



**National Environment Management
Authority (NEMA)**

WORLD WETLANDS DAY

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PUBLIC TALK AT UGANDA MUSEUM, KAMPALA

*Topic: 20 years of Wetlands Conservation in Uganda - Have
Uganda's Wetlands become Wastelands Again?*

Presented by:

Aryamanya-Mugisha, Henry (Ph.D)
Executive Director
National Environment Management Authority (NEMA)
P.O. Box 22255 Kampala
haryamanya@nemaug.org
www.nemaug.org

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1. WHAT ARE WETLANDS?

Wetlands are shallow seasonally or permanently water logged or flooded areas, which normally support hydrophytic vegetation (water tolerant). Hydrophytic plants are those that are adapted to growing in water or are found in predominantly wet places.

According to the Ramsar Convention, “wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static, or flowing, fresh, brackish or salty, including areas of marine water that do not exceed 6 meters at low tide”.

The National Environment Act, Cap 153 under Section 2 defines wetlands as areas permanently or seasonally flooded by water where plants and animals have become adapted.

Uganda’s National Policy for the Conservation and Management of Wetland Resources (1994) defines wetlands as areas “where plants and animals have become adapted to temporary or permanent flooding.” It includes permanently flooded areas with papyrus or grass swamps, swamp forests or high-altitude mountain bogs, as well as seasonal flood plains and grasslands. While all wetlands are characterized by impeded drainage, the length of their flooding period, depth of water, soil fertility, and other environmental factors vary with different wetland types. Wetlands are home to distinctive plant and animal communities that are well adapted to the presence of water and flooding regimes

The following therefore are the key indicators which can guide in defining a wetland:-

Indicators	Example
Water	(i) Fresh water (Lakes Kwana, Victoria and George or Rivers Nyagak, Nile, Katonga, Ngenge)
	(ii) Salty water (Lake Katwe)
	(iii) Seasonal
	(iv) Permanent
Soils	(i) Clay
	(ii) Sandy
Plants	(i) Papyrus (<i>Cyperus papyrus</i>)
	(ii) Common reeds or “Enderre” in Luganda (<i>Phragmites sp.</i>)
	(iii) Cat tail (<i>Typha sp.</i>)
	(iv) Palm trees (<i>Phoenix aethiopicus</i>)
	(v) <i>Sedges and Mithcanthus</i> or Olusaru in Luganda
Animals	(i) Fish (<i>Tilapia sp</i>)
	(ii) Mammals (Sitatunga)
	(iii) Birds (Crested Crane)

<i>Types</i>	(iv) Riverrine (wetlands on the riverbanks)
	(v) Lacustrine (wetlands on the lakeshores)
	(vi) Swamps (Pulstrine) – marsh
	(vii) Swamp forests

Source: NEMA, 2005

2. WHY ARE WETLANDS IMPORTANT

Wetlands provide a large array of ecosystem services defined as the benefits people derive from nature to Ugandans in urban and rural areas. They are used for farming, fishing, and livestock grazing. They supply families with basic needs such as water, construction material, and fuel. In addition to these local uses, the system of interconnected wetlands plays a crucial role at a regional level by filtering pollutants and regulating water flows (influencing groundwater recharge, flood impacts, and water availability during the dry season). Of a total population of 28 million Ugandans, it is estimated that wetlands provide about 320,000 workers with direct employment and provide subsistence employment for over 2.4 million (MFPED, 2004).

Uganda's wetlands also provide important ecological benefits that reach beyond the region. They are the home of globally endangered species including birds such as the Shoebill (*Balaeniceps rex*) and Fox's weaver (*Ploceus spekeoides*), and fish species of the Cichlidae family. Many wetlands are an important stopover for large congregations of migratory water birds. Wetlands can act as a reservoir to store carbon dioxide, mitigating climate change impacts. National and international visitors seek out wetlands as tourist attractions and educational opportunities to learn about their unique animals and plants

Table1.Ecosystems Services provided by or derived from Wetlands

PROVISIONING	
Food	production of fish, wild game, fruits, and grains
Fresh water	storage and retention of water for domestic, industrial, and agricultural use
Fiber and fuel	production of logs, fuel wood, peat, fodder
Biochemical	extraction of medicines and other materials from biota
Genetic materials	genes for resistance to plant pathogens, ornamental species, and so on
REGULATING	
Climate regulation	source of and sink for greenhouse gases; influence local and regional temperature, precipitation, and

	other climatic processes
Water regulation (hydrological flows)	groundwater recharge/discharge
Water purification and waste treatment	retention, recovery, and removal of excess nutrients and other pollutants
Erosion regulation	retention of soils and sediments
Natural hazard regulation	flood control, storm protection
Pollination	habitat for pollinators
CULTURAL	
Spiritual and inspirational	source of inspiration; many religions attach spiritual and religious values to aspects of wetland ecosystems
Recreational	opportunities for recreational activities
Aesthetic	many people find beauty or aesthetic value in aspects of wetland ecosystems
Educational	opportunities for formal and informal education and training
SUPPORTING	
Soil formation	sediment retention and accumulation of organic matter
Nutrient cycling	Storage, recycling, processing, and acquisition of nutrients

