THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND ENVIRONMENT

THE LAKE NABUGABO WETLANDS SYSTEM RAMSAR SITE MANAGEMENT PLAN

(2017 - 2027)

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APPROVALS

This Management Plan has been reviewed by the sub-county leaders, district leaders and wetland stakeholders, and has been approved for implementation on the 16th of June 2017.

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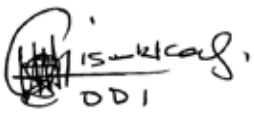
Hon. Samuel Cheptoris
Minister of Water and Environment



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District Chairperson
Masaka District Local Government

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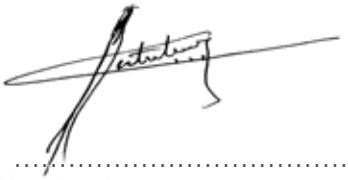
District Chairperson
Kalungu District Local Government



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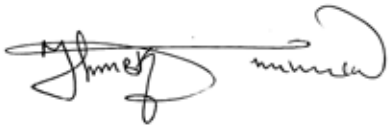
District Chairperson
Mpigi District Local Government



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District Chairperson
Gomba District Local Government

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District Chairperson
Butambala District Local Government

ACKNOWLEDGEMENT

This management plan has been developed in a consultative and transparent process in which the views of all stakeholders were captured in order to ensure ownership of the plan and sustainability. It was made possible by different players who contributed based on expertise, experience, and interest.
I am honored to thank all of those that made the process for this management plan a success. In this regard, I would like to thank the staff of the Ministry of Water and Environment, especially from the wetland management department, for their technical and policy guidance. Special tribute goes to Nature Uganda for leading the process and playing the role of the secretariat for the National Task Force. The National Task Force is also appreciated for the oversight function and taking time off to review the management plan. The communities and respective local governments played a resourceful role in providing information and suggesting appropriate strategies for management of Lake Nabugabo wetland system Ramsar site.

Local Communities, Non-Governmental Organizations, central and local Government representatives also contributed to the development of the Lake Nabugabo wetland system Ramsar site Conservation Investment Plan (CIP) that outlines investment conservation packages that are aligned to this management plan. Although a separate document from this management plan, the CIP serves as a marketing tool to mobilize conservation funds for this management plan. This is highly appreciated and a sign of support for sustainability. Last but not least, I want to thank PREPARED/USAID Project for providing technical support and the necessary financial resources, without which this management plan would not have been possible.

In view of the services and benefits that accrue from wetlands, everybody is called upon to support the conservation of Lake Nabugabo wetland system Ramsar site.

I would like to thank the staff of the Ministry of Water and Environment, especially from the wetland management department, for their technical and policy guidance. Special tribute goes to Nature Uganda for leading the process and playing the role of the secretariat for the National Task Force. The National Task Force is also appreciated for the oversight function and taking time off to review the management plan.

Alfred Okot Okidi
Permanent Secretary
Ministry of Water and Environment

EXECUTIVE SUMMARY

The vision of the plan is ''a well-managed Lake Nabugabo wetland system Ramsar site for people's well-being and environment''. This is a people's inspirational description of what they want Lake Nabugabo wetland system Ramsar site to look like, was arrived at through a consultative process. The plan defines the optimal desired future state and is intended to serve as a clear guide for making choices to sustainably manage the ecosystem. The plan will be implemented over a ten year period (2017/2018 - 2026/2027), with a mid-term review after five years (2021/2022).

This vision is in line with the Ramsar Convention (1971), the Constitution of Uganda 1995, Vision 2040, and the National Development Plan II, all of which provide for a healthy and clean environment through ''the wise use" of natural resources. In connection with this policy framework, the goal of the management plan is ''to promote wise use of Lake Nabugabo wetland resources for improved livelihoods of the stakeholders at local, national and international levels". In order to achieve the goal and vision of the plan a number of interventions have been set. These are guided by the following five objectives of the management plan:

1. To promote conservation of Lake Nabugabo wetland and its catchment area;
2. To enhance public awareness about the importance of Lake Nabugabo ecosystem;
3. To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by 2027;
4. To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027; and
5. To strengthen coordination mechanisms of all conservation efforts by end of 2022.

This management plan has been prepared following the expiry of the first management plan, 2004 – 2009, that was instrumental in a number of areas, including: raising awareness and technical capacity building of Masaka District local governmenton the ecological importance of Lake Nabugabo wetland system Ramsar site; serving as a source of scientific information for leaders; and supporting the mainstreaming of Lake Nabugabo wetlands in the District Development plan of the Masaka District Local Government. Like the first management plan, this plan was developed through an intensive consultative process involving all stakeholders, and reviewed the first plan to cater for prevailing circumstances. This plan (2017-2027) incorporates the extended boundaries from 22,000 Ha to 77,700 Ha, covering some parts of the five Districts of Masaka, Kalungu, Mpigi, Gomba and Butambala.

The plan has seven Chapters: chapter one presents the introduction of the plan, background and justification for expansion of the Ramsar site; chapter two describes the biophysical and socioeconomic baseline of the area; chapter three presents the policy, legal and institutional framework; chapter four presents the management planning process and situation analysis; chapter five presents the vision, goal, objectives and implementation framework of the management plan; chapter six describes how the coordination and resource mobilization will be carried out; and chapter seven provides a description on how monitoring and evaluation will be carried out.

Due to the decentralized function of wetland management in the local governments, implementation of the plan shall be the responsibility of the district and sub-county local governments with technical and financial assistance from the Ministry of Water and Environment. The funding is expected to come from Government of Uganda and development partners and will be based on the annual work plans. The cost of implementing this management plan is estimated at UGX 8.66 billion.

LIST OF ACRONYMS

ABC	Activity Based Costing
BSN	Lake Bisina Wetland System
BSAs	Biologically significant areas
CBO	Community Based Organization
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of wild Fauna and Flora
CR	Critically endangered
DLG	District Local Government.
DD	Data deficient
DDP	District Development plan
EN	Endangered
EPA	Ecosystem Profile Assessment
FBOs	Faith Based Organizations
GDP	Gross Domestic Product
IUCN	International Union for the Conservation of Nature
LGA	Local Government Act
LC	Local Council
LMP	Lake Mburo-Nakivali Wetland System
LVB	Lake Victoria Basin
LTB	Lutembe Bay
LC	Least concern
MWE	Ministry of Water and Environment
MoU	Memorandum of Understanding
MTWA	Ministry of Tourism, Wildlife and Antiquities
MP	Management Plan
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MFP	Murchison Falls-Albert Delta Wetland System
MBB	Mabamba Bay Wetland System
NT	Near threatened
NE	Not evaluated
NEA	National Environment Act
NAFORRI	National Forestry Research Institute
NAFIRRI	National Fisheries Research Institute
NEMP	National Environment Management Policy
NKW	Lake Nakuwa Wetland System
NARO	National Agriculture Organization
NEMA	National Environment Management Authority
NWP	National Wetlands Programme
NFA	National Forestry Authority
NDP	National Development plan
NGO	Non-Government Organization
NBJ	Nabajjuzi Wetland System
OPT	Lake Opeta Wetland System
PREPARED	Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development
RNP	Rwenzori Mountain National Park
SDGs	Sustainable Development Goals
SAMUKA	Sango Bay-Musambwa Island-Kagera Wetland System
SDGs	Sustainable Development Goals

UWA	Uganda Wildlife Authority
USD	United States Dollars
UNFCCC	United Nations framework convention on Climate change
UNCCD	United Nation Convention to combat desertification
UPDF	Uganda People's Defense Force
UNMA	Uganda National Meteorological Authority
VU	Vulnerable
WSSP	Wetland Sector Strategic plan
WMD	Wetland Management Department

DEFINITIONS OF KEY TERMS

Term	Description
Ramsar site	Ramsar sites are wetlands of international importance. The international convention which forms the basis for their identification is the "Ramsar Convention" named after the city in Iran where the convention was signed in 1971. Uganda has 12 Ramsar sites, namely: Lake George, Lake Mburo-Nakivali Wetland System (LMP), Lake Bisina Wetland System (BSN), Lake Nakuwa Wetland System (NKW), Lake Opeta Wetland System (OPT), Lutembe Bay (LTB), Mabamba Bay Wetland System (MBB), Murchison Falls-Albert Delta Wetland System (MFP), Nabajjuzi Wetland System (NBJ), Sango Bay-Musambwa Island-Kagera Wetland System (SAMUKA), Rwenzori Mountain National Park (RNP) & Lake Nabugabo wetland system Ramsar site.
Ecological character	The combination of the ecosystem components, processes and benefits or services that characterize the wetland at a given point in time.
Ecological benefit and services	The benefits or services that people receive from ecosystems.
Riparian zones	The interface between land and a river or stream.
Wetlands	Areas permanently or seasonally flooded by water where plants and animals have become adapted; and include swamps, dams, areas of marsh, peat land, mountain bogs, banks of rivers, vegetation, areas of impeded drainage, or blackish salt.
Stakeholder	Any individual, group, or institutions that has a vested interest in the Lake Nabugabo wetland system Ramsar site and/or who potentially will be affected by activities within and have something to gain or lose if conditions change or stay the same.
Critically endangered (CR)	Species with extremely high risk of extinction in the wild.
Endangered (EN)	Species with high risk of extinction in the wild
Vulnerable (VU)	Species with high risk of endangerment in the wild.
Near threatened (NT)	Species likely to become endangered in the near future.
Least concern (LC)	Species with lowest risk. Does not qualify for a more at-risk category. Widespread and abundant taxa are included in this category.
Data deficient (DD)	Species with not enough data to make an assessment of its risk of extinction.
Not evaluated (NE)	Species not yet evaluated against the risk category criteria.

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CHAPTER ONE:
INTRODUCTION

1.1 Background

Globally, the contribution of environment and natural resources to poverty alleviation and economic development has been well documented. In Uganda, it is estimated that about 15% of Gross Domestic Product (GDP) is lost through the destruction of natural resources including wetlands. For instance, the wetland catchment area around Lake Victoria alone has shrunk by more than 50% in 14 years from 7,168 km2 in 1994 to 3,310 km2 in 2008. The wetland catchment for Lake Kyoga was also reduced from 15,008 km2 to 11,029 km2 between 1994 and 2008 (NFA, 2008; Ministry of Water & Environment, MWE, 2016). Biodiversity studies by MWE in 2016 indicated that wetlands within Nabugabo and its surroundings have been degraded through sand mining, over-fishing and over-harvesting of wetland resources. The international and national policy framework for the conservation and management of wetland resources provides for the optimal and sustainable use of these resources. A multi-use management plan, developed with the full participation of the wetland stakeholders at all levels, was developed to address these issues. The agreed management strategies offer safeguards to the resources, while giving stakeholders the benefit of using sustainable resources. This is in line with the Ramsar planning guidelines (Ramsar Convention, 2010) which stipulate that the plan be developed in the context of the Ramsar Convention "wise use" concept, which is based on: maintaining the integrity of the wetland; providing monetary benefits to stakeholder; and, promoting the sustainable use of resources for the benefit of the present and future generations.

To realize sustainable use of wetland resources, the international and national policy and legal frameworks all provide for wider stakeholder involvement to instill a sense of ownership in planning for natural resources management. In pursuit of the ownership phenomenon, it is important to involve all stakeholders in the development, implementation and monitoring of the management plan through a participatory process. In this regard, the international, regional and national policies and legal frameworks informed the development process of this management plan.

The management of Wetlands is within the mandate of district local governments, as per the Local Government Act of 1997. The Act outlines the functions of district local governments and provides planning guidelines for the district local government activities, including those related to wetlands and natural resources under section 35 of the Act (Cap 243). The process to accord a stronger conservation status to the Lake Nabugabo wetland system through designation as a wetland of international importance (Ramsar) started in 1998 by the Masaka District local government where Lake Nabugabo is located. The process began in collaboration with the wetland inspection division of the Ministry of Water and Environment (now named the wetland management department; Busulwa H., Mafabi P.G, and L.M. Ndawula, 2005). In line with the district local government planning systems, Ramsar criteria, and Ramsar planning guidelines, Lake Nabugabo wetland system was designated as a Ramsar site in 2004 following the approval of a five year management plan (2004-2009).

The management plan of 2004-2009 was used as a source of scientific information for planning by the Masaka District local government, the governing jurisdiction of the Lake Nabugabo wetland system Ramsar site. The plan also provided guidance on awareness about the importance of Lake Nabugabo for research, tourism, and investments. Additionally, Masaka district local government used the plan to mainstream wetland management strategies into its district development plan.

However, changing land use and inadequate guidance on development threatened the integrity of the Lake Nabugabo wetland system ecosystem. This necessitated a review of the 2004 - 2009 plan. As part of the review process, the wetland management department, in consultation with the five districts of Masaka, Kalungu, Mpigi, Gomba and Butambala provided for justification (see 1.2 below) to extend boundaries of

Lake Nabugabo wetland system to incorporate wetlands that cover part of the five districts of Masaka, Kalungu, Mpigi, Butambala and Gomba.

Therefore, this management plan (2017-2027) for the Lake Nabugabo wetland system Ramsar site takes into consideration a larger geographical coverage (77,700 ha, up from 22,000 ha), population increase (475,967 in 2014, up from 300,000 in 2004; UBOS 2014). The new plan also accounts for multiple stakeholders, changing land use patterns (from traditional to a mix with large scale investments), and the floodplains of Lwera in Kalungu, part of the interconnected waterways of the River Katonga in Butambala, and Gomba. Figure 1 shows the location and boundaries of the original Ramsar site, while the location and boundaries of the extended boundaries are shown in Figure 2.

Figure 1: *Location, boundaries and vegetation of the original Lake Nabugabo Ramsar site*

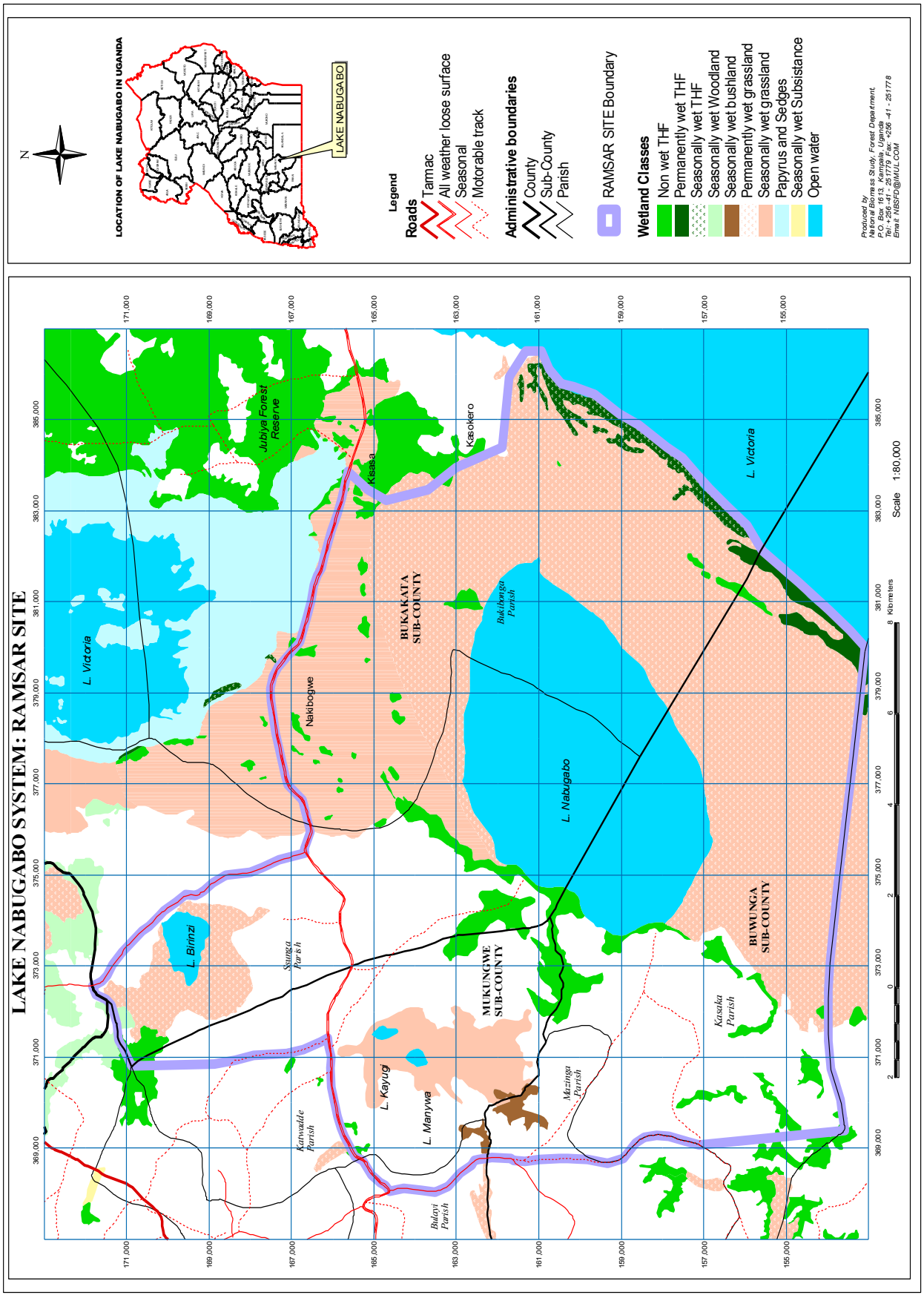
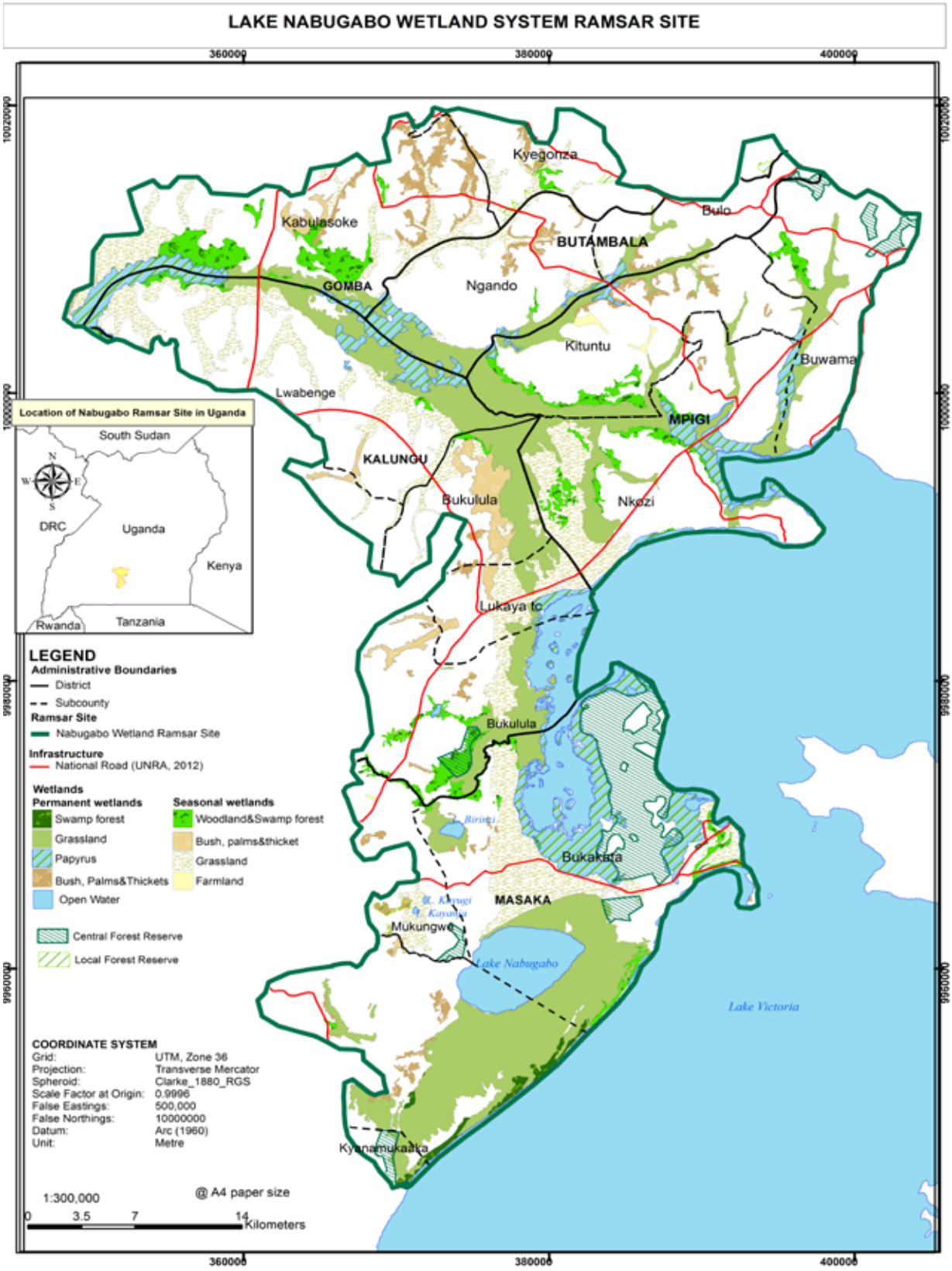


Figure 2: *Location, boundaries and vegetation of the extended lake Nabugabo wetland system Ramsar site*



1.2 Justifications for Expansion

The expansion of Lake Nabugabo wetland system Ramsar site was guided by careful evaluation of a number of factors as elaborated below.

1.2.1 Rich Biodiversity

The Nabugabo wetland system Ramsar site is a biologically significant area (BSA) in the Lake Victoria Basin (LVB), as identified by the Ecosystem Profile Assessment (EPA) undertaken by the Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development (PREPARED) Programme in 2014. The wetland biodiversity inventory report of the Nabugabo wetland system Ramsar site indicate a high biodiversity ranking based on plants, dragonflies, birds and fish (MWE, 1996). The Ramsar site boasts 300 plant species, 14 of which are not found anywhere else within Uganda, and two that are endemic to the site. It is home to 281 bird species, including 15% of the world's population of the Blue Swallow, and five globally threatened and nearly threatened species. The proposed expanded area supports more biodiversity, comprised of rare and threatened plants and animals, including internationally important bird populations, a range of mammals, invertebrates, reptiles, and amphibians, confirmed by rapid biodiversity assessments (Busulwa H., Mafabi P.G., and L.M. Ndawula, 2005; MWE, 2016).

1.2.2 Ecosystem Services

The expanded conserved area offers a number of ecosystem services most notably: flood alleviation, ground water recharge, and water quality improvement. A rapid economic assessment of biodiversity and ecosystem services provided by the Nabugabo Ramsar site was conducted in 2014 and estimated the site to be worth USD 4.6 million/year, with an average of USD 333/ha/yr of wetland habitat (USAID, 2015). According to the assessment, an extended Ramsar site would increase and secure economic value of the wetland to more than USD 44 million or USD 566/ha/yr (Table 1).

Table 1: *Baseline value of wetland ecosystem services in the extended Ramsar site as compared to the current Ramsar site boundaries, 2014*

Ecosystem service	Original Ramsar Site (USD million/ year)	Extension Area (USD million/ year)	Total Extended Ramsar Site (USD million/year)	Average habitat Value (USD/ ha/yr)
Capture fishery	0.20	10.25	10.45	383
Wood-based energy & timber	0.54	2.78	3.31	253
Non-wood/non-fish wetland products	0.82	5.20	6.02	78
Support to livestock production	0.17	1.86	2.04	38
Soil fertility & moisture	-	0.08	0.08	443
Pollination, seed dispersal & pest control	0.41	1.91	2.32	111
Water storage & recharge	0.76	9.15	9.91	2,313
Regulation of water quality	0.54	4.84	5.38	1,256
Flood attenuation	0.07	0.63	0.70	164
Carbon storage & sequestration	0.25	2.77	3.01	39
Nature-based tourism	0.80	-	0.80	221
Total	**4.55**	**39.46**	**44.01**	**566**

1.2.3 Socio- Economic Benefits

The Nabugabo wetland system Ramsar site currently provides a source of products for subsistence and income for a large proportion of the 22,500 people that live in and around the site.

