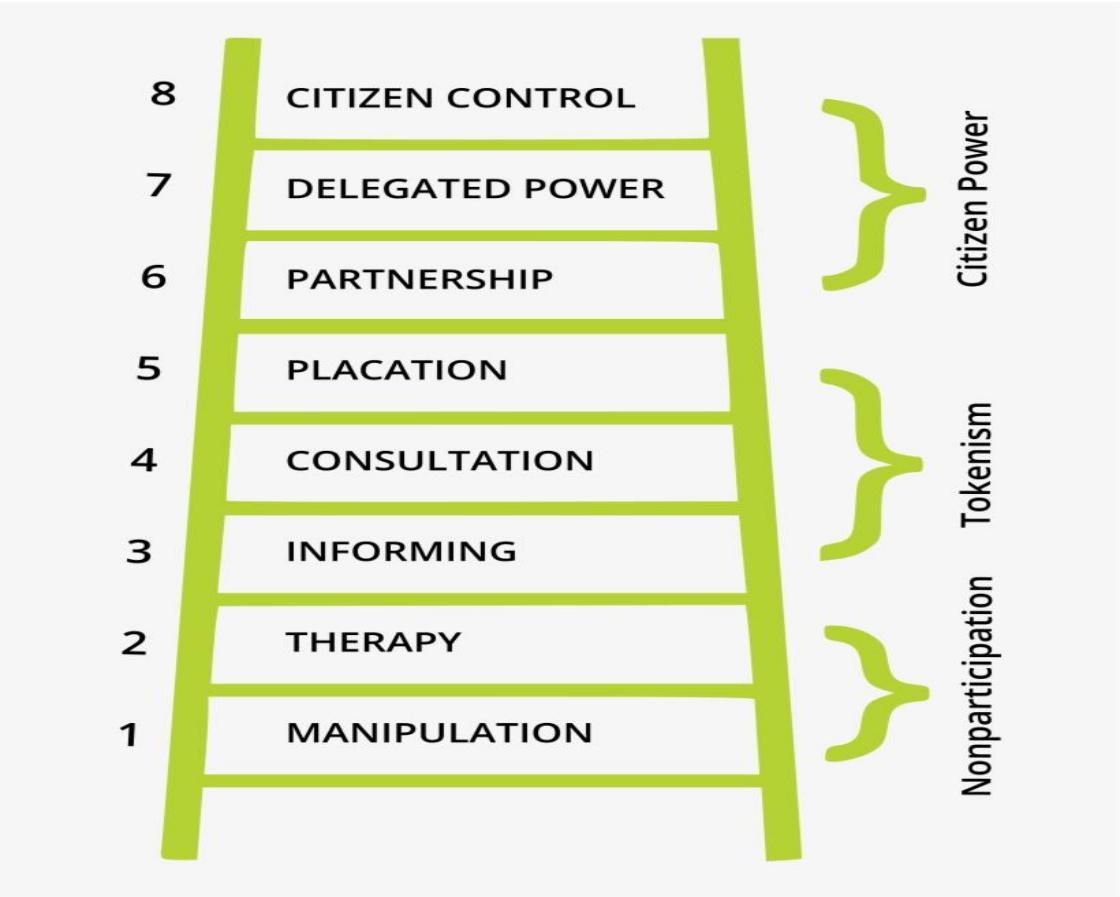
Wetland conservation and restoration activity	***Level of activity***	***Stakeholder(s)***	***Ways of contribution***
Policy making	National	WMD, UWEC, ACODE, WWF, IUCN, WI, NU	Lobbying lawmakers Funding processes Working with MWE Consultations Promotion of nature based solutions
Information sharing and reporting	National District Community	WMD, NU, ACODE, IUCN, WWF, NMG	Funding workshops Print media Use of mass media
Safeguarding against dumping in the wetland	Community	Community members Religious leaders	Refusal to dump waste in a wetland. Support local volunteers to protect the wetlands
Monitoring and supervision of wetland conservation and restoration projects	National, District Community	WMD, WI, WWF, IUCN, NU, DLG technical officers, LWUA, Ramsar Secretariat	Funding processes Giving and receiving reports Gathering necessary evidence to inform decisions
Education and training in wetland conservation and restoration activities	National, District Community	Makerere University, UCOTA, LWUA,	Education Training Research

Physical participation in wetland demarcation exercises	District Community	DLG technical officers, Community members	Facilitate staff Provide equipment Physical labour
Discouraging use of herbicides and pesticides	Community	LWUA, Religious leaders, Community members	Awareness raising on the dangers Reporting culprits
Cancellation and not renewing of titles in wetland	National District	WMD, MWE, DLG technical team	Pronouncements Awareness raising Policy implementation
Taking of environmental and social impact assessment	National	NEMA/WMD/MWE	Facilitating processes Analysis of reports Decision making
Evicting wetland encroachers	District	NEMA/WMD, District technical and political officials	Awareness raising Engaging law enforcers Cutting/ clearing crops House demolition Establish conflict management teams
Promoting alternative livelihoods other than depending on wetlands alone	District Community	UCOTA LWUA	Trainings in alternative enterprises Offering initial capital Community mobilization Continuous monitoring and supervision

In Nepal, local level stakeholders lead the conservation of wetland efforts (Shrestha, 2011). They participate through providing information required for making wetland inventory a key activity before any conservation and or restoration project is implemented. They share knowledge and skills, and actively participate in the initial planning phases of any wetland conservation project. As a result of a deliberate early engagement of stakeholders here, especially those directly to be affected by the project, stakeholders ensure that there is no loss of private land and that the said intervention benefits those adjacent to it. Using the ladder of

citizen participation *(*Arnstein, 2007*)* which shows the different types of relation in a given program of intervention -- helps to reveal the many layers of engagement and to assesses whether people are participating or merely 'being used' to fulfil the requirements. As shown in Figure 11, the level of participation in Nepal represents "citizen power" on the ladder which is not the case in Wakiso District.

Figure 11: The ladder of citizen participation



Source: (Arnstein, 2007)

Using the example of wetlands in Wisconsin, USA, Magyera and Genksow (2013), observed that the participation of different stakeholders including those from federal state, local agencies, NGOs, tribal leaders, universities, and private landowners, is key for success in the conservation of wetland. They recommend that the various players should come together to effectively plan for a wetland conservation project. Magyera and Genksow (2013) added that "integration increases when institutional arrangements, organisational structures or other co-ordination mechanisms grant stakeholders meaningful opportunities to inform management decisions" (p. 129).

According to Sterling et al. (2017), there are two main types of stakeholder engagement including externally driven engagement that is initiated from outside the context of those immediately impacted. Examples could be international, regional, national government, NGOs and researchers who organise the local stakeholders for their participation. The second category is self-organised stakeholders where a group of people who have active control and management of resources come together to ensure that their resource is not put to bad use. This study found out that most of the engagements with stakeholders that took place in Wakiso District regarding wetland management were externally initiated meaning they were initiated by stakeholders outside the target community. For example, out of the eight organisations working in Lutembe wetland community, only two (LWUA & BHETA) are community initiated and the six are run and managed by people from outside the community. For details about those organisations and what they do in the community see Table 13.

Table 13: Civil Society Organisations and their work in Lutembe bay wetland

Organisation	*Action*	*Impact*
Nature Uganda	Works with LWUA to guard against encroachers, participates in conserving the IBA, community sensitization about conservation	Increased awareness about why the wetland should be conserved even when the forces against wetland conversion are weaker than those pro conversion hence the increased conversion rates
Uganda Community of Tourism Association	Train community members in alternative enterprises (mushroom growing, tailoring, vegetable growing) to lessen pressure on wetland conversion	Reduced pressure on rate of exploitation of wetland resources
UWEC	Mandated to offer conservation education Protects breeding areas for endangered species	Work along others to campaign against wetland encroachers especially flower farms
Ramsar Country office	Community sensitization on conservation of wetland	Networks with other organisation to ensure that community stakeholders participate in and appreciate conservation of wetlands

JICA	Sends volunteers to work with communities and schools both primary (St. Dan Musco, Brandes Primary school, and Mother Mary) and Lutembe SSS.	Sensitizes community members and schools on conservation, management of plastics and how to reuse them. They bring income to the households that host them
ECO-YARD	Garbage collection, sorting, recycling to keep the wetland clean	It is a private organisation established in the community for business. Provides alternative employment
LWUA	Unites different member groups including fishermen, tour guides, crop farmers, herbalists, sand miners and beach owners. Major work is to conserve Lutembe wetland Presents music dance and drama	With a consolidated membership of about 300 this is a formidable group that one can work with to conserve and restore the wetland only when they are empowered, facilitated, and motivated to do so.
Black Heron Tourism Association	Community tour guides Alternative livelihoods rather than wetland conversion	Promotes tourism and employs the youth to participate and benefit from the tourism activities

Regarding matters of wetland conservation policy formulation and implementation, stakeholders at district and national level stated that they were consulted during policy formulation but were left out during implementation. The GoU encourages the approach of multi-stakeholder engagement when developing policies. Consultations are done largely with technical, regional, and national level stakeholders. Then information is shared on government websites for the wider public. Unfortunately, most of the citizens do not have access to such websites, let alone the English language used to communicate.

Wetland conservation is a demanding task and not easily achieved without the engagement of many players. Traditionally, the level of intervention varies in nature depending on the intention of those that design the intervention. Drawing on the model by Arnstein (2007), (Figure 11), most stakeholders involved in this study can be categorized largely as on the level of “nonparticipation” and “tokenism”. Basing on the findings in this study, in the two

wetlands there are no elements of citizen power, rather more of manipulation and informing especially for the community level stakeholders. For wetland conservation and restoration to be achieved and sustained in Wakiso District, it requires that stakeholder participation be elevated to include elements of citizen power as shown in the Figure 11.

There are many reasons as to why community members should participate in wetland conservation and restoration activities. For instance, it enables them to provide the information required when taking a wetland inventory and enable people to describe the past and present state of wetland resources. Through participation, community members can share knowledge and skills used in producing wetlands products, develop knowledge on how it can be improved, as well as sharing information on current threats to the wetland. It is essential for efficient and effective planning and co-designing solutions that are not alien to them (Shrestha, 2011). The need for community involvement is supported by Trisurat (2006), who noted that it is essential for strengthening community organizations and local administrations in conservation and wise use of wetlands. For conservation and wise-use of wetlands to be achieved, it calls for effective and meaningful participation and multi-stakeholder networking and engagements. This is difficult as multiple stakeholders have multiple expectations and interests in wetland use and management and thus consolidating their interests let alone meeting most of them may be next to impossible.

The study findings further show that there are incidents of negative participation. I define negative participation as any activity that is done in a wetland by the people that contributed to the degradation of the wetland status. As narrated by one of the research participants, such activities included random sand and clay mining that left huge open holes that degraded the wetland and posed a danger to the community.

> "*We the youth are the majority in this community and thus we have contributed much to the destruction of the wetland through excessive sand and clay mining for we need a lot of money to meet our needs*" (Interview with community level participant).

The youth were also allegedly the ones that used herbicides and pesticides for their crops because they wanted high yields but sadly the pesticides end up into the wetland thereby killing other organisms. What is however needed going forward is for the youth to be educated on sustainable practices. For instance, if they were doing entirely organic farming

that would not be as bad as using chemicals and pesticides that degrades and destroys the wetland as well as diversifying their sources of incomes so as not to depend only on sand and clay mining.

5.6 Importance of stakeholder participation in wetland conservation and restoration

The importance of stakeholder participation in wetland conservation and restoration cannot be underestimated. Indeed while emphasizing the need for stakeholder engagement in any intervention, Centre & Jeffery, put it that, "Organisations can no longer choose if they want to engage with stakeholders or not; the only decision they need to take is when and how successfully to engage" (Centre & Jeffery, 2009:8). Involving stakeholders is essential because the decisions made without their knowledge affects them and they can easily refuse to cooperate (Shrestha, 2011). There have been cases when stakeholders demanded to be involved especially when they feel what is going on will affect them negatively and alter their ways of living. Demanding to be involved in decision making by community members has been documented elsewhere in Africa for instance, in Colbyn Valley Wetland in South Africa (Nemutamvuni, 2018). In that region, stakeholders formed a partnership under the banner of Friends of Colbyn Valley (FoCV) to protect the wetland from unplanned development. Here members share views and commitment, they have ensured that the wetland is protected and demand active participation in any decision taken on their protected area. In Wakiso District it is expected to be done through elected leaders and representatives of the people though this is hardly ever granted especially when the central government has interest in each section of the wetland. Indeed, Maclean et al. (2003) suggested that wetland user groups should be targeted by policy makers to prevent unsustainable use of wetland resources. That is the ideal situation for sustainability, but the reality is that local user groups and stakeholders lack real power to influence wetland resource use in undemocratic governments where some of those in power rarely respects the will of the people.

Participation of stakeholders is clearly encouraged under the Ramsar Convention especially when promoting the wise-use concept (Gardner et al., 2015; Gardner & Finlayson, 2018). Wise-use is one of the three pillars of the Ramsar Convention with the other two being the conservation of wetlands of international importance and international cooperation (Ramsar Secretariat, 2016). The definition of wise-use was adopted in Resolution IX.1 of the 9th

Meeting of the Conference of Parties held in Uganda in 2005 as "*Wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development"* (Resolution IX.1 Ramsar COP 9, 2005, page 6). Wise-use of wetlands does not only apply to wetlands of international importance but all wetlands in the territory of the contracting party. It is to be achieved through for example, land-use planning, water resource management planning and or development planning (Ramsar Secretariat, 2016), geared towards the attainment of sustainable development.

The Uganda National Environment Act (2019) clearly promotes the wise-use concept. The people who use the wetland resources should not be left out when plans and activities to conserve or restore their degraded land are being put in place. Government officials and civil society need to take every effort to engage with the private sector and community stakeholders as and when they want to do anything in and or around their wetland. Over the years the value of land around wetlands in Wakiso has greatly increased and this is partly attributed to the presence of some social amenities such as being connected to the national electricity grid, access to piped water system, motorable roads, schools, health facilities and markets. Unlike many communities that live adjacent to wetlands in Uganda being described as poor and hard to reach, this is not the case for the two wetlands used in this study. The presence of social amenities attracts many people to come and live in the communities thereby increasing possibilities of wetland conversions especially when such incoming population fail to find gainful employment.

Wetland specialists, researchers from academia and NGOs should engage and listen to other stakeholders particularly those at community level. Doing so, they will appreciate what is important and valued to them. It also brings them on board to plan for their resource. For instance, stakeholders in Lutembe Bay community clearly understood the importance of recreational activities such as fishing and tourism. For example, Lutembe community associate their wetland with tourism given that one of the key activities is bird watching and many of the community members are involved in this activity either as guides or as drivers. Therefore, going to this community to talk about conservation and restoration of wetlands for other benefits that are not close to them will alienate some stakeholders as they may not associate with what is being referred to. Such is likely to lead to resisting a conservation project for they will perceive it as causing loss rather than benefiting them. Yet, in a study on

defining and classifying ecosystem services for decision making by Fisher et al (2009), ecosystem services refer to contributions to health and well-being needs whether one benefits directly or indirectly, actively, or passively. Proper strategic planning is necessary prior to the launching of any wetland conservation and restoration to reduce possibilities of resistance and conflict among stakeholders involved.

Local people have owned and co-existed with the natural environment such as wetlands even before the modern forms of management that seem to alienate them from their accustomed settings of life. The laws governing the management of wetlands in Uganda were only put in place in 1995. It is not a coincidence that since 1995, when the laws and governance were put into place, wetlands have been more exploited than ever before. It appears that the law exposed how useful the wetlands are but failed to protect them by putting the law into action. Wetland usage and massive degradation started in the Western, then Eastern regions and now prevails in the Central region too (Bakema & Iyango, 1999).

Involving stakeholders in wetland conservation planning and execution prevents government from using unpopular and costly approaches to conserve wetlands. Examples of such approaches are forceful evictions, continuous monitoring and policing of wetlands, corruption, and abuse of office. It may also reduce impunity as when the government and community members work together it significantly limits individuals who may want to use scrupulous means to obtain sections of the wetland. Use of ruthless and damaging approaches to conserve wetlands as evidenced previously in Wakiso has led to a multiplicity of other negative social, political, economic, and cultural effects.

There is a popular perception among many stakeholders that some government officials are not interested in conserving wetlands. They argue that it could be the reason government does not involve many stakeholders. While responding to the question of how wetlands are managed at the national level, one of the national level stakeholders stated,

> "*Of course, we have the wetland policy, and it is very clear. But as I said, it is one thing to have a policy in place and the other to have the policy implemented. There are other interests that overruns the government interest of conserving and restoring*

wetlands and we must suffer the consequences." (Interview with stakeholder at national level).

Some of the interests override the stated laws or impede their implementation like greed, corruption, and the drive for economic development. The use of violent force when evicting some wetland encroachers in Wakiso District to pave way for either government projects or for industry, attest to this fact. When there are those hidden interest especially on the part of government, it increases and maintains conflicts between those who are pro conservation and restoration and those from government who are for conversion. To overcome such conflicts, there is need for realigning of policies and interests. As observed by Maltby (2006), wetlands are zones of tension where the need for conflict resolution among different stakeholders is increasingly becoming necessary.

As observed by Perry et al. (2022) language has a big impact on how people engage in various activities as well as how they form their expectations, actions and ultimately the impact of any intervention thereof. Fewer stakeholders are involved in implementation and that is where the challenge exists. In contrast to my initial expectations, that government does not involve stakeholders in policy making and implementation when it comes to planning for wetlands, my findings show that stakeholders are involved, but only those at national level and not those at the community level. A good example is that the inclusion of Lutembe Bay on the list of Ramsar sites was initiated by Nature Uganda in 2005 and not by government. Some of these CSOs are the sponsors of some laws hence must participate through advocacy.

5.7 Motivations for stakeholder participation in wetland conservation and restoration

Stakeholders at community level who are resource users, are motivated to conserve the wetlands because they look at them as their sources of livelihoods. From the wetland they grow food crops such as vegetables and yams, harvest papyrus which they use in weaving many products, mine sand and clay and most importantly get fish and water for domestic and commercial use. In wetlands like Lutembe where there is a well-established culture of tourism, the local stakeholders consider it as direct sources of income through tourism. For these reasons there is a motivation to conserve the wetland, but many have been disappointed

by those who are above them with authority to decide what goes on in their wetland. Some motivations are captured in the following statements.

> "*We don't have other sources of water like tap or borehole, so I am motivated to conserve the wetland as it cleans the water we use. I am one of those people who do not encourage or support people to misuse and encroach on the wetland only that am powerless*". (Interview with community level stakeholder Lutembe).

> *"I am motivated to conserve this wetland because if I we do not, almost all the fish will die and thus the lake will be useless as well. I say so because fish produces from the wetland. When you clear it even you have killed the fish".* (Interview with community level stakeholder Lutembe).

Awareness of the roles played by wetland ecosystem services is key in motivating stakeholder to engage in efforts to conserve and restore wetlands. For instance, in a community where the local leader(s) knew and appreciated the relevance of wetland, such leaders were found to be active in mobilizing the people they led to participate in conservation activities. For example, permits are given out to individuals to use sections of the wetland, yet the community level members are working towards conservation of the same wetland. What upsets the local stakeholders is the fact that those who obtain the permits are new members of the community and thus have limited attachment to the resource if any. This was perceived to be a demotivating factor in situations where the local people and their leaders do not have the power to stop such an activity even when they consider and perceive it as an illegality because it contributes to further conversion of the already degraded wetland.

> "*Our Chairperson of Nabaziza try to monitor what is happening in his village and he has indeed done a good job. I am sure people could have sold what is remaining of this wetland, but he told us that he cannot append his signature and stamp any sale in the wetland. That has helped to conserve this wetland."* (Interview with community level stakeholder).

Civil society have different interests and motivations when it comes to conserving and restoring wetlands. Key among them is the fact that they are concerned with the need for sustainable development and improved livelihoods of the citizens. Organisations like ACODE is motivated to participate in wetland conservation because the members there understand that

there cannot be development when the environment is destroyed. To ACODE, development that does not consider environment is considered 'negative development'. The same perception is shared by several other organisations that largely operate at national level.

> "*As CSOs we do advocacy and for sure we want to see natural resources protected specifically wetlands because of the many services the offer*". (Interview with district level stakeholder).

> "*… we are an NGO, not for profit and we don't do this for money, and we do work because we have to do it even without funding. So, we have it on our head that conservation of nature in Uganda is our responsibility*". (Interview with national level stakeholder).

Indeed, stakeholders have varied motivations and interests as to why the participate in wetland conservation and restoration activities.

5.8 Obstacles to effective engagement in wetland conservation and restoration activities

The study participants were asked to mention some of the obstacles to their active engagement in wetland conservation and restoration activities. Almost each one of them stated a barrier. Some examples of obstacles raised include inadequate trust in the operations and pronouncements of government, absence of power at community level, and poverty, among others. Table 14 summarises the key obstacles to engaging in wetland conservation and restoration activities.

Table 14: Obstacles faced by stakeholders when engaging in wetland conservation in Wakiso District.

No	***Stakeholder level***	***Key obstacles***
1	Community	▪ Poverty among community members ▪ Absence of effective power and agency to make decisions ▪ Long stretches of ungazetted wetlands hence open to encroachers ▪ Lack of clarity on where to report in case of wetland conversion or any other illegal activity

		▪ Security agencies guarding wetland encroachers ▪ Inadequate alternatives sources of income ▪ Limited knowledge on uses, values, rights, and responsibilities ▪ Lack of proper waste disposal and management
2	District	▪ Inadequate political will and support ▪ Inability to enforce laws and directives ▪ Inadequate resources both human and financial ▪ Lack of feedback and clear communication channels ▪ Lack of clarity of land ownership issues ▪ Ever increasing population and in-country migration
3	National	▪ Lack of prioritisation of wetland conservation ▪ Corruption in some government institutions ▪ Continuous issuance of permits on wetlands ▪ Favouring foreign investors and industrialists ▪ Inadequate resources to oversee all wetlands

When the government wants to lease out any section of the wetland, it goes ahead without involving and consulting the local people who live and work from such sections. Such scenarios are particularly so with big wetlands, i.e., those of international importance such as Lutembe. Here, the government works through NEMA, the Ministry of Lands and sometimes the Uganda Investment Authority to process such permits, leaving out the area leaders and local stakeholders. All it requires is for one to go to NEMA or the lands office and acquire a permit or land title and then you come and remove whoever and whatever was being done from the section allocated to you. There was indeed a perception that because of anticipated community backlash, those who acquired portions of the wetlands in this way had either to be members of the security forces or politically connected, to be protected from the community members in case they arrived in big numbers to oppose such a takeover.

Although the government may seem to simply dictate when it comes to wetland management, there are established procedures and a policy to conserve the wetlands from actions of both government and individuals. Contrary to the belief that whatever the government does, is for the good and wellbeing of the citizens, sometimes it is against the will of the people and force

is applied to subdue the citizens. Force against the local community has been a common occurrence when it comes to wetland management in Wakiso District. While making such decisions, the central government officials did not actively involve stakeholders at community level and many of them said they heard it on radio stations but not through official engagement from government. This occurrence aligns with Nemutamvuni's (2018) findings, that local communities are at the receiving end when it comes to making conservation decisions in South Africa. In previous circumstances, people have been asked to vacate places they survived on without being provided with any alternatives. Hence, they look for another section of the same or another wetland. It is even more troubling when the local people are excluded from participating and benefiting from the government intervention either through provision of labour, or as suppliers of materials.

Managing stakeholders' expectations is challenging especially when it comes to ensuring their continued support and interest. It is a challenge because such expectations keep changing, just like the stakeholders themselves. Based on the analysis of the stakeholder perceptions, it can be understood that those perceptions are influenced by many factors including social-economic standards, political affiliation, religious beliefs, gender, and age, among others. It is thus incumbent upon those that plan to engage various stakeholders to keep it in mind that every effort needs to be taken to at least meet most of the expectations raised by stakeholders and to continually revise these expectations as time goes on.

5.9 Sources of wetland conservation information

Regarding access to information on wetland conservation and restoration, it was not very clear what the sources were. At the community level, some of the sources mentioned include from community meetings, word of mouth, volunteers and sometimes radio programs. Stakeholders at this level feel that they lack a formal way of accessing current, relevant information regarding how to manage wetlands. Access to conservation and restoration information is more challenging for Nabaziza wetland compared to Lutembe Bay wetland because of the differences in the level of stakeholders involved.

At district level, sources of wetland conservation and restoration information is mainly from the Ministry of water and Environment, other agencies such as NEMA and UWEC, district

council meetings, workshops, and occasionally from print media, and from national level conservation organisation such as Nature Uganda and ACODE.

At national level the sources of information on wetland conservation and restoration are mainly from research activities, participation in regional and global conferences, and international organisations such as IUCN, WI, and WWF.

What is undoubtable is the fact that stakeholders were aware of the importance and largely the benefits and services that were obtained from the wetland. This confirms what the MEA (2005) reported that there is a significant increase in understanding of biodiversity and the ecosystem as well as their importance to the quality of life of every person. A lack of information related to conservation interventions in the district was evident. Inadequacy of information could be a result of many factors including the absence of such interventions, and the lack of priority in the media to include and disseminate content related to wetland conservation. The lack of sufficient media attention regarding wetland conservation and restoration was summarised by one of the stakeholders who observed that,

> "*The media has not done much; I must say it is risky. First, most of the people who are encroaching on wetlands are big people in government and they will influence the owners or those who would have interest to bring it to the public arena. The media has not played a big role, it has not done enough on the environment protection and done more on politics*". (Interview with national level stakeholder).