Source: Millennium Ecosystems Assessment, 2005

Wetlands have got several values and functions. Wetland functions include water quality improvement, floodwater storage, fish and wildlife habitat, aesthetics, and biological productivity. The value of a wetland is an estimate of the importance or worth of one or more of its functions to society. For example, a value can be determined by the revenue generated from the sale of fish that depend on the wetland, by the tourist dollars associated with the wetland, or by public support for protecting fish and wildlife. Although large-scale benefits of functions can be valued, determining the value of individual wetlands is difficult because they differ widely and do not all perform the same functions or perform functions equally well. Decision makers must understand that impacts on wetland functions can eliminate or diminish the values of wetlands.

2.1 Biodiversity functions

Wetlands are some of the most biologically productive natural ecosystems in Uganda probably comparable to tropical rain forests in their productivity and the diversity of species they support. Abundant vegetation and shallow water provide diverse habitats

for fish and wildlife. Aquatic plant life flourishes in the nutrient-rich environment, and energy converted by the plants is passed up the food chain to fish, waterfowl, and other wildlife and to human beings as well. This function supports valuable commercial fish industries.

Wetlands are transition zones (ecotones) between land and water; water levels and flooding regimes providing a diversity of habitats. The changes in the hydrology along the ecotones sustain the floral richness whilst the diversity of the habitats supports the association of fauna; from the diversity of fish in the lakeward interface to grazing ungulates to landward. The flood plains are especially important here. The wetlands have a unique role in biodiversity terms, as they support not only the communities directly associated with them but also those from the aquatic and terrestrial habitats, too. This connectivity gives them a pivoted place in landscape mosaic.

Many researchers have elaborated the importance of lakeside wetlands for fish and the need to conserve them. They note that wetlands formed a major habitat for fish, particularly for species that are adapted to living under low oxygen concentration such as the Lungfish. They further observe that wetlands form a major breeding ground for tilapia.

Lakeside wetlands support large numbers of insects, worms and shrimps that are important as food for the fish. They are, therefore, ecologically important as nursery grounds for most of the fish species caught in the open lakes. They also provide shelter and protection to the young fish from predators.

2.2 Climatic functions

The enormous living and dead biomass of wetlands and their high productivity suggest an important function in the maintenance of “greenhouse gas” equilibria and contribution to the climatic change equation. Much interest is directed towards their role in the carbon balance in terms of Carbondioxide and Methane absorption/evolution.

The contribution of the wetland to the water cycle is also very significant. The key process here is evapo-transpiration i.e. the loss of water from the wetlands due to the plants. Wetlands within a drying terrestrial environment can lose water substantially faster than open water evaporation.

Evapo-transpiration has two major effects on the environment:

- (i) First, it will reduce the temperatures of the local environment in the daytime. Thus wetland vegetation ameliorates extremes of temperatures.

- (ii) Secondly, it provides a water resource for cloud formations and rainfall. It is now believed that over large landmasses, the water from evapo-transpiration is a significant part of a very tight water cycle in which rainfall can be directly related to Evapo-transpiration. More importantly such rain often falls in relatively close proximity to the area of evapo-transpiration.

2.3 Hydrology

Wetlands function like natural tubs or sponges, storing water and slowly releasing it and in so doing, aquifers are recharged. This process slows the water's momentum and erosive potential, reduces flood heights, and allows for ground water recharge, which contributes to base flow to surface water systems during dry periods. Although a small wetland might not store much water, a network of many small wetlands can store an enormous amount of water. The ability of wetlands to store floodwaters reduces the risk of costly property damage and loss of life—benefits that have economic value to us.

2.4 Water quality functions

After being slowed by a wetland, water moves around plants, allowing the suspended sediment to drop out and settle to the wetland floor (bed). Nutrients from fertilizer application, manure, leaking septic tanks, and municipal sewage that are dissolved in the water are often absorbed by plant roots and micro-organisms in the soil. Other pollutants stick to soil particles. In many cases, this filtration process removes much of the water's nutrient and pollutant load by the time it leaves a wetland. Some types of wetlands are so good at this filtration function that environmental managers construct similar artificial wetlands to treat storm water and wastewater.