Benefits of Expanding the Ramsar Site

An extended Ramsar Site:

- Would increase and secure economic value of the wetland from the current USD 4.55 million or USD 333/ha/year to more than USD 44 million or USD 566/ha/year;
- Would help secure economically important wetland resources for an additional 167,000 local stakeholders; and
- Stands to safeguard more than USD 281 million of ecosystem service values over the next 25 years if appropriate conservation measures and activities are implemented. These economic benefits will remain available if wetland resources and habitats are not further degraded, but would be lost if action is not undertaken to maintain and enhance wetland conservation and wise use.

1.2.4 Emergent Threats

Unregulated resource harvesting, infrastructure development, inadequate enforcement of laws, invasive species, and poor agricultural practices are key threats to the ecosystem services provided by Nabugabo wetlands. Threats result from changes in agricultural practices, increased drainage (digging of deep drainage channels), use of fertilizers and herbicides, conversion of wetlands to other land uses, over-grazing, commercial sand mining and settlement, over-fishing, and inadequately planned tourism infrastructure. These threats all result in deterioration of the ecological integrity of the ecosystem. An increasing population size and the need for more resources, coupled with the lack of delineation of the Ramsar boundary will accelerate habitat degradation. This could lead to low or unpredictable river flows and groundwater levels, shrinking flood zones, eutrophication, and habitat fragmentation.

1.2.5 Riparian Zones

Article 2.1 of the Ramsar Convention provides for the incorporation of riparian zones adjacent to the wetlands. For very small, potentially vulnerable sites, contracting parties are encouraged to include buffer zones around the wetland. These may also be a useful management tool for larger sites and those with subterranean system wetlands. However, during the review process of the (2004-2009) plan, it was observed that these riparian zones were not taken care of, and therefore must be included again in the 2017-2027 plan. The inclusion of riparian zones will ensure that potential negative impacts arising from land-use practices on adjoining land or within the drainage basin are suitably regulated and monitored to protect the ecological integrity of the Ramsar Site.

CHAPTER TWO:
DESCRIPTION OF LAKE NABUGABO WETLAND SYSTEM RAMSAR SITE

2.1 Introduction

This chapter describes the biophysical and socio-economic characteristics of the lake Nabugabo wetland system Ramsar site. It gives an account of the available natural resources and the extent of their interactions between the human population and the environment. It also puts into perspective the policy framework for natural resources management.

2.2 Biophysical Characteristics of Lake Nabugabo Wetland System Ramsar Site

2.2.1 Location

The Lake Nabugabo wetland system Ramsar site is located in the central region of Uganda at geographical coordinates 0° 7'29"N, 32°6' 35" E, 0°10' 1" N, and 31°54'29" E, 0° 2' 39"N, 31°38'13" E, and 0° 30' 9" S, 31° 49' 48" E. It is at an altitude of 1,136 m above mean sea level, due west of Lake Victoria.

2.2.2 Climate

The climate of the Lake Nabugabo wetland system and surrounding districts is tropical, tempered somewhat due to its proximity to Lake Victoria. The rainfall pattern is bimodal (two seasons) with dry spells between July and August, and January to March. The annual average rainfall is 1,100 mm-1,200 mm, with 100-110 rainy days each year. The average maximum temperature does not exceed 30° C and the minimum is not below 10° C, with almost equal length of day and night throughout the year. While relative humidity is generally low, it is higher near lakeshore areas (UNMA, 2016).

2.2.3 Hydrology

The movement and distribution of water is hydrologically connected to Lake Victoria, Lake Nabugabo, the satellite lakes of Kayanja, Birinzi and Kayugi, the Lwera floodplain and the River Katonga. These subsystems are ecologically interconnected.

2.2.3.1 Lake Nabugabo and Satellite Lakes

Lake Nabugabo is a shallow freshwater lake 8.2 km long and 5 km wide. Its satellite lakes are in the same basin. Lake Nabugabo is separated from Lake Victoria by a sand bar 1.2 to 3 km wide, with a maximum lake depth of 5 m. Compared to other Ugandan lakes such as Victoria, Kyoga, Edward and George, Lake Nabugabo has been most preferred for swimming and bathing because it is believed to be safe from Bilharzia due to the absence of snails, the intermediate hosts of Schistosomes (Ogutu-Ohwayo, 2002; Nakirya et al., 2015).

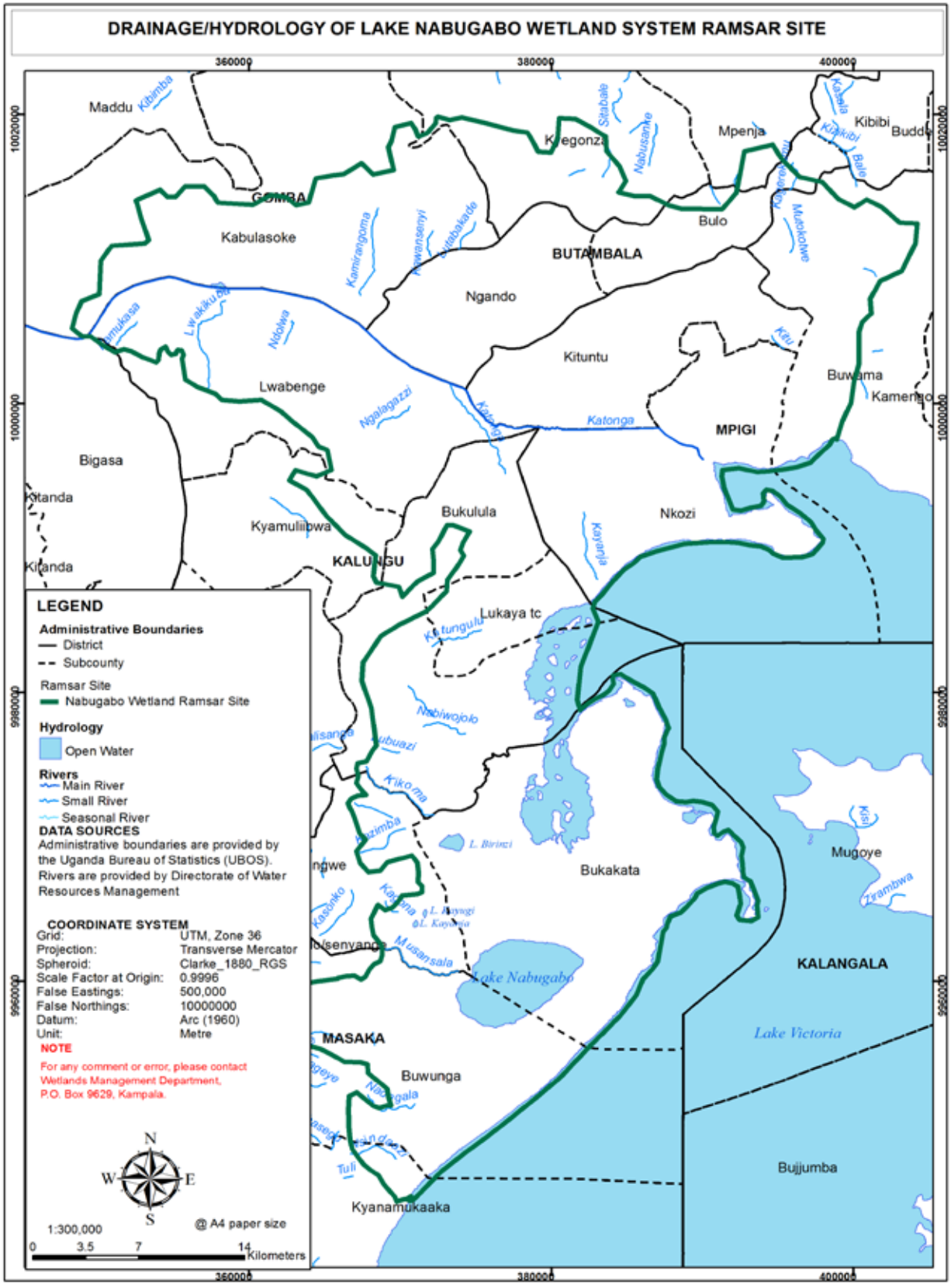
2.2.3.2 Katonga River

The Katonga River is located in the southwestern part of Uganda. Its channel is continuous between Lake Victoria and Lake George, and available literature indicates that it once drained away from Lake Victoria into Lake George but geologic uplifts reversed its course. The river now flows east into Lake Victoria, augmented by several tributaries along its course and is interconnected with Lake Nabugabo wetland system Ramsar site (Figure 3).

2.2.3.3 Lwera Floodplain

The Lwera Floodplain is an extensive area connecting Lake Victoria to Lake Nabugabo via the River Katonga. It stretches 30 km from Katonga through Lukaya and Bukakata to the wetland systems of Lake Victoria and Nabugabo (Figure 3). Across its length, it has intermittently ephemeral and permanent wetlands, in that some portions are wet throughout the year while others only flood during the rainy seasons.

Figure 3: *Drainage/hydrology of the Lake Nabugabo wetland system Ramsar site*



2.2.4 Geology

In central Uganda, where Lake Nabugabo is located, the basement rock is comprised predominantly by granitic metamorphic rocks of Archaean shield. The predominant controls on the formation of the Lake Victoria Basin were tectonic uplift and associated rifting around the margins, and intersection among a series of NW-trending strike-slip faults which transect the region. In some areas of central Uganda, the rocks are metamorphosed to a higher degree, forming clay and sand through natural weathering processes (Rach, 1992).

2.4.5 Soils

The soils in the Lake Nabugabo area are modified by the parent rock through climatic conditions and land use activities. Soil mapping reports show that the majority of soils were developed from remnants of old lacustrine (lake) deposits. The top soils consist of traces of humus merging into yellow brown or brown sandy loam or loamy sands to the depth of 3 to 5 ft. The soils are underlined by rounded quartz pebbles and, in some places, with a layer of Murram and massive laterite (NARO, 2015).

2.3 Biological Diversity

The Nabugabo wetlands have a high biodiversity ranking, having been identified as a BSA and designated as an IBA (Busulwa, et al., 2005). Species diversity in the Nabugabo satellite lakes is highest in habitats with submerged and fringing macrophytes with haplochromines, including: *0. niloticus, 0. variabilis, O. leucostictus, T. zillii, C. gariepinus* and *P. aethiopicus.* These species are most abundant in near-shore areas, and decrease towards the open water. Macrophyte species *L. niloticus* and Synodontis afrofischeri, are highest in the open water, decreasing in abundance towards the near shore areas (MWE, 2016). A total of 30 fish species belonging to nine families were recorded during the survey (See Annex 1). The Katebo fish landing site on Lake Victoria recorded the highest individual fish species (590), while the Kaziru fish landing site on Lake Victoria recorded the least (277). The other surveyed sites recorded generally lower numbers. Both the Marglef and Shanon-Weaver indices of diversity showed the areas around Makonzi and Katebo fish landing sites to have the highest diversity of fish species (MWE, 2016).

A number of locally red listed insect species are present, including a total of 153 species of butterflies and 73 species (including *morpho*) of dragonflies. These species included: the data deficient (DD) species of *Gorgyra minima*, the critically endangered (CR) species of *Pentila tachyroides, Spindasis crustaria* and *Euptera elabontas*, endangered (EN) butterfly species were *Xanthodisca vibius* and *Thermoniphas togara*. The near threatened (NT) butterfly species were *Papilio lormieri.* Red listed dragonfly species included: (EN) *Agriocnemis palaeforma,* (DD) *Acisoma inflatum* and *Acisoma variegatum*, (NT) *Hadrothemis defecta*, vulnerable (VU) *Hadrothemis infesta* and *Gomphidia bredoi* (Annex 2). Butterfly species preferring forest habitats and edges recorded the highest numbers in the survey while those preferring swamps and wetlands recorded the lowest numbers (Busulwa, et al., 2005; MWE, 2016).

The Nabugabo wetland system is designated as an important bird area (IBA) and is a refuge for migratory birds from Europe and other northern areas. White-winged Terns recorded the highest number of individuals (1,884) followed by Angola Swallows (1,529) and Long-tailed Cormorants (560 individuals). Areas with mixed habitats recorded the highest species of birds (64) which was attributed to the varied micro-habitats in those areas. Generally, sites located within grasslands attracted more birds as compared to forested areas (MWE, 2016; Busulwa, et al., 2005). The rapid biodiversity assessment by MWE in 2016 revealed that the area has unique habitats in both the original and expanded areas, but some habitats have been greatly degraded. Once protected, these areas hold potential for regeneration.

2.3.1 Flora

The Lake Nabugabo wetland system has 13 of the 23 Ugandan species of carnivorous plants and 2.2% of the world's carnivorous plant diversity (Namaganda, 2005). Only 14 of the Ugandan carnivorous plants have been assessed at national level (Kalema et al., 2016) and two of the Nabugabo species are

critically endangered (*Droseraburkeana* and *Utricularia benjaminiana*). Five species are endangered (*U. appendiculata, U. foliosa, U. pubescens, U. spiralis* and *Aldrovandavesiculosa*). The wetlands around Lake Nabugabo and the northwestern shores of Lake Victoria are critical for conservation of carnivorous plants. In addition, the Lake Nabugabo wetland system Ramsar site is habitat to the endemic wetland species *Xrisednae Lock* and *Senecionabugabensis c. Jeffrey,* and is the main distribution range of several rare wetland species in Uganda (Kalema et al., 2016).

Rapid biodiversity assessments on plants conducted by MWE in 2016 revealed that some species with limited distribution in Uganda are common in Nabugabo, including *Leersiafriesii*, which lives in the Lake Nabugabo area and Wakiso district, *Braseniaschreberi*, which lives from Lake Nabugabo to Lake Bisina, *Panicumbrazzavillense*, *Heteranthoeciaguineensis,* and *Andropogonlaxatus,* that are found only in Nabugabo*.* More areas with *Leersiafriesii* were found within the extended regions, thereby increasing the known distribution range for the species. *Aldrovandavesicola* is IUCN red listed as globally endangered with a declining population status. The Nabugabo area is also invested with invasive species, such as *Lantana camara, Mimosa pigra, M. pudica* and *Sennaspectabilis* (Annex 5). Lake Nabugabo and its satellite lakes are surrounded by very extensive Loudetia swamp, especially to the north and south. *Miscanthidium, Vossia* and *Sphagnum* swamps are also present. Papyrus, although present, is not dominant in the around Lake Nabugabo but can be found where the Katonga River drains into Lake Victoria.

2.3.2 Fauna

Nine species of fish from the family Cichlidae have been recorded from these lakes, including five endemic species of *Haplochromis* (Annex 1). Three fish species were introduced into Lake Nabugabo in the 1950's, namely, *Oreochromis niloticus*, *O. leucostictus*, and *Tilapia zillii*. *Lates niloticus* was introduced in the early 1960s (Busulwa et al., 2005). With regard to mammals, the area has one of the rare wetland antelopes, the sitatunga, as well as Angolan Colobus monkeys (*Colobusangolensis*), globally rated as Least Concern (LC), but categorized as Vulnerable (V) in Uganda. Squirrels and other small mammals known as indicators of habitat quality exist abundantly in forested patches (Wells and Bagchi, 2005). Sites with most amphibian diversity are the landing sites of Kaziru, Lambu, and Bukakata (Annex 7). The most common amphibian species are *Hyperolius kivuensis*, *Ptychadena mascareniensis, Hoplobatrachus occipitalis*, *Amietophrynus vittatus, Hyperolius cinnamomeoventris, Ptychadena porosissima* and *Amietophrynus regularis* (MWE, 2016).

2.3.3 Plankton

Plankton is an important food source, especially phytoplankton, a primary producer which serves as the base food source in the food chain. Zooplankton and other small animals that graze on the phytoplankton are known as primary consumers. The phytoplankton in Lake Nabugabo is dominated by desmids, while other satellite of Lake Victoria is dominated by cyanobacteria. Desmids species are benthic organisms that prefer densely vegetated waterbodies and lead a free–floating existence due to water movement. Studies indicate that at least 95% of the plankton specimens in the system are either desmids or cyanobacteria. The predominant desmid species in Lake Nabugabo are: *Staurastrum longicolle*, *Staurastrum arcuatum* Nordst, *Staurodesmus omearae* (W.Archer) *Teiling*, *Staurodesmus dejectus* (Ralfs) *Teiling*, and *St. longicolle.* Lake Nabugabo is one of the few places in Uganda where swimming is popular, as the lake has a reputation of being free of Schistosomiasis (Bilharzia). This is often related to the scarcity of mollusks that act as an intermediate host of this parasite, (Kling et al., 2006).

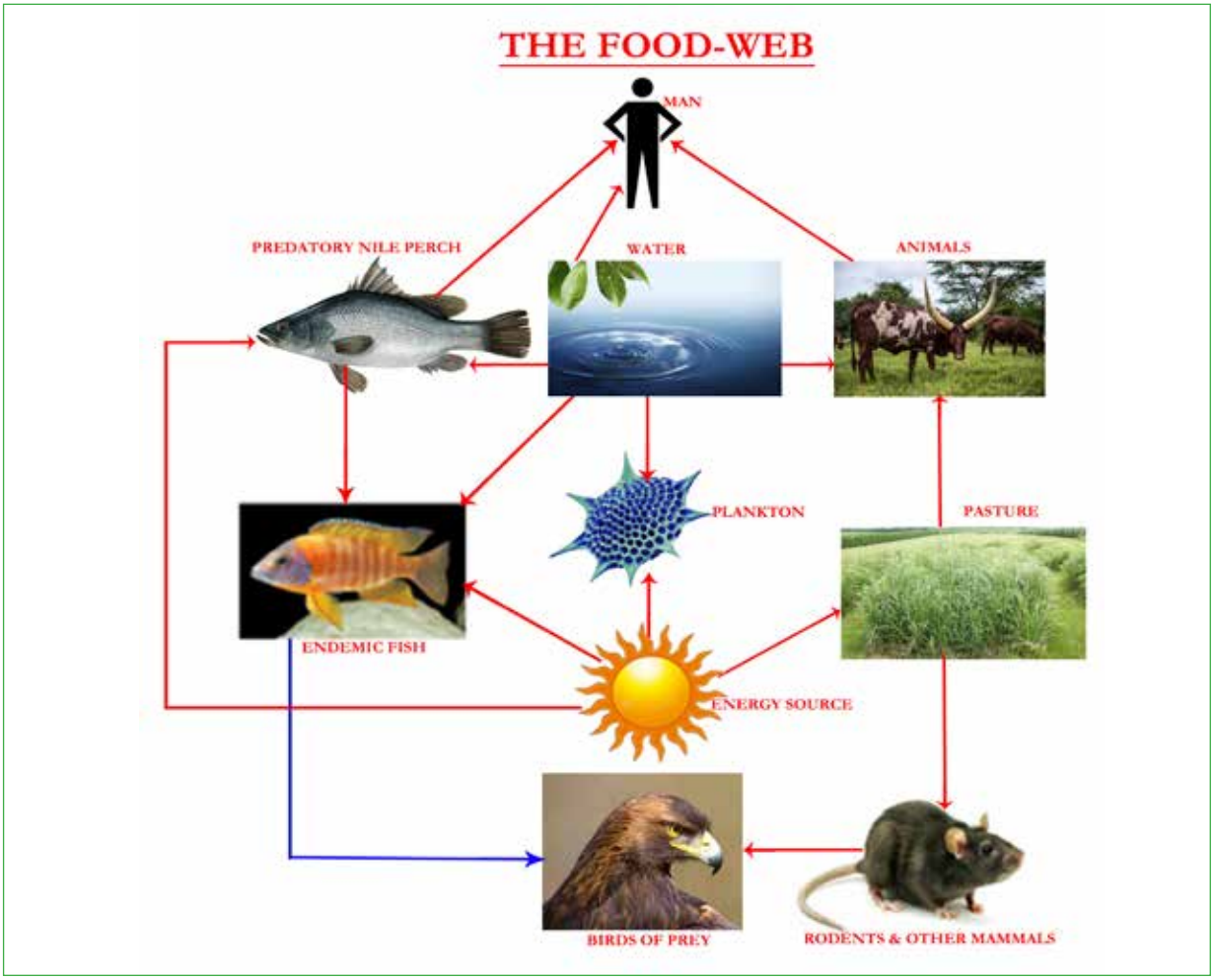
2.3.4 Ecological Relationships

An ecological relationship is the relationship between organisms in an ecosystem; all organisms in an ecosystem are connected in one way or another. Each population interacts with one another in a complex web of relations. An ecosystem's capacity for self-renewal refers to its ability to recover from a natural disturbance such as fire, flood, or wind, and to maintain the necessary ecological processes to continue.

An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes (Kling et al., 2006).

In this regard, sustainability of the aquatic ecosystem depends on maintaining the right water quality and quantity in the four lakes. This, in turn, affects the life of the plankton, which the fish depend on. Therefore, activities that are likely to impact on the water quality and quantity, such as effluent discharge or siltation, should be given particular attention. This management plan intends to optimize the use of both the aquatic and terrestrial ecosystems with minimum impact on their sustainability. It must consider the interrelationships between the different ecosystems as indicated in figure 4 below.

Figure 4. *A food web illustrating the interconnected factors in an ecosystem*



2.4 Uniqueness of Lake Nabugabo Wetland System Ramsar Site

Naturalness: Naturalness is an intact ecosystem with limited human modifications. It can be measured in terms of biodiversity (Anderson, 1991). Currently, areas around the Lake Nabugabo wetland system Ramsar site have a high level of naturalness, which may be observed from the hills in Masaka Municipality. The naturalness has contributed a lot to the value of the area for eco-tourism.

Rarity: One key aspect of rarity of the Lake Nabugabo ecosystem is its hydrology. There is no visible surface out-flow. The only seepage is through a narrow sand bar to the main portion of Lake Victoria. Therefore, any process that can affect the seepage is likely to affect the hydrology of the Nabugabo system (Chapman et al., 2003). Studies done by the MWE in 2016 indicate that some developers have constructed long drainage channels near the sand bar and this is likely to disrupt the hydrology of the area.

Fragility: Wetland systems depend on the availability of water with flora and fauna that is adapted to the wet conditions. Anything that interferes with water flow, such as drainage channels and clearing of vegetation, affects the ecological system. The Lake Nabugabo wetland system site is an extensive wetland system interconnected with Lake Victoria and a large human population with multiple land use practices (Chapman et al., 2003).

Typicalness: Lake Nabugabo and its satellite Lakes have clean water free of the Bilharzia-causing snails, unlike Lake Victoria and other lakes in the country. This makes the lakes suitable for swimming. Any systems favoring the survival of Bilharzia-causing organisms will have a big impact on Nabugabo waters being safe for swimming. Studies indicate that Lake Nabugabo water has low microbial contamination levels and physio-chemical parameters are in permissible levels of recreational water quality standards (Ogutu-Ohwayo, 2002; Nakirya et al., 2015).

Aesthetic value: The Lake Nabugabo wetland system Ramsar site has good scenic beauty, especially when viewed from the Kako hills or the Bwala area. From these hills, the main Lake Victoria and its four satellite lakes can be seen. The scenery is more exciting at the beaches, with different types of lake shore, including forest, clear sand beaches and fringed wetlands. This aesthetic value has also led to the emergence of constructed beaches along the shores of Lake Nabugabo, including: Terrace View, Nabugabo Holiday Center, Sand Beach, Orchard Village, Mbidde and Balokole. In addition, owners of the beaches benefit from the tourism revenues and the local community benefits through selling food and crafts. There is still potential of developing the area and making a tourism circuit that includes the satellite lakes and the surrounding scenic areas. Collaboration with the Uganda Tourist Board (UTB) and the Uganda Community Based Tourist Association (UCOTA) is necessary to link the area with the already existing tourism value chain.