Stakeholders reported that even when they look at the airplay on national televisions, radios, and newspapers in Uganda, issues of wetland conservation and restoration are hardly discussed or reported on. Months and months pass before one can see, read, or hear a positive story on wetland conservation. Wetlands are in the media when a forceful eviction has happened and those affected are up in arms and resisting the eviction.

As Racheal Kaplan (2011) states in the Reasonable Person Model (RPM), humans are information-based creatures and thus need to be informed and made aware of what is going on around them for them to be able to appreciate it. It is believed under this model that

humans carry with them enormous amounts of information. The information enables prediction of what might happen next and evaluation of potential consequences of alternative courses of action. It influences perception of what is going on and guides action. Seen in this light, excluding some stakeholders from the process of planning for wetland conservation and restoration effort is denying them information and is counterproductive. It is therefore not surprising that quite often people desire to be informed and try to understand what is going on in their surroundings and are discomforted by a lack of clarity and consequent confusion.

5.10 Support needed to conserve and restore wetlands

Regarding the support needed for wetland conservation, stakeholders were asked what they already have and what they perceived as needed for more success. The needs were diverse and largely differed from level to level and type of engagement. The items and ideas suggested are summarised in Table 15.

Table 15: Support received and needed at the three levels for wetland conservation

Level	Support received	Required support
Community	▪ Tools for cleaning such as pangas, wheelbarrow, and hoes ▪ Training from Nature Uganda ▪ Volunteers from JICA	▪ Clearly demarcating wetland edges. ▪ A community centre to coordinate all conservation activities. ▪ Allow people to be custodians of their wetland ▪ No more issuance of titles in a wetland ▪ A ban on use of chemicals and pesticides for crop farmers ▪ A community-based organisation responsible for wetland conservation
District	▪ Salaries for staff in natural resource department ▪ Laws, policies, and governance	▪ Increase public awareness ▪ Political will and prioritization from government ▪ Funding to monitor wetlands ▪ Empower DLG staff to monitor and supervise wetlands ▪ Security of staff members from encroachers
National	▪ Supporting laws and policies ▪ Support from international organisations ▪ Carried out wetland inventories throughout the country	▪ Engage more civil society organisations ▪ Media to popularise wetland conservation issues ▪ A separate court to handle environmental related cases ▪ Funding for conservation ▪ Engage private sector

		▪ Exposure and cross-learning to know what takes place elsewhere ▪ Clarity in conservation roles

It can be seen from the information compiled in Table 15 that there is a great need for support if wetland conservation is to be a success in Wakiso District. At all levels what is required is more than what has already been received or done previously. The need for more power and authority to participate in wetland conservation was clearly expressed by stakeholders at community level. It is believed that when community members are fully empowered, they will be in position to meaningfully engage with government and developers who intend to convert a section of the wetland. It could be one of the reasons as to why the government does not support and empower stakeholder as doing so will increase their capacity to question and reject some of the proposed interventions in the wetlands. The district stakeholders expressed need for political backing, security, and sustained funding of staff to be able to do their work well. Most of that is expected from the central government.

5.11 Suggestions to attract new stakeholders

Stakeholders need to be aware of what is expected of them in the conservation of wetland. As envisaged in this study, when stakeholders treat a wetland as their own, they take the required steps to guard it from those bent on converting it to other purposes. The number and type of stakeholders required for wetland conservation and restoration is not constant and static. It changes with time and location. It changes because new stakeholders come onboard and other leave or lose interest in the sector. Therefore, it is necessary to continuously recruit and engage with new stakeholders to raise awareness about the values and services generated from wetlands for the benefit of people and the planet.

Meaningful stakeholder engagement is crucial for the success of wetland conservation efforts. However, that alone is not enough and may need to be accompanied with other interventions such as finding alternative sources of income for the stakeholders, engaging in eco-tourism activities, and doing away with impunity. Encouraging voluntary participation at the community level is also key and essential for sustained engagement. Stakeholders should not only be encouraged to participate but also to support activities geared at wetland conservation and restoration. As wetlands benefit a wide range of stakeholders and nature, individuals and institutions should be brought onboard to work for their conservation and restoration.

Through constant feedback loops the stakeholders can help in informing the necessary changes and take actions required for wetland conservation.

To attract more stakeholders there is an urgent need to reduce corruption among government officials and departments. Checks and balances are needed in the process of acquiring a permit to work in a wetland. For instance, for a project to be considered approved, it should be signed or endorsed from at least three levels, e.g., community, district and national. Such a move is anticipated to increase not only the participation of stakeholders, but also their power in decision making. As it is now, only one signatory from NEMA is required, which in my view, is insufficient. By being fully involved, stakeholders will be practicing knowledge integration expressed as principle 6 of the UN Decade of Ecosystem Restoration (UN, 2019). Furthermore, permits granted should be published in national papers and pinned on notice boards at local administrative units for every stakeholder to know the terms and monitor their execution.

Stakeholders' engagement needs to be effective and at a level of citizen power as shown in Figure 14 and not a mere ritual or a manipulation procedure. Before engaging any stakeholder, proper mapping is required, aiming at involving relevant stakeholders for a particular wetland. For instance, not all organisations or individuals that work in the community or district have the same desire and aspirations to represent and defend the interests of the areas where they work or live. A background search before a given individual or group of individuals are considered stakeholders to speak on behalf or represent their community is a necessity. Short of that they would represent their own interests at the expense of the majority.

Below I list some suggestions adapted from Taylor & Taylor's (2016) work on just and lasting change when communities own their futures. It is my conviction that when adopted by stakeholders, the suggestions below will help in attracting more stakeholders in wetland conservation and restoration activities, and most likely on a sustainable basis.

1. Form groups of resource users as these are the real beneficiaries, managers, and protectors of the wetland
2. Through the formed groups, create awareness regarding the functions, benefits and uses of wetland and the need to conserve it as a community

3. Identify local people's knowledge, skills and practices that support wetland conservation
4. Establish the felt needs of the community and group through participatory exercises
5. Make, implement, and manage a plan with participation of community members
6. Promote community innovations for sustainable use of wetlands
7. Involve youth and women in wetland conservation management and wise-use of resources
8. Learn from other experiences be it national or international best practices
9. Disseminate information to raise public awareness about the value of wetlands to the wider community.

Recognizing that people cannot and should not be separated from their environment especially if they depend on it for survival (water, food, herbs), responsible governments should create and implement zonal land-use plans in wetlands that permit and clarify what those intending to use sections of the wetland may do along the different zones. With the zones in place, it will be easy to for example have zones that are never to be tampered with no matter the need or who is involved. Most of the stakeholders should be involved in the process of developing the plans in respect of their own benefit. It is my conviction that once people mobilize themselves and find a common uniting factor, they will seek for what is lacking among them, either from government or outsiders for them to achieve their intended objective. What seems to make it difficult currently is that most stakeholders perceive the available laws to be alienating them from their resource - land and to benefit those they consider to be 'foreigners' be they foreign or local investors. Additionally, some sections in the Environment Act (MWE, 2019) need to be entrenched so that they are not easily amended. For example, an entrenched section of the law may state that this section of the wetland will not be converted to any other use until after fifty or a hundred years. This way there will be stability among those that are working towards the conservation and restoration of wetlands.

As this research has shown, there are many players and stakeholders involved either directly or indirectly in wetland conservation and restoration activities. What seems to be lacking is harmonization and collaboration to act together to achieve a common goal. Organisations such as the WI and Nature Uganda ought to mobilize the others so that they work directly with community level groups and user associations such as LWUA and where possible

establish many more. For as long as there is no coordination between national level and community level organisations, the restoration of wetlands in Wakiso District and Uganda will be thwarted.

Identifying and involving relevant stakeholders in wetland conservation activities is of great importance. It might happen in two ways, either formally, or informally on an ad hoc basis. According to Valensuela (2018), the former is guided by a legal framework that makes it obligatory. On the other hand, in informal stakeholder participation there is no framework to follow and thus it depends on the goodwill of the stakeholders involved and the organizers. It benefits wetland management policy making and implementation. Particularly, community level stakeholders who interact with a given wetland on a day-to-day basis should never be left out. Also, acceptance, responsibility, and accountability towards adapting wise-use of wetlands is likely to increase. Stakeholders exhibited willingness to engage if the environment for doing so is perceived as cordial and respectful. Some stakeholders to bring onboard that are likely to make significant contributions to wetland conservation were also identified.

In summary, Chapter Five provided answers to the question of who are the stakeholders involved in wetland conservation and restoration, their roles, and motivations. Stakeholders were clearly identified at community, district, and national levels. There were a few civil society organisations that were found to support especially government and communities to conserve and restore their wetlands. I further highlight the different ways in which stakeholders act, how they collaborate, obstacles they face, and the support needed for them to be more active and successful in wetland conservation and restoration. As shown in the conceptual framework, stakeholders' actions directly affect the state of ecosystem services provided by wetlands either in a supportive/ enabling or degrading way. The results in this chapter indicate that even when there are many stakeholders working to conserve and restore wetlands, they are overwhelmed by the challenge and that is why wetland degradation has been on an increasing trend for the past many years. There are still many detrimental actions that some people and companies still engage in leading to continued loss of wetlands. In my view and as showed on the conceptual framework, it is the reason why environmental education both formal and informal is urgently needed to change people's perceptions and eventually behaviours that are negative towards wetlands. It is hoped that once stakeholders are equipped with the necessary knowledge and skills building on their norms, traditions, and

cultures they will act more cautiously after being reminded, knowing, and appreciating the relevance of the presence of wetlands for their wellbeing.

In Chapter Six, I present and discuss the various perceptions stakeholders have regarding wetland ecosystem services in Wakiso District and beyond. The implication of stakeholder perceptions on wetland conservation and restoration is also highlighted, while bearing in mind that different cultures draw from different cultural narratives and their distinctive metaphors, analogies, and models to understand nature and their relation to it. The chapter content benefits from the context-focused nature of this research like collecting perceptions from community, district, and national levels. Having perceptions from the three levels presents a good practice of not de-linking nature and culture from the social-economic status of the participants that participated in the study.

CHAPTER SIX: STAKEHOLDER PERCEPTIONS OF WETLAND ECOSYSTEM SERVICES

6.0 Introduction

In Chapter Six, I outline the various stakeholder perceptions of wetland ecosystem services. The chapter addresses the third research question, which is about stakeholder perceptions on wetland ecosystem services and how they affect conservation and restoration activities. As discussed in chapter five, the stakeholders were drawn from three levels of society: community, district and national. I used the interviews and observations to generate data for this chapter. The chapter starts with an overview of stakeholder perceptions by associating it with actions that have impacts on the wetlands either to support their sustainable use or their degradation.

6.1 Overview of stakeholders and their perceptions

There is a plurality of perceptions and attitudes towards nature and the ecosystem services it provides. To learn about these perceptions, the respondents were asked to use a word(s) and or a phrase(s) to describe their primary perception regarding wetlands in general. The reason for using phrases and words was to encourage spontaneity in describing what they felt when referring to the state of wetland. Wetlands and their services are perceived differently by different stakeholders. To some they are very fertile places for crop growing, sources of materials, places for research and to others they are a breeding place for mosquitoes and a home for frogs and snakes. Table 16 presents the different ways stakeholders perceive wetlands. Overall, the reasons stakeholders had for relating with the wetland were highly influenced by what they or their group members did in and around the wetland, how they benefited, and the level of attachment or connectedness to the wetland.

Table 16: Summary of stakeholder primary perceptions by category

Stakeholder	Perceptions of wetland ecosystem services/usefulness
Crop farmer	Fertile place to plant quick maturing crops especially vegetables
Commercial farmer	A good place for a plantation for its nearness to water
Brick maker	Source of quality clay bricks which are on market
Handicraft maker	Source of materials - papyrus, clay, and others
Landless/ poor	Cheap and affordable place to own a plot of land
Conservationist	Site for biodiversity and research
Politicians	Contentious place - can make or break your political career
Government official	Public good to benefit government and citizens
Community members	Source of water, food, and construction materials
Educator/Researcher	Site for research on biodiversity
Herbalist	Source of herbs and other medicinal plants
Tour guide	A place of work and source of income through guiding tourists
Law enforcers	A hiding place for criminals and a threat to children

About 30% of the research participants who were born and raised within the target wetland communities seemed more attached and connected to the wetland, as opposed to those who did not. Those newer to the wetland spoke of the wetland and its role in their lives in generalities. People who grew up near the wetland saw its beauty, papyrus, and other trees, fetched water, did fishing, and expressed emotional responses to the ongoing conversion of the wetland. They expressed dismay, anger and worry for the future. One stakeholder observed that,

> "*We* [Ugandans] *can joke with any issue but not with our wetlands for we depend on them. We destroy them, we get destroyed as well.*" (Interview with NGO representative that lived in one of the wetland communities).

Whereas my study focused on wetland ecosystem services, through the interaction with stakeholders, some ecosystem *disservices* were highlighted. According to Shackleton et al (2016) ecosystem disservices are "ecosystem generated functions, processes and attributes that result in perceived or actual negative impacts on human wellbeing" (p. 590). An example of this is when someone who has committed a crime uses the wetland as a hiding place, such an act turns the wetland into a problem for the community. There are other cases where

people have complained about them acting as breeding places for mosquitoes that cause malaria fever (a leading cause of death among children and expectant women) as well as incidents of drowning of children in holes that remain open after mining sand and clay and are filled with water. Overall, these ecosystem disservices are negligeable compared to the real benefits that are derived from wetlands for the people and nature (Shackleton et al., 2016).

The key perceptions that emerged from my interview and after data analysis were related to various aspects of the wetland ecosystem presented in this chapter and believed to have significant impacts on the actions or inactions that the stakeholders later engaged in.

Wetland as a tourist attraction

Wetlands are widely perceived as tourist attractions. A case in point is Lutembe Bay which is well known for hosting migratory birds from Europe and which earned it the status of an International Birding Area (IBA). The presence of migratory birds in addition to local species attracts tourists for bird watching. According to the Lutembe Bay Wetland Community Action Plan (2014), the bay supports between 20,000 - 50,000 roosting water birds throughout the year. The number increases to sometimes 100,000 - 200,000 between October and February when the palearctic migrants arrive from northern Europe, Scandinavia, and Russia. Some of the birds such as the Grey-headed gulls, Gull billed terns and Black-headed gulls, spend their non-breeding part of the year here and only go back to Europe to breed. The birds on the bay led to the formation of Black Heron Tourism Association (BHETA), a group of community members that work as tourists guides for bird-watching. This was discussed by one of the community members in Lutembe Bay.

> *"... here in Lutembe we have a spot where birds come every year. These birds come from different countries, and they are liked so much by tourists [bird watchers] and that is why we formed a group called Black Heron Tourism Association [BHETA]. As members, we have had many trainings focusing on tourism for the guides and how they can relate with the tourists, how to transport the tourists and provided boats with engines, life jackets and binoculars. This was achieved with support from Nature Uganda and BirdLife International."* (Interview with a community level stakeholder).

Similarly, Nabaziza wetland also hosts local visitors that come to see and learn about the wetland and environment in general. They include students, as well as those who want to spend their leisure time on the boundaries of the wetland, but what was more prominent were the groups of school children that occasionally visited the wetland to learn about the environment as expressed below,

> *"... I have lived in Nabaziza all my life and almost every school term I see school children who go down there and learn about the wetland and the other activities taking place around it. The school children are from both primary and secondary and they come with their teachers. So, I can say that is another purpose it serves as people go and learn from it."* (Interview with community level stakeholder).

Student visits to Nabaziza wetland is a great step towards equipping the young generation with the necessary knowledge and skills they need to conserve and restore wetlands in their respective communities. It is detrimental however, when they find that the wetland is being increasingly encroached on with no actions taken.

Wetland as a spiritual place

Both wetlands are places where people go to seek spiritual blessings and power. These spiritual powers are believed not to be in the wetlands themselves but in their origin or the history and beliefs that people associate with them. For instance, tradition has it that the name Lutembe originated from the practice of people calling a Crocodile that could come from the waters of Lake Victoria. Once the crocodile came out, those present or who called it out would consider their requests granted. Consequently, people from near and far visit in search of blessings for marriages, businesses, health and other areas of life and wellbeing. Presently, the Crocodile does not come out of the lake anymore, but the site is still considered sacred.

Nabaziza wetland is a tributary of river Mayanja and is also the source of many traditional beliefs. For instance, it is widely believed that river Mayanja was born by a Muganda woman called Nalongo in Buganda Kingdom and could thus be appeased and/or annoyed (Basudde, 2013). When annoyed, the river would flood and destroy people's lives and property. It was because of such beliefs that people in the past used not to degrade some wetlands for fear of annoying the spirits that would in turn cause hazards and suffering to them.

Wetland as a degraded ecosystem

Almost all the stakeholders that participated in this study perceive wetlands as being seriously degraded. The degradation is a result of years of wetland conversion to other uses such as establishing crop and flower gardens, animal grazing, house construction among others. People quite often turn to wetlands for crop and animal rearing during dry seasons when both water and pastures are scarce. While describing the state of wetlands in Wakiso, phrases such as 'it is worrying,' 'they are threatened extensively,' 'it is alarming,' 'it is appalling' and 'wetland coverage is reducing massively' were used. One stakeholder noted.

> "*… previously all the wetland was covered by the forest and a thick vegetation. It could also rain a lot in this area. Rainfall has become so unpredictable and has consequently led to changes in planting seasons.*" (Interview with community level stakeholder).

Changes are now vivid and experienced by most of the community members. Those that are old enough can trace the origin of some of the changes to uncontrolled vegetation harvesting from the wetland, tree cutting, and over subdividing wetland into small plots. Others cited reasons including an increase in population and the greed of some community members. The younger community members have limited understanding of what is going on, except for those that have gone to school and learnt about local environmental changes. The perception that wetlands in the district are degraded confirms reports by McInnes et al. (2020) that most degraded wetlands on the list of Ramsar sites are in Africa and Latin America. Lutembe Bay wetland, though on the list of Ramsar sites, is more degraded than Nabaziza which is not listed among the Ramsar sites, and this disapproves the commonly held perception that wetlands on the Ramsar sites are safe from conversion. This confirms McInnes et al (2020) reports that there is no significant difference in the state of wetlands between those that are designated as sites of international importance and those that are not. In this case, the location of Lutembe Bay makes it more vulnerable to conversion as compared to Nabaziza as the former is in a highly urbanizing location, shallow, on the shores of Lake Victoria and along the route that heads to the only International Airport in Uganda. These factors make it a very prioritized location for anyone with money and influence. See more on Table 17 concerning similarities and differences between the two wetlands.

Wetland as a source of materials

Wetlands are sources of materials for both human and animal well-being. Some of the materials from the wetlands include water for drinking, diverse types of fish, papyrus for weaving, water for production, sand, clay, and animal feeds. Extracting these materials has a direct effect on the status and functionality of the wetland. The higher the level of material extraction, the higher the level of degradation. Some materials extraction like water fetching and papyrus harvesting as well as controlled animal grazing were largely perceived as not degrading to the wetland. Wise-use of these resources may make them sustainable for some time if replenishment rates are equal or higher than extraction rates,

> "*Lutembe Bay purifies the water we use at home. If it was not because of the wetland to purify the water, we could be fetching very dirty water. We do not have other sources of water like tap or borehole and since I was born, we have been using that lake water for everything*." (Interview with community level stakeholder).

> "*Yes, we get raw materials from there such as papyrus, sand, bricks and stones that we use in house construction*" (Interview with community level stakeholder).

Therefore, as we strive to achieve wetland conservation and restoration, it is our social, political, and moral obligation to know that every action we engage in has consequences for the environment. Keeping that message simple and clear for every stakeholder to understand and appreciate will most likely make our quest for wetland and overall nature conservation an achievable dream.

Both wetlands are perceived as rich sources of traditional herbs. Herbs are harvested to treat skin infections, stomach pains, snake bites as well as cough and chest pains. There are herbs that are commonly known by the residents that can be accessed from the wetland free of charge, and those that are known by trained herbalists where one must pay something to get them in correct amounts. While talking about the relevance of the wetland as a source of herbs, one participant commented that,

> "*As an Herbalist I do get herbs from this wetland of Lutembe. I get* Ekisiika [*Celtis african*], Enkikimbo [*Cantharospermum lineatum*], Enzibaziba [Christmas tree or *Alchornea cordIfolia*] *among others.*" (Interview with community level stakeholder)

A variety of herbs in wetlands are being lost due to wetland conversion to other uses. Herbs are selected from a few parts of a tree for example it could be in form of leaves, roots, tree back, flowers and other general grass. Without conserving and restoring the wetland these herbs may be lost for ever yet they play an important role in keeping some of the community members healthy. As a result of the continued degradation of the wetland, soon it will be increasingly hard to find and harvest herbs to treat ailments as has been the case in the past (Ondiek et al., 2020). Even when some argue that restoration efforts are underway, some of the lost herbs may never be restored and hence become extinct.

Wetland as a fertile place for farming

Stakeholders perceive wetlands as fertile lands suitable for crop and flower farming. Community members are for example engaged in growing of crops especially vegetables for home consumption and selling of the surplus for income. For years, people have grown crops along the wetland edges. However, now that is changing as they are going deep inside clearing the papyrus, burning it, and some pouring soil picked from the dry land to create gardens. An earlier study by Kakuru et al. (2013) noted that around 80% of the people who live near wetlands in Uganda derive their livelihood from the wetland by growing food crops. This has continued till now and even in some cases increased especially with the ready market for the produced crops. While narrating about what goes on in and around the wetland, one study participant stated that,

> *"… this wetland* [Lutembe] *does so many things for us. We grow food there, get pasture for our animals and some have started fish farming by establishing fishponds."* (Interview with stakeholder at community level).

Such a revelation suggests that a substantial number of community members attach importance to the existence of the wetland in their communities. Whereas people still depend on the wetland for their foods, a study done by Mbabazi et al. (2010) discourages such a practice and reliance on foods produced from wetlands. In their study, they caution people to refrain from eating crops grown in wetlands due to the high threat of ingesting heavy metals that accumulate in the wetlands whenever there is torrential polluted runoff that settles in the wetland. These are harmful to the health of people especially through long term exposure. This however does not in any way deter community members from growing their vegetables

for home consumption and selling as shown in Figure 12. The reason could be that community stakeholders lack awareness about the presence of such heavy metals or the impact it can have on their health. Largely vegetables that have ready market such as cabbages, egg plants, carrots are prioritised for they are quick maturing and less labour intensive.

Figure 12: Wetland edge gardening showing cabbage and bananas on Lutembe wetland.

Wetlands are perceived to be immensely helpful during dry seasons for the cattle keepers as the vegetation there would remain green and hence animals can depend on it until the rainy season returns. Indeed, community level stakeholders did not consider animal grazing to be a wetland degrading activity. They reasoned that whatever the animals fed on, would regenerate in a short time and thus a reason not to worry about. There are questions regarding the numbers of the animals that a wetland can support and for how long even when there are chances of the grass to regrow. Instances of overgrazing were observed during this study, with a possibility of the grass never to recover to its original state especially when the animals are not relocated at the end of the dry season. It is not a recommended practice to turn a wetland into permanent grazing land as this will degrade it permanently. As indicated on Figure 13, overgrazing on the wetland edges may have serious impact on the vegetation cover which plays a regulating role when it comes to controlling surface water runoff.

Figure 13: Grazing of animals along Nabaziza wetland edge.

Source: Field photo-2021)

Whereas some of the land uses in the wetland are on a small scale, such as the growing of vegetables, others were found to be on a large scale, like flower farming in Lutembe wetland. Here there are four big flower farms including Rosebud, Agarose, Prime roses, and Alarm roses. A few community members in Lutembe expressed concern that flower farming which is a monoculture type of farming relies on applying pesticides that in the end contaminate not only the wetland but Lake Victoria water as well. This affects biodiversity and is believed by some community members to be the cause of the many dead fish seen floating on Lake Victoria in 2020. However, because of power relations and the political connection of the owners of flower farms, the stakeholders at the community level cannot engage or stop such farms from doing what they want even when it negatively affects the community. Many of the flower gardens are guarded by armed security officials which scares the community members into submission and turn them into spectators of what is going on.

Wetland as a cheap and affordable option for the landless

Acquiring a piece of land in a wetland is considered cheaper and more affordable compared to the dryland. Findings from this study show that the poor community members consider buying a plot of land in a wetland cheaper than on a dry land. This is because the plots in a wetland are very small and often sold illegally by those who occupy them for the longest time. Due to lack of houses to accommodate the increasing population in Uganda and Wakiso District in particular, many people will do anything to escape paying monthly rent fees and

have a roof over their heads. There are people who simply come and occupy parts of a wetland without paying anything and establish their temporary houses as they wait for to be eventually evicted by government officials. They do so well-knowing that at some point they will be evicted because their actions are illegal, but because of social and economic hardships they claim to be without any options.

> "*The number is just increasing especially those who grow vegetables in the wetland. One of the reasons I can say is that many people are poor, those who had some plots of land they sold them and now the only available land to them is the wetland. In the past, there were three known green vegetables growers in the wetland but as we talk now, they could be seventy or more*." (Interview community level stakeholder).