2.5 Other uses of Wetlands

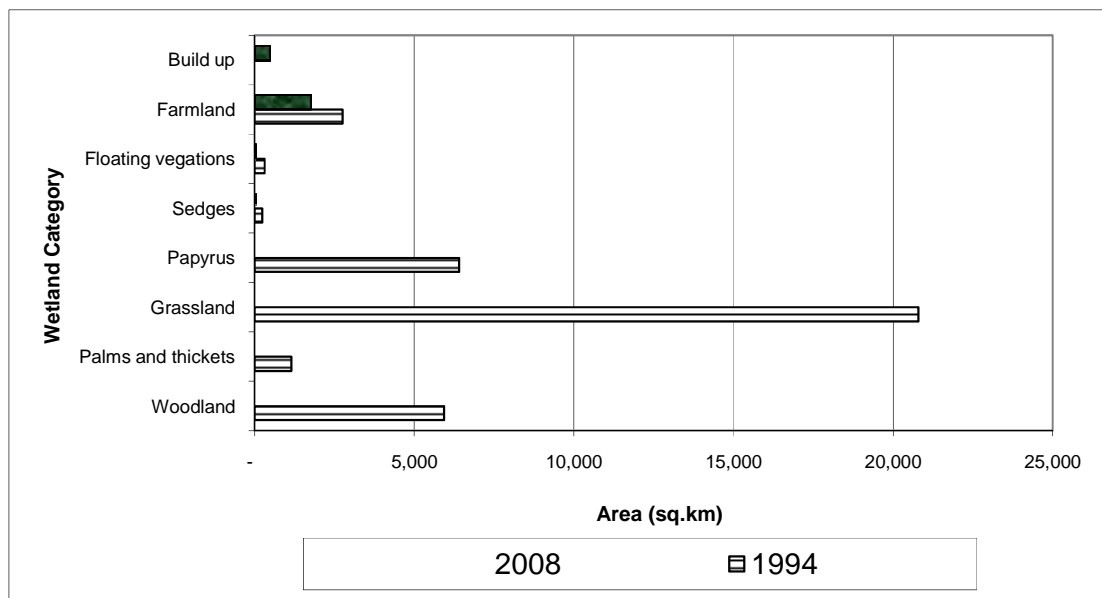
The wetland resources have for a long time been associated with a number of uses to riparian communities. These include, among others:

- (i) Source of fish,
- (ii) wetlands support agricultural activity and crops that are sustaining a large population in the basin. Crops grown include yams, sugar cane, bananas, potatoes, maize and vegetables such as beans, tomatoes and cabbages.
- (iii) wetlands are traditional grazing areas and sustain livestock populations especially during drought.
- (iv) crafts production, particularly using papyrus and other wetland reeds. These wetland crafts products are of economic value and thus help to sustain and supplement the meager incomes of some of the communities,
- (v) source of traditional medicinal herbs,
- (vi) wetlands are also a source of water for domestic use especially for communities not adequately supplied with piped water.

3. STATE OF WETLANDS

Uganda's wetlands range from those fringing the Equatorial lakes at an altitude of 1,134m above sea level to those in the Afromontane regions of Mt. Elgon and the Rwenzori range which may be found as high as at 4,000m above sea level. This large wetland resource is explained by a climate of high rainfall and the general topography of the country. The wetlands are spread throughout the country.

Figure 1.0: Trends in Wetlands Coverage



Source: Wetlands Management Department, MWE (2009)

In 1964, the total area of wetlands was estimated at 32,000 km² but by 1999, it had decreased to 30,000 km², or about 13 percent of the total area of Uganda. Preliminary data from the National Biomass Study Unit of the National Forestry Authority (NFA) (2008) suggest that Uganda's wetlands cover, as estimated in 2005, has now been reduced to 26,308 km², or 11 percent of total land area. The key underlying causes of this decline is the insatiable desire for the population both the rich and the poor to derive livelihoods from the wetlands such as reclamation for agriculture (rice in Eastern Uganda and Vegetables in South Western) and other industrial and commercial purposes (Central region); over harvesting of water for domestic and commercial use; over harvesting of materials mainly for construction and handicraft and over fishing. Poor use of wetland catchments leading to siltation of wetlands and rivers and also people are forced to cultivate the now fertile wetlands. This is exacerbated by the high annual population growth rate of 3.2%

Lake Victoria and Kyoga are among to the most critical ecosystems in Uganda. The wetland catchment areas around Lake Victoria alone has shrunk by more than half its size in 20years from 7,167.6sq.km in 1994 to 3,310 sq.km in 2008. The wetland catchment of Lake Kyoga has also reduced in size from 15,008.3sqkm in 1994 to 11,028.5sq.km in 2008.