2.5 Socio-Economic Features

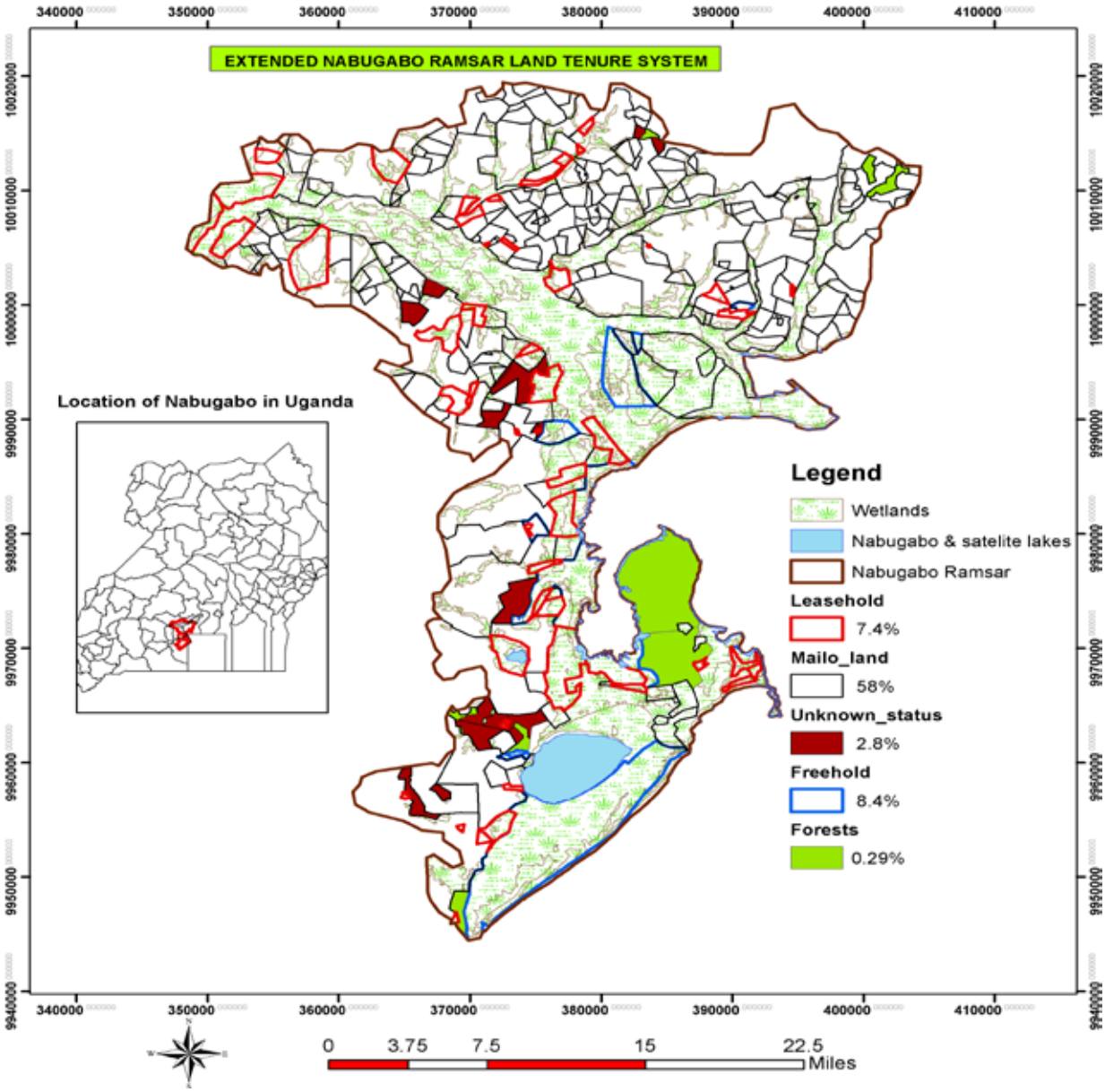
2.5.1 Demographic Characteristics

The area is cosmopolitan in nature with Baganda, Bakiga, Banyankole, Banyoro, and Tanzanians, with Baganda dominating. The main local language is Luganda. The total population is about 475,967 (UBOS, 2014) and of these 240,255 are females while 235,712 are males. The population growth varies in the five districts, with Mpigi having the highest population growth at 2.44% and Butambala the lowest at 1.22% (Annex 3). Population growth impacts resource use as a rapidly increasing population will put pressure on resources and possibly lead to degradation.

2.5.2 Land Tenure

The Land Act of 1998 identifies the four forms of land tenure systems in Uganda: Customary, Leasehold, Freehold, and Mailo. The Land tenure analysis in the Lake Nabugabo wetland system Ramsar site showed that Mailo is predominant at 58%, Freehold is at 8.4%, and Leasehold is at 7.4%. Land without established status comprised of 2.8% of the total, while forest cover is 0.29% (MWE, 2016). However, the analysis of land tenure shows that most is owned by individuals including some parts of wetlands.

Figure 5: *Land Tenure in the Lake Nabugabo Wetland System Ramsar Site*



2.5.3 Present Land Use

Land use in the original Lake Nabugabo Ramsar site before 2010 was primarily composed of traditional activities such as hunting, settlement, fishing, cattle grazing, natural resource extraction (herbs, grass, sand, clay, firewood, fish, water, etc.), cultural heritage (shrines), small scale cultivation, and infrastructure (roads, physical institutions, etc.). These activities sustained livelihoods without significantly affecting the ecological systems in the area. However, as the population and advanced technology increased, the demand for resources increased. Consequently, large investments have been established in the area, including commercial pineapple and fish farms (Plates 1 and 2), construction of beaches, and huge extractions of wetland resources (sand, clay). These investments are already having potential biophysical and socio-economic impacts that need documentation to guide conservation efforts.

Plate 1: *A pineapple farm in an area that was formerly a natural forest*

Plate 2: *Fish cages on Lake Birinzi*

Figure 6: *Investments in the Lake Nabugabo Wetland System Ramsar Site*

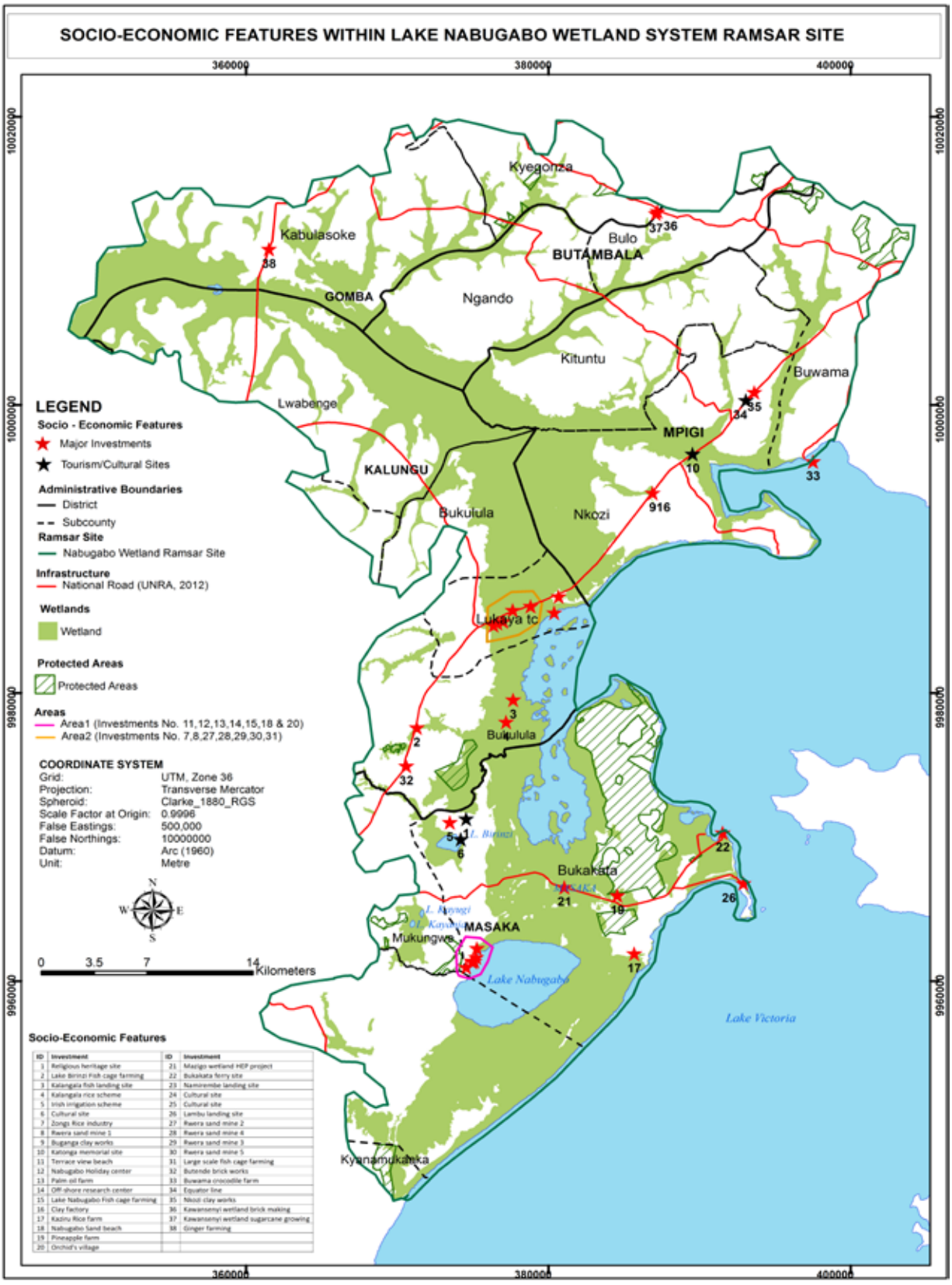


Table 2: *Key socio-economic benefits of Lake Nabugabo wetland system Ramsar site*

Direct Uses	Indirect Uses	Intrinsic/Existence Values
1. Water for domestic use and irrigation 2. Water for Livestock 3. Fishing 4. Grazing 5. Papyrus collection 6. Palm leaves collection 7. Fuel wood collection 8. Wild foods 9. Herbs 10. Sand extraction 11. Clay extraction 12. Farming	1. Flood control 2. Water storage and distribution 3. Water purification 4. Sediment and 5. nutrient trapping 6. Habitat for wildlife 7. Habitat for fish (refuge for cichlid fish)	1. Aesthetic values 2. Tourism 3. Cultural and religious values 4. Heritage values

Source: ministry of water and environment reports, 2015

2.5.4 Cultural Heritage

The wetlands and forests around Lake Nabugabo, Lake Victoria, and the satellite lakes have been traditionally used as important sites for religious activities. Lake Birinzi has two cultural shrines, one of which is a cultural cleansing site for the Kasimba clan (Plate 3), while a few meters away, there is a shrine for the Catholic Church (Plate 4). These two shrines attract big gatherings every year when people come to pay homage for spiritual cleansing. Because of the cultural and religious attachments to these wetlands, communities resist efforts by investors to clear away these wetlands. However, due to high population growth and the fading of traditional values, the forests and wetlands continue to degrade.

Plate 3: *Bakasimba shrine on Lake Birinzi*

Plate 4: *Birinzi catholic shrine*

CHAPTER THREE:
POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK FOR MANAGEMENT OF WETLANDS

3.1 Introduction

This chapter summarizes the various policies, legal and institutional frameworks relevant to wetland management in Uganda. The chapter also highlights the international and regional arrangements related to wetland management.

3.2 Global Policy Framework

The global policy framework for natural resources, including wetlands, provide guidance on governance, including the institutions, norms and processes that determine how power and responsibilities are exercised, and how citizens may benefit.

3.2.1 The Sustainable Development Goals (2016-2030)

The Sustainable Development Goals (SDGs), also known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. Goal 15 of the SDGs aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt or reverse land degradation, and stop biodiversity loss. This goal has stringent targets of significantly reducing soil, water, land, wetland, and forest degradation by 2020 and is therefore relevant to this management plan. Goal 13 of the SDGs aims to combat climate change and is therefore also pertinent to this management plan which has mainstreamed climate change.

3.2.2 The Ramsar Convention, 1971

Uganda is a signatory to the Ramsar convention, which is the only global environmental agreement that deals with a particular wetland. The Ramsar Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

The convention provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Parties commit themselves to the three pillars of the convention, namely: to work towards the wise use of all their wetlands through national land use planning, appropriate policies and laws, management actions and public education; to designate suitable wetlands for the List of Wetlands of International Importance ("Ramsar List") and ensure their effective management; and to cooperate internationally concerning trans-boundary wetlands, shared wetland systems, shared species and development projects that may affect wetlands. Parties to the Convention also commit to specific actions regarding formulation and implementation of national plans so as to promote conservation of listed wetlands and the wise use of wetlands in their territory; research and exchange of data and publications regarding wetlands and their flora and fauna; and training of personnel in wetlands research and management.

Uganda is a signatory to the Ramsar convention and it came into action in July, 1988. Uganda currently has 12 sites designated as Wetlands of International Importance, with a total surface area of 455,303 hectares. In line with the Ramsar convention, the government of Uganda developed a wetland policy in 1995 that set strategies for wetland use. An assessment in 2001 indicated that 39% of the Ugandan population was aware of the functions and benefits provided by wetlands. The 12 Ramsar sites in Uganda may conserve 87% of the total wetland bird species and 82% of the globally threatened wetland species. This demonstrates the value of international conventions in protecting critical species, sites, and habitats.

3.2.3 The Convention on Biological Diversity, 1992

The Convention on Biological Diversity (CBD), signed in 1992 at the Rio Summit, is the legally binding agreement on the use and conservation of biological diversity. Wetlands constitute an integral part of the concerns of the convention, as is evident from the definition of biological diversity and ecosystems in Article 2 of the convention. Biological diversity is defined as "the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems. The ecological complexes include diversity within species, between species and within ecosystems, while the ecosystem is defined as "a dynamic complex of plant, animal and micro-organism communities and their non-living environment, interacting as a functional unit". The Convention obligates states to develop national strategies, plans or programs for conservation and sustainable use of biological diversity, and to integrate the conservation and sustainable use of biological diversity into sectoral or cross-sectoral plans, programs and policies. CBD is therefore a framework that guides efforts to conserve and sustainably use biological diversity and equitably share the benefits from the use of resources. The goal of the Lake Nabugabo wetland system management plan (2017-2027) is to sustainably use the wetland resources while maintaining the rich biodiversity of Lake Nabugabo.

3.2.4 The Convention on the Conservation of Migratory Species of Wild Animals, 1979

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) or the Bonn Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the auspices of the United Nations Environment Programme (UNEP), concerned with the conservation of wildlife and habitats on a global scale. CMS and its subsidiary agreements provide policy guidance on specific conservation issues on migratory animal species. Nabugabo wetlands are a key migratory stopover-destination for bird species between March and May.

3.2.5 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973

CITES is an international treaty to prevent species from becoming endangered or extinct due to international trade. Under this treaty, countries work together to regulate the international trade of animal and plant species and ensure that this trade is not detrimental to the survival of wild populations. Any trade in protected plant and animal species should be sustainable, based on sound biological understanding and principles

3.2.6 Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

The Convention sets out the duties of States Parties in identifying potential sites and their role in protecting and preserving them. By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage. The States Parties are encouraged to integrate the protection of the cultural and natural heritage into regional planning programs, set up staff and services at their sites, undertake scientific and technical conservation research and adopt measures which give this heritage a function in the day-to-day life of the community.

3.2.7 United Nations Convention to Combat Desertification (UNCCD), 1994

UNCCD is a Convention to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements. Sustainable management of Nabugabo wetlands will mitigate effects of drought that may be brought about by a degraded wetland resource.

3.2.8 United Nations Framework Convention on Climate Change (UNFCCC), 1992

UNFCCC is an international environmental treaty negotiated at the Earth Summit in Rio de Janeiro in 1992, then entered into action on 21 March 1994. The UNFCCC objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic

interference with the climate system". The framework outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to set binding limits on greenhouse gases. Wetlands, including Nabugabo, play significant roles in micro-climate enhancements.

3.2.9 Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997

The Kyoto Protocol is an international treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits State Parties to reduce greenhouse gas emissions, based on the premise that (a) global warming exists and (b) human-made CO_2 emissions have caused it.

3.3 Regional Policy Frameworks

3.3.1 The East African Community (EAC) Treaty, 1999

The regional context for wetlands conservation and management is defined by the EAC, the regional integration framework that groups Uganda together with Burundi, Rwanda, Tanzania and Kenya. The treaty establishing the EAC recognizes the importance of natural resources to the economic development of the region. Article 5 of the treaty links the achievement of economic development to "the promotion of sustainable utilization of the natural resources of the Partner States and the taking of measures that would effectively protect the natural environment of the Partner States". Furthermore, Chapter 19 of the treaty provides for cooperation in environment and natural resource management to realize objectives that include ensuring "sustainable utilization of natural resources like lakes, wetlands, forests and other aquatic and terrestrial ecosystems".

3.3.2 EAC Protocol for Sustainable Development of the Lake Victoria Basin, 2003

EAC partner countries have signed the protocol for sustainable development of Lake Victoria Basin. The protocol allows the partner countries to cooperate in conservation and sustainable utilisation of resources of the basin including equity and reasonable utilization of water resources and development and management of wetlands.

3.3.3 EAC Protocol on Environment and Natural Resource Management, 1999

The Community has developed a protocol on environment and natural resource management to further strengthen cooperation. Although this protocol is not yet binding, Article 14 of the protocol deals with sustainable management and wise use of wetland resources, and commits the Partner States to develop, harmonize and adopt common policies, laws and strategies for the purpose.

3.4 National Policy and Legal Frameworks

Although wetland conservation and management is a shared responsibility for all Ugandans, the government has a leading role to ensure sustainable management by putting in place enabling policies and regulations. In addition, the government has an international responsibility to conserve wetlands and sustainably utilize them under the Ramsar convention on wetlands of international importance, for which Uganda is a signatory and contracting partner. Therefore, the government has put in place legal and policy frameworks to sustainably manage wetlands and other natural resources.

3.4.1 National Policy Framework

Vision 2040

Vision 2040 aims to transform Uganda from a predominantly peasant and low income country to a competitive upper-middle income country. Vision 2040 is conceptualized around strengthening the fundamentals of the economy to harness the abundant opportunities around the country. The identified opportunities include: oil and gas extraction, enhanced tourism, mineral extraction, improved Information Communication Technology (ICT), more business, abundant labor force, geographical trade, enhanced water resources, industrialization, and more profitable agriculture, among others.

The National Development Plan II (2016-2021)

The National Development Plan aims to achieve the Uganda Vision 2040. The goal of the plan is to propel the country towards middle-income status by 2020 through strengthening the country's competitiveness for sustainable wealth creation and the plan prioritizes investment in five areas with the greatest multiplier effect on the economy: (1) Agriculture; (2) Tourism; (3) Minerals, oil and gas; (4) Infrastructure development; and (5) Human capital development. All of these priority areas affect wetlands through extraction of resources and investments built in the wetland area. The plan also highlights strategies for natural resource management of wetlands.

National Policy for the Conservation and Management of Wetland Resources, 1995

The National Policy for the Conservation and Management of Wetland Resources underpins wetland protection and provides for sustainable and equitable distribution of benefits accrued from wetlands. It also calls for the application of Environment Impact Assessment (EIA) procedures on all development projects in wetlands to safeguard the integrity of the ecosystem. The policy has five goals: to establish the principles by which wetland resources can be optimally used now and in the future; to end practices that reduce wetland productivity; to maintain the biological diversity of natural or semi-natural wetlands; to maintain wetland functions and values; to integrate wetland concerns into the planning and decision making of other sectors and developing wetland specific management plans.

Wetland Sector Strategic Plan (2011-2020)

The goal of the Wetland Sector Strategic Plan (WSSP) is to ensure sustainable management of wetlands in Uganda with five strategic objectives: (1) to improve the productivity and service provision of wetlands; (2) to strengthen the regulatory frameworks and equity in stewardship for effective management of wetlands; (3) to improve institutional and technical capacity for sustainable wetland management at all levels; (4) to strengthen public and stakeholder awareness and participation in wetland management; and (5) to mobilize national and international funds to support sustainable wetland conservation and management in Uganda.

Climate Change Policy, 2015

The goal of the climate change policy is to ensure a harmonized and coordinated approach towards a climate-resilient and low-carbon path for sustainable development in Uganda. The objective of the policy is to ensure that all stakeholders address climate change impacts and their causes through appropriate measures, while promoting sustainable development and a green economy. This management plan 2017-2027 has integrated climate change by recognizing that climate change is a key management issue in the Nabugabo wetland system Ramsar site.

The National Environment Management Policy (NEMP), 1994

The goal of the NEMP is sustainable social and economic development that maintains or enhances environmental quality and resource productivity on a long term-basis, while meeting the needs of the present generation without compromising future generations. The policy also recognizes the need for sectoral policies in addressing the specific concerns of the identified environmental sectors. It therefore provided a framework under which several sectoral policies were developed. These include the 1995 Water Policy, the 1996 National Wetlands Management Policy, the 1996 Wildlife Policy, the 2000 Fisheries Policy, the 2001 Forestry Policy and several district environment management policies from 2000 on. It also provides a framework for multi-sectoral approaches to resource planning and management.

The National Fisheries Policy, 2004

The national fisheries policy provides for sustainable and increased fish production. The policy recognizes the need for sectoral development to proceed according to principles of rational exploitation and sustainability, and to achieve a balance of benefits between domestic food and employment provision requirements, and the generation of foreign exchange through export sales. The policy also proposes an administrative shift,

from a ministerial department to a completely autonomous fisheries management body, to be known as the Uganda Fisheries Authority.

The National Water Policy, 1999

The national water policy of 1999 promotes an integrated approach to manage the water resources in ways that are sustainable and most beneficial to the people of Uganda. It also provides for development of strategies for monitoring, assessment, allocation and protection of water resources. It is based on the continuing recognition of the social value of water, while at the same time giving much more attention to its economic value. Allocation of both water and investments, in water using schemes, aims at achieving the maximum net benefit to Uganda from its water resources now and in the future.

National Agriculture Policy, 2013

The national agriculture policy provides guidance to all actors in the agriculture sector to make investments aimed at increasing agriculture incomes, reduce poverty, improve household food and nutrition security, create employment and stimulate overall economic growth. A number of agricultural developments take place within Lake Nabugabo wetland system Ramsar site and therefore the policy is relevant to this management plan.

Land Policy, 2014

The land policy provides for efficient, equitable, and sustainable utilization and management of Uganda's land for poverty reduction and socio- economic development. The policy harmonizes a number of historical injustices on land distribution and use. It also protects the right to own and use land in line with other laws.

National Soils Policy for Uganda, 2000

The national soils policy provides guiding principles to land users for soil conservation. As one of the environmental challenges in the Lake Nabugabo wetland system Ramsar site, soil degradation has significantly led to reduction in agricultural production.

The National Land Use Policy, 2007

The goal of the national land use policy is "to achieve sustainable and equitable socio-economic development through optimal land management and utilization". This policy is relevant in ensuring that land is used for the purpose to which it was allocated.

The Uganda Organic Agriculture Policy, 2009

The organic agriculture policy seeks to minimize the use of external biological inputs, avoiding the use of synthetic fertilizers and pesticides to optimize the health and productivity of the interdependent communities of soil life, plants, animals and people. In line with the wetland regulations, this policy is supportive, since unregulated use of chemicals in Nabugabo could lead to water contamination.