> *"…most people who buy and build small houses do not buy standard plots but any piece they find for as long as they can have there a room and a pit latrine. A plot of land on dry land between twenty million to forty-five million shillings. So, the poor come to the cheaper spaces neighbouring the wetland where they buy between three and six million which is affordable to them."* (Interview community level stakeholder).

The contexts described above partly explains why wetlands like Lutembe and Nabaziza have a significant number of 'unlawful occupants' owning small plots which undoubtedly presents a huge challenge to the technical officers when it comes to their eviction as many of them will claim compensation, which in a way complicates their eviction. The reluctancy of the government to prevent or even evict some encroachers encourages other people to do so, as some have been waiting to be evicted for over 50 years now.

Wetland as God-given and belonging to all

Wetlands are perceived as God-given and therefore belonging to no-one. No single stakeholder participant was confidently aware of wetland ownership in Wakiso District. Results of this study show that wetlands are either owned as a public or private property. Ownership of wetland as a private property is highly contested and often is the start of conflicts especially when common people are prohibited from accessing and using wetland resources which they consider to be a public property.

Continuous allocation of portions of the wetland continues up to today even when there is an apparent crisis in the management of wetlands in the district. Officers of government that offer permits are not the ones that are tasked with conserving them, and this lack of coherency has occasioned wetland loss on unprecedented levels, leaving stakeholders wondering what needs to be done to have the trend reversed in the short term. As stated by one stakeholder

> "*The dilemma we have while trying to conserve our wetland are those who even up to-today are still issuing land/ plot titles on the wetland. With that, all our efforts to conserve the wetland are rendered useless!"* (Interview stakeholder at community level)

In short, the situation deflates these stakeholder efforts and zeal to conserve their wetland. Lack of clear ownership has made wetland conservation in the district to be a quasi-impossible and a concern of everybody, but a responsibility of none. Participants of this study were of the view that one cannot ably manage what does not belong to them.

Perceiving wetlands as God given has two implications. One, those who are religious or spiritual believe that a wetland as one of God's creations deserves to be protected from degradation. Conversion is interpreted as a violation and straying from what is expected of us [humans] as caretakers of God's creation. As the findings from this study show, wetland sections that were said to be under the care of the Catholic church in the district were largely conserved as the church leaders would not accept anyone converting them to other uses. While talking about the relationship between church and nature, one of the stakeholders stressed that,

> "*You see the church is a parent, the church is a mother and thus it wants its people to live in good life and the church is me and you., it knows what people need and if you know that people need safe water, how do you destroy where the people get safe water, if you know the people need fresh air, why do you destroy where they get fresh air. It is not about me being comfortable but rather about the common good of others. That is why the church preserves the environment and it is also among the laws of the church to preserve the environment.*" (Interview with district level stakeholder).

The second implication is that some stakeholders do not care much about what goes on in the wetland. These are the ones who are likely to assume that the wetland is self-regenerating and

thus cannot be degraded. Any effort to stop them from engaging in activities that would degrade the wetland is disregarded and fought against because those actions are interpreted as efforts to exclude them from benefiting from what is freely provided by God.

Wetland as not prioritized by the central government.

Wetlands are perceived to be one of the ecosystems that are not adequately prioritized by the central government. There is a cross-cutting perception among stakeholders especially at the community and district levels, that the central government has not fulfilled its role of protecting the environment, and in particular the wetlands. The central government and its environment protection agencies are perceived to be not doing enough to streamline the management, conservation, and restoration of wetlands in not only Wakiso District but the whole country at large. Some government officials were accused of facilitating further conversion and degradation of the wetlands. With government structures already in place, the government is perceived to have the capacity and means to conserve wetlands if there is political will and commitment to do so. As stated by one of the participants,

> *"... we know that the government institutions in place have the capacity to protect the wetland if those in power chose to do so. But they chose to ignore it."* (Interview with national level stakeholder).

Another participant doubted the prospects of government officials to conserve wetland, arguing that much of the degradation is associated with them [government officials]

> "*Degradation of wetlands is largely by the government itself; it is either by people who are in government, working for the government, their accomplices or a government project"* (Interview with national level stakeholder).

Given that some of those engaged in wetland conversion are connected with government (ministers, members of Parliament, Army officials etc.) it makes it extremely hard for the agencies of government to operate freely. It leads also to fear among the technical staff for their lives, jobs and uncalled for transfers. With the high rate of unemployment in the country, no one would risk losing their jobs by following a matter of wetland conversion to its logical conclusion. That is the tragedy facing those out of government who are advocating for environment conservation, because they are fighting with powerful government officials who own and control coercive elements of the state.

6.2 The meaning of wetlands

Stakeholders know that wetlands are areas that are covered with water either neighbouring a river or a lake. Over 50% of wetlands in Uganda are characterized as swamps, bogs and marshes (Barakagira & de Wit, 2019; Namaalwa et al., 2013; Turyahabwe et al., 2013). For Wakiso District, swamps are dominated by papyrus (Kakuba & Kanyamurwa, 2021). A few participants perceived the wetland as a stream and if there was a channel for the water to flow that is what was considered a wetland. Community stakeholders did not consider a section covered with vegetation to be part of the wetland. Other stakeholders knew that a wetland had to have papyrus and a channel to flow, and the papyrus grass is visible that was then considered a wetland. As observed by one of the stakeholders *"…many people simply view wetlands as water and in their perception as long as water is flowing, then the wetland is conserved"* (Interview with national level stakeholder). Vegetation cover is key as it supports biodiversity as well as other regulating functions like flood control and water infiltration.

6.3 Current state of wetlands in Wakiso District

The state of wetlands in Wakiso District is perceived as seriously degraded, worrying, and unsustainable. Other stakeholders said that they were facing a tragedy marked by the heightened disappearance of birds, insect and fish species, grass, and plant species. The poor state of wetlands in the district was attributed to many factors and key among them was the perceived inadequate prioritization by central government,

> "*You have to understand that from state house, the environment is not a priority area. If you know the priorities of this country, it is security, education, health, infrastructure, and livelihoods. You can see that our sector* [environment] *is nowhere as a priority.*" (Interview with district level stakeholder).

There has been continuous presidential directives and statements calling upon those who encroached on the wetland illegally to leave. It may be said that largely these have been ignored and not implemented by those to whom they are directed. The government is expected to observe and promote the right of nature, as stated in the Environment Act of 2019. It states that 'Nature has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution' (p. 18). But this right has been violated. It is categorically clear that wetlands as part of nature also have a right to be conserved and restored where damage has been done. The question is who should do it?

Figure 14 sheds some light concerning who is responsible according to participant stakeholders.

Stakeholders agreed that wetlands in Wakiso District are reducing in size and quality. There was a reported increase wetland encroachment and degradation for many wetlands, starting from 2010 when loss of wetland vegetation cover and the level of water in most wetlands receded deeper from where it used to be. This gave people a chance to grow their crops on a perceived dry land. Commenting on this, one stakeholder noted,

> "… *previously Lutembe wetland was covered by a lot of vegetation and trees. It could rain a lot here, but when the land was opened, now rainfall is unpredictable and has consequently led to the changes in seasons.*" (Interview with community level stakeholder).

Indeed, it was observed that sections that previously had a thick vegetation cover and many trees, now they are people's plots and gardens. For the case of Lutembe, it was not possible for one to stand on the wetland edge and see the open water of Lake Victoria, now it is possible on many sections of the wetland – an indication that vegetation has been cleared either in preparation for gardens or house construction.

On the other hand, there are some stakeholders for the case of Lutembe Bay who were of the view that the wetland is not degraded. The major reason they gave was that the wetland has been like that all the time and to them there were no visible changes that would infer that it is either degraded or being encroached on. It is important to note these are stakeholders that live in the community but did not have any activity near or inside the wetland, and thus they watched it from afar. When they see papyrus covering the section that they normally see, it indicated to them that all was well and there was no change. One of the stakeholders who previously engaged in clay mining to make bricks noted that indeed the wetland [Lutembe Bay] was recovering its lost vegetation and was on a right path to its original state. He thus stated,

> *"I can tell you… there is positive change here because we have been following what we were trained in. We used to make a lot of clay bricks in this place, but as you can see there are no more bricks. I can assure you that the wetland vegetation here has*

recovered and now it is like we found it before we started making bricks." (Interview with community level stakeholder).

Though the same stakeholder was unhappy with the rest of the community members who had taken advantage of the recovered vegetation to use it as a waste dumping ground, others around him disagreed saying that the other sections of the wetland were more degraded than before. This points to the relevancy of local context, knowledge and perceptions when integrating stakeholders in wetland conservation and restoration efforts.

The water of Lake Victoria has been increasing and extending beyond the level on which it used to be consequently submerging the neighbouring gardens and houses. There is thus a feeling that when the water reclaims its original space by chasing away people, it is a form of wetland recovery. As reported by Barigaba (2021), Lake Victoria water levels were documented as rising in October 2019, from 12.19 meters to 12.66 meters by December, reaching a record high of 12.94 meters on March 6, 2020. The last time the lake water had reached that level was on March 4, 1964. As the water level increases, those who had over encroached on the wetland, were chased by the lake itself and it brought mixed feelings among stakeholders who are pro-wetland conservation and those who had encroached on the wetland and counting losses as many lost their investments. However, it is a stark reminder to all the nature of the wetland context they depend on. There are stakeholders who feel that the lake is fighting for itself and reclaiming its lost wetland and yet others say it is only God who can conserve the wetland by chasing the powerful and those politically connected who behave they are above the law. They are yet not above the law of nature.

Finally, there are genuine concerns that the Lutembe Bay wetland is so much degraded that it may lose or has already lost its ability to be an IBA as some birds that tourists want to see are no longer available or under serious threat. Local stakeholders are wondering and perplexed about what is happening and why the birds are not in the vicinity as was the case in the recent past. No simple explanation may be adequate to explain what is happening, but what is clear is that it points to changes brought about by climate, migration of birds and threats to their habitats that is visible to the stakeholders especially those at the community level.

6.4 Wetland management and ownership

Concerning wetland management, stakeholders did not have a general agreement on who is responsible for managing wetland in Wakiso District. Almost half of all participants (17/40) perceived the government to have that responsibility as bestowed upon it by the national constitution. Individuals and companies that owned titles legally in the wetland, civil society organisations such as Nature Uganda, Wetland International, IUCN and Ramsar Secretariat in Uganda were the other mentioned managers of Lutembe Bay wetland. A few of the stakeholders mentioned community members whose lands border with the wetland, others mentioned Buganda Kingdom and yet others said it is the responsibility of everyone to conserve wetlands. It was stakeholders at the community level that mentioned Civil Society as managers of the wetlands possibly because they are the ones that engage them on matters related to the conservation and restoration of wetland. It confirms the statement that wetland conservation in Wakiso District is a concern of everybody, but a responsibility of no-one. The situation could be blamed on a lack of clear understanding among majority stakeholders as one of them stated "*you cannot ably manage what you do not own*". This could be true and part of the reason as to why even the central government has not been successful in conserving wetlands in the district.

Whereas the government is perceived to have the overall mandate to manage wetlands in the country, the National Environment Act of 2019 places only wetlands classified as of International Importance (Ramsar sites) and "Critical" to be under the management of the central government. On the other hand, the category of wetlands classified as "Valuable" are the ones managed under the DLG level. Degradation challenges are affecting the three categories of wetlands which points to a flaw in diversifying the management responsibility. At District level, the technical staff feel that they could do an excellent job in managing the wetlands in their locality be it those considered as of international importance, critical, and valuable, if there was no interference from the central government.

There is confusion around the management of wetlands in Wakiso District. The confusion is perceived to be originating from the central government where decisions on what is to be done or not are taken, without the involvement of community level stakeholders. For instance, district and community level stakeholders decry their lack of involvement when a

section of government officials at the central level allocates plots of land in a wetland to people they call ‘investors’. The said investors are said not to report to, or respect the local leadership, because they are not involved in the process, yet they [local stakeholders and their leaders] are the primary custodians of the wetland resources. If they did, then they should be striving to conserve and foster the protection of this valuable resource by not allowing individuals and companies to use it as they please at the detriment of the wider community.

Related to the confusion, double standards within the government seem to be present when it comes to conserving the wetlands. A section of stakeholders is shocked to see government agencies supporting wetland encroachers instead of those who are resisting them. The police and the army are occasionally seen protecting powerful wetland encroachers against other stakeholders who are resisting them. It looks bizarre for the security agencies to protect law breakers when degrading the wetlands in Wakiso District especially with several Presidential directives to conserve and restore wetlands. It also sets a bad precedent, upsets, and weakens other well-intentioned stakeholders in wetland conservation efforts. For others, it may trigger revenge activities which complicates the process of wetland conservation and restoration. In the long run if not managed well, such actions are likely to promote wetland conversion in the district.

Findings show that most community level stakeholders have difficulty in protecting their land neighbouring the wetland from big investors and individuals that take it away from them. Others have been evicted and or easily manipulated to give away their land to other people who come to their area. Those [community members] that present some resistance by refusing to be bought off, are said to be forcefully evicted with a justification that they lack legal documents to occupy the land. There is also a perception among community members that they are relocated because those rich, powerful, and well-connected feel the poor community members should not be left to occupy such well-endowed and located lands near the water and the city. Hence every ‘trick’ is used to have them evicted to create way for others to occupy. This is injustice to the more vulnerable members of the community who ought to be protected by the same government that is evicting them. For fear of losing everything when evicted, individuals who quickly get a willing buyer before they are evicted do sell their sections to the powerful who can defend themselves. Consequently, that has

increased the number of sale transactions thereby contributing to the continuous degradation of the wetland. Explaining how it sometimes works, participants stated that,

> *"When you buy say a bigger plot, when you get another one in need you also share what you have with him because you also need money. Sometimes the person you sold to could have more money and they backfill and construct a house up there to the extent that when you look at the house from a distance you may think it is not in a wetland. Yet, he or she had money and used enough construction materials. Even I today if I see a neighbour who is selling at a slightly cheaper price, I also buy it in anticipation that someone with slightly more money will buy it from me."* (Interview with community level stakeholder).

> *"... for fear of being evicted when you see one who is willing to buy without a title you also sale and try to look for a dry land where you know no one will ask you to leave."* (Interview community level stakeholder).

The government has the responsibility of guiding how wetlands are accessed and used where necessary but has largely left that duty to the forces of demand and supply. The approach has exposed sensitive and prime lands such as wetlands to the powerful and well-connected individuals who are perceived to care less on what would happen after they have converted such places. The effects are more felt by the poor and marginalized members of the community who most times are not responsible for the actions that led to the conversion of the wetlands.

Even when there was not a single wetland conservation and restoration program or project on either the two wetland cases studied, several stakeholders engaged individually or in a group activity that aimed at conserving and restoring wetlands. Some of these activities included guarding against illegal dumping of waste in the wetlands; discouraging the use of harmful pesticides; and the occasional clean up exercises around the wetlands where polythene bags and plastic bottles could be found on the ground. Litter would be collected and offered to those who could recycle it. The details of most of the activities done is shown on Table 13.

The Environment Act of 2019 refers to wetlands as 'public goods' but that is not reflected on the ground. Some stakeholders were of the view that no one should own a wetland, and this

aligns with the constitution and yet, other stakeholders were unaware of who and how wetlands are owned. The lack of clarity regarding ownership is potentially one of the factors contributing to conversion and degradation of wetlands not only in Wakiso but Uganda at large.

Owning a wetland user permit does not guarantee ownership but rather user right as a permit is usually offered for a specific period. Indeed, none of the stakeholders in this study mentioned wetland users with permits among the list of those who are perceived to be owning wetlands. It appears that stakeholders at the community level confuse those who obtain user permits with those who have legal titles. The difference between one with a user permit and a legal title is that the former only has regulated access meaning that he or she is to use that section of the wetland for a predetermined use as stated in the application for a specified period. On the other hand, one with a legal title owns that section forever and may not have to apply for permission before he or she uses the land. Realizing the ever-increasing conversion of wetlands, the government put a temporary ban on further issuance of user permits in the wetland. It further proposed a cancellation of titles offered after 1995 and pledged not to renew any expiring permits to conserve the remaining sections of the wetlands[5]. However, this appears to be just rhetoric as more and more new people are claiming that they have got a permit, and those with cancelled titles continue doing their work in the wetlands. One stakeholder decried the continuous issuance of titles on the wetland,

> *"...the dilemma we have are those officials who even up to today are still issuing land/plot titles on the wetland and with that, all other efforts to conserve the wetland are rendered unsuccessful!"* (Interview with district level stakeholder).

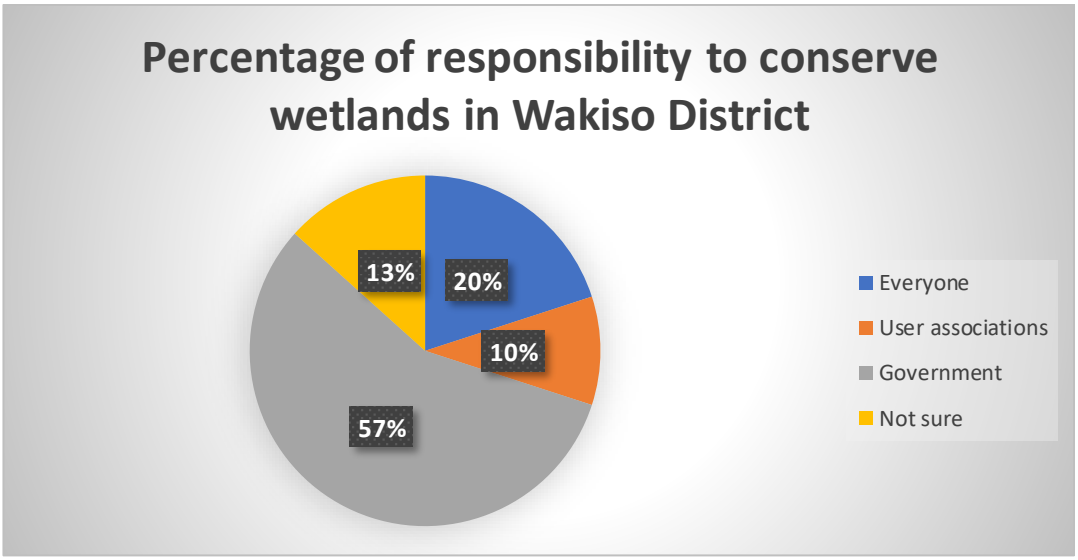
Such a practice of issuing more titles is said to be demoralizing stakeholders' efforts and zeal to conserve the wetland. More positively, in 2021, the newly appointed Executive Director of NEMA suspended ESIA in wetlands as reported by Monitor Publications where he stated, 'As an immediate step, on September 2, 2021 (second day in office), we indefinitely suspended the receipt, processing, and issuance of ESIA certificates and permits in wetlands.' Such an act brings a ray of hope that there is an effort with some government agencies and individuals to combat the ever-increasing conversion of wetlands.

[5] These are largely Presidential pronouncements and are yet to be turned into proper laws and that is why implementing them is a challenge though they represent a willingness to conserve the wetlands.

6.5 Responsibility to conserve and restore wetlands

Stakeholders were asked to mention who or what institution they perceived to be having responsibility of ensuring that wetlands in Wakiso District were conserved. The findings show that a majority (57%) said it is government. Many others believed it is everyone's responsibility to conserve the wetland. Figure 14 presents the four categories that were mentioned in response to the question of responsibility.

Figure 14: Perceived distribution of responsibility to conserve wetlands



The government was considered responsible for wetland conservation due to a perception that it is part of its mandate as it is in the constitution and other government policies. The government also has established departments such as NEMA and WMD through which it is expected to conserve the wetlands and the environment in general. It is incumbent on the government to conserve Lutembe Bay in line with the Ramsar Convention protocols. Other respondents said that wetland conservation and restoration is a responsibility of every citizen because according to them, wetlands are a public good. It is clearly stated in the country constitution that every citizen has a right to live in a clean and safe environment. For instance, it is stated that 'Every person in Uganda has a right to a clean and healthy environment in accordance with the Constitution and the principles of sustainable development' (Environment Act 2019 p.16).

There is apparent lack of clarity on proper ownership of land whether it is the wetland itself or the nearby lands and this has culminated into lack of responsibility when it comes to conserving wetlands. This lack of clarity is not only at the community level but also exists among the national level and highly educated stakeholders. The presence of many departments of government that all claim to be overseeing wetland conservation and restoration aggravates the problem. For example, one of the stakeholders at the national level described the mix-up in some government departments and mandates,

> *"I can assure you that up to now it is not yet clear whose mandate it is to conserve wetlands- in Uganda. But what we know is that NEMA has environmental police that is supposed to conserve the wetlands. However, it is the same NEMA that leases parts of the wetlands to the investors if they are to do any activity in the wetland. At the same time there is the Wetland Management Department and I think NEMA is a regulator and the WMD is for managing. You can see how the two are confusing. So, NEMA does not involve itself in restoration and conservation as what they do is to ensure that there is no encroachment and if one does without their permission, they come in…*

The same respondent went on to add that:

> *Still in MWE, there is a department of Water Resources Management, and they look at wetlands as one of the water sources as it stores a lot of water and a very vital ecosystem that they would not wish to see it being degraded. At the end of the day, their roles are not clear, and they compete for the same financial resources claiming to do wetland conservation and when they do not get what they wanted, they do nothing leading to wetland degradation in many parts of the country."* (Interview with national level stakeholder).

Concerning who degrades the wetland, it is tricky to pinpoint a single individual or entity. People have traditionally lived near wetlands with minimal degradation. The less degradation is attributed to the nature of activities that these people engaged in, which was mostly fishing, water fetching, controlled papyrus harvesting, herb collection and very simple subsistence farming. It was when people started growing crops on a large scale and grazing animals in the wetland, that serious conversion and their degradation started to become visible (Ntambirweki, 1998).

There is a perception that as more people become well off, they want to experience a certain life-style, and living near the lake water is as aspect of this. The need to enjoy pleasant weather and a scenic view of the lake tends to attract many people to the area thereby adding pressure to the available resources. "*People have started loving living near the water so much*", stated one of the community level stakeholders. Another added, *"… you see in Uganda we want to copy so much and those Ugandans who go out and saw the Whites* [Europeans] *living near water when they come back, they also struggle to construct their houses where they can have a lake view*." One of the study participants stressed that "*people who have destroyed our wetland* [Lutembe] *are not the people who are born here but those who come from far places like Rukungiri* [district in western Uganda] *and you wonder why they cannot go and develop their home Districts*?" It is perceived by many that 'outsiders' contribute more to the current conversion and degradation of wetlands in Wakiso District. On the contrary, those who are born and raised from the same community are not considered as serious degraders because of the small contribution they are perceived to make towards wetland conversion. Many of them are involved in fishing and tour guiding which are less degrading compared to the 'newcomers' who are engaged in crop and flower farming as well as construction.

Only a few participants [2] from Lutembe community indicated that Lutembe wetland was not being degraded. They argued that for years the wetland has been the way it is today, and therefore saw no need to worry about what was taking place. "*I have not seen any changes and cannot say that Lutembe is degraded because it has been like that for years"* (Interview with community level stakeholder). Others reasoned that people have been using the wetlands for ages, they continue to do so and what is needed is for them to be told how to continue using them on a sustainable basis. The perception of some people that wetlands are not degraded could be explained by the vastness of most of the wetlands. It could be challenging for the ordinary stakeholder to know what is happening in wetlands that are far from where they live and what they can immediately see.

There are mixed feelings when it comes to what actions degrade the wetland. To some stakeholders, crop growing, animal grazing, grass and papyrus harvesting, and herb collection are not considered as wetland degrading activities. This is consistent with Kyarisiima et al. (2008) who reported that farming in Wakiso on a subsistence level was not considered by farmers as a degrading activity. Farmers reasoned that farming has been taking place for years

and the wetlands have continued to exist. What the farmers miss or forget is that the population has more than quadrupled in the last two decades. At the time of this study, people were not only digging on the edges of the wetland as has been the tradition but instead were entering deep inside the wetland with the lack of available plots on the edges. Activities believed to degrade wetlands are commercial flower farming, waste dumping, house construction, mining sand and clay using machines, the establishment of factories as well as road construction. Figure 15 shows two examples of wetland degrading activities that take place in Lutembe Bay. Interestingly, most of the actors in degrading activities are not considered 'indigenous' to these wetland communities.

Figure 15: Bush burning and backfilling of land in the wetland

Dumping for gardens and house construction is common in Lutembe Bay wetland and it has led to serious reduction in wetland coverage.

6.6 Ecosystem services derived from Wakiso wetlands

Recognising that ecosystem services are referred to as the benefits people get from the environment (as defined in Chapter One), there are indeed many benefits that people derive from the wetlands of Wakiso District and Uganda at large. What is also not in doubt is the fact that as those benefits are being extracted from the wetlands, the process of extraction has a direct bearing on the state of wetlands. For example, actions involved in excessive water collection led to the reduction of water quantities which affects the wetland in the long run. Also, when a big area of vegetation is cut down to create space for farming and grazing, it negatively affects the wetland. Table 17 lists all the tangible and intangible services that are obtained from Lutembe and Nabaziza wetlands as cited by study participants.