The Global Water Partnership in East Africa states that Uganda losses approximately 15% of its Gross Domestic Product (GDP) due to the destruction of its natural resources such as wetlands. Wetlands destruction alone costs Uganda nearly 2billions shillings annually and contamination of water resources which is partly caused by reduced buffering capacity of open water bodies costs Uganda nearly 38billion annually.

4. MANAGEMENT OF WETLANDS

4.1 Pre National Resistance Movement (NRMS) Period (Before 1986)

Before the National Resistance Movement (NRM) period, wetlands were not regarded as important resources. In the Buganda Agreement of 1900, by which Britain acquired the status of a protecting power over the Kingdom of Buganda, wetlands were referred to as wastelands and were vested in the Crown. A similar treatment was meted out to wetlands under the other two agreements concluded with Toro in 1900 and Ankole in 1901. The rest of Uganda, was declared Crown land. As such wetlands were governed directly by British law in the whole of Uganda in the colonial period.

In 1902, the British Crown passed the Uganda Order in Council. Under that Order in Council, statutes made by the Crown, the common law and principles of equity were to be the legal regime governing the lives of the people in the protectorate. The Order in Council, however, also permitted the continued application of African Customary Law so long as it was not repugnant to morality and natural justice (here read British morality). This meant, therefore, that on wetlands the law applicable was both imported British law and African customary law.

4.1.1 Imported British Law

The law which was imported into Uganda in 1902 emphasized individual tenure and ownership as its key feature. As defined by L. B. Curson ownership is:

"... the right to the exclusive enjoyment of something based on rightful title. It may be absolute or restricted corporeal or incorporeal, legal or equitable .. vested or contingent in essence, it is based on a relationship de jure so that possession of something is not necessary."

To buttress individual tenure, the system of land tenure which was introduced emphasised the granting of estates akin to those obtaining in England. Freeholds lease holds and "Mailo" tenures were established by both the agreements with the native kingdoms and by statutes such as the Crownlands Ordinance. Since, wetlands had already been alienated to the Crown, individual estates were not granted on them as a matter of policy. Where such grants were made the essence of ownership entitled the grantee almost unfettered rights of use and abuse, limited only by the eminent domain of the Crown. So how did the Crown exercise its control over wetlands? Both the British Crown and its successor, the Government of Uganda, did not give a lot of priority to management of wetland resources. Their basic concern was with the control of water resources. It was for this reason that:

"All rights to the water of any spring river, stream, watercourse, pond or lake on or under public land whether alienated or not shall be reserved to the Government."

The other resources of the wetlands were not considered valuable. The areas they covered, apart from the water resources they contained, were considered wastelands. If the wetland contained other valuable resources such as minerals, or forests, these could be extracted under the authority of sectoral laws. No controls were placed on the methods for extraction of those resources.

4.1.2 Wetlands as *res nullius*

While the wetlands or wastelands were alienated to the Crown by virtue of the establishment of the protectorate, in reality they remained as the property of nobody. The Crown and later the Government of Uganda remained the nominal owner but the resources remained accessible to everybody. Wetlands, except those which fell within specific protected areas such as forest reserves, National Parks and Game reserves, did not receive the special protection of the state.

In areas where population increased tremendously such as the Districts of Kabale, Rukungiri, Kisoro and Bushenyi, wetlands became the first targets. Rich and "progressive" farmers acquired leaseholds upon these wetlands and commenced the programme of draining them to convert them into diary farms. The scramble for these areas has been continuing until recently when government intervened to introduce a new policy and approach to the resource.

4.1.3 Review of Legislation on Wetlands

Uganda acceded to the Ramsar Convention on 4th March, 1988 and the Convention entered into force for Uganda on 4th July 1988. Uganda, therefore, was under an obligation to implement the convention in her national laws. As shown above, the state of the law in Uganda was in a pathetic state seen from the view point of fulfilling those obligations, especially the wise use concept. It was, therefore,

necessary that a comprehensive re-assessment of Uganda's national policy and law relating to wetlands be undertaken.