The Uganda Wildlife Policy, 2014

The wildlife policy goal is "to conserve wildlife resources of Uganda in a manner that contributes to the development of the nation and the well-being of its people". One of the policy objectives is to sustainably manage wildlife populations in and outside of wildlife protected areas. In view that the Lake Nabugabo Wetland system Ramsar site is rich in biodiversity and is not among the protected areas, this policy may promote biodiversity conservation. The policy lays down a number of strategies:

1. Develop and implement an integrated national management plan for wildlife outside protected areas;
2. Promote sustainable wildlife utilization programs as an incentive for wildlife management on private land;
3. Provide guidelines on the conservation of wildlife outside protected areas and promote the

implementation of such approaches;
4. Where appropriate, promote the establishment of Community Wildlife Areas (CWAs) and provide technical input into the preparation and implementation of CWA management plans;
5. Build capacity of local governments to effectively participate in wildlife conservation;
6. Partner with forestry and wetland management institutions and local governments to effectively manage wildlife in wetlands, forest reserves, and private land;
7. Pursue payment for ecosystem services as an incentive for conservation;
8. Strengthen collaboration between wildlife, forest reserves and wetlands management institutions; and
9. Support efforts to conserve wildlife species in forestry reserves and wetlands.

The Forest Policy, 2008

The Forest Policy of 2008 aims for an integrated forest sector that achieves sustainable increases in the economic, social, and environmental benefits from forests and trees by all people of Uganda especially the poor and vulnerable. Within the Lake Nabugabo wetland system Ramsar site, there are three forest reserves: Mujuzi Central Forest Reserve, Manywa West Central Forest Reserve, and Manywa East Local Forest Reserve.

Mineral and Mining Policy, 2000

The goal of the Mineral and Mining policy is to develop the mineral sector, as it contributes significantly to sustainable economic and social growth by creating employment for the rural population in Uganda. The Lake Nabugabo wetland system Ramsar site is rich in clay and sand deposits and these resources are named as building minerals under the Mining Act of 2003.

Occupational Health and Safety (OSH) Policy, 2004

The mission of the OSH policy is to ensure the existence of safety and health at all workplaces and work environments, aiming to minimize occupational accidents, diseases and injuries. The policy promotes good health, better working conditions and awareness of healthy workplaces among workers, employers and the general public. The policy functions under the Occupational Health and Safety Act, 2006.

3.4.2 National Legal frameworks

Constitution of the Republic of Uganda, 1995

The constitution provides for the state to protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora from degradation under Objective Xiii under article 237(2)(b). The constitution has provisions for enhancing conservation and management of the environment and natural resources. The Constitution also enshrines the constitutional right of all Ugandans to a clean and healthy environment in article 39 (The Republic of Uganda Constitution, 1995).

National Environment Act (NEA), 1995

The national environment act provides for sustainable management of the environment; to establish an authority as a coordinating, monitoring and supervisory body for that purpose; and for other matters incidental to or connected with the foregoing. In line with this, NEA has been created to ensure that utilisation of wetland resources is compliant to policy provisions.

Land Act, 1998

Section 43 of the Land Act of 1998 states that a person who owns land shall manage and utilize the land in accordance with the National Environment Act and any other law that falls under the land act. The area around the proposed lake Nabugabo wetland system Ramsar site is comprised of individual land holdings registered under this act as *mailo*, *lease hold* or *free hold,* and must comply to the provisions under the act.

Local Government Act, 1997

The local government act of 1997 is a decentralization policy that mandates that local governments must protect the environment at the district level.

The Agricultural Chemicals (Control) Act, 2006

The agricultural chemicals control act of 2006 (supplement No. 1) aims at controlling and regulating the manufacturing, storage, distribution and trade in, use, importation and exportation of agricultural chemicals and other related matters. The act interprets agricultural chemicals to include: plant protection chemicals, fungicides, insecticides, nematicides, herbicides, miticides, bactericides, rodenticides, molluscides, avicides, fertilizer, growth regulators, wood preservatives, biorationals, bio-pesticides, bio-fertilizers or any other chemicals used for promoting and protecting the health of plants, plant products and by-products. One of the major land use activities within Lake Nabugabo wetland system Ramsar site is growing of crops such as tomatoes, rice, cabbage, potatoes, and beans, where chemicals are used to control pests and diseases.

The National Planning Authority Act (NPAA), 2002

The NPAA mandates the national planning authority to support local capacity development for national-level planning and to support and guide the central and district local governments responsible for the decentralized planning process as provided under section 7(2)(d). The act also provides local governments with the authority to design and implement programs to develop planning capacity at the local level, and to monitor the performance of the decentralized system of development planning.

The Uganda Wildlife Act Cap 200, 2000

The wildlife act cap 200 provides for the protection of wild animals that are rare, endangered and endemic. The act further provides for the institutional framework of the Uganda Wildlife Authority to manage and enhance the conservation of biodiversity in confined habitats within protected areas, so that species abundance and diversity are maintained in accordance with CBD standards. The act also provides for the implementation of relevant international treaties, conventions, agreements or other arrangements to which Uganda is a party. The government of Uganda is obliged to observe the provisions and to regulate wildlife trafficking within its territories in collaboration with member states. In the Lake Nabugabo wetland system Ramsar site, there are rare and endemic plant and animal species that may be subject to trafficking. The Sitatunga is one such rare species, which lives within the Nubugabo area.

The National Forestry and Tree Planting Act, 2003

The national forestry and tree planting act created under the forest policy provides for the conservation, sustainable management and development of forests for the benefit of the people of Uganda. It provides for the declaration of forest reserves for purposes of protection and production of forests and forest produce, and provides for the sustainable use of forest resources and the enhancement of the productive capacity of forests. The act aims to promote tree planting, and consolidates forest sector laws and trade in forest produce. It also established a National Forestry Authority.

Water Act, 1997

The water act of 1997 provides for the use, protection and management of water resources and drinking water supply. It provides for the constitution of water and sewerage authorities, and facilitates the devolution of water supply and sewerage undertakings. It is the most important resource in wetland management and provides for the sustainable use of water resources.

National Environment (Wetlands, River Banks & Lake Shores Management) Regulations, 2000

Section 34 (1) underpins the relevancy of conducting an environmental assessment for projects which may have significant impacts on a wetland, river banks or lake shores. It further stipulates that wetland resources must be utilized in a sustainable manner compatible with wetlands and their hydrological functions and

service. These regulations are relevant to implement the management plan and guide all developments that will be executed in the area.

3.5. Institutional Framework and Key Stakeholders

Successful implementation of this management plan is dependent on effective coordination of relevant institutions and stakeholders in sharing roles and responsibilities to realize the vision of this management plan. This section gives a detailed description of the relevant institutions and stakeholders relevant to the implementation of the plan.

3.5.1 Institutional Framework

This section lists the different institutions from government, private sector and civil society with their respective mandates to guide planning, implementation, and monitoring of this plan.

3.5.1.1 National Institutions

There are many institutions involved in the management of the Lake Nabugabo wetland system Ramsar site at the national and district levels. Primary institutions, along with their mandates, are listed in Table 3.

Table 3: *Institutions at the national level*

National Level	Mandate
Ministry of Finance	• To formulate policies that enhance stability and accelerate economic growth and development; • To plan and design strategies for rapid economic growth and transformation; • To mobilize domestic and external resources; • To ensure efficient allocation and utilization of public funds and monitor and account for the utilization of public resources.
MWE and constituent departments of Forestry, wetlands, water, climate change and environment	To formulate policies and provide guidance and technical backstopping
MWE Semi-autonomous agencies	1. National Management authority is mandated to; • Coordinate the implementation of Government policies and the decision of the Policy Committee on Environment; • Ensure the integration of environmental concerns in overall national planning through coordination with the relevant ministries, departments and agencies of government; • Liaise with the private sector, inter-governmental organizations, non-governmental and Government agencies of other states on issues relating to the environment; • Propose environmental policies and strategies to the Policy Committee; • Initiate legislative proposals, standards and guidelines on the environment in accordance with the law; • Review and approve Environmental Impact Assessments and Environmental Impact Statements submitted in accordance with the National Environment Act, Cap. 153;

National Level	Mandate
MWE Semi-autonomous agencies	2. National Forestry Authority is mandated to: • Manage all Central Forest Reserves in a sustainable manner • Supply high quality forest related products and services to Government, local communities and private sector. 3. National Water and sewerage cooperation is mandated to; Provide clean and safe water.
Ministry of Gender, Labour and Social Development	• To empower communities to appreciate, access, participate in, manage and demand accountability in public and community based initiatives; • To protect vulnerable persons from deprivation and livelihood risks; • To create an enabling environment for increasing employment opportunities and productivity for improved livelihoods and social security for all, especially the poor and vulnerable; • To ensure that issues of inequality and exclusion in access to services across all sectors and at all levels are addressed; • To improve performance of social development (SD) institutions to coordinate and implement the Social Development Investment Plan (SDIP) at various levels.
Ministry of Local Government	• To inspect, monitor, and where necessary offer technical advice/assistance, support supervision and training to all Local Governments; • To coordinate and advise Local Governments for purposes of harmonization and advocacy; • To act a Liaison/Linkage Ministry with respect to other Central Government Ministries and Departments, Agencies, Private Sector, Regional and International Organizations; • To research, analyze, develop and formulate national policies on all taxes, fees, levies and rates for Local Governments.
Ministry of Defense	To preserve and defend the sovereignty and territorial integrity of Uganda. This ministry is also a major secondary stakeholder because it owns big chunks of land.
Ministry of Lands, Housing and Urban Development	To ensure a rational sustainable and effective use and management of land and orderly development of urban and rural areas as well as safe, planned and adequate housing for socio-economic development
Research Institutions (e.g., Makerere University)	To offer training and conduct research that is multidisciplinary and meets the needs of the present and future generation.
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	To promote and support sustainable and market oriented agricultural production, food security and household incomes.
National Agricultural Research Organization (NARO)	To coordinate, oversee and guide agricultural research in Uganda.

National Level	Mandate
National Forestry Research Institute (NAFORRI)	To undertake research in all aspects of forestry in Uganda.
National Fisheries Research institute (NAFIRRI)	To conduct basic and applied research of national and strategic importance in aquaculture, capture fisheries, water, environment, socio-economic and marketing, and information communication management, and emerging issues in the fisheries sector.
Ministry of Tourism Wildlife and Antiquities (MTWA)	To formulate and implement policies, strategies, plans and programs that promotes tourism, wildlife and cultural heritage conservation for socio-economic development and transformation of the country.
Uganda Wildlife Authority (UWA)	To ensure sustainable management of wildlife resources and supervise wildlife activities in Uganda both within and outside the protected areas.
Uganda Tourist Board (UTB)	To promote and popularize Uganda as a viable holiday destination both locally and internationally.
Uganda Wildlife Education Centre (UWEC)	To promote wildlife education in addition to rescue and rehabilitate injured, confiscated and/or orphaned wildlife.
Relevant national and international NGOs like Environment Alert, International Union for conservation of Nature (IUCN) & Nature Uganda.	Supplementing central government efforts in service delivery, advocacy, research, capacity building and resource mobilization. NGOs/CSOs mobilize communities for development initiatives. Environmental Alert: advocates for enabling environment, sustainable natural resources management and food security frameworks for targeted communities through empowerment and policy engagement; while IUCN is involved in conservation of the Earth's most outstanding places and species that are particularly important for habitat or for people.

3.5.1.2 District-Level Institutions

There are many institutions involved in the management of the Lake Nabugabo wetland system Ramsar site at the district level. The main ones and their key mandates are listed in Table 4.

***Table 4:** Institutions at the district level*

Institution	Mandate
District Council	Monitoring and supervision of implementation of government programs, legislation, formulation of ordinances and by-laws, resource mobilization and passing of budgets.
Natural Resources Department at District Level	1. Regular supervision and monitoring (M&E); 2. Resource mobilization; 3. Mobilizing local communities through the Sub-counties; 4. Linkage to other sectors, partners and collaborators; 5. Technical backstopping; 6. Integration of wetland issues

Institution	Mandate
District Security Committee	1. Inform and advise the National Security Council on matters relating to security in the district; 2. Coordinate and advise on policy matters relating to intelligence and security; 3. Review and forward to the council the security needs and goals in the district; 4. Receive reports from the district intelligence committee; 5. Advise on any other security matter which may arise in the district from time to time; 6. Carry out any other function as the council may assign to the committee. 7. Management of Natural resources is a security matter hence relevance of the security committee.
Community Development Department	1. Supports district efforts to mobilize communities for development initiatives; 2. Takes lead in mainstreaming gender in district development plans; 3. Raises awareness on social-cultural issues and advises council on gender aspects.
Fisheries Department	Promotes, supports and guides the district on fisheries issues, collect and analyze data, provide extension services, enforcement, awareness, and planning for fisheries into the district development plan.
Agricultural Department	Provision of extension services.
District Technical Planning Committee	1. Taking lead in the formulation of Development plans (with support from planning task team); 2. Coordinating collaboration and linkages with other Local Governments; 3. Discussing and agreeing on the modalities for the planning process; 4. Reviewing and customizing the broad National Development Strategic direction; sector–specific strategies, priorities and standards; and relevant crosscutting issues; 5. Appraising individual projects for all programs like Local Government Development Project (LGDP), Lake Victoria Environment Project (LVEMP0 etc. 6. Coordinating and integrating Sector and Lower Local Governments (LLGs) plans into Higher Local Governments (HLGs) development plan; Discuss and agree the draft LGDP to be presented to DEC; 7. Reviewing District performance.
District Land Board	Guiding management of land issues including issuance of land titles
Health and water depts.	1. Disease surveillance; 2. Case detection and treatment; 3. Disease prevention, provision of health education and advice to district stakeholders; 4. Provision of clean and safe water and ensuring proper sanitation services.

Institution	Mandate
Physical planning committee (established under the Physical Planning Act,2010)	1. Prepare local physical development plans; 2. Recommend development applications for change of land use; 3. Recommend to the district council subdivision of land which may have a significant impact on contiguous land or be in breach of any condition registered against a title deed in respect of such land; 4. Approve development applications relating to housing estates, industrial location, schools, petrol stations, dumping sites or sewerage treatment, which may have injurious impact on the environment as well as applications in respect of land adjoining or within a reasonable vicinity of safeguarding areas; 5. Hear appeals lodged by persons aggrieved by decisions made by the district physical planner and lower local physical planning committees under this Act; 6. Ensure the integration of physical planning into the five year integrated development plan of the district; 7. Exercise supervisory powers over all lower planning committees; 8. Ensure integration of social, economic and Environmental plans into the physical development plans.
Lower Local Governments (LC111, LC11s and LC1s)	1. Day to day supervision of Community Wetland Management plans (CWMP) implementation; 2. Implementing some parts of the CWMP at sub-county level; 3. M&E- data collection and monitoring performance; 4. Resource mobilization and accountability; 5. Community mobilization
Buganda Kingdom /Buganda Land Board /BLB	1. Identification and mapping of Kingdom land; 2. Leasing and management of Kingdom Land; 3. Collection of land tax (busulu) and issuance of land title; 4. Management of cultural sites. Some of the kingdom land has wetlands, hence relevance of Buganda Kingdom in the management plan implementation.
Private Sector/Business community	Investments, hotels, restaurants, beaches, tree plantation and extraction of natural resources.
Religious Institutions / Leaders	1. Moral and spiritual guidance but also own land. 2. Supplementing Government efforts in service delivery, advocacy, research, capacity building and resource mobilization. 3. Like NGOs/CSOs Religious institutions also mobilize communities for Development initiatives. The church is very instrumental in conservation of natural resources because of two main reasons: they own big chunks of land and heavily influence popular opinion.
NGOs/CSOs/CBOs	Supplementing Government efforts at District level in service delivery, advocacy, research, capacity building and resource mobilization. NGOs/CSOs mobilize communities for Development initiatives. Some of the NGOs that are involved in natural resources management include Environmental Alert and World Vision. Most CBOs identified include Community saving groups (SACCOs) or Under Operation Wealth Creation (OWC) program, a government program that gives out agricultural inputs.

Source: The Uganda National Development plan – NDP II

3.5.1.3 Key Stakeholders/Resource Users

The management of wetlands involves a number of stakeholders that have different roles and responsibilities. In order to understand the different stakeholders and institutions involved in wetlands resources management, a stakeholder analysis was carried out in 2016. The stakeholder identification process involved a literature review and consultations with local authorities at community meetings. This consultative process generated a list of primary stakeholders (mainly resource users) and secondary stakeholders comprised of national and district level institutions. The main resource users in the Lake Nabugabo wetland system Ramsar site are summarized in Table 5.

Table 5: *Main resource users in the Lake Nabugabo wetland system Ramsar site*

Stakeholders	Resource use/stake
Livestock keepers	Grass, water
Agriculture	Soil and water
Dealers in forest products (firewood, timber, poles and charcoal)	Trees and shrubs
Sand and clay miners	Sand, clay, water, grass, firewood
Fishermen/Fisher folk	Fish, water, trees, Land
Tourists	Flora, fauna, scenery
Water companies and beach/hotel owners	Water
Hunters	Animals for meat, hides and skins
Motor vehicle washers	Water
Bee keepers	Trees, grass, poles, papyrus
Herbalists/Traditional healers	Herbs
Transporters (motor vehicle and boats)	Roads, open water, trees
Wildlife farmers (Buwama crocodile farm)	Wildlife and land

CHAPTER FOUR:
MANAGEMENT PLANNING PROCESS AND SITUATION ANALYSIS

4.1. Introduction

This chapter describes the management planning process for the Lake Nabugabo wetland system in line with the Ramsar hand book. The chapter also provides a detailed situation analysis aimed at identification of the major problems facing the ecosystem which when addressed will help attain the vision of the plan and ensure sustainability.

4.2. Importance of Management Planning for the Lake Nabugabo Wetland System Ramsar Site

Wetlands are dynamic areas, open to influences from natural and human factors. In order to maintain the sustainability of the wetland ecosystem and to permit the wise use of wetland resources, an overall plan with a shared vision is essential between the various wetland users and other stakeholders. The main purpose of management planning for Lake Nabugabo wetland system Ramsar is to:

1. Define the objectives of management;
2. Identify the factors that affect the conservation and wise use of the wetland system;
3. Identify conflicting land use practices and propose mitigation measures;
4. Monitor wise use of the wetland resources;
5. Identify and describe the actions required to achieve the objectives of management;
6. Maintain continuity of effective management and sustainability;
7. Mobilize resources for implementation of the management plan;
8. Promote effective communication among stakeholders in sustainable management of Nabugabo wetland system;
9. Ensure the efficiency and effectiveness of the management process by efficient management of resources, timely implementation and accountability among stakeholders; and
10. Ensure compliance with local, national, regional and international policies.

4.3 Steps Undertaken in the Planning Process

The planning process was guided by the Ramsar planning guidelines, the local government planning guidelines and the national Development plan 11. The steps and activities undertaken are summarized in Table 6.

Table 6: *A summary of activities undertaken during the formulation of the management plan*

Activity	Outputs
Preparatory phase	Data collection tools, mobilization of stakeholders and schedules for subsequent activities.
Awareness creation	Awareness of the management planning process was raised among the district and sub county leaders
Training of district resource persons	District resource persons from Natural Resources, community Development, production, and human resource departments were trained on the data collection process.
District level consultations	At district level, the following people were consulted: RDCs, district chairpersons, chief administrative officers, secretaries for production, natural resource officers, wetland/environment officers, district planners, district production officers. Civil Society Organization representatives, chair persons of land boards, secretaries of land boards, land officers, community development officers and physical planners. In all, over 140 officers at district level were consulted. Of these, 40 were females and 100 were males from 5 districts, 14 Sub Counties and 42 Parishes.

Activity	Outputs
Sub county level consultations	At sub county level, the following categories of people were consulted: LCIII chairpersons, sub-county chiefs, CDO's, environment focal persons, secretaries for production, LCII chairpersons, parish chiefs, farmers, CBO's and projects from 14 sub counties /42 parishes. The selection of the key persons ensured participation of all gender categories (youth, men, women, and elders) and wetland user groups (farmers, cattle keepers, crafts, herbalist, etc.) and the community leaders from the 42 Parishes. In all, 418 people were consulted and of these 93 were females and 325 were males.
Combined District and sub county consultations	Data from all the five districts and 14 sub counties validated and views on stakeholders, resources of wetlands, problems affecting the wetlands, and strategies to manage the challenges harmonized.
Data compilation and analysis	Stakeholders matrices, wetland resources validated, problems affecting wetlands identified, Vision, mission, objectives and strategies for wetland management identified.
Delineation of the wetland boundaries by collecting G.I.S Coordinates from the proposed boundary marks	Boundaries delineated and output maps made.
Biodiversity studies (Plants, mammals, insects, Herpetofauna, and fish) undertaken by the technical working group from Makerere University	New information collected and added onto the already available literature.
Validation meeting of the technical working groups	Validation of the study findings done and agreed on sensitive areas.
Literature Review and synthesis of information from consultations.	Collation of information into a zero draft of the management plan.
Presentation of the zero draft to the task force together with the technical working group.	Agreed on the plan lay out of the management plan and the schedule for the review process.
Review of the zero draft by the national task force and representatives of the technical working group.	Approval of the draft management plan for further review.
Review of the plan by PREPARED secretariat	Approval of Draft.
Approval and launch	Central Government and respective District Local Governments. Dissemination and resource mobilization followed by implementation
Tools for Popularization of the management plan	A Conservation Investment Plan (CIP) for Lake Nabugabo wetland system Ramsar site developed under the common goal of this management plan. Targeted at potential donors and investors, the CIP offers a value proposition which outlines the economic returns to investing in biodiversity and ecosystem conservation in Lake Nabugabo wetland system Ramsar site.

4.4 Situation Analysis

This section presents the situation assessment in relation to problems and threats affecting the Lake Nabugabo wetland system Ramsar site, including the strategies to address them.

4.4.1 Changing Land Use

The Nabugabo wetland system Ramsar site supports the livelihoods of about 500,000 people for both traditional and commercial purposes (UBOS, 2014). In the past, the main activities were mainly traditional characterized by small scale domestic agriculture, but there is now a shift to large scale agriculture and heavy extraction of natural resources. Recently, cage fish farming has been introduced on Lakes Victoria, Nabugabo and Birinzi, but the impacts are not known. Heavy extraction of clay, sand and grass using heavy machinery are other emerging activities that will have significant impacts on the wetlands in the area. USAID (2015) estimated that the current Nabugabo Ramsar site generates ecosystem services worth about USD 4.6 million a year, an average of USD 333 per ha per year. Local harvests of wetland products and water regulation services each account for around a third of this value, while nature-based tourism, carbon sequestration, and underlying support for agricultural productivity contribute 17%, 5% and 13%, respectively. Natural resources in the Lake Nabugabo wetland system have been used with minimum consideration of the wise use principles, and the local communities have always aimed at optimizing their own economic benefits from the area without due consideration of other users of the wetlands (USAID, 2015).

4.4.2 Environment Literacy and Public Awareness

Environment literacy and public awareness are key in the conservation of natural resources, including wetlands. The responsibility of environmental education lies within the jurisdiction of district local councils and the department for natural resources as provided for under the local government act of 1997 (Cap. 243). There are low levels of knowledge and awareness of environmental conservation and as such, degradation remains unabated. More effort is needed in conservation education. This could be achieved by targeting three administrative levels: the district, the sub-county, and lower local councils. Efforts should also be made to encourage the formation of local Community Based Organizations (CBOs), which can be easily mobilized for conservation concerns. Such CBOs could be based on resource use in the area, which seems to be a unifying factor for most of the local community members.

4.4.3 Emerging Multiple Stakeholders

In reviewing and updating the management plan for the Lake Nabugabo wetland system Ramsar site, stakeholder analysis was undertaken in a participatory manner at all levels, building on the previous management plan (2004-2009). The review findings identified multiple stakeholders and this was attributed to increased population. It is critical that a wide range of stakeholders identified is involved in all stages during the implementation of this plan.