Table 17: Ecosystem services from Lutembe and Nabaziza wetlands as stated by study participants CL: Community Lutembe, CN: Community Nabaziza, DL: District Level, NL: National Level

Wetland Ecosystem Service Category	**Example of good or service**	**Frequency**			
		CL	CN	DL	NL
Provisioning (Products obtained from wetland ecosystem)	Water for drinking	2	4	4	1
	Water for construction and irrigation	2	-	1	-
	Raw materials (sand, clay, and papyrus)	9	2	4	-
	Grass for house thatching and mulching	1	1	-	-
	Clean and fresh air for breathing	3	3	1	-
	Herbs and medicinal plants	3	2	-	-
	Source of firewood	1	1	-	-
	Grazing lands for animals (Cattle, goats, pigs etc.)	1	2	-	1
	Farming/source of food (Rice, yams, vegetables)	2	4	2	1
	Source of fish including lung and mad fish	3	1	-	2
	Used as sites for fishponds	4	-	2	1
Regulating (Benefits obtained from regulation of wetland ecosystem services)	Reduce water runoff, soil erosion and death of fish	2	1	-	-
	Flood control and mitigation	1	2	-	1
	Breeding areas for fish/ fish safety from storm	3	-	-	2
	Breeding areas for endemic and endangered species	-	-	-	1
	Water storage	-	3	1	1
	Water purification (Home use and lake water)	8	5	2	1
	Climate and weather regulation (Rain formation)	1	3	1	3
Cultural (Nonmaterial benefits obtained from wetland ecosystem)	Tourism (Birds from Europe and local ones)	4	2	2	1
	Habitat for wildlife	3	3	1	2
	Place for hunting	2	-	-	-
	Leisure site for the local people	2	-	-	1
	Venue for cultural practices of spiritual nature	2	1	-	-
	Place for education and research	1	1	-	-
Supporting (Services necessary to produce other services)	Soil formation	-	-	-	1
	Soil fertility	-	1	-	-
Indirect services	Provides employment for the tour guides	3	-	1	-
	Source of income through selling crops and fish	5	4	1	2

	Source of revenue for the district through taxes	3	2	2	-
	Access to cheap food and stop paying rent	3	4	2	3
	Breeding areas for fish	2	1	1	1
	Breeding place for endemic species	-	-	-	1

Indirect services are those that benefit people because of what wetlands support or enable to happen. For example, wetlands present perfect breeding habitats for fish and other species, but it is not the wetland that breeds. Another example is income earned. it is not that this money is directly obtained from the wetland but rather the wetland offers an opportunity for people to work, through for instance fishing and when they catch the fish and sale it, they earn money. Such activities cannot be categorized under the known categories of provisioning, regulating, cultural or supporting, hence the addition of an indirect services category. Other examples of provisioning services from Lutembe Bay wetland are presented in Figure 16. In the top left of the figure, a young man is selling small fish caught from the wetland and then, smoking and drying it for buyers. This type of fish is not sold fresh immediately after being caught, as the process of smoking and drying increases its shelf-life. In the second photo an herbalist is showing [the researcher] some of the herbs that he collects from the wetland. It is a concoction of these herbs plus other products that he mixes to treat different diseases that people present to him. However, because of the increased rate of wetland conversion, such products are becoming very limited. Gathering the herbs now takes a much more time compared to how it used to be in the past as was explained by the community herbalist.

Figure 16: Some of the goods obtained from Lutembe wetland (Left fish and right local herbs and below fishing tool made from papyrus and a community member harvesting grass for domestic animals).




Both wetlands act as water sources to the neighbouring communities. They provide construction materials such as poles, sand, and clay bricks as well as handcrafts made from papyrus which are used in many households. Incidentally, when looked at critically, both wetlands enable users to access major categories of goods and services including regulating,

provisioning, supporting and cultural. However, even when the two wetlands are in the same district, they have a few differences as shown in Table 18.

Table 18: Similarities and differences between Lutembe Bay and Nabaziza wetlands

Similarities	**Differences**	
Lutembe and Nabaziza	*Lutembe*	*Nabaziza*
Both have no clear ownership	Ramsar site/ of international importance	Local wetland
No clear management plan	High number of stakeholders	Few stakeholders
Both are encroached on/ degraded	Large, covering three Town Councils	Small in one Town Council
They are both not demarcated	Organised resource users in an association LWUA	No resource user's association
Both are covered by papyrus	Fairly studied and documented	Hardly documented
	Fairly degraded because of its shallowness	Less degraded because it is deep and not suitable for many activities
	Main degrading activities flower farming, human settlement, vegetable growing	Leading degrading activity brick making and crop growing
	Borders Lake Victoria (Lacustrine wetland)	Tributary of River Mayanja (Riverine wetland)
	Fishing is common	Extremely limited fishing
	Receives many tourists as an IBA	Few tourists mostly school children

Source: Primary data/ field data-2021

Whereas under the principle of "wise use" of wetlands as proposed by the Ramsar Convention of 1971 and as domesticated in Uganda, some activities are allowed to take place in or around the wetland of international importance. What is crucial is that such activities should be embedded in the country's laws for them to be allowed. What is challenging however is the fact that Uganda among other state parties have abused this principle thereby

exposing their wetlands not only to unwise use but also overuse. Indeed, Uganda government after ratifying the contents of the convention in 1989, several regulated activities were outlined as indicated in 4.3 above. The defined regulated activities serve as a loophole that some NEMA officials exploit to offer permits under the regulated activities. First, the power to determine what is wise-use and not was left in the hands of the national governments. This suggests that such activities do differ from country to country depending on what each country considers harmful or not to the wetland. A case in point is flower farming which is acceptable to be done in wetlands and yet promotes the heavy use of pesticides that are detrimental to biodiversity.

Findings further show a lack of clarity about what activities are allowed to be carried out in the wetland on a regulated basis. Lack of clarity was more among community level stakeholders even when the guidelines were stated in the wetland laws. This study observes that lack of clarity on regulated activities is perceived as one of the factors aiding wetland conversion and degradation in Wakiso District. The situation has left many stakeholders only guessing as to whether what is being done is allowed or not as such powers are vested with officials from NEMA.

> "*There are some activities that are allowed to be conducted in the wetland under the wetland regulations, what is sad is that some of these activities has led to the degradation of the wetland such as flower farming."* (Interview with a national level stakeholder).

This study confirms that there is no major difference in efforts taken to conserve and restore Lutembe Bay wetland and Nabaziza wetland. From observation, Lutembe Bay wetland is more degraded and at great risk of continuous degradation given the state in which it is in. If all the people that claim to own permits and titles for their plots neighbouring the wetland chose to use their land, there would be no vegetation left as some of the permits allow access to the middle of the lake. Putting a wetland on the list of Ramsar sites does not apparently protect its conservation.

6.6.1 Distribution and sharing of benefits from the wetland

On the question of who was perceived to be benefiting most from the presence of the wetland, it was not clear to them because they assumed that everyone benefited. Divergent perceptions existed with some mentioning groups of beneficiaries such as the fishermen, and flower farm owners. There were other stakeholders however who reasoned that benefiting from the wetland depended on one's level of investment. The higher the investment, the higher the return,

> *"… it is very hard to know who benefits more. Knowing one's level of investment is not easy, for example, the owner of the beach employs about twenty people, the flower farmer employees like three hundred people and for me I sit alone in my boat and go to fish so everyone benefits according to their level of investment.*" (Interview with community level stakeholder).

The findings clearly show that every stakeholder benefits in one way or another from the presence of the wetland whether directly or indirectly. As expressed by Woroniecki et al. (2019) environmental benefits and dis-benefits accrue to all, including the well-to-do and the socially excluded and marginalized members of society.

The results show that community level stakeholders even when concerned with the rate of wetland conversion, preferred to continue using the wetland as before claiming that they are not the big converters. They reasoned that, if left alone they would use the wetland on a sustainable basis. However, in terms of those who gained the most from the wetland as expressed by Lutembe community level stakeholders, were flower farmers, beach owners and fisher mongers in that order. Yet, brick makers and crop farmers were perceived to be major beneficiaries from Nabaziza wetland. From a gender perspective, men were perceived to benefit slightly more than women. The men had more businesses they could engage in such as fishing, brick making, sand and clay mining, which culturally are a preserve of men in Buganda Kingdom. Responding to the question of who was perceived to benefit more, one of the study participants at community level had this to say:

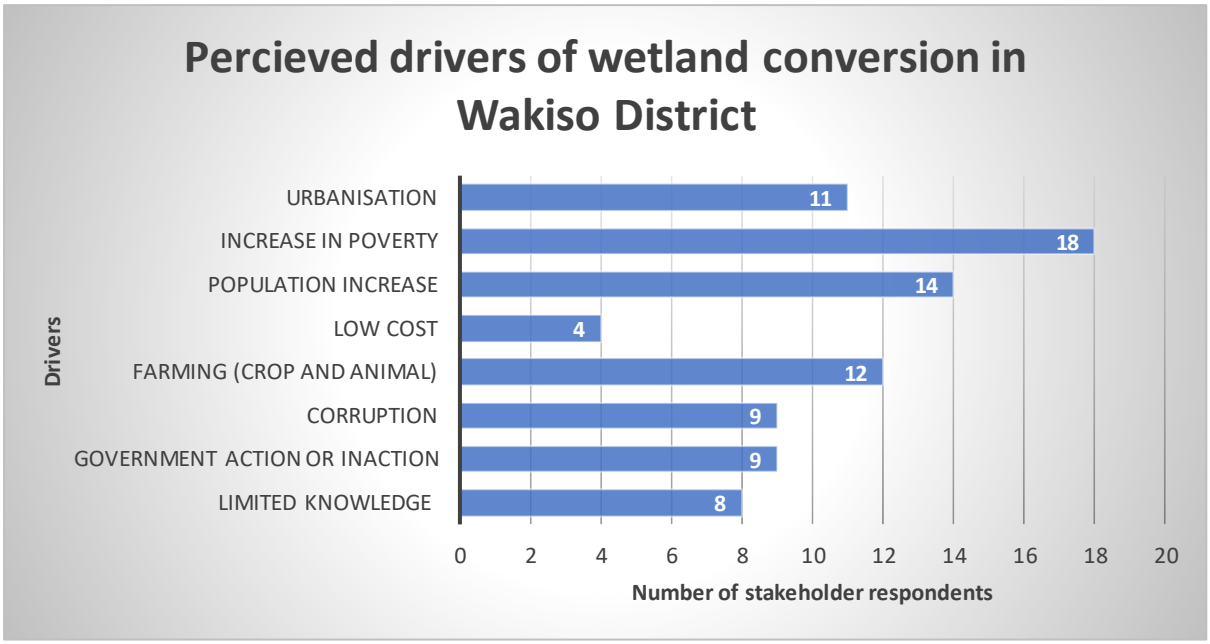
> *"… to me it is the men who have benefited more from the presence of the wetland because they use a lot of energy and engage in activities which women cannot do such as brick making and sand mining which gives them income."* (Interview with community level stakeholder).

The benefits perceived to be derived from the wetlands are largely those accessed by individuals and rarely those for community such as flood control, water sequestration and water provision.

6.7 Drivers of wetland conversion

Whereas a variety of perspectives regarding the drivers of wetland conversion in Wakiso District were expressed, poverty and population increase were highlighted as the primary ones. Other drivers include increased demand for land to plant crops and graze animals, especially during the dry seasons which according to the current changes in climate are becoming more frequent in the district. Figure 17 shows other drivers as stated by the stakeholders.

Figure 17: Perceived drivers of wetland conversion



As indicated in Figure 17, an increase in population in Wakiso District is commensurate to an increase in poverty levels. It can be argued that the more people migrate from other areas to Wakiso in search for employment of opportunities, the more people find themselves living in poor conditions, given the cost of living compared to their places of origin. One who for example was only spending on school fees and home upkeep in rural Uganda, in Wakiso District must also be able to afford house rent, food, transport, electricity, and water, among others. Food particularly is needed for survival and when one cannot afford to buy it, then they will resort to growing their own, even when it is to be done in a prohibited area such as a wetland. With poor planning, people are left with no option but to do whatever they can

wherever they can, including wetlands even when it is against the law, which they may not be even aware of at the time of arrival.

The changing local climate and weather has aggravated the challenges people face in Wakiso District. In effect this limits options for one to survive, especially if they predominantly rely on subsistence farming. There were many who argued that people do not have anywhere else to grow their food crops. The world has changed a lot and people struggle to source food, hence their conversion of the wetlands. One of the stakeholders expressed,

> "*There is a lot of poverty in the country and its the poor people that live in wetlands. They could endanger you if you asked them to leave the wetland because they are desperate and may even attack and kill you.*" (Interview with district level stakeholder).

Inadequate livelihood alternatives leave people with no options because they should utilize what is available and in this case the wetland. The wetland being perceived not to be owned by anyone makes it easy for it to be targeted for conversion. Other stakeholders use wetlands to get capital or other resources to enable them acquire alternatives for livelihood. Examples are those that establish retail shops, food vending businesses or capital after selling sand or clay mined from the wetland. However, people who are focused to utilize wetland for a short time to get capital are very few as most of the people want to stay on until they are forced to vacate the wetland. One community level participant explained how it all starts,

> "*When someone comes and plants crops in the wetland, they do not want to leave. Instead, they want to completely own that piece of land and use it repeatedly. The person who starts small keep increasing slowly by slowly, and when the water level reduces like in a dry season people go deep inside the wetland."* (Interview at community level).

Coupled with the perception that wetlands do not have clear ownership, corruption, and greed among government officials and government-connected people is also flourishing. Impunity and indiscipline is reported of some people who know that what they are doing is wrong when they convert wetlands into other uses but do it anyway or support and protect others doing it. Unfortunately, that causes a spiral effect whereby the local people copy what more

powerful or protected people do in the wetland. When the local people see major investors using the wetland, they also become energized to encroach even more. This poses a big challenge to those who are meant to ensure that the wetlands are conserved, for it is not easy to convince the local people that those investors have gone through correct procedures and are permitted to carry out the work being perceived.

The fact that people do not feel the impact of converting wetlands to other uses immediately or in the short term gives them false hope that no matter what they do they will not be affected soon. As already indicated in this chapter, some people go to the wetland for a season to grow crops, harvest, sell and get capital and move on to do other businesses. They probably think in terms of solving a short-term problem, not knowing they are creating a long term one. There is limited knowledge (referred to as "ignorance" by study participants) that stakeholders involved in wetland conservation particularly those at policy implementation level need to address. People need to be made aware and appreciate that what they do in the wetland has negative consequences for the future. However, as stated by one of the study participants, there seems to be little care and proper planning by those in power, 'people do not know that what they do has negative consequences for the current and future generations' and that does not bother them. People are perceived to be unbothered because what they care about is meeting their immediate basic needs such as food, water, and pasture for both humans and domestic animals. The question is how can that be achieved in the short run in a country where population and poverty are on the increase? Just between 2019 and 2021 poverty levels increased by 10 percentage points from 18% to 28% respectively (MFPED, 2021). This huge increase is blamed on the effects of COVID-19 pandemic.

The GoU is perceived by most of the study participants not to be playing its role of enforcing the available laws that would help in conserving the wetlands. Some government officials especially in NEMA are accused of being corrupt and greedy and hence look on as the wetlands are converted. The role government plays by acting or not acting fashions peoples' thoughts, attitudes, perceptions and creates a feeling of '*tikinkwatako*' [it does not concern me] among some stakeholders. In a way, this leaves them without proper leadership to participate in meaningful wetland conservation in Wakiso District since most of the time people comply to what they are asked to do by the government officials.

6.8 Consequences of wetland degradation

There is real concern about what the future holds with the current rate of wetland conversion in Wakiso District. Life will not be the same for both humans and other organisms if wetlands are fully converted into other uses. As a matter of fact, elements such as fresh air and the provisions of food such as fish and the many vegetables grown in and around the wetland, will be seriously affected. Participants who responded to the question of what they perceived would happen when the wetlands are no more, said it will be catastrophic. Those at community level were concerned about the loss of fish, clean water, fresh air, herbs to mention but a few. At district and national level, their major concern was with management challenges such as rampant occurrence of floods, changes in seasons and overall biodiversity loss.

> "*We will lose so many things. We will lose our fish which live in the wetland, we shall lose tourists, we shall miss planting crops from there because we have been getting food from there such as yams, sweet potatoes and when you sell that you earn some money.*" (Interview with community level stakeholder)
>
> "*When the wetland is no more, I lose the fresh air I have been having*" (Interview with community level stakeholder)
>
> "*I think we may stop thinking about fish, expect more violent floods in Kampala City, settlement patterns are likely to be altered as a result of flooding and some farms near wetlands may become history as they will be over flooded.*" (Interview with district level stakeholder)

Many migratory birds no longer come to Lutembe Bay which has seriously affected tourism and its related services. There is a major concern that with the birds not coming again to the wetland, many people's livelihoods will be affected negatively. This aggravates the already high levels of poverty experienced by people that live in the district. As earlier indicated, Lutembe Bay is considered an IBA, and it was on that basis it was included on the list of Ramsar sites in Uganda. However, there is a perception that with the continuous expansion of flower farms and the establishment of green houses for the flowers, it has stopped migratory birds from landing on the wetland as had been the case. Whereas this study cannot confidently say it is true or not, the fact is migratory birds were reported as not coming to the wetland for the last couple of years. Worry and anxiety was expressed by a few stakeholders including,

> "*I am worried that there could be things that people do that am not aware of that negatively affect the state of the wetland. What tourists used to come for is no longer present. In the past, one would say I want to see a Shoebill and you say it is this one but today you can search for a Shoebill for many hours and struggle to find one. I wonder whether it is the misuse of the wetland or what, but the changes are enormous."* (Interview with community level stakeholder).

What this means is that those who were originally involved in tourism related activities such as tour guiding, tourist transportation, selling of handicrafts, among others, are most likely to engage in activities that will further degrade the wetland. One of the research participants expressed her worry about what the future will present if the current drive to convert wetlands is not halted.

> "*Most of the time I feel my heart bleeding because of too much pain. When you look at our children, tomorrow they are going to suffer because of our inactions today to conserve wetlands. I do worry that we are going to lose the organisms that live in or around the wetlands. As we race to finish them [wetlands] off we have also started testing the negative impacts of that because recently we got a problem in the river Mayanja wetland network which over flooded. When this happened, it plucked the papyrus and damaged most of the bridges and roads were made impassable. Because of plucked papyrus, now water run-off is so high hence destroying whatever it meets on its way as opposed to seepage into the soil with the help of the wetland.*" (Interview with district level stakeholder).

6.9 The role of stakeholders at different levels

The perceived role and benefits of local stakeholders participating in wetland conservation and restoration activities in Wakiso District are summarised as shown below.

a) By participating their capacity is built for future conservation activities
b) It is likely to increase ownership in design, implementation, and results
c) Enables them to share their knowledge, skills, and experiences
d) Recognize different perspectives - reduce conflict
e) Builds and strengthens relationship between stakeholders

The value of participation in community level projects is well documented (Grimble et al., 1995; McNally et al., 2016)) and where applicable it is recommended that stakeholders

should take leadership of the interventions that are to be done in their area. By doing so, intervention planners will be building from community success which is a key strategy in strengthening capacity of those involved in wetland conservation. People have lived with or alongside wetlands for many decades and thus overtime have learnt ways to co-exist. It is thus crucial for any intervention to build from that success going forward. One success leads to another success which generates confidence and enthusiasm to move forward. The notion that community members on their own cannot conserve wetland is a distorted one and quite far-fetched. Left alone, community members do not have the capacity to degrade the wetland to alarming levels because most of their actions do not completely alter the state of wetlands, compared to when heavy machinery and pesticides are used, as is the case with flower farming. This is evident in Lutembe Bay wetland where the big degraders are big business owners from Kampala who have the capacity to ferry many trucks of soil to fill the wetland to be able to create space for their flower farms, something that cannot be done by the community member. Finally, focusing on community problems emphasizes deficiencies which makes the people feel incapable of achieving anything by and for themselves and thus they look to outside help to be able to solve the problems encountered. Eventually, this is counterproductive and unsustainable.

There is a perception that poor people are incapable of conserving the wetlands. One participant vividly put it this way, "*We are poor and of low status people. It is hard for us to conserve the wetland*." Such a perception points to the need for survival which comes first in people's minds when one is confronted with making a choice. Another stakeholder from Nabaziza wetland stressed that "*mere presence of the papyrus in the wetland is not relevant and it should be given to people to clear and produce food*." Having food is a prime need for everyone and that is why any effort to ask the crop farmers to leave the wetland is perceived by some as being against their very own survival. Elements of food scarcity in the Nabaziza, and by extension Kyengera Town Council, was partly attributed to the eviction of crop farmers from Nabaziza wetland in 2018. There was a sense of agreement among the study participants at community, district, and national level that the poor people need to use the wetland because they rely on it. On the other hand, when the rich encroached on the wetland they were perceived to be 'kweyagaliza' [selfish]. Other phrases used to describe the current state of affairs were 'Gavumenti ekola nsibamu byanguwa' [the government officials are trying grab as much as they can before they are voted out], 'tewaliwo avunanizibwa' [no one

is responsible or accountable], 'buli muntu ali kululwe' [Everyone is on his or her own] among others, which all portray a state of despair when it comes to the trusting in government.

6.10 Factors that influence stakeholder perceptions

Diverse factors do influence perceptions when it comes to wetland conservation and restoration activities. These factors include, among others, one's age, gender, and education level. The stated factors are crucial and are largely informed by one's level of exposure to stimuli that is connected to the wetland. For example, a fifty-year old person living in an area where there is no wetland may not be as knowledgeable as a 20-year person who has lived all their years in a community where there is a wetland. What is denied is that what one obtains or does not obtain from the wetland is the key factor in influencing how they relate to the wetland. Important to note is also the way the government has treated those that encroach on the wetland. Some people have been treated harshly, while others with 'kid gloves,' hence affecting stakeholders' perceptions negatively. Cases of injustice are experienced with some people being denied access to and use of resources, make it hard to have a favourable environment for the conservation and restoration of wetlands. Table 19 presents the factor, perception, and its potential implication on wetland conservation and restoration efforts.

Table 19: Factors that influence stakeholder perceptions on wetland ecosystem

Factor	**Perception**	**Implication for WES restoration**
Age	Young people generally have lower levels of concern and appreciation to environment. Adults are more concerned	▪ Young may increase conversion ▪ Young less participation ▪ Adults may use sustainably ▪ Adults worried of the effects of misuse
Gender	Men as source of income Women more as a source of materials Women are more concerned about wetlands and natural resources in general	▪ Men are in sand and clay mining, fishing and vegetable growing which earn money. ▪ Women source of water and materials for handcrafts largely used at home
Education	No and primary level look more at provisioning services. Secondary and above add on	▪ Both less and highly educated likely to degrade in equal measures

	regulating, supporting and cultural	▪ Educated can easily change perception when engaged ▪ Educated more concerned about the rate of conversion
Economic status	Poor survives on wetland provisioning services. Rich converts for business and profits Rich comfortable living on Island/ near the water	▪ Unemployed depend on wetland entirely thus carries the burden when degraded ▪ Likely to convert big sections to produce enough to eat and sale ▪ Irreversible conversion by those with capital ▪ Drive for profits likely to increase scale of conversion
Attachment to wetland community	Those who were born in community tend to be careful, value and treasure wetland. Historical and cultural attachment 'Locals' feel the newcomers are out to destroy their culture and history 'Newcomers' seems not to care and strive to get the best regardless of the cost.	▪ Those born there want to keep their lifestyle the same hence likely to guard against large scale changes ▪ Local's best stakeholders to engage when planning restoration intervention ▪ Limited to no attachment hence little to lose when wetland is converted ▪ Have second homes/ business likely not to fear effects of their wetland degrading actions
Government actions and inactions	People respond to government actions and directives when they trust it and where it is not accepted people violate government guidance. Government seems to protect outsiders (Investors, businesses, and its projects). Examples from other wetlands- Converted too	▪ Protecting a few to use the wetland likely to breed revenge. ▪ Unfairness to the law likely to cause apathy ▪ Injustices prevail ▪ Driven largely by the need to develop hence more damage ▪ Confrontation between people and government ▪ Belief of witch-hunt because elsewhere wetlands are converted
Perceived value of wetland	Land that can be used for economic gain and development. Land to be kept for its beauty-tourist attraction	▪ Wetland can easily be accessible by all categories of people. ▪ Informal transactions lead to increased conversion

	Its contribution to Climate Change adaptation	▪ Self-interest versus common interest
Religion	Wetlands were created by God for benefit of everyone. Religion calls on people to conserve and co-create with God Converters of wetlands know not and does not respect God Converting wetlands infringes on freedom of religion/ worship	▪ Religious leaders have a role to play in wetland conservation ▪ High wetland conversion show disbelief and disrespect for God ▪ An attack on traditional beliefs and customs of people

Source: Derived from analysis of field data collected in 2021

Other factors that influence stakeholder perceptions on wetlands include level of engagement through participation in sensitizations, meetings; lengths of stay in the area (Choudri et al., 2016), access to amenities (Willers, 1996), place of residence that is whether it is rural or urban (Arcury and Christianson, 1990) and dwelling type. These factors confirm what Dlamini et al (2020) noted that the way how people relate with their environment originates from their beliefs, attitudes, values, and perceptions they have towards it. There are varied individual level factors that shape one's perception towards the wetland ecosystem services ranging from one's age, gender, level of education, employment status to mention but a few.