The unclear legal regime led to a number of problems:

- (i) ***Drainage of Wetlands:*** This was the result of population pressure and the resulting tendency of people to move to what is perceived as free land. This has mostly affected wetlands in South Western Uganda where rich farmers acquired leases for terms up to 99 years on these lands to carry out dairy farming. The result has been not only the degradation of the former wetland areas but the denial, as well, of local populations of the benefits from these wetlands.
- (ii) ***Introduction of new crops:*** Rice, which is a new crop in Uganda, was introduced on a large scale in the 1960's as a wetland based crop. Beginning from the Kibimba Irrigation Scheme, in Eastern Uganda, rice has now spread as a major crop in that region to cover a number of wetlands. The clearing of wetlands for rice has resulted in the loss of biodiversity and a number of wetland functions.
- (iii) ***Pollution:*** Pollution especially from copper mining activities has especially affected wetlands in the Western region of Uganda including lakes George and Edward and their associated swamps. The principal source of pollution has been a heap of wastes from the Kilembe Mines from which water laden with high concentrations of copper has drained into the drainage system and onwards into the lakes.
- (iv) ***Over-harvesting:*** Some of the wetlands have faced the problem of over-exploitation of some of the plants and animals found in them. The most affected parts of wetlands are the seasonal wetlands which fringe the wetlands and form an interface between the land and the wetland proper. The forests which characterise these areas have been depleted and so have the animal species. Other resources which are threatened include papyrus which is being over-harvested in certain wetlands. Nearer to the major towns, the principal problem with regard to wetland resources has been the extensive exploitation of clays for brick making. This has not only meant the exposure of these areas to flooding and erosion but also the creation of huge and deep holes that portend danger to man, livestock and wildlife.
- (v) ***Reclamation for Industrial Developments:*** In the Kampala City, wetlands have often been regarded as the land most easily available for the development of industrial estates. This is because of the uncertain character of the ownership of such areas, hanging half way between an estate owned by government and a *terra nullius*. (Often, it must be remembered, an ineffective government is as good in managing resources as a total absence of

ownership.) This development is beginning to come to fruition. Bad fruits such as flooding due to impeded drainage are beginning to manifest in the Nakivubo and the Ntinda swampy areas.

- (vi) ***Human Settlements in Swampy Areas:*** The unclear regime of tenure in the wetlands has also attracted the emergence of unplanned settlements (slums) especially in Kampala. While the current Kampala Development Plan requires that wetlands be left as green areas, ineffective law enforcement has led to the growth of slum settlements in these wetlands especially in the areas of Bwaise, Kalerwe and Natete. These settlements have become a home of environmental diseases such as cholera, dysentery and typhoid. This ugly development has been mainly because of impeded drainage of these areas and the resulting flooding.

4.2 Post National Resistance Movement (NRM) Period (1986 to-date)

4.2.1 Overview

On 26th January 1986, the National Resistance Movement (NRM), a guerrilla force led by HE President Yoweri Museveni captured power in Kampala by force of arms. They promised fundamental change. They immediately embarked on a process of restructuring the entire state structure and reforming existing laws. This was intended to create a basis for modernizing the country.

One of the basic concerns of the new government was to promote the rational exploitation of natural resources while at the same time conserving the environment. For the first time in the history of the country, the Government established a **Ministry for Environment Protection**.

With regard to wetlands the Government imposed a ban on large scale drainage in 1986. It intended to avert the negative consequences of such drainage which had already been observed in Southwestern Uganda. This was a stopgap measure intended to last until a proper policy was put into place. This was followed in 1989, by the establishment of the National Wetlands Conservation Programme which was charged with the formulation of a National Wetlands Policy.

At the same time as Uganda was formulating her wetlands policy, a process of reform was taking place in other sectors of Government. In 1991, the Government embarked upon the World Bank sponsored National Environment Action Plan process. This was to result in the adoption of a National Environment Management Policy and the National Environment Statute in 1994 and 1995 respectively.

4.2.2 The Constitution 1995

National Objectives and Directive Principles of State Policy

- (i) The Constitution in its National Objectives and Directive Principles of State Policy, Objective XIII provides for the protection of natural resources. It provides as follows:

The State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda.

- (ii) Objective XXVII(i) obliges the State to promote sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations.
- (iii) Paragraph (ii) of that objective goes ahead to say that the State shall take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes.
- (iv) Objective XXIX(g) makes it a duty of every citizen to acquaint himself or herself with the provisions of the Constitution and to uphold and defend the Constitution and the law.

Articles of the Constitution

- (i) Article 39 enshrines the right of every Ugandan to a clean and healthy environment.
- (ii) Article 237(2)(b) of the Constitution provides that notwithstanding clause (1) of Article 237 which provides that land in Uganda belongs to the citizens of Uganda to vest in them according to the land tenure systems provided for in the Constitution, Government or a local government shall hold in trust for the people and protect natural lakes, rivers, wetlands, forest reserves, game reserves national parks and any land to be reserved for ecological and touristic purposes for the common good of all citizens.
- (iii) Article 245 of the Constitution enables Parliament to make laws to protect and preserve the environment.