4.4.4 Pollution and Alien Species

Introduction of alien species has been a challenge to the management of natural resources in the Nabugabo area. For example, whereas the introduction of Nile Perch in Lake Victoria and Lake Nabugabo has positively contributed to the fisheries economy in the country, it has also led to the predation on the endemic Cichlid fish species. Biodiversity studies by MWE in 2016 indicated a high presence of invasive plant species, such as ***Lantana camara*** in the Lake Nabugabo wetland system Ramsar site. The invasion of Water Hyacinth (***Eichhornea crassipes***) in Lake Victoria is also a big challenge.

All the beaches (hotels) at Lake Nabugabo have been developed without carrying out Environment Impact Assessments (EIAs). This has led to unplanned effluent discharge into the lake and has had a negative impact on the lake's ecosystem. Some new activities, like cage fish farming and rice growing and irrigation have been introduced in the area. If not regulated, these activities could have a high negative impact.

4.4.5 Factors Arising from Legislation

The local Government Act of 1998 devolved the management of wetlands to the local government. However, implementation of these provisions has not been put in force by the local governments. No personnel have been recruited to run the management of wetland resources. The land act empowers districts as local governments to lease out land, and some leases on Nabugabo wetlands have been noted. The wetlands need to be protected according to the provisions of these relevant laws to ensure more land is not lost to development.

4.4.6 Infrastructure

Despite the area around the Lake Nabugabo being accessible, the rural feeder roads in other parts of Nabugabo wetland system Ramsar are not good and this hinders promotion of optimum tourism levels. In years past, there has been limited tourism activities around the satellite lakes and social infrastructure, such as health services and education, are still poor. However, there has been notable improvement in the energy subsector with the extension of hydroelectricity power to Lake Nabugabo and settlements along the shores of Lake Victoria (district development plans for Masaka, Mpigi, Kalungu, Gomba, & Butambala, 2016).

4.4.7 Climate Change and its Impacts

Climate change has affected all sectors of the economy in particular agriculture, water, health and human settlements, and Nabugabo is no exception (MWE, 2015). Since 1960, the mean annual temperatures have risen by 1.3° C, and annual and seasonal rainfall has decreased significantly across Uganda. In the 2007-08 fiscal year, climate change damages were equivalent to 4.4% of the national budget, exceeding the budget allocation for the environment and natural resource sector (UNMA, 2016). Models following the fifth assessment report of the Inter-Governmental Panel on Climate Change (IPCC) indicate an increase in near-surface air temperatures of +2° C over the next fifty years. In the absence of adaptation actions, the cost of the impacts of climate variability and change in Uganda may range from USD 270 - 332 billion by 2050, impacting the agriculture, water, infrastructure and energy sectors. In 2016, there was a prolonged drought, including the Nabugabo area, which led to crop failure and hunger. People sought government assistance for relief food. In 2015, Uganda Government put in place Nationally Appropriate Mitigation Actions (NAMAs) developed after careful analysis of the impacts of climate change to different sectors and vulnerability assessment reports. The NAMAs provided a basis for possible actions to mitigate the impacts of climate change as summarized in Table 7.

Table 7: *Analysis of the impacts of climate change on different sectors*

Sector	Impact	Causes or factors leading to the impact	Possible mitigation and adaptation activities
Water	Water scarcity	High temperatures, evaporation and recurrent drought leading to stress, higher demands for water, conflict, and biodiversity loss. Partially implemented water resource regulation system hands legal access to water to the powerful people/elites.	Protect catchment areas through re-forestation
	Increased Flooding	High mean and increased rainfall intensity, coupled with land degradation and encroachment raises risks of loss of life and property and damage to infrastructure via flooding.	Resilient Infrastructure, re-forestation

Sector	Impact	Causes or factors leading to the impact	Possible mitigation and adaptation activities
Roads and Infrastructure	Disruption of transport links and settlements	Damage to bridges, roads, telecommunication and buildings during flood and storm events.	Resilient infrastructure, wetland restoration, reforestation.
Health	Increased incidences of Malaria	Malaria extension to high or cold areas with temperature increase where resistance may be low.	Health education, control landscape degradation
	Increased incidences of water-borne diseases	Flooding is associated with diarrheal diseases including cholera epidemics, particularly where sanitation is poor and in slum areas.	Landscape restoration, health education and ensure proper hygiene
	Increased cases of respiratory diseases	Associated with prolonged dry spells.	Health education and landscape restoration
Agriculture and Food Security	Increased cases of malnutrition and famine	Associated with lower food production and insecurity, particularly with widespread damage brought by floods and droughts.	Clean smart Agriculture
	Unpredictable seasonal rainfall patterns	Erratic onset and cessation of the rainfall seasons. Shorter rains. Crop failure or lower yields of staple foods like beans, cassava, maize and matooke (bananas); reduction in traditional varieties; and more crop diseases.	Dissemination of meteorological information, disaster management plans, and irrigation systems; use of drought resistant varieties
	Crop damage and soil erosion	Higher than average rainfall.	Use of cover crops and other soil and water conservation practices like agro-forestry, terraces, mulching, and digging trenches
	Severe fluctuations in pasture productivity and low milk production.	Decrease in rainfall in semi-arid areas. Droughts reduce viability of cattle corridors and precipitate conflicts.	Hay and silage making; use of improved animal breeds

Sector	Impact	Causes or factors leading to the impact	Possible mitigation and adaptation activities
Agriculture and Food Security	Low coffee production	Robusta coffee is sensitive to higher temperatures. Too much rain reduces flowering, which reduces production and also affects the drying of beans. Diseases, pests and mold affect both production and quality.	Landscape restoration, water and soil conservation, use of resistant food varieties
	Reduced fisheries productivity	Changes in nutrient cycling and loss of spawning brought by temperature and water level change.	Restore lake shores and River banks; strengthen law enforcement
	Increase in food prices	Increase due to pressure on internal and international production capacity.	Climate-Smart Agriculture
	Decline in tourism	Potentially in decline due to degraded environment and infrastructure.	Restore the environment and promote tourism activities
Environ-ment and Natural resources	Land degradation and deforestation	Higher forest fire risk in dry periods; pressure on forests when other livelihood assets collapse; salination and soil erosion; wetland degradation.	Restore landscapes through wetland restoration and reforestation
	Species extinctions	As niches are closed out by shifts in climate regime.	Conserve biodiversity through landscape restoration
	High energy costs	Changes in lake level by reducing water flows for power generation. Higher energy costs and energy as a result of poverty with implications for charcoal use, deforestation and land degradation.	Use of alternative energy sources and clean energy mechanisms
	Reduction in water flows	Changes in water balance and demand heightens competition and potential for conflict.	Restore water sheds and water catchment areas
	Biodiversity loss	Higher temperatures lead to biodiversity loss as ecological niches of species get modified.	Conserve biodiversity through reforestation, wetland and landscape restoration, and adoption of energy saving and clean technologies

Source: cClimate change department, 2015

4.5 Problem Analysis

Problem analysis using focus group discussions, interviews and literature review was conducted together with the different resource user groups to identify causes of the problems associated with the utilization of resources in the lake Nabugabo wetland system Ramsar site. The aim was to guide the development of appropriate interventions that will be implemented to mitigate the identified problems. A matrix of problem cause analysis is represented in Table 8.

***Table 8:** Problem-Cause Analysis*

Threats	Direct Causes	Likely Effects	Proposed interventions
Unregulated tourism planning	Inadequate tourism planning	Reduced ecosystem benefits	Map a tourist and circuit route for area; prepare a tourist brochure; train communities to make quality products; construct a craft and information center and train communities in tour guiding and marketing
Pollution of lake water	Failure to conduct Environment Impact Assessments (EIA) and lack of guidelines	Threatens life of biota and people	Conduct environment audits for beaches near the lake; disseminate and enforce EIA guidelines; monitor effluent discharge and water quality.
Illegal fishing practices	Use of wrong fishing gear, overfishing	Water depleted of fish leading to high prices and inadequate animal proteins	Education, awareness creation and strengthen law enforcement.
Large investments of clays work and sand	Commercial sand and clay extraction	Pollution of the water, loss of soil fertility, and loss of biodiversity	Carry out environment impact assessments for all big investments, strengthen law enforcement to ensure compliance.
Poor agricultural practices	Burning, over-cultivation and mono-cropping	Biodiversity loss, soil exhaustion, increased spread of crop and animal diseases, soil erosion	Provide appropriate extension services.
Unregulated extraction of wetland resources (sand, clay and grass)	Lack of guidelines, increased population	Reduced biodiversity, degradation of the land scape and depletion of the resources.	Provide guidelines for extraction of the resources, diversification of people's livelihoods and environmental education.
Exotic/ alien and invasive species	Accidental or deliberate introductions by human	Loss of biodiversity	Monitor introduction of alien and exotic species in the Nabugabo area; document and disseminate information.
Poor agricultural practices	Lack of extension guidance low investment in afforestation; inappropriate agricultural technologies	Siltation and sedimentation of lakes; poor or reduced agricultural productivity; reduced vegetation cover	Liaise with NARO/MAAIF on soil and water conservation; set up community tree nurseries in the three sub-counties and monitor sediment loads into the lakes
Climate change	Clearing of forest cover; landscape degradation and natural phenomena; pollution due to gas emissions and Poor agricultural practices	Prolonged drought; crop failure; reduced incomes; increased poverty and increased crime rate	Climate-Smart Agriculture; wetland & landscape restoration; use of energy saving technologies; improved water harvesting technologies and climate vulnerability assessments

Source: Nature Uganda Reports, 2016

CHAPTER FIVE:
VISION, GOAL, OBJECTIVES AND IMPLEMENTATION FRAMEWORK

5.1. Introduction

Chapter 5 is the core of this management plan. It defines the vision, goals, objectives and activities that will be undertaken in order to realize the vision of the management plan. The activities which have been costed using the Activity Based Costing (ABC) method (See Annex 4) are aligned against the objectives in the implementation frame work.

5.2 Vision

The vision of this plan is:

"A well-managed Lake Nabugabo Wetland system Ramsar site for people's wellbeing and environment".

5.3 Goal

The goal of this plan is:

"To promote wise use of Lake Nabugabo wetland system resources for improved livelihoods of the stakeholders at local, national and international level".

5.4 Objectives

The objectives of Lake Nabugabo wetland system Ramsar site have been informed by the socio-economic and ecological functions, conflicts, problems and threats and other factors that are currently influencing the management of the wetland as defined by the stakeholders.

1. To promote conservation of Lake Nabugabo ecosystem and its catchment area;
2. To enhance public awareness about the importance of Lake Nabugabo ecosystem;
3. To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by 2027;
4. To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027; and
5. To strengthen coordination mechanisms of all conservation efforts by end of 2022.

5.5 Description of Activities

Objective 1:

To promote conservation of Lake Nabugabo ecosystem and its catchment area.

Activity 1.1:

Carry out research on cage fish farming.

Fish farming, using a number of technologies, has been identified as one way to enhance fish production in order to meet the increasing demand for fish proteins amidst a growing human population. While fish farming needs promotion, especially cage culture, there is little information on its impacts. Therefore, research will be carried out in order to generate more knowledge on different technologies and their impacts.

Activity 1.2:

Develop guidelines to implement cage culture/fish farming.

Cage fish farming has been popularized as one of the technologies to enhance fish production in order to meet the increasing needs for fish, but farmers have no guidelines. In order to minimize negative impacts, studies will be carried out to inform the process of developing guidelines.

Activity 1.3:

Demarcate wetlands and reopen forest reserve boundaries.

Currently there is increased degradation of wetlands and natural forests along the lake shores and forest

reserves. While wetland resource users are aware of the negative impacts of degrading these ecosystems, they claim that the boundaries are not known and this makes monitoring and enforcement difficult. Therefore, the boundaries of the major wetlands and all forest reserves will be identified and marked with visible land marks to make monitoring, inspection and enforcement easy for law enforcers.

Activity 1.4:
Review Environment Impact Assessment (EIA) reports and monitoring their compliance.
All major projects to be established in wetlands must carry out EIAs However, compliance has been very weak and EIAs have become more of routines than a necessity. Efforts will be made that once an EIA has been undertaken, there will be vigilant review of the environment impact statement to ensure stringent approval conditions are met, and once approved, efforts will be taken to ensure compliance.

Activity 1.5:
Strengthen physical planning committees and land use planning.
Physical planning committees were established under the Physical Planning Act 2010, section 9 to advise local governments and land boards on the most appropriate use of land, including change of user, extension of user, extension of leases, sub-division of land and amalgamation of land. Despite the existence of these important and highly technical committees, land titles are allegedly being issued in wetlands. Training and awareness of the physical planning committees will ensure that physical land use plans in ecologically sensitive areas are compliant to environment policies and legal provisions, and wetland wise use principles.

Activity 1.6:
Promote afforestation, reforestation and Agro forestry:
The landscapes of the ecologically sensitive areas and their catchments have been highly degraded leading to loss of biodiversity and climate change. The restoration of these landscapes will entail growing of trees using different technologies like boundary planting, establishing of large forest plantations in areas that had no forests and also in those areas that had forests but were cleared. Joint forest management and private sector involvement (including Payment for Ecosystem Services – PES) will be promoted in restoration and establishment of forest plantations will be promoted. Establishment of wood lots and agro forestry on people's farms will be also promoted.

Activity 1.7:
Develop guidelines on natural resource extraction (of sand, water, clay and grass) and ensure compliance.
The extraction of wetland resources has moved away from traditional use to a mixture of land use practices including large scale extraction but without any guidelines. These unregulated activities are unsustainable. In order to ensure that the resources are optimally utilized without destroying their potential for future generations, stringent and enforceable guidelines will be developed and resource users sensitized to ensure compliance.

Activity 1.8: Restore bole pits in degraded landscape in the wetland system:
In view of the fact that extraction of wetland resources has been going on without guidelines, large borrow pits were left un-restored, making the scenery ugly and also acting as breeding grounds for mosquitoes while being accident traps for people and animals. These areas are also being used as hiding places for criminals. In order to mitigate the negative impacts of these abandoned borrow pits, there will be deliberate attempts to restore them.

Activity 1.9:
Establish botanical gardens.
Botanical gardens will be established in strategic places for tourism attraction, research and conservation of endangered species. Hotels operators can be mobilized to establish botanical gardens within the vicinities of their facilities. The botanical gardens can also be established at camping sites and can take a number

of forms as wood lots, hedge rows, ornamental plants in compounds and can also include medicinal plants or trees with cultural values. Once established these botanical gardens will act as gene banks in conservation of important tree species in Lake Nabugago wetland system Ramsar site.

Activity 1.10:
Controlled introduction of non-indigenous species in Lake Nabugabo wetland system Ramsar site:
Due to unregulated land use and a shift from traditional land use to a mixture of large scale investments, coupled with increased population, invasive species have found their way into the wetlands and threaten the rich biodiversity. Some of the non-indigenous species suppress the growth of indigenous species, which leads to biodiversity loss. Efforts will be made to remove the alien species from the area. In addition, awareness will be raised among the stakeholders on the effects of introducing non-indigenous species. Compliance will be ensured through regular inspections and law enforcement.

Objective 2:

To enhance public awareness about the importance of Lake Nabugabo wetland ecosystem.

Activity 2.1:
Educate the public on the values of Lake Nabugabo resources:
One of the reasons for continued degradation of wetlands and the environment in general is that people do not appreciate or understand the value of wetlands. Public education aimed at changing people's behavior, attitudes and practices for sustainable management of wetlands and the environment will be conducted. Multiple approaches including public lectures, print media, radio talks show, social media, rallies, Music, Dance and Drama (MDD) will be used.

Activity 2.2:
Train technical staff in the wise use concept through law formulation and management planning for wetlands (will entail setting up demonstration sites):
The technical staff at district and sub county are key in ensuring implementation of the management plan. In order for them to effectively implement the plan, they must have a clear understanding of the wise use concept as laid out in the Ramsar convention and the wetland policy. The staff also need management planning skills so that interventions are well planned. Knowledge and skills in enforcing laws among local communities are also needed so that they are involved in monitoring enforcement.

Activity 2.3:
Construct and equip Lake Nabugabo Resource Centre.
A resource centre will be constructed as a one stop centre with detailed information on the Lake Nabugabo wetland system. The information can be in different forms, namely journals, posters, brochures, preserved specimen, reports, statues, atlases, albums and any other form deemed feasible. The resource centre will be used for research, teaching and tourism attraction. The resource centre can be operated through a public-private-partnership, but the government should lead the process by constructing the centre, then transferring management to the private sector through a legally binding memorandum of understanding (MoU) backed by appropriate legal arrangements.

Activity 2.4:
Produce and disseminate information, education and communication (IEC) materials.
Information, education and communication are key to raising awareness and knowledge on the different aspects of managing Lake Nabugabo Ramsar site. Publicity materials like banners, posters, and sign posts on sensitive areas, flyers, and brochures will be produced and disseminated appropriately to all the stakeholders in order to increase environmental education and raise awareness.

Activity 2.5:
Review, revise and update the Lake Nabugabo Ramsar site travel/hand book.
The Lake Nabugabo wetland system Ramsar site travel guide is one of the documents with information on Lake Nabugabo but from time to time there will be changes that need to be documented and therefore in order to keep the hand book relevant it must be continually updated through research.

Objective 3:

To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by 2027.

Activity 3.1:
Train fisher folk and farmers in fish farming technologies including cage culture in order to enhance fish production.
Capture fisheries can no longer meet the demands of fish consumption needs. Production from capture fisheries has reduced due to a number of reasons, including overfishing using illegal fish gears, destruction of fish breeding grounds, and pollution of the lake. This activity will identify, mobilize and sensitize existing and new farmers by providing them with skills in various technologies of fish farming including cage fish farming which is the growing of fish in enclosed containers either in open water bodies or earthen ponds. This activity builds on activity 1.1 and 1.2 where research on impacts of fish farming and development of fish farming guidelines are proposed.

Activity 3.2:
Promote and support diversified livelihood options (apiary, commercial tree nurseries, zero grazing, etc).
Too much reliance on fishing has been blamed for overfishing and poverty among the fisher folk. In order to reduce pressure on the lake, the fisher folk should engage in other forms of income generating activities like apiary, commercial tree nurseries, zero grazing, poultry, and piggery. Promotion of diversified livelihood options will involve sensitization, mobilization, training and provision of inputs to the communities.

Activity 3.3:
Promote ecotourism by establishing bird sanctuaries and other forms of ecotourism.
Lake Nabugabo wetland system Ramsar has a rich biodiversity of birds, fish, plants and animals. However, the potential for tourism has not been realized and therefore establishing bird sanctuaries and other forms of ecotourism services will go a long way in attracting tourists. Efforts will be made to attract more visitors to Lake Nabugabo for various activities, including picnicking, nature walks, and pleasure boating. Current tourism draws are swimming on the beach and enjoying the surroundings. Guided tours will expand visitors' ability to understand what a Ramsar site is and why it is so carefully tended by informed biologists.

Activity 3.4:
Promote value addition to agricultural produce and improve on the value chain.
This will entail agro processing of agricultural produce in order to increase their shelf life and also to get more income. The farmers will be mobilized and trained in the value addition and marketing techniques. Efforts will also be made to improve on the value chain so as to enhance production.

Objective 4:

To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027.

Activity 4.1:
Promote and support small scale irrigation technologies, drought resistant/early maturing crops

and Climate Smart Agriculture.
Due to climate variability, there is rampant crop failure. Farmers will be mobilized and trained in use of small scale irrigation in addition to providing them with drought resistant, early maturing crops and improved animal breeds.

Activity 4.2:
Promote and support the use of indigenous knowledge in drought and risk management.
There is undocumented indigenous knowledge within the communities on drought management. This knowledge will be documented and disseminated to farmers through routine extension services or use of a communication strategy developed with communities. This will include experiential learning field visits that will expose farmers to best practices and technologies.

Activity 4.3:
Promote and support climate change resilient technologies of post harvesting, water harvesting, and soil conservation.
Efforts will be made to set up demonstrations as learning centers for the farmers to adopt water harvesting technologies (e.g., use of underground tanks), trenches for soil conservation, mulching, and use of organic manure. Due to climate change farmers, experience a lot of post- harvest losses. To curtail this, the farmers will be mobilized trained and supported on post- harvest loss prevention strategies and resilient infrastructure to mitigate impacts of flooding.

Activity 4.4:
Promote and support landscape restoration and ecosystem based adaptation.
The landscapes within Lake Nabugabo wetland system Ramsar site have been degraded through clearing of forests and wetlands and wetland resource extraction, exposing this area to impacts of climate change. The landscape restoration will entail mobilizing farmers or communities to engage in afforestation, re-afforestation and agro forestry practices. Under this activity, wetland wise use principles will be promoted to enable people adapt to adverse effects of climate change and promote sustainable development. Projects that place strong emphasis on ecological and nature solutions will be promoted.

Activity 4.5:
Build the capacity of local governments and communities to predict any weather changes and prepare accordingly.
This activity will entail mobilizing communities in the use of climate change data as provided by the Uganda National Meteorological authority (UNMA). This will necessitate a mechanism for disseminating the information to the communities and also designing early warning systems to the farmers and drawing disaster management plans. Vulnerability assessments will also be carried out to generate data that will feed into the planning process. For this to be effectively executed, the Agricultural extension workers will be trained so that they are able to mobilize farmers and extend the knowledge to them. Efforts will also be made to set up weather stations so as to collect more climate data to be sent to UNMA for analysis and interpretation with a view of creating awareness on changes observed over time and climate change future predictions.

Activity 4.6:
Promote energy saving technologies like improved charcoal stoves, biogas and solar.
Over-reliance on biomass for energy has contributed greatly to vegetation loss and degradation through charcoal burning. Efforts will be made to identify appropriate technologies for adoption of new technologies. Local artisans will be trained to fabricate some of the technologies that are affordable. Institutions will be supported to install energy saving technologies like institutional stoves, use of solar, and biogas. As recommended by UNDP, the value chain for charcoal making will be improved by demonstrations of efficient charcoal kilns and charcoal briquettes.

Objective 5: To strengthen coordination mechanisms of all conservation efforts by the end of 2022.

Activity 5.1:
Assessments of performance through annual reviews, midterm review, audits, end of term review.
The ministry of water and environment, in consultation with local governments, will carry out reviews in order to ensure that the implantation of the management plan is on track and where there are challenges, adjustments will accordingly be done.

Activity 5.2:
Launch the inter-district and investment fora.
The inter-district and investment fora will be key in implementation of the management plan. Efforts will be made to identify the key personnel to constitute these fora that will then be provided with guidelines to carry out their activities. This will entail facilitating their meetings and training on their roles and responsibilities**.** The inter-district committee and investment forum will act as the link between the communities and government. It will be the responsibility of the Ministry of Water and Environment, in consultation with local governments, to put in place modalities for setting up the committees, training them and identifying funding modalities for the committees to function.

Activity 5.3:
Strengthen law enforcement through patrols, surprise visits and routine monitoring.
Weak law enforcement has been blamed for the degradation of the wetlands in Lake Nabugabo Ramsar site. Efforts should be made to support law enforcers to carry out routine monitoring and inspection visits and reports shared by all committees of local government, inter-district forum and corrective measures put in place.

Activity 5.4:
Experiential learning visits of inter-district committee and investment forum while enhancing joint monitoring of all stakeholders.
The visits of inter-district and investment committee will be mobilized by the Ministry of Water and Environment in order to promote joint monitoring and sharing experiences for effective implementation of the management plan. Since there are five district local governments in which the lake Nabugabo wetland system Ramsar site falls, then the visits can be rotated.

Activity 5.5:
Identify a research agenda for the Ramsar site and carry out pragmatic research.
Wetlands are sensitive ecological systems that can easily change when exposed to different land use practices. It will therefore be important for a mechanism to be put in place to ensure that research needs are identified, carried out, and findings disseminated to the communities. This can be done through focus group discussions with communities to identify issues that need to be researched upon and then the ministry together with district local governments can prioritize which areas to be researched on depending on the availability of resources and seriousness of the problem.