Whereas elsewhere studies show that those with high income tend to be more environmentally concerned (Rajapaksa et al., 2018, Shen and Saijo, 2007), in Uganda and Wakiso District in particular the reverse is true. Interviews with local stakeholders clearly show that the rich and the well-to-do and those employed in high offices in both government and civil society are the leading people in converting and misusing wetlands in the district. It further contradicts what Kemmelmeier et al., (2002) thought about the poor and their relationship with environment that environmental matters to them are more of a 'luxury' for them as low-income earners and can only be a concern after more basic livelihood needs such as food, shelter and economic security have been met.

Local knowledge as well as individual and collective attitudes that inform stakeholder perceptions are strongly influenced by social and cultural factors. Social and cultural set up do reflect the history of a given community or country, although these keep changing depending on the prevailing circumstances. Allowing uncontrolled conversion of wetland resources presents a serious threat to the loss and alterations in culture and belief systems that

will make it harder for future generations to associate and value wetlands like their grandparents did.

6.11 Effects of stakeholders' perceptions

At the national level, emphasis was more on wetlands of national and international importance such as those categorized under Ramsar site wetlands. They also perceived wetlands as places that can be used in ameliorating poverty levels of the citizens through for example allowing investors to set up their factories so that people can find employment which they badly need for survival. This perception led to an increased conversion of wetlands into industrial parks and places of factory establishment which angered some of the stakeholders especially those that felt it was wrong. It should be noted that in Uganda, unemployment rate among the youth below the age of thirty is above 75% yet the same age category comprises of over 60% of the population of Uganda (UBOS, 2019). This poses a big threat to both the government and nature as by all means they must survive which call on concerned to come up with alternative sources of livelihoods if wetlands are to be spared.

Divergent perceptions exist regarding what should be done to ensure that there is equitable access and benefit to wetland resources. It is perceived that the level of benefit largely depends on one's capital investment. How big one's plot of land is and the ability to put it to use or hire others to work on their behalf, dictates one's benefit. A key factor was the tools and machinery used to access wetland resources. Flower farms were highlighted for using heavy machinery including trucks to transport loads of soil to do in-filling which increased the owners' ability to cover a wide section of the wetland – something that cannot be afforded by the community members. Sadly, the higher the capital available to convert the wetland, the higher the level of degradation. This implies that those with affordability can convert and degrade wetlands more in the district. In that respect, a better way to promote equal access is to refer to group/ communal benefits such as control of floods, water cleaning and fresh air for all rather than individual benefits which were perceived to be dependent on one's economic capacity.

One of the ways through which scholars and researchers can contribute to the sustainable use of wetlands in any given place is by learning about the perceptions of stakeholders. This is

crucial because these perceptions do in many ways influence their response to most of the conservation activities (Choudri et al., 2016; Bosma et al., 2017a).

It is emerging that managing stakeholder perceptions is quite challenging as people's needs and interest are neither the same nor static. What is possible however while engaging many players is to establish facts as they are at the time of inception and have them participate so that they are regularly aware of what is happening. With a baseline fact or conditions established at the start of a conservation and restoration effort, having clear objectives of what is to be achieved for example the characteristics of a conserved wetland and health wetland who participate will know how the outcome should be and such will help in meeting the aspirations and priorities of the stakeholders involved.

Even when there are tensions and disagreements on whether to conserve the wetland or to convert it to other uses, there were some points of agreement. For instance, most of the stakeholders agree that tree planting on the edges of wetlands helps in conserving the natural nature of the wetland. At the national and district levels there are calls to clearly mark/ demarcate the wetlands to guard it from encroachers who claim that they do not know the boundaries of the wetland. Yet, those at the local level reason that if everyone used their small plots to grow basic foods, this does not constitute a degradation for to them this has been done for many years in the past and the wetland has not been completely altered as it regenerates when left to recover. These differences need to be sorted first to come to agreement and decide together what needs to be done to conserve and restore wetlands in Wakiso District.

Identifying, documenting, and analysing perceptions on wetland ecosystem services is of great importance because it assists in planning and execution of wetland conservation efforts. Even when wetlands differ in size and functions, they share quite several similarities. Whereas the findings of this study may not be extrapolated to wetlands in Uganda, they offer meaningful insights into how different stakeholders think about the ecosystem services provided by and obtained from the wetlands. The three levels focused on in the study [Community, District and National] apply to quite several other levels of administrative

structures in SSA countries and thus focused interventions can be designed to respond to the challenges facing wetlands.

6.12 Laws and policies

It is a widely held view by the study participants that there are adequate laws and policies for wetland conservation and restoration in Wakiso District. The laws and policies were perceived not to be adequately implemented a fact stakeholders reasoned could be responsible for the increasing wetland conversion in the district. Even when there is an attempt to apply the available laws, cases of selective application are commonly known especially between poor and rich, investors and local users as well as the leaders and the led. In addition to the many laws concerning wetland management as presented in Chapter Four, there are other supporting laws such as the Constitution of the Republic of Uganda, the Land Act and The Physical Planning Act. Despite that, there are sections of the stakeholder especially at community level that complain of not being aware of what the law says, what their rights and responsibilities are when it comes to wetland conservation. The national laws are made in English language and efforts to translate them to the locally spoken languages have been futile and this presents a huge challenge to the law implementers who are most of the time perceived as not being considerate to the local people. However, with the help of Civil Society Organisations (CSO) more people are now being made aware about the laws. There exists fear and antagonism for the low technical staff at district and town council level when trying to implement the laws especially when their 'bosses' are involved. One participant observed that,

"…the power to effect laws is a bit elastic and where it includes your bosses, you may even lose your job if you don't back off some cases." (Interview with district level stakeholder).

Such a perception among the lower technical staff presents an existential problem as it touches on one's source of livelihood.

6.13 Funding mechanisms

It is a challenge to find funding for environment related activities yet for proper planning and implementation of conservation and restoration of wetlands several resources are required. It was astonishing to learn that at the district level there was not even a map to show where the different wetlands are located leave alone describing the state in which they are in. Thus, one of the stakeholders at the district level stated,

> "*I can tell you that I even do not have the capacity to do an aerial map so that I can go there on ground to follow what the maps are showing. I do not have an up-to-date data set using spatial data that I can sit on my desk and track the changes. I know it is possible, but I am unable, and I do not have the money.*" (Interview with district level stakeholder).

With such a situation of no funds, even planning at this level may not be informed by data which makes it difficult to address the felt needs of communities that live adjacent to the wetlands. As captured from one of the district level stakeholder below,

> *"I do not have the staff to be monitoring full time because I do not have motorcycles, you must move on foot or use your own vehicle and use your own fuel to keep monitoring those wetlands and in the night with no security*."

The two wetlands are not clearly demarcated, and their borders are not clear from other people's land. Lack of wetland demarcation leaves people with limited understanding of how close to the wetland they are which exposes the wetland to more abuse. No sign of demarcation was visible for all the sections of the wetland I visited. This partly stems from a lack of prioritisation and financial allocation to have such key activities done. Environmental activities such as wetland conservation are considered cross-cutting issues and thus should be catered for from several other activities. This has been instead used to never allocate any funds as every department expects the other to do so leaving officials only to draw their monthly salaries yet there is little, they can do on the ground due to lack of or limited facilitation. Conserving or restoring a wetland is not a cheap activity as it requires constant monitoring, going to hard-to-reach areas, requires stakeholder buy in and this may hardly be achieved through for instance having one or two meetings only.

6.14 Future state of wetlands if no changes are made

Stakeholders were asked to comment about the future state of wetlands in five to ten years. Their perceptions regarding the future of wetlands in Wakiso District can be summarized as discouraging, concerning, threatening, and frightening in no order. It appears as if many are losing hope save for a few national level participants who are looking at a broader perspective at a country level and not at a community level. The case for Wakiso District is not pointing to the right direction given the rate of wetland conversion that is taking place on almost all wetlands in the district. Some words and phrases used to describe the future state of wetlands in five to ten years include '*we will finish them all',* '*they will be vanquished*', '*they will be no more wetlands*' observed district and community level participants. There were perceived fears that if the current trajectory of use and management remains, the situation of wetland conversion is likely to get even worse and this will come along with associated challenges and risks to life and property.

> "… *If the status quo remains, we are going to finish all the wetlands like in urban areas of Wakiso. In the rural areas people can encroach and if removed, the wetland can be restored because for them it is farming. On the contrary, in urban areas it is backfilling whereby one completely modifies an entire ecosystem from a water place to a dryland.*" (Interview with stakeholder at national level).

When backfilling is done on a given section of the wetland, it is almost impossible to restore such a section no matter what amount of investment and effort you put in because of the rate of conversion done. Combining backfilling with scarce resources available for conservation, inadequate implementation of the law makes it quite clear that new efforts are needed if any of the remaining wetlands are to survive for the near future.

Wetlands in Wakiso District are perceived to be continually converted as long as there is population increase. As more people come into the district from other parts of Uganda there will be an increased demand for cheap and affordable places to call home. There were calls to have some control measures for the population as it was largely agreeable to most stakeholders that people cannot fail to have what to eat or where to live when there is a vacant land in form of a wetland. As population increases coupled with rural to urban migration in search of better livelihoods, the country's leadership and its planning apparatus ought to be very knowledgeable to be able to manage that transition with minimal negative effect on the natural environment such as wetlands. For instance, people will most times need employment,

affordable food, and housing among others, and these are the areas where leadership is crucial.

Another way to understand the varying relationships with and perceptions of the wetland was in the consideration of what would be lost if the wetlands disappeared completely. Many who responded were categorically clear that they would lose a lot. Those at community level were largely concerned about the loss of fish, clean water, papyrus for handcrafts and herbs (provisioning services). At district and national level, they included loss of control measures such as for floods, climate change and biodiversity loss.

6.15 Chapter conclusion

Chapter Six establishes the perceptions identified in chapter five have on the wetland ecosystem services and management. Among others, perceptions are informed by how individuals get access to the wetland, level of conversion, responsibility to conserve and restore wetlands, sharing of benefits and longer-term effects of wetland degradation. Stakeholders across the board appreciate the role wetlands and their ecosystem services play in influencing their lives positively and stressed the need for continuous engagement in efforts geared towards conserving and restoring wetlands. The role of education both formerly and informally was stressed along with intentionally consulting them whenever a key intervention is to take place in the wetland. Balancing improving people's livelihoods and economic development is key in efforts to protect the fragile wetlands along with the benefits that are derived from them for the wellbeing of nature and people.

Finally, whether by coercion or by seduction wetland degraders should be stopped at all costs for their own benefit and the wider society. Changing perceptions from being not supportive to supportive of wetland conservation and restoration requires a new thinking, acting, and interaction between the players. What can help the situation is a deliberate intention to meet the various stakeholder optimal interests- social, economic, cultural, and environmental. Such a process of perception changing may be gradual and require time, dedication, resources, and a detailed explanation of the potential benefits for people and nature. It also requires commitment, seriousness, and good leadership.

CHAPTER SEVEN: DISCUSSION

7.0 Introduction

The purpose of this chapter is to bring into context the findings of the study in relation to what has already been studied and documented elsewhere in wetland conservation and restoration as well as to my conceptual framework. I broaden the analysis and discussion on specific findings previously covered in chapters 4, 5 and 6. While doing that, I explain the extent to which stakeholder perceptions are integrated into wetland conservation and restoration activities in Wakiso District which addresses research question four. Wetlands in Wakiso District are undergoing serious conversion every passing year, and in this chapter, my focus is to contribute to discussions and actions that may assist in attaining wetland conservation, wise use, and restoration through engaging with those involved. Efforts to conserve and restore wetlands ought to be rooted in the social fabric of the population and society as well as national policy plans and frameworks.

The research aimed at identifying, analysing, and understanding the role stakeholder perceptions plays in ensuring that wetlands are conserved and restored in Wakiso District Uganda. It should be noted that wetlands form an integral part of the environment and should be managed well to facilitate the achievement of individual, community, and national development. To achieve the study aim, four questions were asked and answered in this research including,

1. what are the past and present wetland conservation, and restoration legislation in Uganda?
2. who are the stakeholders involved, and what are their roles and motivations in wetland management?
3. what perceptions do stakeholders have on wetland ecosystem services and how they are related to conservation and restoration activities?
4. how are the stakeholders' perceptions integrated into wetland conservation and restoration activities and what are the existing gaps?

7.1 Summary of key findings

Concerning research question one, the findings suggests that there are many past and present efforts in Uganda regarding legislation to conserve and manage wetlands well. These efforts are exemplified in the presence of many supporting laws and Acts that are put in place especially after the country became a signatory to the Ramsar Convention in 1988 with the latest being the National Environment Act 2019. The summary of various efforts to conserve and restore wetlands is presented in Table 8 showing the past, present, and future activities that contribute to conserved wetlands first in Wakiso but also in Uganda as a whole.

Results also show that even when policies to conserve wetlands exist, they have largely not been implemented by the government agencies and departments and this partly explains why wetland conversion in Districts like Wakiso has rather increased instead of decreasing in the last decade. Even with the creation of the wetland management department in the ministry of water and environment as well as establishing the environmental police, Uganda still suffers a heavy loss of wetlands on account of many factors including inadequate political will, prioritization, and the challenge of improving citizens livelihoods amidst the need to conserve the environment.

As for who the key stakeholders are, the results show that they are varied and at different geographical/governance levels. For instance, they are at the community, District and national level, individuals, civil society organisation, government institutions, regional and international agencies that all have a stake when it comes to wetland conservation and restoration activities. Participation especially in decision making was found to be dominated by representatives from government and civil society and least from community level members which in some way contrasts what is recommended under the broad management principle of the UN Decade on ecosystem restoration. Moreover, even with many perceived to be involved in the planning, and execution of wetland conservation and restoration activities, there are some that are still left out, yet they may play both direct and indirect roles as presented in Chapter 5. For example, those with direct roles but who are still not actively involved include the judiciary - the court system, the police officers, religious institutions as well as cultural institutions. Indirect stakeholders may among others include the media, academia, financial institutions, and beverage companies. Big beverage companies such as Coca Cola and Pepsi Cola use water as their key ingredient and considering the role of

wetlands in the water cycle, they should be brought on board for they have a direct interest in their existence and have capacity to support conservation and restoration efforts. Having all onboard is expected to improve efforts to conserve and restore wetlands as they come with added advantages such as knowledge, funds and power to act especially the judiciary.

Analysis of the study results show that almost all stakeholders want to have the wetlands conserved and restored in the district. Hence there is a unanimous interest in having wetlands protected, the difference is on how it should be done and at what scale. Those from government are concerned that with the prevailing level of poverty among some citizens, sections of wetlands should be converted to increase production of goods and services that contribute to improving livelihoods. However, when not managed well this approach would lead to total conversion of all the wetlands which is detrimental to the environment and society. Civil society and community level representatives were more interested in first conserving what is remaining as efforts to restore what is lost continues. Creating a balance between the two interests is a key challenge that is likely to stay until considerable and robust changes are made and agreement arrived at by the different players.

By answering the question of what perceptions stakeholders have on wetland ecosystem services which is detailed in chapter 6, main findings include wetlands being perceived as private land, source of materials, medicine, created by God and hence available to all without restrictions, largely degraded and not prioritized by the central government when it comes to their conservation and restoration. Moreover, many activities take place in the wetland, and some are perceived as degrading such as excessive vegetation clearing to establish flower farms, sand and clay mining, house construction and tree cutting. Activities perceived as less or not degrading include animal grazing, small vegetable growing, minimal papyrus harvesting and fishing. These and more are reflected in my revised theoretical framework which is presented at the end of this chapter.

7.2 Laws and policies on wetland conservation and restoration

The government of Uganda need to engage in future forecast on what will happen when all wetlands are converted instead of now where they respond when a disaster has already happened such as flooding. Responding after wetlands have been severely converted confirms

what Maltby (2006) noted that oftentimes the economic, social, and environmental impact of wetlands is recognized only after they have been degraded and cannot offer the services they used to. To make effective laws and policies concerning conservation and restoration of wetlands, it is a necessary to involve most key stakeholders specifically those perceived to be vulnerable to the effects of a converted wetland. Examples of this category in Wakiso include the women, youth, the poor, landless and small vegetable growers. Their participation brings along indigenous knowledge and experience and when this is synergized with modern scientific knowledge, it creates holistic, locally owned, and valued course of action.

The Ugandan central government is applauded for setting up institutions and departments to help with environment conservation. Examples are Ministry of Water and Environment, National Environment Management Authority, Wetland Management Department, environmental protection police, among others. In the same way, the government has been time and again blamed for disabling and making its own institutions non-functional by not allocating the necessary and adequate resources needed.

With limited financial and human resources and the lack of enforcement capacity, it is unjustified and immoral to hold them solely accountable when things go wrong like they have indeed gone wrong in the management of wetlands in Wakiso District. The same is for the entire country which now only has 8.9% of the original natural wetlands (MWE, 2019) with some claiming that the biggest conversion has happened in the last three decades.

The study findings show that there is some level of frustration among government technical officers. Cooperation when managing natural resources is emphasised for example see (Wali et al., 2017; Anderson et al., 2021). There is an urgency in establishing meaningful and long-lasting relationships between the different players and people need to view wetlands as not only their sources of materials but as being responsible for their care and continued existence. This study has highlighted a few localized efforts, and actions towards wetland conservation and restoration albeit with limited success (for more details see Chapter Four).

There is a big discrepancy between the presence of laws and their implementation which affects operations geared towards wetland conservation and restoration in Wakiso. The presence of the discrepancy is consistent with what Rwakakamba (2009) observed that a country's wetland laws and policies reflect the economic and political characteristics of the state of governance. Apparently, there is no implementation of the laws and policies which exposes technical and field officers to danger of harm as the 'big wetland encroachers' are guarded by guns and both private and public security. What is not clear to the citizens is whether the deployment of security agencies is done legally or illegally. Questions arise because what they are asked to do and what they do is contrary to what the constitution mandates them to in as far as protecting the wetlands is concerned.

In the same government there are individuals that play double standards, which hugely affects the perception and seriousness of stakeholders outside of government when it comes to accessing its commitment to conserving and restoring wetlands. It seems that factors such as impunity, injustice, bias, favouritism, corruption, as well as political and business connectedness play a role when it comes to violation of wetland protection laws in Wakiso District and Uganda at large.

It can be argued therefore that operating in an unsupportive environment demoralizes and demotivates especially government technical staff who are mandated to advocate and ensure wetlands are conserved. Considering the troubles, they face while on duty like inadequate facilitation, threats to life, harassment, among others, it makes it difficult to hire new people to support and advocate for the same cause especially in a politically sensitive District like Wakiso. Consequently, it allows those who consider themselves above the law in government to do what they wish at the detriment of the wider society. For instance, one of the stakeholders while commenting on the lack of action from responsible government officials stated that they do not care and just watch as wetlands are degraded "…*tebalina kakwate kubintu byaffe*" [they (who are converting the wetlands and those meant to stop them) do not care about our wetland resources because they do not belong to them]. With one ruling party and President being in power for over 35 years and still counting, many things are being perceived as going the wrong way in the country.

As it is now, politics is perceived to play a critical role in the management of wetlands in Uganda and Wakiso District. A possible explanation for this might be that the party in power and government – the National Resistance Movement Organisation (NRMO) lacks adequate representation in terms of number in lower local governments (District, municipality, and town councils) in Wakiso District. In the current term of political office (2021-2026) there are a total of 102 district councillors in Wakiso District. According to Kiggundu (2022), of the 102 councillors, 85 belong to the National Unity Platform (a party in opposition), 12 NRMO councillors and five from the Democratic Party. In some way this creates a situation of contest, punishment and side-lining and not prioritizing of those districts who have leaders with different opinions as opposed to those in power. Another possible explanation of this might be that most of the politicians in the central government are from constituencies that are outside the central region, yet they are tasked with the responsibility of allocating resources, which they may not do well given the competing demands as each of the politician want to be seen serving the interests of the electorates that voted them into office in the first place. Experience has shown that in Uganda, matters of national importance are left at the mercy of the Executive which allocates funds for sectors. With a perceived absence of political will and inadequate resource allocations for wetland conservation, it makes the implementation of the many good policies already in place such as the NEMA Act, 1995, National Environment Act 2019, National Policy for the Conservation and Management of Wetlands, 1995 and the Guidelines for Wetland Edge Gardening, 2005, almost impossible to implement thereby creating room for continued degradation of the wetlands.

The current limited success in wetland conservation and restoration in the district indicates the reality that the presence of and availability of laws and policies alone, not backed by political commitment and willingness from leaders, is not sufficient to bring about the desired results. It is my considered opinion that the presence of good wetland laws, policies and commitments alone are not likely to change the drivers of wetland degradation. There were some bold stakeholders who acknowledged that for any changes to happen in the conservation and restoration of wetlands in the district, the current government will have to change first because according to them, some individuals in power are not interested in seeing any change for as long as they or those they support are the ones who are having access to wetland resources.

It has been reported previously that politics influences decisions regarding environment management. For example, Theodori and Luloff (2002) observed that education and political ideology were the most consistent predictors of engagement in a variety of pro-environmental behaviours.

The concept of wise use of wetlands resources as espoused in the Ramsar policies may not be practically applicable in many governments of developing countries. In Uganda, it seems wise use of wetlands has been violated as those on the list of Ramsar sites suffer the same or even more degradation than those which are not. A case in point is Lutembe Bay an international wetland yet suffering just like the others like Nabaziza which is not on the list of Ramsar sites. It can be argued that the concept may be applicable in countries where the rule of law and democracy prevails as opposed to where democracy does not work. In dictatorial governments, citizens have very limited powers if any to say no to what the leaders want to do whether be it right or wrong. This is exacerbated by high levels of poverty. It is difficult for such governments and their leaders to be held accountable leave alone respecting the rights of citizens which leads to apathy, fear, and a possible feeling of resignation. Such is exactly what this study found on ground as expressed by various stakeholders in different forms.

For as long as poverty and inequality remain a key policy challenge for developing countries like Uganda, in the short to medium term it will remain an uphill task to sustainably conserve natural ecosystems such as wetlands. Poverty and inequality are not adequately and genuinely tackled by those in leadership. Many times, public resources meant to help in reducing poverty is reported in the media to be used for individuals or a selected few to gain from them at the expense of majority citizen. It is difficult to ask the corrupt to stop their own corruption especially as exhibited in the management of natural resources. The same was predicted by Junk (2002) who foretold that by 2025 there will be a serious destruction of wetlands in Africa, South America, and Asia because of demographic, political and economic mismanagement, and ecological and climate change. Hence, advocating for sustainable development and wealth creation ought to be supported by social change attained through working with the vulnerable members of the community.

Moreover, it is a big challenge for the government to reconcile the need for economic development and nature conservation as the two have to be handled together: focusing on one without the other is counterproductive and may lead to 'negative development' as expressed by one of the national level stakeholders. Negative development happens when development is not holistic and occurs or is promoted at the expense of other factors such as the environment. It is negative development because it solves one problem and creates others which keeps the cycle of underdevelopment. Development and use of natural resources are inextricably connected as observed by Ranganathan et al., (2008). What is clear is that conserving and restoring wetlands is an act of conserving life since life depends on nature, more so in a developing country like Uganda whose over 70% population depend on rainfed substance agriculture.

7.3 Perception and human behaviour

Perceptions are flexible and not static no matter how strong they may be at a particular time. A case in point is in Wakiso where stakeholder perceptions on wetlands are changing from them viewing it as a wasteland as it was the case in a few past decades to now perceiving them as most valuable ecosystems. This may be attributed to increased awareness of the ecological, economic, social, and cultural goods and services obtained from them. Even when that is the case, a few of them felt that it is their responsibility to transform what was formerly considered useless into something useful and in doing so altering their state and disabling them from performing their functions.

The concept of ES puts emphasises on understanding the relationship between natural ecosystems such as wetlands and human behaviour. The human behaviours are partly influenced by their perception and hence an effort to understanding human perceptions may help in predicting and responding appropriately to human behaviour when it comes to wetland restoration efforts. Take for example, the practice of fencing off sections of the wetland by private owners as shown in Figure 18 used not to be the case but now is common. What is intriguing is that fencing off sections of the wetland is done by 'newcomers' who fear that if they do not fence off other people (community members who originally owned the land) will come and occupy their land. This practice is made easy by a lack of official boundary between private land and wetland.

Figure 18: Fencing of Nabaziza wetland by private owners- a recent practice

During this study, the practice of privately fencing off sections of the wetland was observed in both Lutembe Bay and Nabaziza wetlands. Fencing off the wetland deprives other stakeholders from accessing and benefiting from some of the goods and services that people derive from them such as water for home use.

Unplanned urbanization and informal settlements represent key challenges facing Wakiso District. As per the District Physical Development Plan (2018-2040), the district faces "special urban challenges" relating to infrastructure and service requirements. The infrastructural challenges relate largely to issues of housing, road network and landscape planning. It is common to find houses of different types and forms scattered all over including prohibited places such as wetlands. The population in Wakiso is growing at a rate of 4.9% (UBOS, 2014), it calls for proper planning as housing needs increases at a fast rate. Planning well for the citizens of Uganda is a key component of Uganda Vision 2040 which aims at transforming the Ugandan society from peasant to a modern prosperous country.