4.2.3 The Land Act Cap. 227

- (i) Section 44 of the Land Act Cap. 227 reiterates Article 237(2)(b) of the Constitution and provides in subsection (1) that:

The Government or a local government shall hold in trust for the people and protect natural lakes, rivers, ground water, natural ponds, natural streams, wetlands, forest reserves, national parks and any land to be reserved for

ecological and touristic purposes for the common good of the citizens of Uganda.

- (ii) Under subsection (4) of section 44 of the Land Act, the Government or a local government shall not lease out or otherwise alienate any natural resource referred to in the section.
- (iii) Any issuance of a land title in respect to wetlands or within regulated lakeshores and river bank zones is, therefore, illegal.
- (iv) However, under subsection (5) of section 44 of the Land Act, the Government or a local government may grant concessions or licenses or permits in respect of a natural resource referred to in the section subject to any law.
- (v) The doctrine of public trust is enshrined in the laws to ensure that wetlands and other public resources are sustainably used and that prohibited, indiscriminate and uncontrolled encroachment on these resources is avoided.
- (vi) That is why section 43 of the Land Act states that a person who owns land shall manage and utilize the land in accordance with the Forest Act, the Mining Act, the National Environment Act Cap. 153, the Water Act, the Uganda Wildlife Act and any other law.
- (vii) The Land Act, in section 42, also provides that the Government or Local Government may acquire land in accordance with the provisions of the Article 26 and Clause (2) of Article 237 of the Constitution.

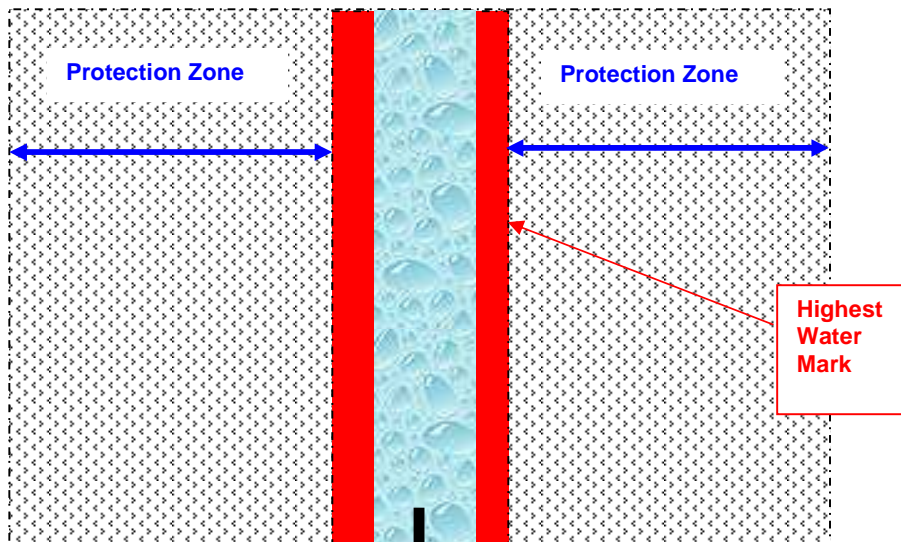
4.2.4 The National Environment Act Cap. 153 and Regulations made thereunder

The National Environment Act Cap. 153 is the framework law on the environment.

- (i) Section 3 of Cap. 153 protects the right to a healthy environment and obliges every person to maintain and enhance the environment.
- (ii) Section 36(1) of Cap. 153 provides for the restricted use of wetlands and prohibits the following:
 - (a) reclamation or drainage of wetlands;
 - (b) erection, construction, placement of any structure, etc. on the wetland;
 - (c) disturbance of a wetland by drilling or tunneling in a manner that is likely to have adverse effects on the wetland;
 - (d) depositing in, on or under any wetland any substance in a manner that is likely to have adverse effects on the wetland;