5.6 Activity Implementation Plan (2017-2027)

The implementation of activities in this management plan is multi-sectoral in nature as illustrated by the different expertise and Government departments involved in implementation of activities. The activity implementation plan in Table 9 highlights the estimated costs for each activity including the lead implementers and expected sources of funding.

***Table 9**:Activity implementation plan (2017-2027)*

Objective	Activities	Target (Geographical and or Beneficiaries)	Indicative Cost (UGX Millions)	Lead Implementer	Time frame	Source of Funding
Objective 1: To promote conservation of Lake Nabugabo ecosystem and its catchment area	1.1: Carry out research on fish farming technologies including cage culture	Cage fish farmers	80	Makerere University/ NAFIRRI	Annually	GoU/Development partners
	1.2: Develop guidelines for implementing cage fish farming	District fisheries staff, natural resources management staff, fish farmers	120	MAAIF	2017	GoU/Development partners
	1.3: Demarcate wetlands and open forest reserve boundaries	All sensitive wetlands as identified by the local leaders	400	WMD	2018	GoU/Development partners
	1.4: Review EIAS and monitor compliance	All investments in the wetlands	30	DLG/WMD	Quarterly	GoU/Development partners
	1.5 Strengthen physical planning committees through sensitization and training	All physical planning committees	100	Lands	Annually	GoU/Development partners
	1.6 Promote afforestation, re-afforestation and agro forestry	Forest reserves, lake shores and river banks, avenue tree planting	200	DFS	Routine	GoU/Development partners
	1.7 Develop guidelines for natural resource use including extraction of (sand, water, clay and grass) and ensure compliance	Sand, grass, clay and papyrus	200	Energy &Mineral Dep't	2018	GoU/Development partners
	1.8 Restoration of borrow pits in degraded landscapes	All sand, clay and murram pits that were abandoned	200	DNRO	Routine	GoU/Development partners

Objective	Activities	Target (Geographical and or Beneficiaries)	Indicative Cost (UGX Millions)	Lead Implementer	Time frame	Source of Funding
Objective 1: To promote conservation of Lake Nabugabo ecosystem and its catchment area	1.9 Establish botanical gardens	Forest reserves, sensitive wetland forests and beaches	300	Makerere Department of Plant Sciences, Microbiology and Biotechnology	Annually	GoU/Development partners
	1.10 To control introduction of non-indigenous species in Lake Nabugabo wetland system	Invasive species	250	DNRO	Routine	GoU/Development partners
Objective 2: To enhance public awareness and knowledge about the importance and value of Lake Nabugabo ecosystem	2.1 Educate the public on the values of Lake Nabugabo resources using multiple approaches like public lecture, print media, radio talks shows, social media, rallies, Music Dance and Drama (MDD)	District/sub-county councils, land boards, area land committees, physical planning committees, etc.	200	DNRO	Routine	GoU/Development partners
	2.2 Train technical staff in wise use concept, by law formulation and management planning for wetlands	Technical planning committees, physical planning committees, area land committees, parish chiefs	100	WMD	Annually	GoU/Development partners
	2.3 Construct and equip lake Nabugabo resource Centre	On sand beach, River Katonga bridge and any other areas	600	WMD	2018	GoU/Development partners
	2.4 Produce and disseminate Information, Education and communication (IEC) materials like banners, posters ,sign posts on sensitive areas, flyers, and brochures	General public	200	DNRO	Quarterly basis	GoU/Development partners
	2.5 Review, revise and update the Lake Nabugabo Travel Guide	Lake Nabugabo travel guide	100	MWE	Annually	GoU/Development partners

Objective 3: To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by2027.	3.1 Train farmers in sustainable fish farming	Existing farmers and prospective farmers	300	DFO	Routine	GoU/Development partners
	3.2 Promote and support diversified livelihood options (apiary, commercial tree nurseries, zero grazing, etc.)	All fisher folk	500	DAO	Routine	GoU/Development partners
	3.3 Promote ecotourism by establishing bird sanctuaries and other forms of ecotourism	Lake Nabugabo, River Katonga, and shores of Lake Victoria	400	NGO	Routine	GoU/Development partners
	3.4 Promote value addition to agricultural produce and improvement in the value chain	Fish, rice	300	DAO/DCO	Routine	GoU/Development partners
Objective 4: To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027.	4.1 Promote and support small scale irrigation technologies, drought resistant and early maturing crops	Farmers that already practice Irrigation and others with interest	1,000	DAO	Routine	GoU/Development partners
	4.2 Promote and support the use of indigenous knowledge in drought and risk management	General public	150	DCDO/DAO	2018	GoU/Development partners
	4.3 Promote and support climate change resilient technologies of post harvesting, water harvesting, and soil conservation	All farmers	400	DAO	Routine	GoU/Development partners
	4.4 Promote and support land scape restoration tand ecosystem based adaptation	All sensitive and degraded areas	1,000	DFO	Routine	GoU/Development partners
	4.5 Build the capacity of local Governments and communities to predict any weather changes and prepare accordingly	All farmers	400	DNRO	Routine	GoU/Development partners
	4.6. Promote energy saving technologies like improved charcoal stoves, biogas and solar	Local artisans, charcoal burners, livestock farmers	300	DNRO	Routine	GoU/Development partners

Objective	Activities	Target (Geographical and or Beneficiaries)	Indicative Cost (UGX Millions)	Lead Implementer	Time frame	Source of Funding
Objective 5: To strengthen coordination mechanisms of all conservation efforts by end of 2022.	5.1 Assessments of performance through annual reviews, midterm review, audits, end of term review	DNRO, inter-district committee, investment forum, management plan, district work plans, council	150	WMD	Quarterly for output and annually for Impacts	GoU/Development partners
	5.2 Mobilize (identify, formalize and launch) and form inter-district and investment forum. Review meetings of the inter-district committee and investment forum. Train the committees on their roles and responsibilities.	All districts	100	WMD	2017	GoU/Development partners
	5.3 Strengthen law enforcement through patrols, surprise visits and routine monitoring	DNRO, Environment Police, and Wetland resource users in all wetlands	300	DNRO	Routine	GoU/Development partners
	5.4 Experiential learning visits of inter-district committee and investment forum while enhancing joint monitoring of all stakeholders	Council, DNRO, TPC, Inter-district committees and investment forum	120	DNRO	Annually	GoU/Development partners
	5.5 Identify research agenda for the Ramsar site and carry out pragmatic research like vulnerability assessments	Sensitive sites	150	Technical working group/MAK	Annually	GoU/Development partners
Total			8,650			GoU/Development partners

5.7 Annual Work Plan (2017-2018)

This management plan will be implemented by annual work plan following the Governments financial year. Table 10 presents the annual work plan for the first year (2017 – 2018). The budget for the first year is estimated at UGS 1,075 million.

Table 10: *Annual Work Plan (2017 – 2018)*

Objectives	Activities	Target (Geographical and or Beneficiaries)	Indicative Cost (UGX. Millions)	Time frame											
				Q1			Q2			Q3			Q4		
				J	**F**	M	A	M	J	J	A	S	O	N	D
Objective 1: To promote conservation of Lake Nabugabo ecosystem and its catchment area.	1.1 Carry out research on fish farming technologies including cage culture	Cage fish farmers	10												
	1.2 Develop guidelines for implementing Cage fish farming	District fisheries staff, natural resources management staff, fish farmers, baseline survey on fish farming	60												
	1.3 Demarcate wetlands and open forest reserve boundaries	Critical wetlands and degraded forest reserves in the Ramsar site	50												
	1.4 Review EIA's and monitor compliance	All investments in the wetlands	5												
	1.6 Promote afforestation, re-afforestation and Agro forestry	Carry out needs assessment and critical areas for tree planting	15												
	1.7 Develop guidelines for natural resource use including extraction of (sand, water, clay and grass) and ensure compliance	Sand, grass, clay and papyrus	100												

Objectives	Activities	Target (Geographical and or Beneficiaries)	Indicative Cost (UGX. Millions)	Time frame											
				Q1			Q2			Q3			Q4		
				J	F	M	A	M	J	J	A	S	O	N	D
Objective 1: To promote conservation of Lake Nabugabo ecosystem and its catchment area.	1.8 Restoration of borrow pits	All sand, clay and murram pits that were abandoned	50												
	1.10 Control introduction, establishment, growth and spread of alien species, especially those known to become invasive in the Nabugabo climate and general environment	Invasive species and others	125												
Objective 2: To enhance public awareness and knowledge about the importance and value of Lake Nabugabo ecosystem.	2.1 Educate the public on the values of lake Nabugabo resources using multiple approaches like public lecture, print media, radio talks shows, social media, rallies, Music Dance and Drama (MDD)	District/Sub-county councils, land boards, area land Committees, physical planning committees etc.	50												
	2.2 Train technical staff in wise use concept, by-law formulation and management planning for wetlands	Technical planning committees, physical planning committees, area land committees, parish chiefs,	50												
	2.3 Produce and disseminate Information, Education and communication (IEC) materials like banners, posters, sign posts on sensitive areas, flyers, and brochures	General public	50												

Objective 3: To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by 2027.	3.1.Conduct training in Fish farming	Carry out training needs assessments for current fish farmers and train them	50													
	3.4. Promote value addition to agricultural produce and improvement in the value chain.	All farmers	40													
Objective 4: To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027.	4.3 Promote and support climate change resilient technologies of post harvesting, water harvesting, and soil conservation	All farmers	45													
	4.5 Build the capacity of local Governments and communities to predict any weather changes and prepare accordingly	All Farmers	50													
	4.6 Promote energy saving technologies like improved charcoal stoves, biogas and solar	Local artisans, charcoal burners, livestock keepers	80													
Objective 5: To strengthen coordination mechanisms of all conservation efforts by end of 2018.	5.1 Assessments of performance through annual reviews, midterm review, audits, and end of term review	DNRO, Inter-district committee, Investment forum, management plan, district work plans, council	75													
	5.2 Launch the inter-district and investment forums	All districts	50													
	5.3 Strengthen law enforcement through patrols, surprise visits and routine monitoring	DNRO, Environment Police, and wetland resource users in all wetlands	60													
	5.4 Experiential learning visits of inter-district committee and investment forum while enhancing joint monitoring of all stakeholders	Council, DNRO, TPC, Inter district committees and investment forum	60													
Total			1,075													

CHAPTER SIX:
COORDINATION, IMPLEMENTATION FRAMEWORK AND RESOURCE MOBILIZATION

6.1 Introduction

This chapter describes how coordination and financial resource mobilization will be carried out. It also provides the implementation structure and roles and responsibilities of various stakeholders in implementation.

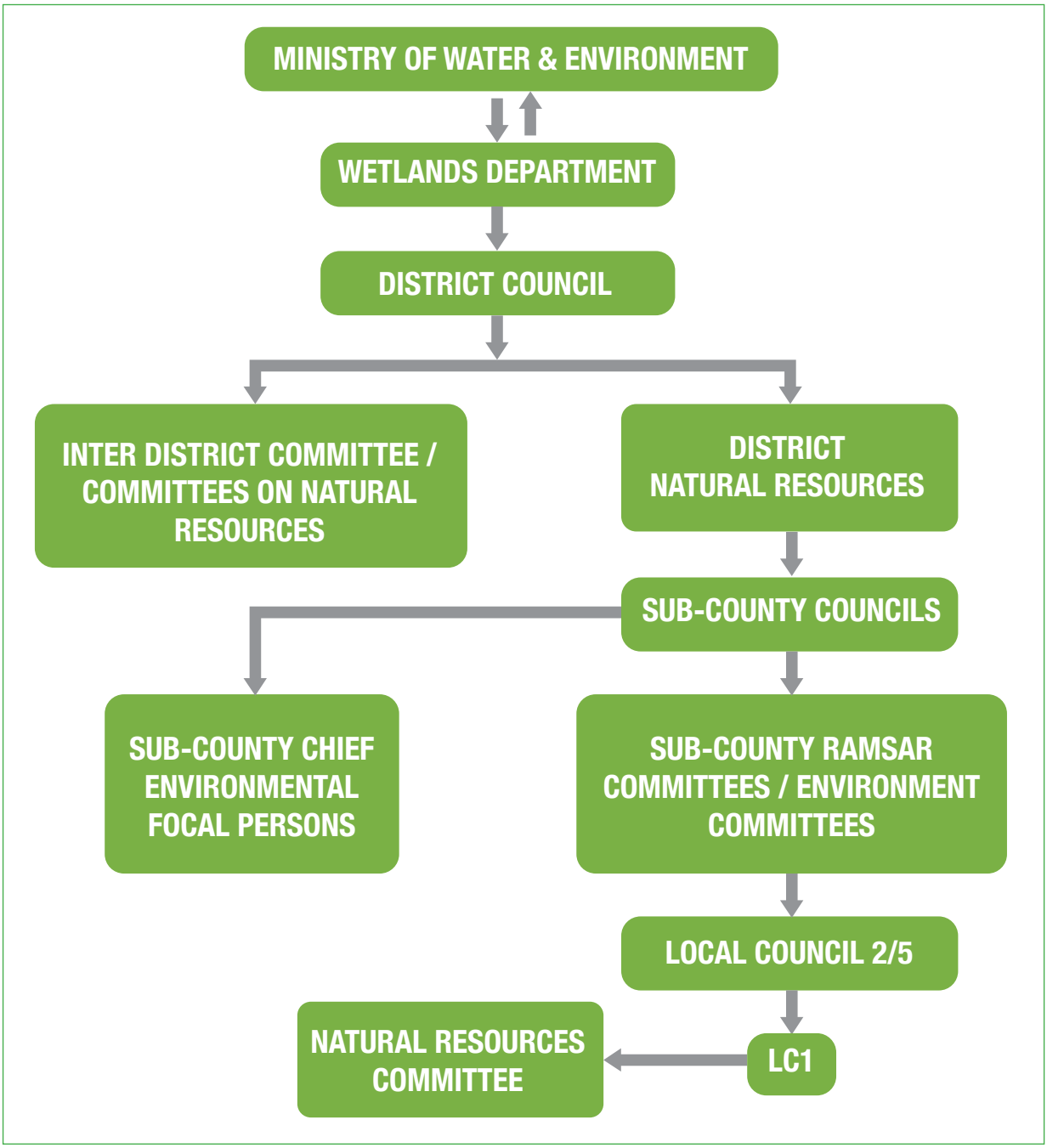
6.2 Coordination and Implementation Framework

The implementation of this plan will involve many government institutions, private sector, NGOs and local community organizations. Effective implementation of the proposed interventions calls for good coordination. Effective coordination will:

1. Ensure that activities are harmonized to avoid duplication of efforts;
2. Ensure a systematic approach to development and implementation;
3. Ensure incorporation of Nabugabo management plan interventions the district development plans.

At the institutional level, the wetlands management department in the ministry of water and environment will be responsible for overseeing the implementation of the plan. The ministry has the overall responsibilities of coordination and will ensure that the inter-district and investment fora are mobilized, launched and provided with guidelines of their roles and responsibilities. The wetlands management department will also ensure that relevant ministries and departments of central government are brought on board in the implementation process. At the district level, the district councils will coordinate the implementation of the interventions. Through their routine mandate, the district local governments will mobilize civil society organizations (CSOs) in their jurisdictions to implement the management plan, and also ensure that lower local governments and CSOs are brought together. Figure 7 provides the implementation structure that will guide the implementation of the plan.

Figure 7: *Management Plan Implementation Structure*



6.3 Popularizing the Management Plan for Resource Mobilization and Implementation

The ministry and districts will popularize and market the plan in order to mobilize funds and skills for implementation. The following approaches are proposed:

- Encourage various stakeholders to develop project proposals based on the plan to raise funds.
- Disseminate the plan at the district and lower levels to solicit community support and commitment for the successful implementation.
- Ensure that the priorities in the plan are fully incorporated in district development plans.
- Use the Lake Nabugabo Wetland System Ramsar Site CIP as a basis for mobilization and allocation of resources to implement this management plan.
- Encourage corporate bodies such as financial institutions and other profit-making organizations, to

respond to their social responsibilities by supporting the plan.

6.4 Institutional Responsibilities in Resource Mobilization

6.4.1 Ministry of Water and Environment:

The ministry of water and the environment has the responsibility of ensuring resources are mobilized for the implementation of the management plan. In performing this function, the wetlands management department will work hand in hand with development partners and civil society organizations to ensure availability of resources.

6.4.2 District Local Governments:

The district local governments will be responsible for mainstreaming wetlands into the districts development plans and lobbying the central government for increased funding.

6.4.3 Inter-district and Investment Fora:

Inter-district and investment fora will be responsible for advocacy and proposal writing.

6.4.4 Sub-county Local Governments:

The sub county local governments will be responsible for mainstreaming the wetland activities into their work plans, and advocacy and in proposal writing.

6.4.5 Civil Society Organizations:

Through advocacy and proposal writing, CSOs will raise resources to supplement governmental efforts to implement the management plan.

The roles of different stakeholders in the implementation of the management plan are presented in Table 11.

Table 11: *Roles and responsibilities of key stakeholders in implementation*

Institution	Role	Lead Implementing office/Officer
Wetlands Management Department (national level)	1. Regular supervision and monitoring (M&E) 2. Resource mobilization 3. Technical backstopping	Commissioner wetlands department
Inter-district Forum	1. Regular supervision and monitoring (M&E) 2. Resource mobilization 3. Coordination of efforts 4. Harmonize policies/advocacy	Forum chairperson/ commissioner for wetlands
Investments Forum	1. Exchange ideas 2. Resource mobilization 3. Coordination of market efforts 4. Harmonize investments and sharing of resources 5. Advocacy 6. Advising government 7. Experiential learning & lobbying	Forum chairperson/ commissioner for wetlands
District level/district natural resources and council/sectoral committee on natural resources	1. Regular supervision and monitoring 2. Resource mobilization 3. Mobilizing local communities through the sub-county 4. Linkage to other sectors, partners and collaborators 5. Technical backstopping 6. Integration of wetland issues in DDP$DEAPS	District natural resources officer/district environment officer/wetlands officer
3. Sub-county level: focal person for environment/council and sectoral committee on natural resources	1. Day to day supervision of CWMP implementation 2. Implementation of parts of the CWMP at Sub-county level. 3. M&E- data collection and monitoring performance 4. Resource mobilization and accountability 5. Community mobilization	Environment focal person under the supervision of the sub county chief
4. Parish level: Parish Wetland Management Plan Implementation Committee (PWMPIC)	1. Day to day supervision of CWMP implementation 2. Supervision of CWMP activities 3. M&E- data collection and monitoring performance 4. Resource mobilization and accountability 5. Community mobilization	Parish chief
5. NGOs and CBOs	Supplement Government efforts	DCDO
6. Local communities	Implementation and reporting to PWMPIC	Parish Chief /LC1 Chairman

CHAPTER SEVEN:
MONITORING AND EVALUATION FRAMEWORK

7.1 Introduction

This section highlights how monitoring and evaluation (M&E) will be done at different levels. M&E will form the basis for reviewing the plan on regular basis. Monitoring will involve data collection and analysis on stakeholder implementation. The indicators and monitoring tools have been simplified in order to help the community collect the needed data. The purpose of monitoring the management plan is to track progress and provide feedback for informed decision-making. Responsibility for monitoring implementation of the entire plan lies with the wetland management department and district natural resources department. A participatory process that includes political leaders will be used in monitoring.

7.2 Objectives of Monitoring

At the district level, the objectives of monitoring are:

1. To ascertain whether or not activities are on track and take corrective measures where possible;
2. Identify successful interventions for replication in other areas of the district;
3. Promote co-ordination and balance in service provision and utilization;
4. Motivate as well as strengthen the capacity of the various players such as government departments/ agencies, NGOs, CBOs, faith based organizations and the private sector in the collection and utilization of data to improve on service delivery.

7.3 Levels of Monitoring

Monitoring will be carried out at activity, outputs and objectives levels.

7.3.1 Activity-Level Monitoring

The implementing agency departments, NGOs, local community institutions, among others, will carry out monitoring at this level. The implementing institution are required to monitor indicators relevant to their projects/programs through routine data collection on activities being implemented. The data collection will be integrated into normal data collection processes of the institution in terms of the personnel, time and reports.

7.3.2 Output-Level Monitoring

The DNR, in consultation with the district council, will be responsible for monitoring the output indicators in the district plan.

7.3.3 Objective/Outcome Level Monitoring

The wetland management department will have the overall responsibility to ensure that monitoring and evaluation are carried out. This will be done at three time schedules. Annual reviews will be undertaken to find out whether the expected outputs have been realized and secondly to assess whether implementation of the management plan is on track. A midterm review after 5 years will be undertaken and the plan adjusted based on this review. The third schedule of review will be at 10 years to evaluate whether the management plan has achieved its intended goal and objectives.

7.4 Monitoring and Evaluation Framework

What will be monitored will primarily be guided by what has been indicated in the monitoring plan and must cover both factual evidence and the quality intervention as perceived by the beneficiaries. Table 12 summarizes how the activities will be monitored and evaluated based on indicators against each intervention. These include:

1. Monitoring inputs in terms of the utilization of finances, logistics, equipment and supplies to ensure that they are being utilized for the planned purposes;
2. Monitoring outputs to ensure that activity targets are being met;
3. Checking records to ensure that proper documentation of activities implemented are being kept;
4. Monitoring interventions to ensure that information and services provided are of appreciable quality;
5. Monitoring the extent to which recommendations of previous monitoring activities have been utilized; and
6. Monitoring the level of community participation and involvement in activities. Resources for monitoring and evaluation will be part of the annual work plan and the district will ensure that monitoring and evaluation is used to facilitate program improvement.