Poor waste disposal practices lead to enormous amounts of waste ending up being dumped in wetlands. This practice makes it extremely hard to restore and conserve wetlands. In Wakiso District, tones of mostly domestic waste end up being dumped in the wetlands. Large amounts of waste are transported from Kampala areas at night and disposed of into the

wetlands in Wakiso. Consequently, wastes choke the wetlands and makes them smelly making it hard for those who live near them to get fresh air and exposing them to several diseases through pollution (see Figure 19 with plastic bottles and other waste disposed of on the margins of the wetland). Hence by proper management of wastes including separating and clearly marking biodegradable from non-degradable wastes will contribute to the efforts of wetland conservation and restoration. Planners and policy makers may even use this as an opportunity to process the waste and produce other useful products such as biogas energy, briquettes for cooking, manure to improve soil fertility and many others. Below are some photographs of waste dumping taken during this study.

Figure 19: Problem of waste management in wetland communities

Waste dumping in Nabaziza wetland (left) and the problem of plastics in Lutembe (right)

As much as the two wetlands are in two separate town councils, there was no formal plan or practice of waste collection and disposal from those in leadership. In a way, it left people on their own to determine how to dispose of waste amidst space crisis as most of the people live in rented places or small homes denying them the luxury of establishing their own dumping sites.

The need for private property, self-interest, competition, and a reduced role of government as some of the pillars of capitalism can all be found in what is happening in Uganda when it comes to how individuals and government alike treat wetland conservation. There is excessive desire to exploit natural resource such as wetlands for individual gain, and that

partly explains why many poor people are evicted to pave way for a single user who are usually rich and better connected. There is a perception that people who are considered not poor by the communities in which they live are the leading degraders of the wetland. What is more troubling is the fact that the actions of such people that degrade the wetland negatively affect many people as they contribute to climate change with its known effects such as changes in seasons affecting food production, among others. The concern is that when disaster strikes, those that degrade the wetlands are less affected since many are believed to have alternative livelihoods and homes to run to, leaving the extremely poor with no alternatives to suffer the consequences.

According to Bennet (2016) human beings are quite perceptive and are much influenced by the external appearance of what they observe. Similarly, stakeholders from Lutembe and Nabaziza communities view their wetlands and perceive the goods and services they offer positively. They cherish their existence and all the associated benefits they get by living near the wetlands as detailed in Chapter Six. They reasoned that all is wanted is fairness, justice and equality before the established laws and policies that guide the caring of wetlands.

7.4 Participation in wetland conservation and restoration

District stakeholders of whom majority were government employees, reported to be doing their best to conserve and restore wetlands in their jurisdiction. They do so through being involved in public awareness, occasional monitoring and inspection, community meetings to engage with players as well as publishing laws and policies enacted by the government. However, the claims of district officials doing their best to conserve wetlands has been contested by those at the community level, who feel that district officials are not doing enough as they are not seen on the ground and do not respond when they are informed about a misuse of the wetland. The same sentiments were largely shared by representatives from civil society. Therefore, it is a widely held view among national stakeholders that more needs to be done to conserve and restore wetlands in Wakiso District.

It should be emphasised that community members are stakeholders, actors, and beneficiaries when it comes to wetland management and must be involved in interventions concerning wetland management. Four basic practices of wetland management exist including wise use,

adaptive management, integrated water resource management, and participation of local communities and stakeholders (Johnston et al., 2013). Each practice offers an opportunity to involve stakeholders directly. This study relates particularly to the fourth practice that focuses on local community members.

Even when it was shown in Chapter Four that there are some activities taking place aiming at wetland conservation and restoration, their impact is negligeable. This is because over the years there has been increased conversion rather than conservation. Many of the wetlands are encroached on and even the scale of encroachment on individual wetlands such as Lutembe has been phenomenal in the last decade. The little progress is largely an effort of individual community members who individually take it upon themselves to make a difference because of the value they attach to the wetland. Relating to this, Gosling et al (2017) stressed the importance of active participation of community members brings in the success of natural resource management. The existence of LWUA makes it easy to mobilise community level stakeholders for action as there are communication channels, but sustaining their enthusiasm to participate is the challenge especially when some are feeling frustrated by those in power. The risks and threats to individual members are also great which is some ways reduces their zeal and willingness to safeguarding the wetland from encroachers. Hence, certain individuals were more vocal and active than others. The apparent lack of power at the community level to for instance stop an encroacher or a project left them disempowered which agrees with what Mutua et al., (2018) noted that responsible governance of the environment is impossible without a democratic space.

Whereas stakeholders at the community level are more concerned with *conserving* what remains of the wetland, those at the district and national levels are more focused on *restoration* of the degraded wetlands. Results show that largely, the level of exposure and knowledge of those at community level is limited to wetland that they are familiar with. Secondly, some of the community members may be selfish since they are the ones who are still accessing and benefiting from the wetland resources free of charge and they worry that if more of 'their' wetland is demarcated it will limit their chances of access. On the contrary District level and national level stakeholders have a bigger picture of the scale of destruction done to wetlands from several places and that is why the prefer restoration to conservation as there is little to conserve. The later felt that even if all that remains of the wetlands is fully conserved, the damage already done cannot be averted and the national effort should be on

wetland restoration in addition to conservation. The push for restoration is captured in the National Development Plan where it is hoped that restoration will increase wetland coverage from the current 8% to at least 12% by 2025 (NDP III 2021-2025). Their efforts however are facing numerous challenges as more people who had earlier not used their pieces of land rush to do so in fear of losing them if they do not show ownership. Such a rush in the short term will further reduce the percentage of wetland coverage before any positive restoration is realized, the reason why conservation and restoration should go hand in hand.

Citizen agency and participation is key for successful planning and execution of wetland conservation and restoration. As for the planning process, it should be inclusive with local communities and indigenous people being given freedom to share their perception as strongly encouraged under the Ramsar Convention Secretariat, (2010). While involving key players, women and young people ought to be given special consideration for they are easy to be left out. Where necessary, appropriate incentives such as compensating their time and trainings should be made available to ensure their full and meaningful contribution. As Cooke et al (2013) observe, actively involving many stakeholders such as scientists, regional users, and environmentalists and community members can raise sensitization and increase awareness for those involved. In the end, such increased awareness is likely to stimulate curiosity and accountability for those that are involved. Engaging stakeholders normally involves three stages, *informing* them of the proposal to start engaging in the conservation of a given wetland, *consulting* them to know their perceptions and views about the proposed project and finally *negotiating* with them to know and accept what is achievable, their expectations, contributions, and potential benefits during and after the conservation project (Centre & Jeffery, 2009).

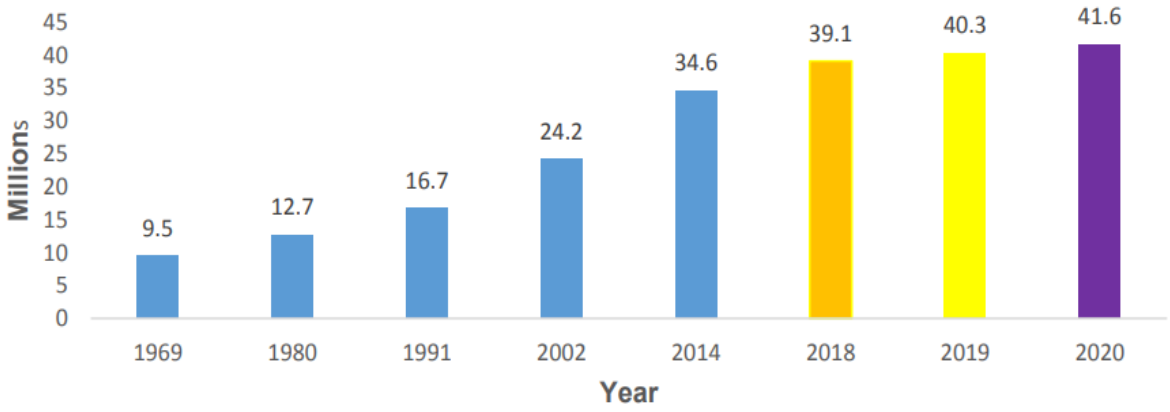
7.5 Population increase and the state of wetlands

Population increases coupled with high rates of unemployment is a key constraint to wetland conservation in Uganda. The fact that over 70% of the young people aged 18-35 are unemployed (UBOS, 2020) complicates the efforts to conserve and restore wetlands. The reasons for their converging in urbanizing areas could be many including the need for access to improved social services such as education, health, employment, and the hope for a good life. It is a common practice in Uganda that people who come to the central region for study or work purposes rarely go back to their home districts upon completion of their assignment

or studies. This is due to many reasons including the need and hope of getting a job and live a better life compared to in their home district. Sadly, when they do not get the expected job to better their lives, some end up living in slums and other places unfit for human habitation such as on the edges of wetlands.

Increase in population is perceived to have a significant effect on the state of wetlands. Population increase was partly attributed to rural to urban migration which has become a common phenomenon in Uganda. Other factors for population include a high birth rate among Ugandans, poverty, and unemployment. Human survival is a key priority when it comes to conserving wetlands. People without alternatives see wetlands as best options to be used to support their livelihoods as they can grow food crops and construct temporary accommodation structures there as they wait for being asked to leave. The problem of population increase affecting functionality of wetlands has been highlighted before (Isunju et al., 2016; Knapman et al., 2017; Rebelo et al., 2010). Apparently in Wakiso District as more people come to live there the more the natural resources such as wetlands are lost and this corresponds with what Hobfoll et al. (2018) observed that population increase contributes to resources loss than resource gain. Persistent population increase leading to more wetland loss is likely to discourage those engaged in wetland conservation and restoration as it diminishes their perceived gains. However, the Uganda NDP III, population increase is perceived as a demographic dividend help in reducing the challenges resulting from urbanization (NDP III-2021-2025). Indeed, as shown in Figure 20, population has been growing steadily for the past five decades in most areas of Uganda.

Figure 20: Trends in population growth in Uganda 1969-2020



Source: Uganda Bureau of Statistics 2020

Population increase comes along with an upsurge in demand for housing facilities. There is inadequacy of housing in Wakiso District both in terms of quantity and quality. Such calls for an urgent need for reform and improvements in the housing sector especially options that target the urban poor. For years, the Ministry of Housing and Urban Development has called on the central government to support changes and adopt new designs of housing infrastructure in the country with no visible success. At the time of this study, Uganda had a housing deficit of 2.2 million housing units (NDP III- 2021-2025) and planned to achieve that through the ministry of Lands Housing and Urban Development alongside private investors. There are debates especially among the public and citizenry that having storied houses to accommodate especially the marginalized people will make it easy for occupants to get access to social services such as piped water and electricity. With people living in small well planned and defined places, it is anticipated to reduce the current practice of people scattering homes everywhere which reduces land for production and ultimately help in the restoration- of wetlands.

Even with population increase, there are activities that can be done to improve wetland conservation and restoration. Examples include establishing local coordinating committees, identifying past efforts and successes to build on, visiting other wetland communities to learn new methods that can be adapted, self-evaluation of the community to gather evidence about needs and seek actions that can be achieved, focus on community priorities, create workplans and act after they have been agreed upon. Taylor & Taylor (2016), add the need for

continuous revision of the process for improvement. These tasks, if done consistently and supported for community level stakeholders will keep them informed of what actions needs to be done to conserve the reducing wetlands. There is no doubt that well informed education and sensitization can play a key role in influencing perceptions and behaviours from destructive to constructive ones. This can be achieved through integrating environmental education into the curriculum for those undergoing formal education and focusing on sensitizing people on the role of environment for those that are out of formal education systems. Behaviour change is hard to achieve and a gradual process (Nielsen, 2018; Jusup et al., 2020) but hard as it may, acquiring and sustaining healthy behaviours is one of the vital steps that people can take if they are to live long and healthy lives.

There has been discussion about a population dividend, referring to the national benefits that accrue because of population increase, such as increased aggregate demand of goods and services (NDP III- 2021-2025). But in Uganda, population increase is synonymous with an increase in poverty levels (UBOS, 2020). Most Ugandans are young, which is an indication that the country has a high fertility rate. Poverty tends to drive people to urban centres in search for livelihood opportunities. A case in point is that in Uganda, the total population in urban areas in 1980 was only 0.9% and this has increased to 10.6% in 2020 (UBOS, 2020). It also leads to land fragmentation as well as encroaching on formally neglected lands such as wetlands and river banks (Knapman et al., 2017). In some cases, there is displacement of local people who had conserved such lands for generations because of the attachment they had. It seems that connectivity to wetlands is missing among the majority young people and the incoming population also lack attachment to the wetland, hence prioritizing their needs.

7.6 Integration of stakeholder perceptions

A large majority of the population of those who engage in degrading wetland activities such as sand and clay mining, vegetable growing, papyrus harvesting among others, do so for survival. There are other conservation and restoration activities such as ecotourism including tour guiding, boat riding to transport tourists, handcrafts making and selling to tourists and home stays. Other wetland conservation activities that community members may engage in are growing of woodlot for charcoal, use of energy saving technologies and proper waste management. The activities can co-exist well with the wellbeing of the wetland.

Benefits arising from engaging actors into wetland conservation and restoration activities are highlighted in this research. Some of the benefits include promoting sustainable pro-environmental behaviour that calls for an understanding of the determinants of environmental perceptions held by stakeholders (Gifford Nilsson,2014; Meyer, 2018). This is crucial because perceptions and attitudes have implications for human-nature relations. Where these relations are negative or not supportive, efforts and strategies need to be applied to create avenues through which they can be changed to positive and or supportive. Such may be done through either formal or informal education and sensitization. Where the perceptions are supportive of conservation and restoration, they should be promoted and widely shared so that many people can appreciate the ecosystem services wetlands offer for the benefit of man and other organisms. The idea that for a wetland to be useful it should first be converted into other uses need to be discouraged and disapproved at any costs for purposes of conservation of the essential ecologies that we depend upon.

There have been some consultations at separate times and with varying individuals. Representative stakeholders from CSOs and NGOs were consulted more than community level ones. With their inconsistent participation, some government officials still felt that community needs were fully represented. Such is not entirely correct because most of these CSOs and NGOs are not locally owned or formulated and thus may not be relied on entirely to represent the perceptions and concerns of the everyday person that derive their living on the existence of the wetland. On the contrary, those at the community level and their perceptions are the least integrated into wetland conservation and restoration efforts as found by this study. The reasons for this are partly due to their limited levels of education, limited exposure to current and wider global discussions on the subject matter as well as prioritisation since most of the people at that level are pre-occupied with daily subsistence concerns. To engage in an activity in the wetland one must seek for permission from government authorities, and yet, it was vice versa when it is the government that want to implement any project in a wetland because it does not seek authorisation from anyone. Government officials rarely if at all consulted with the local people to have their input into what it takes to conserve and restore wetlands. This isolation was most times extended to people's representatives at Town Council and District levels. This contradicts what Nakiyemba et al (2020) noted that

success in wetland conservation is associated with the active participation of concerned and could partly explain why such successes are absent in Wakiso District.

Integrating stakeholder perception in wetland conservation and restoration is challenging. There are cases of mistrust which hampers meaningful participation in the integration of perceptions. Perceptions ranging from some being deeply concerned about wetland conversions to choosing not to focus on what is happening. Those who are deeply concerned about the extent of wetland degradation, call for measures to halt any further conversion of wetlands. They seem to be at pains to observe what is going on and yet are helpless as individuals to stop or change it. Those who choose to ignore what is going on may be interpreted as 'burying their heads in the sand' and assume all is well. Individuals choose what to focus on with some being utterly concerned about what is going on and others being resigned that whether they care about what is happening or not, they have no influence or power to change anything. A few at the district level decried lack of prioritisation and proper allocation of the available resources to the central government towards the environment sector. There are also those who argue that change in the way how environment is taken and understood by those in central government will only be felt when there is a change of government.

Low levels of education among a section of Ugandans presents another constraint to successful integration of stakeholder perceptions regarding wetland conservation and restoration. Higher education levels are said to influence positive perceptions and attitudes towards the environment (Van Liere and Dunlap, 1981; Strieder et al, 2017). With increased levels of education, one is more likely to find a job that may make them earn a living off the land. However, with limited education one is likely to be employed in casual jobs which seldom pay enough for one to live comfortably hence not being able to afford necessities of life. For Lutembe's case, putting many restrictions and taxes on fishing from Lake Victoria has pushed many out of fishing and these ended up resorting to vegetable growing in the neighbouring wetland thereby increasing conversion.

The apparent absence of community-based organisations that focus primarily on wetland conservation and restoration is a major constraint. Organisations do advocate for solutions to

people faced with challenges and where they are not, people are left on their own. Where CBOs and NGOs operate, they tend to supplement government efforts and quite often remind those in authorities to do their duties. Also, sometimes organisations work to defend the interests of the voiceless and powerless. Organisations may be interpreted as a link between the common people and their government especially when it comes to advocating for services and representation. The absence of such organisations also hampers operations of the technical officers. Indeed, such organisations focusing on wetland conservation and restoration are not there, yet they are supposed to be there to help in the mobilisation of the stakeholders to engage. According to records available at the district, there are no registered organisation that focuses on wetlands or even the environment in general.

Consequently, stakeholders at the community level end up having inadequate access to correct information which limits their chances of meaningful participation when it comes to wetland conservation and restoration and hence their perceptions not being integrated into the planning and implementation of wetland conservation and restoration plans.

The perception that community members are powerless is another big threat facing wetland conservation and restoration. Limited actions if any is expected from the community members as they are perceived by those in power to be not in position to conserve their own resources. That is partly one of the reasons as to why all wetlands in Uganda are held by the government in trust of the citizens. For instance, members of LWUA are powerless and lack enforcement capacity apart from only reporting to those in higher authorities who seem not to be bothered with what is going on or give a litany of excuses for not responding to their reports. The same challenge was noted by Nakiyemba et al. (2020) that there are enforcement challenges when it comes to wetland conservation in Uganda. Separating people from taking responsibility for their environment is a bad policy and practice as it exposes the wetland to the whims of those who have power. It is even worse when the people with power and authority do not have any connection or attachment to the wetland. Such people tend not to care what goes on in the wetland and may have little or no cultural and historical attachment to the wetland. Giving back the power to the people calls for massive sensitization, empowerment, and civic action.

Integrating stakeholder perceptions is a worthy effort as it contributes to building confidence, transparency and minimizes uncertainty about what is being proposed or implemented. Indeed, Ramsar Secretariat encourages contracting parties to provide transparency in decision making processes (Ramsar Convention Secretariat, 2010) especially when dealing with community level members and indigenous people. Specifically, it reduces tension, suspicion and speeds up problem identification, solving and decision-making which are key ingredients for a wetland conservation and restoration intervention. While engaging in integration, it is wise not to leave anyone behind as doing so will lead to alienation of some people hence creating a scenario of 'them against us'. It cannot be denied that those privileged to have education and other levels of exposure should lead the way by leveraging on their skills in mobilization and facilitating discussions to bring people to a level of agreement and acting together. Some community level members expect their children that have gone to school to come back and help in efforts to conserve and restore wetlands.

Achieving integration of stakeholder perception in environmental conservation projects necessitates widespread education relating to our responsibilities towards the environment. It further supports the idea brought forward by Palmer (1998) that environmental conservation is a complex issue that at times defy human understanding because it has many paradoxes. In 1987, UNESCO realized that nothing significant will happen to reduce local and international threats to the environment, unless widespread public awareness is aroused pertaining to the essential links between environmental quality and the continued satisfaction of human needs. This points to the need for everyone to become environmentally conscious more so starting with the policy makers and implementers.

It should be noted that managing stakeholders' interests is not an easy task given their diverse nature. What is key is that the benefit of doing so far exceeds the cost of not doing so when it comes to wetland conservation and restoration. A problem of ambiguity should not be ignored also. Pluchinotta et al. (2018) refers ambiguity as a degree of confusion that exist among actors in a group for attributing different meanings to the issue under consideration. Ambiguity may not be avoided where many people are brought together for a common good. On many occasions it is this ambiguity that leads to disagreements in decision making. It is a challenge to identify and manage varied expectations for a long time. In short, managing wetland conservation and restoration activities faces similar difficulties faced when managing other resources that are regarded as the commons (Hardin, 1968). But learning from the

Conservation of Resources Theory (Hobfoll et al., 2018), individuals and groups will always strive to obtain, retain, foster and protect the resources they value and consider as theirs.

I propose three key stages at which integration of perceptions should be captured for high success in wetland conservation and restoration. The stages include pre, during and post intervention. In Table 20, the details are included and the stages presents an opportunity to consider different aspects such as their norms, culture, beliefs, and practices. The more encounters one gets with the target stakeholders in a wetland conservation or restoration project, the more knowledge and experience sharing that will happen between the players. This will contribute towards reaching a mutual understanding between the stakeholders as their interests will be catered for during the process of planning and negotiations.

Table 20: Stages of integrating stakeholder perceptions

Stage of integration	**Actions involved**	**Relevance**
Pre intervention	Identifying and classifying stakeholder perceptions. According to Ramsar Convention Secretariat (2010) Partners may also be invited at this stage, if required, to contribute to the evaluation of project proposals, project implementation, and the evaluation of project results.	▪ Include all key stakeholders ▪ Gather all perceptions ▪ Analyse them ▪ Reach consensus ▪ Establish parameters ▪ Taking correct decisions
During intervention	Active participation, regular updates, monitoring, and evaluation, documentation. This builds on what Kabumbuli & Kiwazi (2009) suggested.	▪ Keep interest in check ▪ Appreciate changes ▪ Share knowledge and skills
Post intervention	Closure and handover Documentation of process	▪ Ensuring sustainability ▪ Share lessons learnt

	Reviews and recommendations	▪ Scaling up intervention

During the initial stage, key stakeholders are identified and classified as presented in Table 11. Classification could be according to their level of intervention be it global, national, regional, District and down to the community, household, and individual level. Doing so will ensure that no-one is left out. Other forms of classification could be active and passive, institution representation, gender as well as location, among others.

In the intervention stage, stakeholders need to be clearly aware of what is expected of them or their roles and responsibilities. It should be made known to everyone that even when efforts are made to ensure that their perceptions are integrated in a wetland conservation or restoration exercise, it is not a duty of a single individual, community, or organisation to ensure that they are respected. On the contrary, it is a responsibility of everyone hence the need for continuous engagement. People should not keep silent and just be passive participators but instead they should be pro-active, share and make known their needs, expectations, interests, and fears so that intervention planners and implementors are kept aware of them. By doing so, they will be participating in the co-development of their wetland resources.

As shown in Table 20, perceptions ought to be captured during the intervention stage, however as the findings of this research show, when decisions to be taken are critical, complex, and controversial such is rarely done in Wakiso District. Decisions such as land ownership, benefit sharing, wetland allocation among others are unilaterally taken by the central government without participation of the local stakeholders. It has been argued before that land acquisition in Uganda is a critical source of tension and conflicts (Anyuru et al., 2016) and it is worse in the central region which is the most densely populated region of Uganda.

Respecting and valuing local, traditional, and institutional beliefs, experiences and knowledge alongside modern science is of essence for the success of wetland conservation in urbanizing places. The Catholic Church for example owns so many hectares of land with some sections being a wetland and through its belief of respecting God's creation, it has generally conserved it compared to other wetlands whose ownership is contested or in the hands of government.

The challenge is how to work with such institutions as the Catholic Church to pass on the same message to the rest.

Culturally, people have taboos and superstitions they attach to wetlands and these need to be integrated when implementing a wetland conservation and restoration activity. In Wakiso for example, every wetland belongs to or is associated with a spirit (Musambwa) and consequently individuals that live near such wetlands are filled with fear and could not easily convert them into other uses hence their conservation. The belief was that if any one polluted or degraded a wetland, the spirit would punish them, and they would be struck by lightning (Ntambirweki, 1998). However, as other people migrated from other regions and did not have that knowledge of the spirits or did not believe in them went ahead and started degrading the wetland. It is important to note is that contemporary religion (Christianity and Islam) practised by many Ugandans play a role in weakening and demonizing traditional beliefs, taboos, values, and superstitions.

Stakeholders involved in decision making may use ecosystem services framework in projects that are related to reducing poverty, increasing food production, strengthening resilience to climate change or energy production, among others. However, it requires one to undergo the training to appreciate the risk and the opportunities that are related with the use of ecosystem services concept. Below are the five key steps to consider when accessing risks and opportunities related to a planned project that focus on a wetland ecosystem.

a) Identify the wetland that a decision depends on and affect through accessing the goods and services it offers
b) Determine which of the ES are most relevant to the decision and set priorities for further assessment
c) Conduct a detailed analysis of the condition and trends of the most relevant ES based on questions and issues raised
d) Establish the economic value of the service to use in determining the cost benefit analysis
e) Analyse the risk and opportunities that will result from the decision taken.

Involving stakeholders in the above processes is key in capturing and documenting what their fears, expectations- and feelings are about a proposed project in their natural environment (Ramsar Convention Secretariat, Handbook 7, 2010).