- (e) destroying, damaging or disturbing any wetland in a manner tunneling in a manner that is likely to have adverse effects on any plant, or animal or its habitat; and
 - (f) introducing or planting any toxic or introduced plant or animal in a wetland, unless with authorization of NEMA in consultation with a lead agency.
- (iii) Under subsection (3) of section 36, only particular traditional uses of wetlands can be exempted from the application of subsection (1) of section 36 above.
 - (iv) Section 37 of Cap. 153 provide for guidelines to be made for the identification and sustainable management of all wetlands in Uganda.
 - (v) The traditional uses of wetlands allowed under regulation 11(2) of the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, S.I No. 3/2000, are the following:
 - (a) harvesting of papyrus, medicinal plants, trees and reeds;
 - (b) any cultivation where the cultivated area is not more than 25% of the total area of the wetland;
 - (c) fishing using traps, spears and baskets or other method other than weirs;
 - (d) collection of water for domestic use; and
 - (e) hunting subject to the provisions of the Wildlife Act, Cap. 200.
 - (vi) The National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, S.I No. 3/2000 have been particularly put in place to protect wetlands from encroachment and to regulate activities in the wetlands. The principles for the management of wetlands under these regulations are as follows:
 - (a) Wetlands resources in wetland should be utilized in a sustainable manner compatible with the continued presence of wetlands and their hydrological functions and services;
 - (b) Environmental impact assessment as required under the statute is mandatory for all activities in the wetlands, riverbanks and lakeshores.
 - (c) Special measures are essential for protection of wetlands of international, national, and local importance as ecological systems and habitat for fauna and flora species, and for cultural and aesthetic purposes, as well as for their hydrological functions and values for preventing soil erosion, siltation and water pollution;
 - (d) Wise use of wetlands should be integrated into the national and local approaches to the management of their resources through awareness campaigns and dissemination of information.
 - (e) Every landowner, occupier or user who is adjacent or contiguous with a wetland has a duty to prevent the degradation or destruction of the wetland, and to maintain ecological and other functions of the wetland.

- (vi) This Regulation, in the Second Schedule thereof, provides a list of regulated activities whose carrying out in wetlands is subject to issuance of a permit granted by NEMA in consultation with the Lead Agencies. These include the following:
1. brick making;
 2. recreation activities such as spot fishing, maintenance of green spaces;
 3. cultivation;
 4. drainage;
 5. commercial exploitation of wetland resources;
 6. sewerage filtration;
 7. fishing using fish gear and weirs, fish farming and other aquaculture;
 8. construction of transport and communication facilities such as roads, railways, telephone lines;
 9. burning;
 10. and any other exploitative activity which is of a commercial or trade nature, such as harvesting of papyrus for commercial purposes.
- (vii) All major rivers listed below should have a protection zone of one hundred meters (100 m) calculated from the highest water mark. The rivers include the Nile, Aswa, Katonga, Nkusi, Kafu, Rwizi, Kagera, Mpanga, Manafwa, Mpologoma, Semliki, Mubuku, Mayanja, Sezibwa, Malaba, Sipi, Namatala, Sironko, Muzizi, and Nabuyonga. The Highest Water Mark is the highest point in history towards the dryland where the water-land interface last occurred when there was heavy discharge of water.



- (viii) All other rivers not mentioned above have a protection zone of thirty meters (30 m) calculated from the highest watermark;

- (ix) All major lakes listed below have a protection zone of two hundred (200) meters from the low water mark. These include Lakes Victoria, Kyoga, Albert, Edward, George, Bisina, Mbuho, Bunyonyi, Kijanibarola, Kwania, Wamala, Mutanda, Murehe, Opeta, Nabugabo, Nkugute, Katunga, Nyabihoko, and Nakivale. The Lowest Water Mark is the lowest point in history towards the lake where the water-land interface last occurred when there was drought and water tended to decrease.
- (x) All other lakes not listed above have protection zones of about one hundred (100) meters from the low water mark;

The rationale of setting these regulated zones is based on the critical role these zones play in protecting the water resources as well as the catchments of such water resources.

- (viii) The Environmental Impact Assessment Regulations, S.I No. 13/1998 require EIA to be carried out for any projects that are likely to have an impact on the environment.

5. CHALLENGES IN THE MANAGEMENT OF WETLANDS

(i). Population explosion

The population of Uganda has increased from 4.8 million in 1948 to 30 million in 2008 and is likely to reach 130 million by 2050. At 3.2%, Uganda's population growth rate is one of the highest in the world. This poses an enormous challenge on the management of natural resources such as wetlands. The increased population is significantly marked with insatiable desire of both the rich and the poor to derive their livelihoods from the wetlands including desire for industrial expansion.

In the 1980s, pressure on wetlands mounted in both rural and urban areas. The communities that access these wetlands use them for agriculture, extraction of various raw materials and fishing. Consequently, a significant amount of encroachment on wetlands has occurred. By 2000, 64 percent of the total seasonal wetlands in Iganga and 68 percent in Pallisa had been converted for rice cultivation. In Kabale district, the originally permanent wetlands such as Nyamuliro located in Muko Sub-county had been completely reclaimed for Irish potatoes growing.

In urban areas, particularly Kampala, wetlands are seen as the cheapest areas for industrial development. Many wetlands have been converted to industrial or agricultural use, or have gradually been taken over by semi-slum residential housing and associated uses, such as cultivation, waste disposal or business sites for local manufacturing artisans (*jua kali*).