Table 12: Monitoring and Evaluation Framework

Objective	Activities	Target/Geographical/ Beneficiaries	Indicator	Means of verification	Monitoring by	Frequency of monitoring
Objective 1: To promote conservation of Lake Nabugabo ecosystem and its catchment area.	Carry out research on fish farming technologies including cage culture	Cage fish farmers	Number of research done	Review reports	WMD/ DLGs	Annually
	Develop guidelines for implementing cage fish farming and rice growing	District fisheries staff, natural resources management staff, fish farmers	Number of guidelines developed	Review guidelines and undertake field visits	WMD	Annually
	Demarcate wetlands and open forest reserve boundaries	All sensitive wetlands as identified by the local leaders.	Hectares of wetland demarcated and length of forest boundaries re-opened	Review reports and field visits	WMD	Annually
	Review EIAS and monitor compliance	All investments in the wetlands.	EIAs reviewed and approved	Review reports and field visits	NEMA/ MWE	Quarterly
	Strengthen physical planning committees through sensitization and training	All Physical Planning Committees	Number of committees trained and the content of the training	Review reports, interviews and field visits	WMD	Annually
	Promote Afforestation, re-afforestation and agro forestry	Forest reserves, lake shores and river banks, avenue tree planting. Woodlots at health facilities	Number of trees planted, acreage and technologies of tree planting promoted	Review reports, field visits and interviews	NFA/WMD	Quarterly
	Develop guidelines for natural resource use including extraction of (sand, water, clay and grass) and ensure compliance	Sand, grass, clay and papyrus	Number of guidelines developed and disseminated	Review reports, field visits and interviews	WMD	Annually
	Restoration of borrow pits	All sand, clay and murram pits that were abandoned	Number of borrow pits restored	Review reports, field visits and interviews	NEMA/ WME	Routine
	Establish botanical gardens	Forest reserves, sensitive wetland forests and beaches	Number of botanical gardens established	Review reports, field visits and interviews	WMD	Annually
	To control introduction of non-indigenous species in Lake Nabugabo wetland system	Known invasive species, new and potential invasive species and new plants	Acreage cleared of invasive species	Review reports, field visits and interviews	NARO/ MWE	Routine

Objective 2: To enhance public awareness and knowledge about the importance and value of Lake Nabugabo ecosystem.	2.1. Educate the public on the values of lake Nabugabo resources using multiple approaches like public lecture, print media, Radio talks shows, social media ,rallies, Music Dance and Drama (MDD)	District/sub county councils, land boards, area land committees, physical planning committees etc.	Number of people sensitized and messages disseminated	Review reports, field visits and interviews	WMD	Routine
	2.2. Train technical staff in wise use concept, by-law formulation and management planning for wetlands	Technical planning committees, physical planning committees, area land committees, parish chiefs,	Number of people trained and content of the training	Review reports, field visits and interviews	DNRO	Annually
	2.3. Construct and equip Lake Nabugabo Resource Centre	On sand beach, River Katonga bridge and any other areas	Resource centre set up	Review reports, field visits and interviews	DNRO	2018
	2.4. Produce and disseminate Information, Education and communication (IEC) materials like banners, posters, sign posts on sensitive areas, flyers, and brochures	General public	Number of IEC materials produced	Review reports, field visits and interviews	WMD	Quarterly basis
	2.5. Review, revise and update the Lake Nabugabo Travel Guide.	Lake Nabugabo Travel Guide	Updated Travel Guide	Review reports, field visits and interviews		Annually
Objective 3: To reduce pressure on wetland resources by promoting and supporting alternative sources of livelihood for all stakeholders by 2027.	3.1. Conduct training in fish farming	Existing Farmers and prospective farmers	Number of farmers trained and content of the training	Review reports, field visits and interviews	MAIF	Routine
	3.2. Promote and support diversified livelihood options (apiary, commercial tree nurseries, zero grazing, etc.)	All fisher folk	Fisher folk supported and number of livelihood options supported	Review reports, field visits and interviews	MAAIF	Routine
	3.3. Promote ecotourism by establishing bird sanctuaries and other forms of ecotourism	Lake Nabugabo, River Katonga, and shores of Lake Victoria	Number of sanctuaries and ecotourism sites set up	Review reports, field visits and interviews	UWA	Routine
	3.4. Promote value addition to agricultural produce and improvement in the value chain.	Fish, Rice	Enterprises with added value	Review reports, field visits and interviews	MAAIF	Routine

Objective	Activities	Target/Geographical/ Beneficiaries	Indicator	Means of verification	Monitoring by	Frequency of monitoring
Objective 4: To enhance the ability of all people and Nabugabo ecosystem to adapt and build resilience to impacts of climate change by 2027.	4.1. Promote and support small scale irrigation technologies, drought resistant and early maturing crops	Farmers that already practicing irrigation and others with interest	Number of farmers with small scale irrigation farms	Review reports, field visits and interviews	MWE/ MAAF	Routine
	4.2. Promote and support the use of indigenous knowledge in drought and risk management	General public	Number of people using indigenous knowledge in climate change mitigation and documented knowledge	Review reports, field visits and interviews	MAAIF	2018
	4.3. Promote and support climate change resilient technologies of post harvesting, water harvesting, and soil conservation,	All farmers	Number of farmers that have adopted the technologies/number of technologies promoted	Review reports, field visits and interviews	MAAIF	Routine
	4.4. Promote and support landscape restoration and ecosystem based adaptation	All sensitive and degraded areas	Acreage restored, number of trees planted and number of farmers that have adopted agroforestry.	Review reports, field visits and interviews	MWE	Routine
	4.5. Build the capacity of local Governments and communities to predict any weather changes and prepare accordingly	All Farmers	Farmers using climate change data.	Review reports, field visits and interviews	MWE	routine
	4.6. Promote energy saving technologies like improved charcoal stoves, biogas and solar.	Local artisans, charcoal burners, livestock keepers	Number of people adopted new technologies and type of technology adopted	Review reports, field visits and interviews	MWE	Routine

Objective 5: To strengthen coordination mechanisms of all conservation efforts by end of 2018.	5.1. Assessments of performance through annual reviews, midterm review, audits, end of term review.	DNRO, inter-district committee, investment forum, management plan, district work plans, council	Number of assessments	Review reports, field visits and interviews	DNRO	Quarterly for output and annually for impacts
	5.2. Mobilize (identify, formalize and launch) and form inter-district and investment forum. Review meetings of the inter-district committee and investment forum. Train the committees on their roles and responsibilities.	All districts	Number of committees formed and trained	Review reports, field visits and interviews	DNRO	2017
	5.3. Strengthen law enforcement through patrols, surprise visits and routine monitoring	DNRO, environment police, and wetland resource users in all wetlands	Number of patrols and field visits	Review reports, field visits and interviews	WMD	Routine
	5.4. Experiential learning visits of inter-district committee and investment forum while enhancing joint monitoring of all stakeholders	Council, DNRO, TPC, inter district committees and investment forum	Number of people involved and number of visits made.	Review reports, field visits and interviews	WMD	Annually
	5.5. Identify research agenda for the Ramsar site and carry out pragmatic research.	Sensitive sites	Research agenda developed and areas of study.	Review reports, field visits and interviews	WMD	Annually

CITATIONS

Anderson, Jay E, (19911). "A conceptual framework for evaluating and quantifying naturalness." Conservation biology 5.3 (1991): 347-352

Betke, D., Klopfer, A., Kutter, B., and Wehmernn, B., (eds), 1999. Land Use Planning: Methods, Strategies and Tools. Deutshe Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. Wiesbaden: Universum-Verlagsanstait.

Busulwa H., Mafabi P.G., Ndawula, L.M., 2005. Proceedings of the scientific conference on scientific information on Lake Nabugabo Ramsar site. Ministry of Water and Environment. Kamapala Uganda.

Chapman, L.J., Chapman, C.A., Schofield, P.J., Olowo, J.P., Kaufman, L., Seehausen, O. and Ogutu-Ohwayo, R., 2003. Fish faunal resurgence in Lake Nabugabo, East Africa. Conservation Biology, 17(2), pp.500-511.

Chapman, L.J., Chapman, C.A., P.J. Schofield, P.J., Olowo, J.P., Kaufman, L.S., Seehausen, O., and Ogutu-Ohwayo, R., 2003. Fish faunal resurgence in Lake Nabugabo, East Africa. *Conservation Biology* (volume 17 No.2).

CIMA Technical Services, (2001). Activity-based management - an overview. Available from: www.cimaglobal.com/technicalreports [Accessed 4 November 2008].

Climate change department, 2015.Report on progress on mainstreaming climate change in local Governments.Kamapala Uganda.

COBS, (2001). Guidelines for Development of District Environmental Action Plans. COBS-USAID Uganda (Not published).

COBS, (2001). Guidelines for Development of Sub-County Environmental Action Plans. COBS-USAID Uganda (Not published).

District Development plans of Masaka, Kalungu, Mpigi, Gomba, and Butambala (2015). Development Plan 2003 – 2006.

Eilu, G., Ssegawa, P. and Olanya, C., 2012. Biodiversity monitoring in Uganda.

FAO (2016). Cost Benefit Analysis (CBA) of Climate Change Adaptation and Prioritization in Agriculture, Environment and Water Sectors in Uganda.

FAO (1993). Guidelines for Land Use Planning. Prepared by the Soil Resources, Management and Conservation Service, under the guidance of the inter-departmental working group on land use planning.

German Foundation for International Development (DSE), (2001). Land Use Planning for Rural Development: Methods and Procedures at National and Provincial level. International Training Course Documentation, April 18 – May 17, 2001, Zschortau-Germany.

Guidelines for Compliance Monitoring of Wetlands. Wetland Booklet Number 4. National Wetlands Programme (1998), Wetlands Status Report for Masaka.

Kalema, J., Namaganda, M., Bbosa, G. and Ogwal-Okeng, J., 2016. Diversity and status of carnivorous plants in Uganda: towards identification of sites most critical for their conservation. Biodiversity and Conservation, 25(11), pp. 2035-2053.

Kling, H.J., Almond, J., Mugidde, R., and Hecky, R.E., 2006. Phytoplankton of satellite lakes of Lake Victoria Basin Uganda, Africa. Poster Presentation. – Great Lakes of the World Symposium (GLOW IV), Dar Es Salam, Tanzania.

Management of Wetland Resources (1995). Ministry of Natural Resources.

Ministry of Water and Environment (1996). The wetland biodiversity inventory report.

Ministry of Water and Environment –Climate Change Department (2014). The Uganda Climate Change Policy.

Ministry of Water and Environment (2016). Uganda Wetlands Atlas Vol. 2.

Ministry of Water and Environment-MWE, (2016). Rapid Biodiversity Assessment reports (unpublished).

National Guidelines for the Integration of Climate Change in Sector Plans and Budgets in Uganda (2014).

National Forestry Authority-NFA (2008).Enhancing Forests' Contribution to Growth, Employment and Prosperity in Uganda.

Nationally Appropriate Mitigation Actions (NAMAs) for Uganda, (2015).
Nakirya, D., Okot-Okumum J., and Muyodi, F. J., 2015. Microbial safety assessment of recreation water at Lake Nabugabo, Uganda. African Journal of Environmental Science and Technology. Accepted on 17th Sept. 2015.
Nature Uganda(2016).Reports on consultative meetings for the District Local Governments of Masaka, Kalungu,Mpigi,Gomba and Butambala for review process of Lake Nabugabo Wetlands and Ramsar site Management plan. Kampala Uganda.
National Agricultural Research Organization-NARO (2015).Soil mapping Reports for the Central Region. Kampala-Uganda.
Ogutu-Ohwayo, R., 2002. The Effects of Predation by Nile Perch, Lates niloticus L., on the Fish of Lake Nabugabo, with Suggestions for Conservation of Endangered Endemic Cichlids. Conservation Biology, 7, pp. 701-711.
Planning for Resilience in East Africa through Policy, Adaptation, Research, and Economic Development (PREPARED) (2014). Ecosystem Profile Assessment (EPA) of Biologically Significant Areas (BSA).
Rach, N.M., 1992. Tectonic Controls on the Lake Victoria Basin. Basement Tectonics, 7, pp. 219-226.
Ramsar Convention Secretariat (2010). Managing wetlands: Frameworks for managing Wetlands of International Importance and other wetland sites. Ramsar handbooks for the wise use of wetlands, 4th edition, vol. 18. Ramsar Convention Secretariat, Gland, Switzerland.
Reid, R. (1998). The Ganda on Lake Victoria: A Nineteenth- Century East African Imperialism, Journal of African History, 39(3), pp. 349–363.
The Republic of Uganda, 1995.National Policy for the Conservation and Management of Wetland Resources.
The Republic of Uganda, (1995). The National Environment Statute, 1995. Statutes Supplement No. 3, to the Uganda Gazette No. 21 Volume LXXVIII dated 19th May 1995.
The Republic of Uganda, (1995). The Uganda Constitution.
The Republic of Uganda, (1995). Water Statute.
The Republic of Uganda, (1998). The Land Act (Act No. 16). Published by the Law Development Centre, Kampala.
The Republic of Uganda, (2001). Wetlands Sector Strategic Plan (2001 – 2010). Prepared by Ministry of Water, Lands, Environment, and Wetlands.
The Uganda National Development plan –NDP 11
UBOS, (2014). Uganda Population and Housing Census (Provisional Results).
USAID/African and Latin American Resilience to climate Change, (2013). Uganda Vulnerability Assessment Results and Recommendations.
Van Geest, A., Coesel, P., 2006. Desmids from Lake Nabugabo (Uganda) and adjacent peat bogs. De Wittenkade 156.
Wetlands and the Law, (2000). Legislation governing the ownership, use and access to Wetlands and their resources. Ministry of Water, Lands and Environment, Kampala, Uganda.
Wetlands Inspection Division, (2003). Process Manual for Development of Community-Based Wetlands Management Plans. Wetlands Inspection Division. Ministry of Water, Lands and Environment, Kampala, Uganda.
USAID (2015). Summary of the economic value of biodiversity and ecosystem services in Lake Nabugabo Wetland Complex, Uganda. A study conducted by Lucy Emerton under Planning for Resilience in East Africa through Policy, Adaptation, Research and Economic Development (PREPARED) Programme.
Wells and Bagchi, 2005. Raffles Bulletin of Zoology. Eat in or take away - Seed predation and removal by rats (Muridae) during a fruiting event in a dipterocarp rainforest. National University of Singapore.

ANNEX I:

IUCN conservation status of the different fish species recorded at different survey areas

Family	Species	IUCN Status	Station							
			Kaziru	Kamuwungu	Makonzi	Katebo	Kayanja	Kayugi	Nabugabo	Grand Total
Alestidae	*Brycnus sadleri*	LC	5	14	14	2			180	215
Centopomedae	*Lates niloticus*	LC	162	74	20	398			35	689
Cichlidae	*Astatoreochromis allaudii*	LC			6			7		13
	Haplochromis brownae	CR	1	40	19	66				125
	Haplochromis cassius	CR	1							1
	Haplochromis degeni	LC		40	29	2				71
	Haplochromis katonga	NE	1	94	47	31				163
	Haplochromis nanoserranus	CR		35	13					48
	Haplochromis nubilus	VU			76		237	70		383
	Haplochromis simpsoni	EN					128	36		164
	Haplochromis velifer	VU	1					97		296
	Haplochromis venator	EN					64	58		122
	Oreochromis esculentus	CR					8	10		18
	Oreochromis leucostictus	LC	3		6	3		3		15
	Oreochromis niloticus	LC	31	90	43	38	1		1	204
	Paralabidochromis beadlei	CR							6	6
	Paralabidochromis crassilabris	CR	1							1
	Tilapia Zillii	NE	2		8	2	1	2		15
	Yssichromis pyrrhocephalus	LC	1		37	12				51
Claridae	*Clarias alluaudii*	LC		2	17	10	3			32
	Clarias gariepinus	LC	10	16	10	15	6			57

Cyprinidae	*Barbus kerstenii*	NE				3	4			7
	Enteromius magdalenae	LC							8	8
	Rastrineobola argentea	LC			41				3	44
Mastacembelidae	*Ceacomastacembelus frenatus*	LC		2						2
Mormyridae	*Gnathonemus victoriae*	EN					54	32		86
	Mormyrus kannume	LC				3				3
	Petrocepherus catastoma	NE						141	20	161
Protopteridae	*Protopterus aethiopicus*	LC	8	70	2	5		2		87
Shilbeidae	*Schilibe intermedius*	LC							1	1
	Total number of Individual fish (N)		227	477	388	590	506	458	452	3098
	Total Number of Species (S)		10	11	15	15	10	11	09	30
	Shanon-Weaver Diversity Index (H^1)		1.0	2.1	2.2	1.3	1.4	1.8	1.3	2.7
	Marglef Diversity Index (D)		1.8	1.6	1.7	1.6	1.6	1.6	1.6	1.2

ANNEX 2:

Red-listed butterfly species from the Lake Nabugabo Ramsar area

Species	IUCN status	Uganda red list status	Notes
Gorgyra minima	NE	DD	
Xanthodisca vibius	NE	EN	Status is inferred from current loss and degradation of forest habitats in the species range.
Pentila tachyroides	NE	EN	This species has only previously been recorded from Bbale forest block in the Sango Bay area. This forest has been severely degraded where this species was recorded (Point 7).
Pentila inconspicua	NE	VU	Current status is due to ongoing forest loss in the species range.
Spindasis crustaria	NE	CR	This species was only previously known from South Busoga forest that has since been cut down and converted to agricultural land. If this record is verified to be true, then the status would still remain the same given that the current site (Point 7), the only surviving habitat per now is actively being degraded.
Thermoniphas togara	NE	EN	Species decline is inferred from higher rates of forest loss in the species range
Acraea consanguinea	NE	NT	Species decline due to forest loss and degradation in the species range.
Euptera elabontas	NE	CR	This is a closed canopy species and its current status is inferred from high loss of closed canopy forests in the species range.
Papilio lormieri	NE	NT	Status is due to ongoing rapid forest loss and degradation in the species range.
Prosopalpus styla	NE	VU	Status is due to ongoing rapid forest loss and degradation in the species range.
Agriocnemis palaeforma	VU	EN	This is a Ugandan-Rwanda endemic species that inhabits papyrus swamps.
Acisoma inflatum	LC	DD	Recent taxonomic changes makes a re-assessment necessary and this species is most likely Least Concern (LC).
Acisoma variegatum	LC	DD	Recent taxonomic changes makes a re-assessment necessary and this species is most likely Least Concern (LC).
Hadrothemis defecta	LC	NT	Status is due to current rates of degradation of swampy forests in central and west Uganda.
Hadrothemis infesta	LC	VU	Status is due to loss and degradation of forests in the species range.
Gomphidia bredoi	LC	VU	Status is due to its restricted range in Uganda and forest dependency.

ANNEX 3:

Table showing the population per district and sub county

District	Total Population	Pop Growth (%)	S/County	No. HHs	HHs Size	POPULATION		
						Males	Females	Total
Masaka	135,259	2.19	Bukakata	5,037	3.2	8,882	7,975	16,857
			Buwunga	9,907	4.2	20,938	21,429	42,367
			Kyanamukaaka	7,415	4.2	15,722	15,818	31,540
			Mukungwe	10,505	4.1	21,416	23,079	44,495
Mpigi	115,858	2.44	Buwama	12,406	4.0	25,228	25,045	50,273
			Kituntu	4,993	4.5	11,318	11,159	22,477
			Nkozi	10,279	4.1	20,550	22,558	43,108
Gomba	85,146	1.53	Kabulasoke	10,915	4.5	25,268	24,723	49,991
			Maddu	7,345	4.7	18,289	16,866	35,155
Kalungu	102,470	1.44	Bukulula	9,669	4.4	21,347	22,603	43,950
			Lukaya T.C	6,284	3.7	11,586	12,664	24,250
			Lwabenge	7,517	4.5	17,001	17,269	34,270
Butambala	37,234	1.22	Bbulo	4,089	4.6	9,184	9,812	18,996
			Ngando	3,768	4.8	8,983	9,255	18,238

Source: UBOS 2014

ANNEX 4:

Procedure for Activity-Based Costing

Activity Based Costing (ABC) uses cost drivers to assign the costs of resources to activities and unit cost as a way of measuring an output. There are four steps to implementing ABC:

1. Identify activities: The organization needs to undertake an in-depth analysis of the operating processes of each responsibility center. Each process might consist of one or more activities required producing an output;
2. Assign resource costs to activities: This involves tracing costs to cost objects to determine why the cost occurred. Costs can be categorized in three ways:
    i. Direct – costs that can be traced directly to one output. For example, the wood and paint that it takes to make a chair;
    ii. Indirect – General/administration – costs that cannot be associated with any product or service. These costs are likely to remain unchanged, whatever output is produced. For example, salaries of administration staff, security costs or depreciation;
    iii. Costs that cannot be allocated to an individual output, that is, they benefit two or more outputs, but not all outputs. For example, maintenance costs or storage costs;
3. Identify outputs: Identify all of the output for which an activity segment performs activities and consumes resources. Outputs might be products, services or customers.
4. Assign activity costs to outputs: This is done using activity drivers. Activity drivers assign activity costs to outputs (cost objects) based on the consumption or demand for activities.

Reported Benefits

- ABC provides a more accurate method of costing of products and services.
- It allows for a better and more comprehensive understanding of overheads and what causes them to occur.
- It makes costly and non-value adding activities more visible, allowing managers to focus on these areas to reduce or eliminate them.
- It supports other management techniques such as continuous improvement, score cards and performance management.
- ABC can be difficult and time consuming to collect the data about activities and cost drivers.

ANNEX 5:

Rare Wetland Plants of the Lake Nabugabo Wetland System Ramsar Site

Family	Species
Species endemic to the Lake Nabugabo area	
Asteraceae	*Senecio nabugabensis* C. Jeffrey
Xyridaceae	*Xyri sednae* Lock
Species in Uganda occurring only in the Lake Nabugabo area	
Cabombaceae	*Brasenias chreberi* J. F. Gmel
Hydrocharitaceae	*Blyxa aubertii* Rich.
Alismataceae	*Wiesneria filifolia* Hook.f.
Menyanthaceae	*Nymphoides indica* (L.) O. Ktze. subsp. *occidentalis* A. Rayn.
Xyridaceae	*Xyris subtilis* Lock
Xyridaceae	*Xyris angularis* N. E. Br.
Ochnaceae	*Sauvagesia africana* (Baill.) P. Bamps
Orchidaceae	*Nervilia petraea* (Pers.) Summerh.
Droseraceae	*Drosera burkeana* Planch.
Lentibulariaceae	*Utricularia benjaminiana* Oliv.
Poaceae	*Eriochrysis pallida* Munro
Poaceae	*Panicum brazzavillense* Franch.
Poaceae	*Trichopteryx marungensis* Chiov.
Poaceae	*Heteranthoecia guineensis* (Franch.) Robyns
Poaceae	*Andropogon laxatus* Stapf
Species in Uganda also known from one other district	
Eriocaulaceae	*Eriocaulon crassiusculum* Lye
Eriocaulaceae	*Syngonanthus wahlbergii* (Korn.) Ruhland
Campanulaceae	*Wahlenbergia paludicola* Thulin
Lentibulariaceae	*Utricularia pubescens* Sm.
Poaceae	*Andropogon perligulatus* Stapf(PEX)
Poaceae	*Allopteropsis angusta* Stapf
Poaceae	*Leersia friesii* Meld.