7.7 Economic development versus environmental conservation

Uganda is a country with rich biodiversity, high population growth rate and resource endowed in many respects. Even then, the country faces challenges in the management of those resources due to many reasons including conflicts of interest and the fragile state of the country political landscape. With majority of Ugandans being children and young people, there is a high drive towards industrialization and urbanization which have significant effects on the efforts to conserve and restore wetland ecosystems especially when they are not well planned. Quite relatedly, there is need for caution and proper planning to avert the projected increase in water scarcity in most urban areas of Africa as this will directly affect the urban population. By conserving and restoring the wetlands, water in rivers and lakes as well as ground water sources will be sustained. When wetlands are conserved, they will replenish water that will be used domestically and for industrialization. To achieve that however there is need for a balance between wetland conservation and industrialization i.e., one should not affect the functioning of the other. Episodes of water challenges are already felt by many African countries and according to the World Resource Institute Report, less than 25% of the urban population in Africa have access to safely managed water (WRI, 2019) with only 42% having access to safely managed sanitation services. This is happening as the continent is rapidly urbanizing with unplanned cities expanding in the periphery thereby depleting resources and natural assets as observed by van den Berg et al. (2021).

Ugandan citizens and concerned stakeholders need to be aware that any effort to combat the negative effects of climate change will not be achieved successfully if the natural ecosystems such as wetlands are mismanaged. There is a close relationship between climate change and ecological crises and the two are interweaved and neither of the two can be solved without the other (Knapman et al., 2017). There is an uphill task given the fact that wetland conversion is partly done to feed the growing population and unless alternatives are found, or better technologies adopted to increase food production it may remain a nightmare to conserve natural wetlands in developing countries like Uganda. While talking about biodiversity losses and the potential increase in food prices (Leclère et al., 2020), and given the high number of people that rely on wetlands to produce their food, it is hard to envisage a situation where future loss of wetlands is completely avoidable. Urgent landscape planning is needed to enable people produce food on the vast vacant lands that are not utilized now with the help of

other technology such as irrigation where water is scarce to prohibit people from encroaching on the wetlands in their localities.

Pursuing development for its own sake without considering the environment will not likely bring about the anticipated benefits. Take for example, having a clean, conserved and functioning natural ecosystem is an element of development. It is not and it should not be only about factories, roads, and other structures at the expense of nature. Thinking development in terms of first degrading the environment should not be the best option and by far should not be admired by any policy makers. Balancing between wetland conservation and social economic development is paramount and should act as the guide for any development intervention taking into consideration that majority of the citizens of Uganda still depend on rain-fed subsistence agriculture. Forward looking leadership is key in the planning for and management of wetlands. Additionally, presence of capable and just players, respect for people's views and ideas, technical and financial support, determination, and compassion are all crucial for success in wetland conservation. This is what Freire (2000) referred to as praxis (theory, action, and reflection).

7.8 Role of culture and religion in environmental conservation

Peoples' beliefs, attitudes and values have a significant role in influencing how they relate with the environment (Dlamini et al., 2020). Religion plays a key role in influencing people's behaviours and attitude towards issues of life, economy, and environment. In the case of Wakiso District, many people believe most of what their religious leaders preach without questioning it. So, if used well, this is a great avenue to cause some fundamental changes to the ways in which people perceive and interact with their environment. Nature has been interpreted in the Christian Bible as created by God and placed in the hands of man to care for it as clearly stated in Genesis 1:28 (Swaggart, 2013). Therefore, when massive degradations and conversions of for example wetlands occur, it is interpreted by some as a direct violation of what God expects from humans – to care for the earth and hence contradicts the great command "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" Gen 1:26–28 (Swaggart, 2013).

Traditionally in many African communities, environment is protected by social taboos rather than legal injunctions. There are many changes in our cultures which also contributes to the loss of treasured environment which directly affects people whose lives largely depend on obtaining resources from the environment. Lost natural ecosystems such as wetlands cannot naturally be regained 100% irrespective of what modern science we may apply. What this implies is that neither person, community, or government should stand by and watch or in any way facilitate the degradation of our natural resources, particularly the wetlands. We all need to know that wetlands and other natural ecosystems such as forests and rivers do not disappear alone, they go with us [humans] along.

7.9 Revised conceptual framework

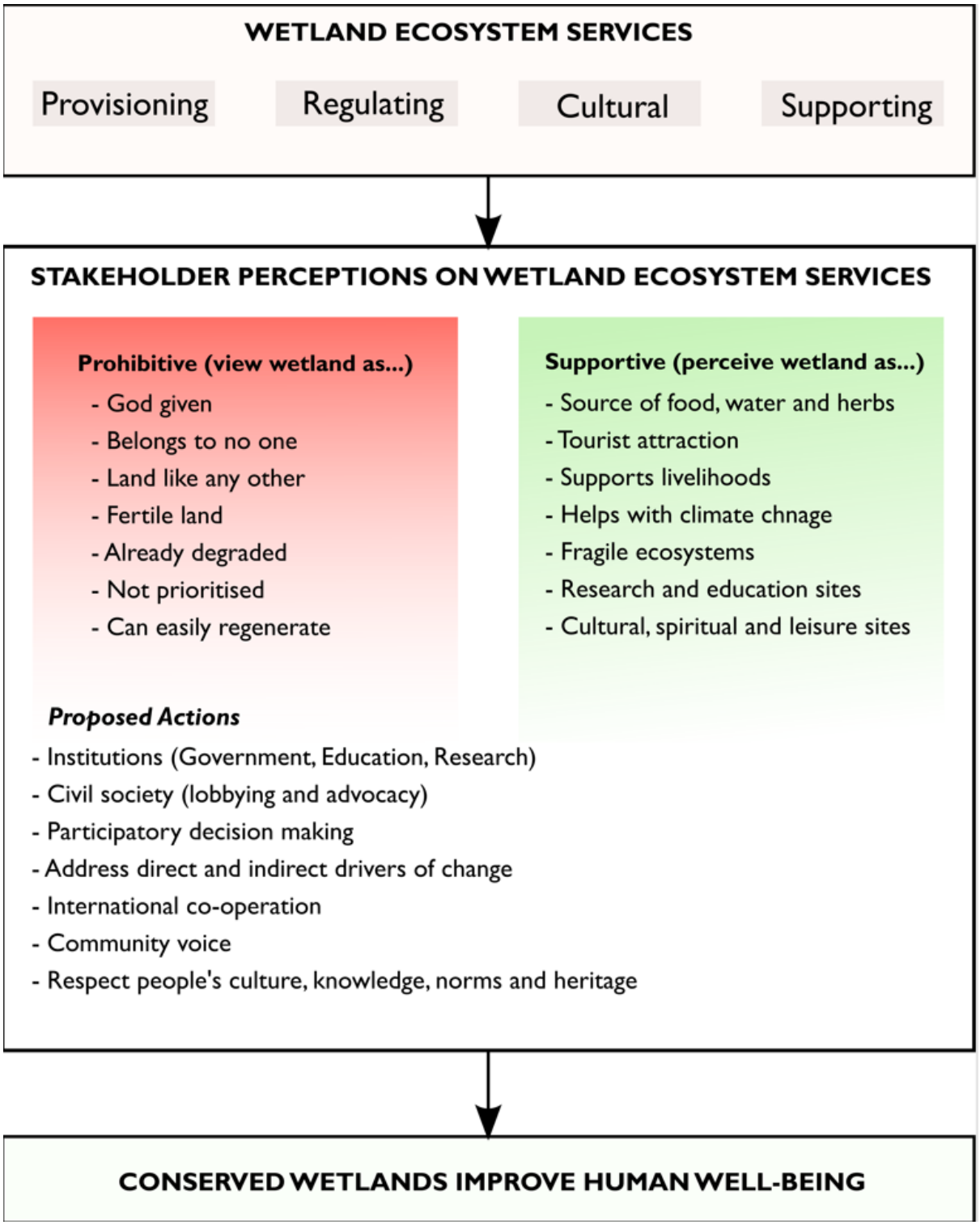
The Ecosystem Services Framework was adopted for this study because it focuses on the relationship and benefits that people and nature derive from each other. It is not a surprise that people depend on the environment more than the environment depends on the people but the two are connected by a symbiotic relationship. However, for that relationship to last long and benefit the current and future generations, there is a need for it to be guided through making and implementing policies that will enable both to co-exist especially in this era of climate change. The framework is recognized and commended for improving decision making processes especially those related to natural resource management (Bull et al., 2016).

Adopting the ESF was very important for this study because wetlands in the study sites are on a serious declining rate, and something need to be done to bring that to a halt. Sadly, the results of this study show, there are high chances that the trend is not likely to change soon unless drastic measures are taken to avert the situation. Some of the measures are suggested in the revised framework as shown in Figure 21. In this revised framework, negative or prohibitive perceptions as well as positive or supportive perceptions are clearly stated which needs to be well understood if one is to engage stakeholders successfully in wetland conservation and restoration in Wakiso District. Also included in the framework are possible actions that will help to bring to halt the on-going wetland conversion.

It is unfortunate that prohibitive perceptions are more pronounced and common than the supportive ones a trend that has led to massive conversion of wetlands in Wakiso District. I strongly believe that if the suggested actions are followed or promoted at all levels and by all

stakeholders, they will make a significant contribution in the effort to conserve and restore wetlands not only in Wakiso District but Uganda at large.

Figure 21: Revised conceptual Framework applied to Wakiso District



Using the Ecosystem Services framework has enabled me to learn that stakeholder empowerment and agency is crucial and necessary for effective wetland conservation and restoration. This bestows power and ability to participate as well as holding leaders accountable to their citizens. Knowing how people perceive their leaders and what they do

when it comes to conservation and restoration of wetlands, results clearly showed a high level of mistrust citizens have on their leaders and the extent to which leaders do not respect the input of their citizens when it comes to decision making as well as implementation. Stakeholders when not sufficiently empowered cannot demand for accountability from the duty bearers and the lack of accountability is exacerbated by the ever-narrowing democratic space in Uganda which alienates citizens from their leaders. Through the ESF, I came to appreciate the fundamental role of perceptions in influencing human actions – whether to act or not, whether to legislate or not, to implement or not, to conserve or degrade among others. The vital role played by education both formally and informally came clear as knowledge, attitudes and beliefs keep on changing more so for those involved in wetland conservation and restoration. However, the new knowledge needs to be fully synthesized and integrated into what majority of the stakeholders already know and has worked in the past. Completely disregarding others experience is most likely to detach them and hinder their participation in conservation and restoration activities.

Wetland managers, practitioners and policy makers should adopt the wise use of wetlands as recommended by the Ramsar Convention and the contracting parties (Ramsar Convention Secretariat, Handbook I, 2010). Participation is very paramount in the efforts to conserve, restore and wise use of wetlands globally. By paying attention to stakeholder perceptions on not only the wetlands but their ecosystem services as well broadens the possibilities of success. As clearly stated, people need to be given a chance to air out their concerns, fears, worries and expectations if they are to be fully brought on board. Respecting them and their experience is key in arousing their motivation to participate (Ramsar Convention Secretariat, Handbook 7, 2010). At community level there is need to first identify what of the wetland ecosystem services (provisioning, regulating, cultural and supporting) is more predominant and valued by the community members. This helps in identifying the best ways of engaging them and getting better results as sections of the wetland may serve or offer more of one of the services than others. For example, Lutembe wetland is more on cultural and tourism through being an International Bird Area which is not the case for Nabaziza which provides more of regulating services as it helps to manage flooding in the area.

7.10 Chapter synthesis

Chapter seven answers research question four on how stakeholder perceptions are integrated into wetland conservation and restoration activities in Wakiso District. The question is answered clearly that even though there are legal ways that prescribe how participation should be guided, that is not adequately done now. Through the process of policy formulation citizens views are presented by their representatives and or civil society organisations which produces guides that should be followed yet circumstances change, and different factors apply to the different wetlands depending on their location and the local leadership. Community level perceptions are the least integrated following those of civil society representatives and government officials. In my view, community level stakeholders as presented in chapter five need to be given a voice and agency to be able to determine and direct activities that are proposed to take place in their wetlands. Accountability is required so that people monitor themselves to ensure that wetlands are not degraded and when they have agency, then they will be in position to resist anyone who comes with an intention of converting the wetland whether that person or company has a permit or not. This way, those in leadership will see the reason to meaningfully consult them and such will increase their opportunity to have their aspirations known, respected, and integrated into most of the wetland management activities.

CHAPTER EIGHT: STUDY CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

This research set out to study stakeholder perceptions on wetland ecosystem services using the case of Wakiso District in Uganda. Results show that there are divergences that exist between the partners and players involved in conservation and restoration of wetlands. The drivers of change in wetlands include population increase, rural to urban migration, poverty and over reliance on subsistence farming which may persist for the foreseeable future. However, specific, and deliberate incremental conservation and restoration actions may reduce wetland loss and its associated effects to people and nature. To achieve conservation and restoration of wetlands, the following recommendations are made to individuals and households, communities, government, and civil society. The chapter closes with possible future studies as well as the key conclusions.

8.2 Study contribution to knowledge

The main contribution to knowledge made by this study is the clarification of the role played by human perceptions in influencing actions either to support or not support wetland conservation and restoration.

The findings also contribute to the plurality of knowledge rather than its universality through bringing onboard perceptions and views of the formerly alienated stakeholders in mainstream participation in policy making and implementation such as hunters, water fetchers, handcraft makers and sand and clay miners, as well as those who live nearby the wetland and work either in the wetland or its edges in Wakiso District.

Results further build on the need for harmonization between urbanization, economic growth, industrialization, population growth in Uganda, and the need to care and treat environment especially wetlands with the respect they deserve given their central role in facilitating all the above progress. Indeed, conservation and restoration of wetlands complements all other efforts geared towards attaining sustainable development.

Stages at which stakeholder perceptions should be integrated into policy making and implementation have been clearly stated. This information is very crucial for both policy makers and implementers if they are to succeed with wetland conservation and restoration particularly so in many sub- Saharan Africa countries starting with Uganda.

The study adds to the body of knowledge and debates surrounding the management of natural ecosystems such as wetlands whether recognised internationally as wetlands of international importance on the list of Ramsar sites or small wetlands not even included on the country map. Both small and big wetlands play a significant role in sustaining life- on earth.

8.3 Limitations of the study

The study faced a few limitations and restrictions given that it was conducted during the time when COVID-19 lockdown was in place for some months in Uganda. These lockdowns led to the establishment of a number of Standard Operating Procedures which for example limited the number of people that could meet in the same venue. I was unable to hold focus group discussions due to the restrictions on the number of people that were allowed to meet at the same time. If this restriction was not in place, I would have used more engaging and participatory methods of data generation.

Also, the case study focused on only two wetlands which limited the number of stakeholders and ultimately the variety of perceptions compared to when more wetlands and particularly those on the list of Ramsar sites were included.

8.4 Recommendations

The recommendations relate to what may be done to increase successes in conserving and restoring wetlands in Wakiso District and Uganda. They may also apply to other countries with similar characteristics and challenges. Because stakeholders engage in wetland conservation and restoration at different levels, recommendations are divided into those for individuals/households at the community level, government that is district and national level as well as for international players including organisations.

8.4.1 At community level

Stakeholders' contributions need to be identified, recognized, and appreciated. Such play key roles in the conservation and restoration of wetlands. Community members should be empowered to the level of taking actions even without the intervention of leaders or external help which are so often out of reach. This is what is reflected as giving community a voice on the revised framework. There should be clearly known actions that everyone in a wetland community can take, when they see or suspect that a degrading activity is done or about to take place. For example, a toll-free telephone number could allow residents to alert or report an abuse. For this to be effective, it requires a proper mechanism of response whenever an abuse is reported by the community members. This system would increase the level of awareness and alertness while keeping the leaders aware of what is taking place in and around the wetland.

There is an urgent need for attitude and mindset change especially among some politicians, policy makers and implementers about the value they attach to wetlands and their ecosystem services. Leadership appreciation of the values and roles played by wetlands for the benefit of society including humans and the environment is essential. Attitude change could be stimulated by communicating research on the various aspects of the wetland especially their economic benefits, reading about other countries successful steps taken to conserve wetlands, and attending community level activities geared towards environmental conservation, to mention but a few. With a right attitude, wise-use of wetland resources as outlined in Ramsar (2007) will be achieved. For now, this standard is quite amorphous and not well understood and applied by those mandated to do so. As Ostrovskaya et al. (2013) put it, there are capacity challenges for fully implementing the wise use concepts in efforts to conserve wetlands in most countries.

Stakeholders including researchers, educators, and organisations among others, need to work together and offer training to those at the community level on how to co-exist with the wetland. Such a training should incorporate translating and sharing the wetland protection laws already in place, outlining what should and should not be got from the wetland. The trainings should aim at empowering people to act even when it requires them to do so voluntarily. What is key is for them to appreciate the role played by wetland ecosystem.

When people are mobilized and equipped with skills, mainly by members of the civil society who supplement government efforts in the country, it is easier to influence and affect larger groups of people. With empowerment, many more players are likely to join and cooperate in efforts to conserve and restore wetlands. As a united and focused group, it would be hard for anyone to intimidate them even if that person is politically connected. The process of equipping community members and other partners with the necessary knowledge to conserve and restore their wetlands should be an ongoing one rather than a one-time event, for it to bear the expected results.

Stakeholders aiming at working in restoring and conserving wetlands should try to identify resources already available in homes so that they start with those to work towards success. When people are made aware that there is something they can already do without any help from outside their community it empowers them. For example, when people use their human energy which is a universal resource common to all, if channelled well, it helps in achieving the desired results.

As community level stakeholders live in the same wetland community and directly benefit from the presence of the wetland, they need to be educated and encouraged to play the role of monitoring their wetland. This will benefit both the wetland and the people let alone reducing operational costs on the part of the government. Using Bigodi wetland as an example, (Gosling et al., 2017) local community members are fully engaged in the management of their wetland through a community-based natural resource management programme (CBNRM). Under CBNRM, people benefit by earning money from tourists that come and by obtaining goods services they need for survival. The CBRNM as an approach aim at bring local communities and citizens as co-owners and co-managers of natural resources (Gaodirelwe et al., 2020). According to (Trisurat, 2006), community-based conservation is premised on three key elements. One is that local peoples are concerned and are aware about the relevant ecosystems that support their livelihoods, two they do participate in decision making and their implementation and finally three they are convinced that management decisions and efforts towards conservation of biodiversity are voluntary and not by manipulation and or coercion. Active and meaningful participation especially in decision making is what is currently missing.

Every wetland community should establish a functional wetland protection committee with a major focus on ensuring that the wetland is kept in a state that benefits the people on a sustainable basis. This committee should network with civil society members to advocate and lobby for support they need to use wetlands sustainably. Civil society is included in the revised framework specifically for their role in lobbying and advocacy when it comes to making and implementing of wetland conservation and restoration policies. In addition, the committee should help in regulating activities that take place in and around the wetland and with proper training they can easily keep track of what is happening and report to higher levels when there is a challenge they cannot handle at their level. For example in Kenya, there is the Manguo Eco-tourism and Conservation Group (MECONG) which selected ten committee members to oversee what takes place in Manguo wetland through registering all users, setting bylaws that guides the operations and activities for members that benefit from the wetland (Macharia et al., 2010). Similarly, the committee proposed will save the officers at the district from incurring expenses in monitoring the wetlands as it will be done by people who live and work in the same community. However, such a committee need to be composed of people of high integrity so that they are not easily compromised.

Management of wetland ecosystems require intense monitoring and increased interaction and co-operation among various agencies and associations. This is presented as participatory decision making on the revised framework. When stakeholders work together and their various perceptions considered and or integrated into the process of wetland conservation and restoration, it increases the chance of success. Thus, in addition to the protection committees referred to in the previous paragraph, it would be ideal for every wetland community to have a community-based organisation that would bring all players together for a common goal of conserving and restoring a wetland. Members of this organisation would primarily be community members but also allow external members such as researchers, volunteers, educators among others to join and work with it for the goodness of the wetland. Such an organisation would advocate and plan for the sustainable use of the wetland like it is the case of Bigodi (Gosling et al., 2017). It is easier to convince an individual as well as corrupting them compared to when it is an organised group in the form of a community-based organisation. Therefore, I recommend that at least in one or many of the villages neighbouring the wetlands of Lutembe and Nabaziza or other wetlands there be an organised group that would collectively safeguard the interests of the majority stakeholders whenever a

project is proposed on their wetland. There was outcry for a lack of a local functional office where general information about the wetland could be found by tourists and other visitors. The wetland is tampered with all the time because those who could be guarding it are far away and those who are near, do not have the powers to stop any activity no matter how illegal or degrading to the wetland it could be.

To successfully engage stakeholders in wetland conservation and restoration activities, project designers need to involve them as early as possible and not only inform them. As stated under principle two (broad engagement) of the UN ecosystems restoration (FAO, IUCN CEM & SER, 2021) local communities should be equitably and inclusively provided with opportunities to engage and be meaningfully integrated in free and active ways. By engaging them fully in the conceptualization process it promotes transparency and enables stakeholders especially at the community level to have access to information in a way that is understandable and preferably also agreeable to them. Doing so show that people's culture, norms, and taboos are respected and has been highlighted in the revised framework.

Public education and awareness programs are key for a successful conservation and restoration of a wetland project. This is done by institutions as presented on the revised framework. Institutions facilitate the conduct of research as well as educating citizens both formally and informally. Public education is reported to have played a key role in the conservation and restoration of Ondri swamp in Kenya (Macharia et al., 2010). This has been achieved through working with local leaders and water resource users' association to control water abstraction for domestic and irrigation purposes, and the same should be adopted in Nabaziza and Lutembe wetlands. Formal and informal educational programs should target individuals, households, and communities to increase their awareness and appreciation of the goods and services offered by wetlands. Formal education is effective for the young people and those still in schools, yet informal education supports adults and those out of school. While doing so, emphasis should not only be on individual gains from the wetlands but also the wider community and the world at large.

An effort should be made to recruit and empower residents as wetland protectors. The people would then be tasked to keep a close eye and monitor what is going on in and around the wetland. These 'protectors' should be equipped with skills to identify and report anyone they see engaging in an activity that they consider to be degrading the wetland. The same was

done in the management of Beesh hazar lake wetland in Nepal where the local people were keen to conserve and protect the wetland from uncontrolled human encroachment (Shrestha, 2011). It would be very meaningful if it is the local leadership that offers user permits to individuals that intend to exploit wetland resources rather than it being done by someone who lives very far from the wetland and thus may not be up-to-date with what is happening on the ground. If user permits are offered at local level, then those issuing them would be held accountable by the people which is currently not the case. What all this does is to empower the people to manage their own affairs albeit with guidance from their leaders instead of making them spectators in affairs that directly affect their livelihoods and ultimately changes their perception of seeing the wetland as belonging to no one which leads to its degradation.

8.4.2 Government level (District and national level)

For every wetland in the district there is need for a management agreement which clearly states rights and responsibilities for each player. The challenge is unsatisfactory implementation of what is agreed upon as echoed by majority of the participants in this research. Sanctions to any of the actors whether be it government ministry or department, organisation, or community when it infringes on the wetlands should be made known to all involved. What is at stake now is that the government's actions are not questionable no matter how they infringe on the rights of others when it comes to wetland usage and benefit sharing between and among them. Also, if there is a need for right of access and benefit modification, there should be flexibility and consensus from the stakeholders involved.

Tourism, research, entertainment, and transport opportunities should be encouraged and supported by government along with other viable economic activities surrounding wetlands. This would enable and encourage people to engage in activities not directly related to conversion of the wetland. The reasons for conserving and restoring the wetlands should be well communicated and understood by stakeholders. People need to see not only an economic gain but also social, cultural, and environmental gain emerging out of a conserved and restored wetland.

Working with other stakeholders, the district should ensure that the boundaries of wetlands are clearly visible. With clear boundaries and a buffer zone for every wetland, their protection

is promoted through limiting anthropogenic activities, and could lead to a sustained regeneration and natural functioning of the wetland. It will also reduce cases of false claims by individuals who claim not to know where a given wetland start and ends. In addition, it will streamline ownership challenges which are very prevalent in wetland conservation and restoration across Africa (Barakagira & de Wit, 2017; Mafabi, 2016) and property rights (Loft et al., 2015), let alone most of the wetlands being located on communal land (Owethu Pantshwa & Buschke, 2019).

There is an urgent need to reduce and streamline the number of GoU institutions that are mandated to oversee the conservation and restoration of wetlands and environment in general. Doing so will reduce delays, confusion and the struggle for recognition, power, and influence while creating an environment to have increased access to financial resources. That act will likely limit duplication of services and corruption tendencies. With the current limited communication and coordination between and among different government agencies it is easy to use influence over one institution when power is over spread. As expressed, many times by stakeholders during this study, NEMA has played a key role in the current conditions of the wetland and through a review of practices and a renewed attention to the implementation of national policies, and alignment with traditional governance and knowledge systems, this agency could be a pivotal player in the conservation and restoration of wetland by being more transparent, cooperative, engaging and listening to other stakeholders as highlighted in the revised framework.

Based on the breadth of data analysed across this study, a major recommendation includes the establishment of an organisation that brings together all organisations and individuals focusing on wetland conservation and restoration in Uganda. With such an organisation, members could include community members and organisations, District, national level, research institutions, higher education institutions and private sector including researchers, trade unions, lawyers, teachers, farmers, environmentalist, biologists, cultural institutions among others. It is clear from this research that wetland conservation and restoration must be an integrated effort from several players with differing but complementary skills in planning, execution, and monitoring and evaluation. Therefore, these could include ecologists, social scientists, hydrologists, humanities scholars, economists, watershed management specialists

as well as planners and policy makers. Others expertise well suited to this collective endeavour include traditional leaders, religious leaders, government officials, the media, and funders. Coordinating efforts and expertise across these fields of expertise and practice would contribute hugely to the attainment of wetland conservation and restoration in Wakiso, Uganda and other developing countries.