Source: (Lye and Namaganda, 2002; MWE, 2016)

ANNEX 6:

Birds of Lake Nabugabo Wetland System Ramsar Site

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
2	Little Grebe	*Tachybaptus ruficollis*	
5	Greater Cormorant	*Phalacrocorax carbo*	
6	Long-tailed Cormorant	*Phalacrocorax africanus*	
9	Pink-backed Pelican	*Pelecanus rufescens*	
13	Black-crowned Night Heron	*Nycticorax nycticorax*	
14	Squacco Heron	*Ardeola ralloides*	
16	Rufous-bellied Heron	*Ardeola rufiventris*	R-NT
17	Cattle Egret	*Bubulcus ibis*	
18	Striated Heron	*Butorides striatus*	R-NT
19	Black Heron	*Egretta ardesiaca*	R-NT
21	Little Egret	*Egretta garzetta*	
22	Intermediate Egret	*Mesophoyx intermedia*	
23	Great White Egret	*Egretta alba*	R-VU
24	Purple Heron	*Ardea purpurea*	R-NT
25	Grey Heron	*Ardea cinerea*	R-NT
26	Black-headed Heron	*Ardea melanocephala*	
27	Goliath Heron	*Ardea goliath*	R-NT
28	Hamerkop	*Scopus umbretta*	
29	Yellow-billed Stork	*Mycteria ibis*	
30	African Openbill Stork	*Anastomus lamelligerus*	
32	Abdim's Stork	*Ciconia abdimii*	AM
33	Woolly-necked Stork	*Ciconia episcopus*	R-NT
35	Saddle-billed Stork	*Ephippiorhynchus senegalensis*	R-VU
36	Marabou Stork	*Leptoptilos crumeniferus*	
37	Shoebill	*Balaeniceps rex*	VU, R-VU
38	Glossy Ibis	*Plegadis falcinellus*	
39	Hadada Ibis	*Bostrychia hagedash*	
42	Sacred Ibis	*Threskiornis aethiopicus*	
47	Fulvous Whistling Duck	*Dendrocygna bicolor*	AM
48	White-faced Whistling Duck	*Dendrocygna viduata*	
49	White-backed Duck	*Thalassornis leuconotus*	R-VU
50	Egyptian Goose	*Alopochen aegyptiaca*	
51	Spur-winged Goose	*Plectopterus gambensis*	
53	Knob-billed Duck	*Sarkidiornis melanotos*	
54	African Pygmy Goose	*Nettapus auritus*	
57	Yellow-billed Duck	*Anas undulata*	
69	Osprey	*Pandion haliaetus*	PM
71	European Honey Buzzard	*Pernis apivorus*	PM
73	Black-shouldered Kite	*Elanus caeruleus*	
75	Black Kite	*Milvus migrans*	
76	African Fish Eagle	*Haliaeetus vocifer*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
77	Palm-nut Vulture	*Gypohierax angolensis*	
80	Hooded Vulture	*Necrosyrtes monachus*	
85	Short-toed Snake Eagle	*Circaetus gallicus*	
86	Brown Snake Eagle	*Circaetus cinereus*	R-NT
87	Western Banded Snake Eagle	*Circaetus cinerascens*	R-VU
90	African Harrier Hawk	*Polyboroides typus*	
91	Pallid Harrier	*Circus macrourus*	NT, PM, R-NT
92	Montagu's Harrier	*Circus pygargus*	PM,R-NT
93	African Marsh Harrier	*Circus ranivorus*	R-NT
94	Western Marsh Harrier	*Circus aeruginosus*	PM
95	Gabar Goshawk	*Micronisus gabar*	
96	Dark Chanting-Goshawk	*Melierax metabates*	
98	African Goshawk	*Accipiter tachiro*	
106	Black Sparrowhawk	*Accipiter melanoleucus*	
109	Lizard Buzzard	*Kaupifalco monogrammicus*	
110	Common Buzzard	*Buteo buteo*	PM
118	Wahlberg'S Eagle	*Aquila wahlbergi*	
119	African Hawk-Eagle	*Hieraaetus spilogaster*	
122	Long-crested Eagle	*Lophaetus occipitalis*	
124	Crowned Eagle	*Stephanoaetus coronatus*	R-VU
132	Grey Kestrel	*Falco ardosiaceus*	
136	Eurasian Hobby	*Falco subbuteo*	PM
142	Helmeted Guineafowl	*Numida meleagris*	
145	Harlequin Quail	*Coturnix delegorguei*	
154	Crested Francolin	*Francolinus sephaena*	
155	Scaly Francolin	*Francolinus squamatus*	
157	Heuglin's Francolin	*Francolinus icterorhynchus*	
161	Red-necked Spurfowl	*Francolinus afer*	
164	Common Buttonquail	*Turnix sylvaticus*	
168	White-spotted Flufftail	*Sarothrura pulchra*	
178	Black Crake	*Amaurornis flavirostris*	
180	Purple Swamphen	*Porphyrio porphyrio*	
181	Common Moorhen	*Gallinula chloropus*	
185	Grey Crowned Crane	*Balearica regulorum*	VU,R-NT
191	Black-bellied Bustard	*Lissotis melanogaster*	
193	African Jacana	*Actophilornis africana*	
194	Lesser Jacana	*Microparra capensis*	R-NT
197	Black-winged Stilt	*Himantopus himantopus*	
201	Water Thick-Knee	*Burhinus vermiculatus*	
211	Common Ringed Plover	*Charadrius hiaticula*	PM
212	Kittlitz's Sandplover	*Charadrius pecuarius*	
213	Three-banded Plover	*Charadrius tricollaris*	
221	African Wattled Lapwing	*Vanellus senegallus*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
223	Spur-winged Lapwing	*Vanellus spinosus*	
225	Senegal Lapwing	*Vanellus lugubris*	
227	Long-toed Lapwing	*Vanellus crassirostris*	
228	Sanderling	*Calidris alba*	PM
229	Little Stint	*Calidris minuta*	PM
231	Curlew Sandpiper	*Calidris ferruginea*	PM
234	Ruff	*Philomachus pugnax*	PM
236	Common Snipe	*Gallinago gallinago*	PM
238	Great Snipe	*Gallinago media*	NT, R-NT,PM
239	Black-tailed Godwit	*Limosa limosa*	NT, PM
245	Marsh Sandpiper	*Tringa stagnatilis*	PM
246	Common Greenshank	*Tringa nebularia*	PM
247	Green Sandpiper	*Tringa ochropus*	PM
248	Wood Sandpiper	*Tringa glareola*	PM
250	Common Sandpiper	*Actitis hypoleucos*	PM
254	Grey-headed Gull	*Larus cirrocephalus*	
259	Gull-billed Tern	*Sterna nilotica*	PM
264	White-winged Tern	*Chlidonias leucopterus*	PM
268	African Green-Pigeon	*Treron calvus*	
270	Tambourine Dove	*Turtur tympanistria*	
271	Blue-spotted Wood Dove	*Turtur afer*	
281	Speckled Pigeon	*Columba guinea*	
283	Red-eyed Dove	*Streptopelia semitorquata*	
286	Ring-necked Dove	*Streptopelia capicola*	
289	Laughing Dove	*Streptopelia senegalensis*	
290	Grey Parrot	*Psittacus erithacus*	NT,R-NT
292	Brown Parrot	*Poicephalus meyeri*	
293	Red-headed Lovebird	*Agapornis pullarius*	
296	Great Blue Turaco	*Corythaeola cristata*	
302	Ross's Turaco	*Musophaga rossae*	
305	Eastern Grey Plantain-Eater	*Crinifer zonurus*	
307	Levaillant's Cuckoo	*Clamator levaillantii*	
309	Red-chested Cuckoo	*Cuculus solitarius*	
319	Klaas' Cuckoo	*Chrysococcyx klaas*	
320	Didric Cuckoo	*Chrysococcyx caprius*	
323	White-browed Coucal	*Centropus superciliosus*	
326	Blue-headed Coucal	*Centropus monachus*	
333	Verreaux's Eagle Owl	*Bubo lacteus*	
358	African Palm Swift	*Cypsiurus parvus*	
368	Blue-naped Mousebird	*Urocolius macrourus*	
369	Speckled Mousebird	*Colius striatus*	
373	Grey-headed Kingfisher	*Halcyon leucocephala*	
374	Blue-breasted Kingfisher	*Halcyon malimbica*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
375	Woodland Kingfisher	*Halcyon senegalensis*	
376	Striped Kingfisher	*Halcyon chelicuti*	
378	African Pygmy Kingfisher	*Ceyx pictus*	
380	Malachite Kingfisher	*Alcedo cristata*	
383	Pied Kingfisher	*Ceryle rudis*	
385	Little Bee-eater	*Merops pusillus*	
386	Blue-breasted Bee-eater	*Merops variegatus*	
390	White-throated Bee-eater	*Merops albicollis*	AM
392	Blue-cheeked Bee-eater	*Merops persicus*	PM
393	Madagascar Bee-eater	*Merops superciliosus*	AM
394	European Bee-eater	*Merops apiaster*	PM
398	European Roller	*Coracias garrulus*	NT, PM
399	Lilac-breasted Roller	*Coracias caudata*	
401	Broad-billed Roller	*Eurystomus glaucurus*	
404	Green Wood-Hoopoe	*Phoeniculus purpureus*	
405	Common Scimitarbill	*Rhinopomastus cyanomelas*	
408	Eurasian Hoopoe	*Upupa epops*	PM
419	Crowned Hornbill	*Tockus alboterminatus*	
420	African Grey Hornbill	*Tockus nasutus*	
422	Black-and-white Casqued Hornbill	*Bycanistes subcylindricus*	
426	Speckled Tinkerbird	*Pogoniulus scolopaceus*	
430	Yellow-throated Tinkerbird	*Pogoniulus subsulphureus*	
431	Yellow-rumped Tinkerbird	*Pogoniulus bilineatus*	
433	Yellow-fronted Tinkerbird	*Pogoniulus chrysoconus*	
437	Spot-flanked Barbet	*Tricholaema lachrymose*	R-RR
439	White-headed Barbet	*Lybius leucocephalus*	
443	Double-toothed Barbet	*Lybius bidentatus*	
455	Greater Honeyguide	*Indicator indicator*	
456	Lesser Honeyguide	*Indicator minor*	
465	Nubian Woodpecker	*Campethera nubica*	
473	Cardinal Woodpecker	*Dendropicos fuscescens*	
474	Bearded Woodpecker	*Dendropicos namaquus*	
477	Grey Woodpecker	*Dendropicos goertae*	
487	Rufous-naped Lark	*Mirafra africana*	
489	Flappet Lark	*Mirafra rufocinnamomea*	
498	White-headed Saw-Wing	*Psalidoprocne albiceps*	R-RR
500	Common Sand Martin	*Riparia riparia*	PM
501	Banded Martin	*Riparia cincta*	
504	Mosque Swallow	*Hirundo senegalensis*	
505	Lesser striped Swallow	*Hirundo abyssinica*	
506	Red-rumped Swallow	*Hirundo daurica*	
511	Ethiopian Swallow	*Hirundo aethiopica*	
512	Angola Swallow	*Hirundo angolensis*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
	Blue Swallow	*Hirundo atrocaerulea*	G-VU, R-VU, RR
513	Barn Swallow	*Hirundo rustica*	PM
515	Yellow Wagtail	*Motacilla flava*	PM
516	Cape Wagtail	*Motacilla capensis*	
520	African Pied Wagtail	*Motacilla aguimp*	
522	Grassland Pipit	*Anthus cinnamomeus*	
525	Plain-backed Pipit	*Anthus leucophrys*	
529	Yellow-throated Longclaw	*Macronyx croceus*	
530	Red-shouldered Cuckoo-Shrike	*Campephaga phoenicea*	
538	Little Greenbul	*Andropadus virens*	
541	Slender-billed Greenbul	*Andropadus gracilirostris*	
542	Yellow-whiskered Greenbul	*Andropadus latirostris*	
547	Yellow-throated Greenbul	*Chlorocichla flavicollis*	
562	Common Bulbul	*Pycnonotus barbatus*	
576	White-browed Robin-Chat	*Cossypha heuglini*	
578	Snowy-crowned Robin-Chat	*Cossypha niveicapilla*	
588	Brown-backed Scrub-Robin	*Cercotrichas hartlaubi*	
589	White-browed Scrub-Robin	*Cercotrichas leucophrys*	
592	Common Stonechat	*Saxicola torquata*	
593	Whinchat	*Saxicola rubetra*	PM
594	Northern Wheatear	*Oenanthe oenanthe*	PM
601	Sooty Chat	*Myrmecocichla nigra*	
612	African Thrush	*Turdus pelios*	
621	Moustached Grass Warbler	*Melocichla mentalis*	
630	Greater Swamp Warbler	*Acrocephalus rufescens*	
632	African Yellow Warbler	*Chloropeta natalensis*	
638	Red-faced Cisticola	*Cisticola erythrops*	
640	Whistling Cisticola	*Cisticola lateralis*	
647	Winding Cisticola	*Cisticola galactotes*	
648	Carruthers's Cisticola	*Cisticola carruthersi*	R-RR
650	Croaking Cisticola	*Cisticola natalensis*	
658	Tawny-flanked Prinia	*Prinia subflava*	
661	White-chinned Prinia	*Prinia leucopogon*	
677	Grey-backed Camaroptera	*Camaroptera brachyura*	
692	Green Crombec	*Sylvietta virens*	
695	Willow Warbler	*Phylloscopus trochilus*	PM
701	Grey-capped Warbler	*Eminia lepida*	R-RR
709	Green Hylia	*Hylia prasina*	
713	Northern Black Flycatcher	*Melaenornis edoliodides*	
714	Pale Flycatcher	*Melaenornis pallidus*	
717	Spotted Flycatcher	*Muscicapa striata*	PM
720	Swamp Flycatcher	*Muscicapa aquatica*	
723	African Dusky Flycatcher	*Muscicapa adusta*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
732	African Blue-Flycatcher	*Elminia longicauda*	
739	African Paradise-Flycatcher	*Terpsiphone viridis*	
742	Black-and-white Shrike-Flycatcher	*Bias musicus*	
746	Brown-throated Wattle-eye	*Platysteira cyanea*	
761	Brown Babbler	*Turdoides plebejus*	
762	Arrow-marked Babbler	*Turdoides jardineii*	
764	Black-lored Babbler	*Turdoides sharpei*	
771	White-winged Black Tit	*Parus leucomelas*	
779	Little Green Sunbird	*Anthreptes seimundi*	
781	Green-headed Sunbird	*Cyanomitra verticalis*	
785	Green-throated Sunbird	*Chalcomitra rubescens*	
787	Scarlet-chested Sunbird	*Chalcomitra senegalensis*	
790	Bronze Sunbird	*Nectarinia kilimensis*	
794	Collared Sunbird	*Hedydipna collaris*	
796	Olive-bellied Sunbird	*Cinnyris chloropygius*	
802	Marico Sunbird	*Cinnyris mariquensis*	
803	Red-chested Sunbird	*Cinnyris erythrocerca*	R-RR
808	Variable Sunbird	*Cinnyris venusta*	
809	Superb Sunbird	*Cinnyris superba*	
810	Copper Sunbird	*Cinnyris cupreus*	
811	African Yellow White-Eye	*Zosterops senegalensis*	
812	Common Fiscal	*Lanius collaris*	
815	Grey-backed Fiscal	*Lanius excubitoroides*	
817	Isabelline Shrike	*Lanius isabellinus*	PM
818	Red-backed Shrike	*Lanius collurio*	PM
828	Sulphur-breasted Bush-Shrike	*Telophorus sulfureopectus*	
831	Brown-crowned Tchagra	*Tchagra australis*	
833	Black-crowned Tchagra	*Tchagra senegalus*	
836	Northern Puffback	*Dryoscopus gambensis*	
841	Tropical Boubou	*Laniarius aethiopicus*	
842	Papyrus Gonolek	*Laniarius mufumbiri*	NT,R-NT
843	Black-headed Gonolek	*Laniarius erythrogaster*	
848	Western Black-Headed Oriole	*Oriolus brachyrhynchus*	
853	Fork-tailed Drongo	*Dicrurus adsimilis*	
855	Pied Crow	*Corvus albus*	
871	Splendid Starling	*Lamprotornis splendidus*	
872	Ruppell,S Starling	*Lamprotornis purpuropterus*	
881	Northern Grey-headed Sparrow	*Passer griseus*	
893	Baglafecht Weaver	*Ploceus baglafecht*	
894	Slender-billed Weaver	*Ploceus pelzelni*	
895	Little Weaver	*Ploceus luteolus*	
896	Black-necked Weaver	*Ploceus nigricollis*	
897	Spectacled Weaver	*Ploceus ocularis*	

Atlas No.	Common Name	*Scientific Name (Alternative Name)*	Threat Category
900	Holub's Golden Weaver	*Ploceus xanthops*	
902	Northern Brown-throated Weaver	*Ploceus castanops*	R-RR
903	Lesser Masked Weaver	*Ploceus intermedius*	
907	Vieillot's Black Weaver	*Ploceus nigerrimus*	
908	Village WEAVER	*Ploceus cucullatus*	
909	Weyns' Weaver	*Ploceus weynsi*	R-VU
910	Yellow-backed Weaver	*Ploceus melanocephalus*	
911	Golden-backed Weaver	*Ploceus jacksoni*	R-RR
915	Compact Weaver	*Ploceus superciliosus*	
932	Fan-tailed Widowbird	*Euplectes axillaris*	
936	Marsh Widowbird	*Euplectes hartlaubi*	R-VU
937	Grosbeak Weaver	*Amblyospiza albifrons*	
939	Grey-headed Negrofinch	*Nigrita canicapillus*	
959	Red-billed Firefinch	*Lagonosticta senegala*	
969	Common Waxbill	*Estrilda astrild*	
974	Red-cheeked Cordon-bleu	*Uraeginthus bengalus*	
978	Black-chinned Quailfinch	*Ortygospiza gabonensis*	
980	Bronze Mannikin	*Lonchura cucullata*	
981	Black-and-White Mannikin	*Lonchura bicolor*	
984	Village Indigobird	*Vidua chalybeata*	
985	Pin-tailed Whydah	*Vidua macroura*	
992	Papyrus Canary	*Serinus koliensis*	
995	Yellow-fronted Canary	*Serinus mozambicus*	
997	Brimstone Canary	*Serinus sulphuratus*	
1005	Golden-breasted Bunting	*Emberiza flaviventris*	
116a	Tawny Eagle	*Aquila rapax*	
85a	Black-Chested Snake Eagle	*Circaetus pectoralis*	
880a	House Sparrow	*Passer domesticus*	

Threat Categories

G-CR-Globally Critical

G-EN-Globally Endangered

G-VU-Globally Vulnerable

G-LR/nt-Globally Lower Risk, near threatened

G-DD-Globally Data Deficient

G-RR-Globally Range Restricted

R-CR-Regionally Critical

R-EN-Regionally Endangered

R-VU-Regionally Vulnerable

R-NT-Regionally Near-threatened

R-RR-Species of regional responsibility

Habitat

PM- Regular Passage Migrant

AM-Intra-African Migrant

ANNEX 7:

Checklist of Herpetofauna Recorded in the lake Nabugabo Wetland System Ramsar Site

7.1 Check list of Amphibian fauna

Family	Species Name	Author	Common Name	IUCN Global Threat	Proposed Uganda Threat
Bufonidae	*Amietiophrynus vittatus*	Boulenger, 1906	Lake Victoria Toad	DD	LC
Bufonidae	*Amietophrynus gutturalis*	Power, 1927	Gutteral Toad	LC	LC
Bufonidae	*Amietophrynus regularis*	Reuss, 1833	African Common Toad	LC	LC
Phyxicephalidae	*Amietia angolensis*	Boacage 1866	Angola River Frog	LC	LC
Dicroglossidae	*Hoplobatrachus occipitalis*	Günther, 1858	Crowned bullfrog	LC	LC
Arthroleptidae	*Leptopelis sp*				
Hyperoliidae	*Afrixalus quadrivittatus*	Werner, 1907	Four-lined Spiny Reed Frog	LC	LC
Hyperoliidae	*Hyperolius acuticeps*	Ahl, 1931	Sharp-headed Long Reed Frog	LC	LC
Hyperoliidae	*Hyperolius cinnamomeoventris*	Bocage, 1866	Cinnamon-bellied Reed Frog	LC	LC
Hyperoliidae	*Hyperolius kivuensis*	Ahl, 1931	Kivu reed Frog	LC	LC
Hyperoliidae	*Hyperolius langi*	Noble, 1924		LC	LC
Hyperoliidae	*Hyperolius viridiflavus bayoni*				
Hyperoliidae	*Hyperolius viridiflavus variabilis*				
Hyperoliidae	*Hyperolius viridiflavus viridiflavus*	Dumeril & Bibron, 1841	Common Reed Frog	LC	LC
Hyperoliidae	*Kassina senegalensis*	Dumeril & Bibron, 1841	Senegal Land Frog	LC	LC
Hyperoliidae	*Phlyctimnatis verrucosus*	Boulenger, 1912		LC	LC
Ranidae	*Amnirana albolabris*	Hallowell, 1856	White-lipped Frog		LC
Ranidae	*Amnirana galamensis*	Dumeril & Bibron, 1841	Galama White-lipped Frog	LC	NT
Phrynobatrachidae	*Phrynobatrachus acridoides*	Cope, 1867	Eastern puddle frog	LC	LC
Phrynobatrachidae	*Phrynobatrachus mababiensis*	FitzSimons, 1932	East Frican Puddle Frog	LC	LC
Phrynobatrachidae	*Phrynobatrachus natalensis*	Smith, 1849	Natal dwarf puddle frog	LC	LC
Ptychadenidae	*Ptychadena anchietae*	Bocage, 1868	Anchieta's Ridged Frog,	LC	LC
Ptychadenidae	*Ptychadena chrysogaster*	Laurent, 1954		LC	NT

Ptychadenidae	*Ptychadena mascareniensis*	Dumeril & Bibron, 1841	Mascarene Grass Frog	LC	LC
Ptychadenidae	*Ptychadena oxyrhynchus*	Smith, 1849	Sharp-nosed Ridged Frog	LC	LC
Ptychadenidae	*Ptychadena porosissima*	Steindachner, 1867	Grassland Ridged Frog	LC	LC
Pipidae	*Xenopus victorianus*	Ahl, 1924	Lake Victoria Clawed Frog	LC	LC

7.2: Checklist of reptilian fauna

Family	Species Name	Author	Common Name	IUCN Global Threat	Proposed Uganda Threat
Pelomedusidae	*Pelusios williamsii*	Laurent, 1965	William's Hinged Terrapin	NE	LC
Agamidae	*Acanthocercus atricollis*	A. Smith 1849	Common Tree Agama	LC	LC
Gekkonidae	*Hemidactylus brookii*	Hallowell, 1852	Brook's House Gecko	NE	LC
Gekkonidae	*Hemidactylus mabouia*	Moreau de Jonnes, 1818	Tropical House Gecko	NE	LC
Scincidae	*Trachylepis maculilabris*	Gray, 1845	Speckle-lipped Skink	NE	LC
Scincidae	*Trachylepis megalura*	Peters, 1878	Grass-top Skink	NE	NT
Scincidae	*Trachylepis striata*	Peters, 1844	Common Striped Skink	NE	LC
Chamaeleonidae	*Chamaeleo laevigatus*	Gray, 1863	Smooth chameleon	LC	LC
Varanidae	*Varanus niloticus*	Linnaeus, 1766	Nile Monitor	NE	LC
Typhlopidae	*Typhlops lineolatus*	Jan, 1864	Lineolate Blind-snake	NE	LC
Colubridae	*Bothropthalmus lineatus*	Peters, 1863	Red and Black Striped Snake	NE	LC
Colubridae	*Lycophidion capense*	Boulenger, 1893	Cape Wolf-snake	LC	LC
Colubridae	*Philopthamnus heterolepidotus*	Gunther, 1863	Slender Green-snake	NE	LC
Colubridae	*Philopthamnus semivariegatus*	A. Smith, 1847	Variegated Bush-snake	NE	LC
Colubridae	*Philopthamnus sp*				
Colubridae	*Psammophis mossambicus*	Peters, 1882	Olive Sand Snake	NE	DD
Colubridae	*Psammophis sibilans*	Linnaeus, 1758	Hissing Sand-snake	NE	LC
Colubridae	*Hapsidophrys smaragdina*				
Boidae	*Python sebae*	Gmelin, 1789	African Python	NE	LC
Elapidae	*Dendroaspis jamesonii*	Traill, 1843	Jameson's Mamba	NE	LC
Elapidae	*Naja melanoleuca*	Hallowell, 1857	Forest Cobra	NE	LC
Viperidae	*Bitis arietans*	Merrem, 1820	Puffadder	LC	LC
Viperidae	*Bitis gabonica*	Dumeril & Bibron, 1845	Gaboon Viper	LC	LC
Viperidae	*Bitis nasicornis*	Shaw, 1802	Nose-horned Viper	NE	LC

ANNEX 8:

Mammals in Lake Nabugabo Wetland System Ramsar Site

Survey Point		01	12	15	16	18	19	21	4	7	8
		9993666	9965009	9969265	9981377	9994259	9998843	9998506	9966815	9966903	9973031
Order	Species	349780	382113	374326	377706	375729	382905	355255	380359	384677	373205
Insectivora	*Crociduraf uscomurina*								1		
	Crociduraluna		1								
	Crociduranigrofusca	1						1	4	1	
	Crociduraolivieri	1	2	3			1			1	2
	Crociduramaurisca					2			3		1
	Crociduraturba								1		
Rodentia	*Aethomyskaiseri*				4	1	2	3			
	Gramommysdolichuras				1						
	Leminiscomysstriatus	1		1		1			1		
	Lophuromysaquilus	3	3	2			3		1	2	5
	Lophromyssikapusi		2	1			4		1		
	Mastomysnatalensis						1				
	Mus musculoides									1	
	Pelomyshopkinsi		1								
	Praomysjacksoni									7	3
Total number individuals captured		6	9	7	5	4	11	4	12	12	11
Total number species recorded		4	5	4	2	3	5	2	7	5	4

ANNEX 9:

District Participants Consulted at District Level

Kalungu District

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