Whereas establishing industries, factories and other businesses and projects is good for the development of wealth creation, when done at the cost of the natural wetlands it is a false and short-term development. Despite the benefits of wetlands goods and services, drylands should now be prioritized for development investments. There is a lack of agreement among Ugandans whether the right to enjoy unpolluted and undegraded environment can override the right to own private property, survival of non-human species with whom we share the wetlands, but recent hazards have proved to most people that peaceful human existence is partly reliant on a well conserved natural environment. Does the survival of other species for example equal to the need to develop and reduce poverty? Converting wetlands to reduce economic poverty will ultimately create other forms of poverty (Daw et al., 2011) such as social, cultural as well as increase the risks that come with a degraded environment. These are in the long run likely to cost more than the temporary wealth gained through wetland conversion.

Traditional and local knowledge is now recognized by many scholars as having a great contribution to science and environmental conservation in particular (Uprety et al., 2012). The importance of traditional knowledge was brought to the fore during the Brundtland Commission (Brundtland et al., 1987) and by the Convention on Biological Diversity where the international community was guided on how to incorporate it into conservation related activities. The community-level stakeholders should be credited and supported to share their experience and their perceptions integrated into any conservation and restoration project of the wetland. This should be done at all stages of a conservation or restoration effort yet keeping it in mind that not all traditional knowledge and practices are conservation and restoration friendly or supportive hence cannot solely be relied upon to achieve the sustainable management of wetlands.

I propose that part of the resources generated through tourism be put aside to compensate people who genuinely bought pieces of land that are now found in wetlands. Once money or

alternative land is made available, a select committee comprising of stakeholders including those from the community level, should refund and relocate those currently refusing to leave wetlands to allow for conservation and restoration. By doing so, individuals will not feel a sense of loss because of a wetland conservation or restoration project. Compensation of individuals using the wetland unsustainably has been advocated for during various Conference of Parties meetings under the Ramsar Convention as well as in the UN principles of ecosystem restoration. It is explicitly stated that restoration programs should use incentives where necessary, work to improve human wellbeing and not to impoverish people as well as promote cultural, social, and economic status of the people (See Table 3). In Kenya for example, the government introduced a grazing tax in wetlands (Macharia et al., 2010) to generate resources needed to build fences around some wetlands as well as paying for improved supervision. The same could be introduced in Uganda with participation from community members and supported through international cooperation as stated in the revised framework.

To increase implementation of the environment and wetland conservation laws, those in charge need to stop selective enforcement of the laws. Stakeholder perceptions are very much influenced by how the government implements the law when it comes to evicting those that are considered to have encroached on the wetland. The government security forces should be seen to do what is right and just by treating people equally if they are accused of the same case of wetland degradation. This should be supported by increased routine of inspection of wetlands which ultimately will change the perception of those who view the wetlands as not prioritised and already too degraded to recover.

I recommend that the current 100 meters stated as a buffer zone for the wetland be increased to at least 200 meters of buffer zone so that it allows the edges of the wetland to regenerate and offer some protection to the wetlands. With an increased buffer zone, it will secure the wetlands from encroachers and will allow the regeneration process to be faster than it is the case now. Doing so will increase chances of wildlife survival in a fragile ecosystem, attract more tourists, offer protection from storms as well as ensuring the survival and increasing availability of the herbs obtained from the wetland.

8.4.3 International community level

International agencies such as United Nations Environment Program (UNEP) should encourage the government of Uganda to implement its environment and wetland protection laws. Whereas the local citizens are powerless to cause the government to act, international organisations have clout and capacity to train, advise and support financially the government officials to act. Funding and other resources if made available can play a significant role in conserving and restoring wetlands in Uganda. As clearly stated in this thesis that government of Uganda is overwhelmed with many priorities and by getting a targeted support to wetland conservation and restoration will be handy and appreciated by stakeholders involved.

8.5 Implications for future research

Continuous research and engagement with stakeholders to achieve sustained restoration and conservation of wetlands globally. The following are key areas recommended for further research for the case of Wakiso Uganda and other Sub Sahara African countries that face the same challenges in the conservation of their wetlands.

- Participatory approaches, such as community meetings, focus group discussions and transect walks should be adopted to achieve a more holistic view of perceptions from stakeholders. Methods which could not be done in this study due to the state of COVID-19 pandemic.
- Comparisons of two or more Ramsar sites
- Research in different regions and Districts and rural and urban contexts. Most national and international organisations tend to operate in urban areas, yet most wetlands are in the rural areas of Uganda.

More research is needed to identify who are the stakeholders in their small groups instead of grouping them broadly as community, District, and national levels. At the community level there are many groups such as men, women, youth, women groups, religious groups, community groups among others.

This study was conducted on a relatively small scale with a small sample (40 participants) and in a single district of Wakiso. Larger studies need to be carried out involving many Districts preferably from different regions of the country to assess similarities and differences

in stakeholder perceptions and their contribution to wetland conservation and restoration in those areas.

8.6 Conclusions

Uganda started engaging in active legislation regarding wetlands in the 1995 after the ratification of the Ramsar convention. The presence of those laws and policies has in some way increased awareness regarding the relevance of wetland ecosystems which in some way has led to an increase in their conversion toother uses. The extent of wetland reclamation is visible to anyone who has lived or visited Wakiso District. The large-scale wetland conversions manifest through the establishment of new road infrastructure, flower farms, the increasing number of people that engage in urban farming and informal settlements in the wetlands. The key policy that guides the management of wetlands in Uganda and Wakiso District is the National Policy for the Conservation and Management of Wetlands put in place in 1995. Other policies include the National Environment Act (2019), National Environment (Wetlands, Riverbanks and Lake Shores Management) Regulations (2000) and the Guidelines for Wetland Edge Gardening (2005). There is no scarcity of laws in Uganda when it comes to conservation and management of wetlands. What is lacking however is the will, capacity, and choice to have the wetlands conserved as enshrined in the above policies.

The study set out to establish who the key stakeholders are and what are their roles and motivations. It is concluded that there are several stakeholders that are interested in having wetlands in Wakiso District conserved and restored. The key stakeholders are those at the community level that live adjacent to the wetlands. Others are government officials at various levels as well as international stakeholders who largely work through non-governmental organisations. However, when it comes to the roles they play, community level stakeholders are left out especially during legislation process as well as implementation of the legislation. Therefore, there is a conflict between the community level stakeholders and those from other levels especially when they are asked to leave or are forcefully and violently evicted from what they consider as their lands and their only source of livelihood. The study has shown that success in wetland conservation and restoration depends largely on well-informed and motivated stakeholders. As people acquire formal education and awareness through campaigns, the level of awareness and appreciation towards the need for a safe and secure

environment also increases. Thus, targeting and focusing on the young people who are still in school is crucial if the country is to have future environmentally aware citizens. Since stakeholders have diverse perceptions and are from different backgrounds, it provides rich evidence base necessary for action using multidisciplinary and multi-stakeholder approaches.

Furthermore, the present study was designed to establish the perceptions different stakeholders have on wetland ecosystem services and how they relate to conservation and restoration of wetland ecosystems. The results show that indeed perceptions differ from one stakeholder to another. There are perceptions that are pro wetland conservation and restoration such as wetlands being fragile ecosystems, supporting livelihoods, climate amelioration and as a cradle for biodiverse plants and animals. Other perceptions held by some stakeholders are likely to contribute to increased wetland conversion such as those who perceive them as belonging to no one, those that consider that they are already degraded anyway, that they are not prioritised by those in power, or who emphasise their ability to regenerate vegetation once it is harvested. These perceptions have a big role to play as stakeholders interact with their environment on a day-to-day basis. It is thus paramount to take stakeholder perceptions when designing and or implementing any wetland ecosystem conservation and restoration project.

This study has found out that overall stakeholder perceptions are less integrated into wetland conservation and restoration efforts in Wakiso District. This is partly because the central government has not fully centralised the management of natural resources such as wetlands to the district leaders. Several examples have been highlighted where those from the central government make decisions that override those at the district and community level even when they are not in agreement. It is necessary that what is remaining of the wetlands in Wakiso District be conserved at any costs to avoid further biodiversity loss and this may be achieved through engaging in massive education, training and campaigning as well as explicit practices like demarcation and fencing off the wetlands. This on a whole call for the empowerment of citizens at the district and community level to be able to stand their ground and defend their wetlands when it comes to government dictating their conversion to other uses.

Everyone should be aware that conserving and restoring wetlands is now an essential part of sustaining a habitable planet. It is apparently clear to more people today than ever before that every effort and technique needs to be applied if we as humans and other biological organisms are to continue inhabiting it. This is because natural ecosystems have been for long degraded leading to massive extinction of some species (IPBES, 2019). What clearly emerges from this study is that the trend towards self-interest remains high and plays a key role in influencing stakeholders' perceptions towards the conservation and restoration of wetlands. Self-interest is portrayed by individual stakeholders, organisations and government departments and ministries marked by each one of them working towards the attainment of their own objectives and goals which are in some cases contradictory and not favouring wetland conservation.

Finally, it should be noted that succeeding in wetland conservation and restoration is a complex and difficult task. First there are many factors at play, and secondly, sometimes it is hard and challenging to discern between a destructive act and a non-destructive one. For example, there are stakeholders that use, extract, and live off the wetland, but in sustainable way; and yet there are others who use, extract, and live off the wetland in non-sustainable ways. The activities may be similar, but the scale differs and the period for which a given activity is done all have different impacts on the health and functionality of the wetland. What is interesting is that both groups may have positive relationships with the wetland since they derive benefits from the wetland, yet one does so on a sustainable basis and the other destroys the resource. Finding and agreeing on the middle ground is the challenge for those who are mandated to manage the wetland resources. Agreement needs to be reached on what is acceptable and what is not while bearing in mind the need to meet the needs of the current generation without compromising the needs of the future generation. To achieve this, ego, superiority, power and might need to be checked and a state of equality created and maintained as opposed to the current situation of 'us against them' between government and those advocating for wetland conservation.

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Annexes

Annex I: Information about departments and organisations that participated in the study

Wetland Management Department (WMD)

The WDM is one of the departments in the Directorate of Environmental Affairs. The directorate of environmental affairs is also one of the three directorates in the Ministry of Water and Environment (MWE). The department is mandated to manage wetland resources in the country. Its goal is to sustain the biophysical and socio-economic values of the wetlands in Uganda for present and future generations. The department considers wetlands to be a source of livelihoods to many Ugandans and hence directly contributes to the National Development Plan (NDP), Vision 2040 and attainment of SDGs. The department claims that it has engaged in demarcation of critical wetlands starting from 2011 to ensure that functionality as an ecosystem is regained and maintained (MWE, 2022). Some of the wetlands demarcated are in Wakiso District. According to the Ministry of Water and Environment, a total of 689.2 hectares of degraded wetlands were restored in several Districts including Wakiso District. However, this could not be verified on the two wetlands where this study was conducted and none of the stakeholders consulted named any wetland in the district that is demarcated.

International Union for the Conservation of Nature (IUCN)

IUCN is a membership organisation that works hand in hand with the GoU to design and implement interventions that ensure biodiversity conservation and sustainable livelihoods especially among the vulnerable communities. The organisation promotes nature-based solutions in the climate change prone areas and local people's knowledge is enhanced based on their indigenous and social-cultural institutions and lifestyles. The organisation demonstrates improved natural resource governance through an integrated water resources management (IWRM) planning process, not only conserving water resources but also the accompanying biodiversity. The importance of biodiversity as a foundation for sustainable development cannot be underestimated when thinking about sustainable livelihoods in Wakiso District.

Nature Uganda (NU)

Nature Uganda is a branch of the East Africa Natural History Society (EANHS). EANHS was set up in 1909 and thus the oldest conservation organization in East Africa. By 1994, EANHS-Uganda had attracted more members and engaged in other activities including

scientific research, conservation action, public awareness raising, advocacy and research. In 1995 it changed names to Nature Uganda. It later joined the BirdLife International partnership and became the BirdLife partner in Uganda. NU is now the leading membership-based conservation organization in the country championing the protection of birds and their habitats. It has a mission of promoting the understanding, appreciation, and conservation of nature. Currently, the organisation is engaged in three major program areas including 1) Education and awareness 2) Research and monitoring and 3) Conservation and development. Under the third area it strives to conserve species, sites, and habitats and among the sites include conservation of critical wetlands around Lake Victoria where Lutembe Bay is one of them since it is considered an International Bird Area (IBA). The organisation also runs a program on community-based conservation of wetlands biodiversity in Uganda (Nature Uganda, 2022).

World Wide Fund for Nature (WWF)

Originally known as the World Wild Fund, it was founded in 1961 in Switzerland as an independent conservation organisation. In 1961 there was a broad call for support signed by 16 of the world's leading conservationists. It was called the Morges Manifesto[6]. In this manifesto, it was stated that while the expertise to protect the world environment existed, the financial support to achieve this protection did not. Hence, the World Wildlife Fund was established as an international fundraising organisation. It started operating in Uganda in 1992 as a coordinating office for East and Southern Africa, reporting to Africa regional office and then WWF international. The mission of WWF is to stop the degradation of the planet's natural environment and to build a future where people live in harmony with nature, by conserving the world's biological diversity. Currently, WWF-Uganda is promoting the preservation of priority water catchments to sustain water quantity and quality and ecosystem functions for sustainable livelihoods (WWF, 2022).

Wetland International (WI)

Wetland International is a global not for profit organisation that was started back in 1937 then as International Wildfowl Inquiry and later in 1954 became International Waterfowl and Wetlands Research Bureau (IWRB). At this time the scope extended to cover protection of wetland areas. Now with headquarters in Wageningen - the Netherlands, the organisation's

[6] Morges Manifesto refers to an international declaration of deep concern for the "thoughtless and needless destruction" of wild places and the species that inhabited them.

vision is a world where wetlands are treasured and nurtured for their beauty, the life they support and the resources they provide. Its mission is to sustain and restore wetlands, their resources and biodiversity for future generations. It started working in Uganda in 2011 and has ever since then got involved in several projects geared towards the conservation and restoration of wetlands working with government on wetland policy issues (WI, 2022).

Advocates Coalition for Development and Environment (ACODE)

The above is a Ugandan independent public policy research and advocacy Think Tank. It operates in East and Southern Africa sub-regions on a wide range of public policy issues. The core business of the think tank is policy research and analysis, policy outreach and capacity building. As a non-partisan and independent organisation, ACODE does not align with any political party or political organisation. It has a vision of an inclusive, sustainable, and prosperous societies in Africa. Its mission is to be a premier think tank striving to make public policy work for people through research, civic engagement, and evidence-based advocacy (ACODE, 2022). In Uganda, it implements an environment and natural resources governance program, and it focuses on environment and other natural resources such as forests, wetlands, and fisheries. Specifically, the organisation advocates for restoration of wetlands and generally the management of wetlands in a sustainable manner in Uganda.

The Uganda Wildlife Education Center (UWEC)

UWEC is a GoU institution under the Ministry of Trade, Tourism, Wildlife and Antiquities. It is the lead agency through UWEC Act 2016 to promote conservation education in Uganda. UWEC is a fun and exciting place for any stakeholder to see and learn about the animals of Uganda and the ecosystems they live in, how they eat, play, and talk. Founded in the 1950s by the colonial government to accommodate confiscated and injured wildlife and to look after orphaned animals, it has grown considerably in recent years. At the centre, wildlife education is combined with leisure. The main purpose is to model the different ecosystems of this country in open range exhibits. It is also a source and collection of traditional medicinal plants. The Centre's location on the edge of Lake Victoria, its rich vegetation and its surprisingly wide range of birds, butterflies and other indigenous animals make it an attractive venue for wildlife education and work with community members from Lutembe wetland community for they share the same neighborhood (UWEC, 2021).

The Nation Media Group (NMG)

It is one of the largest media groups in East and Central Africa. It has branches in Uganda, Kenya, Rwanda, and Tanzania. The mission for NMG is to create value for stakeholders and positively influence society by providing media that informs, educates, and entertains. It believes that the role of media in influencing people's perceptions and behavior cannot be underestimated. Currently we live in an information age and thus people quite easily receive news from different formats including the traditional forms such as radios, televisions, reports, and other publications as well as through the word of mouth. New channels are dominated by digitalized sources such as social media including phone texts, WhatsApp, YouTube, Instagram to mention but a few. Uganda has a liberalized media where many televisions and local radios stations are privately owned across the nation. Most of televisions and radios are in central region where this study was carried out. One journalist from the NMG represented the sector. The selected participant had previously reported on wetland degradation issues and related issues.

Educational/ Research institution- Makerere University

Makerere University established in 1922 is one of the oldest and prestigious English-speaking universities in Africa. Educational institutions especially universities conduct environment related research and make recommendations to the government to enact relevant laws and policies. Additionally, they train the professionals who later become technical staffs when employed by the government and are responsible for implementing policies for the betterment of and the development of the country. At Makerere University there is a department of environmental management in the school of forestry, environmental and geographical sciences, under the college of Agriculture and environmental sciences.

At the District level, there are also several stakeholders that operate within that District. For this research, the following were identified, and their representatives interacted with.

District Local Government (Technical and Politicians)

At the District level, there is a whole department of natural resources. The department is headed by the district natural resources officer. It comprises of the district environment officer, District wetland officer and District forestry officer as technical officers mandated to provide technical advice to the district politicians who make policies concerning natural resources management. The department specifically addresses issues of wetlands, forestry, environment, land management and infrastructure/ physical planning in the district. The

department's vision is to make Wakiso District's natural resources provide sustainable benefits to the communities and mankind in general and contribute to environmental protection. The mission 'Wakiso District Natural resources conserved and managed sustainably for the benefit of local, national, and international community' (Wakiso DLG, 2022). There are some achievements made by Wakiso DLG when it comes to wetland conservation and these include training of some community members in natural resource management, community sensitization and establishment of wetland management committees (Kalanzi, 2015). Kalanzi (2015) adds that the key challenges faced by the district include unclear ownership of wetlands, policy failure and issues of ever-increasing population.

On the political side, the department of natural resources is represented by the secretary for production and natural resources in the district council. The major roles of the secretary are to represent the department in the district executive committee, know what is going on in the natural resources department, present their budget, monitor their budget and work as well as reporting about the success and challenges faced by the department in the district (Interview with Secretary for environment Wakiso District, 2021). The technical officers also work with the secretary to lobby for District level legislation that make it easy for them to do their work. It can be stated that the secretary's role is that of an advocate of the natural resources department in the district council and from District politicians. Unlike the technical staff who are public servants and permanent, the secretary for production and natural resources changes after every five years coinciding with Uganda's election cycle.

Religious institutions- The Catholic Church

The Catholic Church in Uganda owns extensive swaths of land. According to a study done by Alava and Shroff (2019) it states that unlike the Protestant Church (Church of Uganda), the Catholic church has more land and has been putting in effort to document and title most of its landholding across the country but more so in most urban areas. Part of this land includes a wetland called Mabamba one of the other Ramsar site in Wakiso District. The church does not allow people to encroach on its land and this implies that the sections of the wetland owned by the church have largely remained intact or in their natural state. The church also takes an extra step to ensure that no one deposits waste or clears the papyrus on the section that belongs to it for any purpose. The church does not do anything on such land but rather keeps monitoring it for the benefit of the community. As the owners of the land do not misuse it in the eyes of the public, even the public respect such wetlands.

Uganda Community Tourism Association (UCOTA)

The Uganda Community Tourism Association is an umbrella not for profit organisation with members comprised of individuals and groups that are engaged in community tourism enterprises. The association was established in 1998. In 2004 the association was incorporated as a non-profit company limited by guarantee. Interestingly, the majority (56%) of the members are women. Some of the tourism enterprises engaged in by members of this association include: - accommodation, catering, tour guide, cultural music, dance and drama, community interaction and handcraft sales (Uganda Tourism Association, 2022). Lutembe wetland users' association is a member of this association. The association also provides community-based training in tourism specific enterprises with a major goal of enabling the local stakeholder to participate and benefit from the tourism industry that is going on in their localities to improve their living standards.

Lutembe Wetland Users Association (LWUA)

Lutembe community members are organised into Lutembe Wetland Users Association. It started in 2006 and by the time of this study had up to 300 active members by 2020. The members of the association live and work adjacent to the wetland and use its resources to improve their livelihoods. LWUA members came together after several trainings offered to them by various organisations on many subjects including wetland conservation. The community members participate in guiding tourists especially those that are interested in bird watching as there are many types of birds that live or visit this wetland. Some of the services they offer to tourists include guiding them, driving them on boats and selling to them hand made products mostly weaved from papyrus products. Nature Uganda supported the tour guides with engine boats, life jackets and binoculars for bird viewing. The aim of LWUA is to among others promote tourism, nature conservation and poverty reduction.

Ramsar Coordinating Office

There is a Ramsar coordinating office located in Kajjansi Town Council where Lutembe Bay wetland belongs administratively. The office is headed by the Ramsar representative at community level is mandated with the responsibility of ensuring that the day-to-day conservation and protection activities of Lutembe wetland are carried out. The office only

works with communities that are adjacent to the Ramsar site including those with tourist spots and those covered by the papyrus grass. With a community representative managing the office voluntarily, he works closely with members of LWUA. The representative is perceived to be the first point of contact whenever there is an illegal activity around the wetland. t is claimed that most of the above committees work together for the conservation and restoration of Lutembe Bay wetland. The office has gone ahead in sharing information with the community through erecting signposts that clearly show that Lutembe Bay wetland is protected and recognized as a Ramsar site.

Religious leaders

Uganda is a very religious country with an estimated 82% of the population identifying themselves as Christian and 11% as Muslims (UBOS, 2016). Whether church or mosque, leaders are considered influential members of the community mostly by their followers and other leaders. Two pastors from the evangelical Christian represented other religions in this study for they were found to have churches very adjacent to the two wetlands.

Community members

There were individuals that did not belong to any organised groups and were in both Nabaziza and Lutembe Bay. These stakeholders also participated in some form in what is going on in the wetlands. Their combined and cumulative contribution affected conservation and restoration of wetlands. Because they acted individually, they were not easy to monitor, control or target for training compared to those who were in formal groups. At the local council I level, there is a secretary for environment who works hand in hand with the chairperson and sometimes with the town council wetland officer to plan and carry out sensitization activities. The work done at community level to conserve the wetland is voluntary and thus cannot be relied upon for sustainability purposes and participation of target stakeholders has been and continues to be a challenge.

Annex II: Uganda Research Ethics Approval Letter

Uganda National Council for Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Our Ref: SS705ES **22 April 2021**

Anthony Kadoma
Makerere University
Kampala

Re: Research Approval: **Understanding stakeholder perceptions on wetland ecosystem services to support conservation and restoration activities**

I am pleased to inform you that on **22/04/2021**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **22/04/2021** to **22/04/2022**.

Your research registration number with the UNCST is **SS705ES**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.

Please note that this approval includes all study related tools submitted as part of the application as shown below:

No.	Document Title	Language	Version Number	Version Date
1	Indepth Interview guide	English	II	26 February 2021
2	Key Informant guide for policy makers	English	II	26 February 2021
3	Key Informant guide for CBO and NGOs	English	II	26 February 2021
4	Informed Consent Community	English	II	26 February 2021
5	Informed Consent Policy Makers and NGOs	English	II	26 February 2021
6	Media Consent	English	II	26 February 2021
7	Observation checklist	English	II	26 February 2021
8	Risk management plan	English	I	01 January 2021
9	Project Proposal	English	VERSION II	
10	Approval Letter	English	VERSION II	2021-02-26
11	Administrative Clearance	English	VERSION II	2021-02-26

Yours sincerely,

Hellen Opolot
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Annex III: Glasgow University Research Ethics Approval Letter

University of Glasgow

College of Social Sciences

College of Social Sciences Research Ethics Committee

10 December 2020

Dear Anthony Kadoma

Project Title: Understanding stakeholder perceptions on wetland ecosystem services to improve conservation and restoration activities

Application No: 400200029

The College Research Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. It is happy therefore to approve the project, subject to the following conditions:

- Start date of ethical approval: 10/12/2020
- Project end date: 30/09/2022
- Any outstanding permissions needed from third parties in order to recruit research participants or to access facilities or venues for research purposes must be obtained in writing and submitted to the CoSS Research Ethics Administrator before research commences. Permissions you must provide are shown in the *College Ethics Review Feedback* document that has been sent to you as the Collated Comments Document in the online system.
- The data should be held securely for a period of ten years after the completion of the research project, or for longer if specified by the research funder or sponsor, in accordance with the University's Code of Good Practice in Research: (https://www.gla.ac.uk/media/media_490311_en.pdf)
- The research should be carried out only on the sites, and/or with the groups and using the methods defined in the application.
- Approval is granted for virtual methods outlined in the application however restrictions noted below should be followed for any face to face data collection methods.

    - **Approval has been granted in principle**: no data collection must be undertaken with the exception of methods highlighted above until the current research restrictions as a result of social distancing and self-isolation are lifted. You will be notified once this restriction is no longer in force.

Any proposed changes in the protocol should be submitted for reassessment as an amendment to the original application. The **Request for Amendments to an Approved Application** form should be used:
https://www.gla.ac.uk/colleges/socialsciences/students/ethics/forms/staffandpostgraduateresearchstudents/

Yours sincerely,

Dr Muir Houston College Ethics Officer