(ii) Climate Change

Climate change is one of the major causes of drying up of wetlands as a result of reduced water tables giving way to change in landuse such as cultivation and settlements. Since 1991, extreme weather events are becoming more frequent and Climate change will increase their frequency and severity. It is also predicted that the frequency and intensity of extreme weather events will increase with increasing climate change.

Between 1991 and 2000 Uganda experienced seven droughts in a period of ten years as shown in Fig. 1 below. The later years have also witnessed an increase in intensities and frequency of heavy rains, floods, landslides in the highland areas as well as outbreaks of waterborne diseases associated with the floods.

(iii) Complex Land ownership issues

In 1995, under Article 237(2)(b), Government recognized the conservation of wetlands and it remains the Trustee of this resource. However, this Constitutional provision did not take care of the ownership matters especially those pertaining to Mailo land owners in Buganda Region. Government has tried to implement this constitutional provision through enforcement of the landuse activities in wetlands on Mailo land owners. This venture has however become extremely expensive and some cooperative Landowners have demanded for compensation for which no plans have been put in place by Government.

Similarly, In Bushenyi and Kabale Districts, large scale dairy farmers such as the Batumas could not be evicted from the wetlands as they reclaimed the wetlands before the coming in place of the Constitution 1995 and therefore required compensation. These dairy farmers were supported the then Government Policy on improving food security and accessed funding from banks in the 1970s. The continued use of such reclaimed wetlands by such farmers has made it difficult to enforce the law on wetland in Ankole and Kigezi regions.

(iv). Political Interference

Whereas wetlands are held in trust by Central Government or Local Government for the common good of the people of Uganda, recent examples of wetland abuse have included cases where local authorities have been the very violators of this constitutional provision. Where this has happened, Central and Local Authorities have indicated that they converted wetlands for the sake of providing their communities with economic growth opportunities and for fighting poverty as per Government Policy (PEAP). It is therefore a dilemma that the very institutions entrusted with the protection of wetlands have in some cases not assisted the crusade for their conservation.

EXAMPLES

- (a) In 2008, His Excellency, The Vice President while on his tour in Kigezi Region and in the accompaniment of the Resident District Commissioner (RDC) of Kabale District, directed the people of Kashambya and Muko Sub Counties in Kabale district to continue reclaiming and growing Irish potatoes in wetlands. Whereas Government had taken steps to restore part of these wetlands, on a phased restoration of Nyamuliro and Nomuremu-Rushebeya-Kanyabaha wetland systems, the efforts were critically hampered after the meetings of HE the Vice President. This led to:
1. Communities becoming more rebellious and un co-operative to all technical advice on wise use of wetlands.
 2. The restoration program that had been drawn and agreed with the communities were completely disorganized.
 3. The efforts of the Technical Staff particularly those at the district were severely hampered.
 4. More encroachment into other intact wetlands in the district and the region at large.
- (b) In 2008 the LCV Chairman, Kumi district, banned the implementation of the Wetlands Ordinance which was supposed to domesticate the National Law on wetlands in that district. This is because the Ordinance had been passed by the previous Local Government and was widely used during the politicking in the district. This led to severe encroachment of the wetlands in the district that were well conserved with assistance from the centre. The encroachers are mainly engaging in agriculture and livestock keeping. There is therefore a general weakness in the decentralization law.
- (c) During the restoration of Lubigi Wetland located between Kampala and Wakiso districts, in February 2009, the LCV Chairman of Wakiso District, Mr. Ian Kyeyune sabotaged the restoration process in Nabweru Sub-county noting that Lubigi wetland had encroached on peoples' land. He also insisted that Lubigi Wetland is habitable and people should be left to inhabit the wetland.
- (d) In 2008, NEMA in collaboration with the Lead Agencies (WMD, Police, KCC, Kira Town Council) started on the physical restoration of Kinawataka Wetland. This exercise was delayed on many occasions by the LC1 Leaders who mobilized the inhabitants of the wetlands against the restoration team. The matter was also brought to the attention of the RDC and Area Member of Parliament and Minister of State for Justice and Constitutional Affairs who were also in support of the communities. Although the wetland was restored, the local leaders later mobilized the communities and the wetland was re-encroached. To-date the local people have cleared the formally intact swamp forest and seasonal portions of the wetland leaving only the core wetland which is periodically slashed meaning there are still interests here.

- (e) It has been noted that there is massive involvement of LCs in the sale of wetlands in many parts of the country. In Kinawataka wetland located between Kampala and Wakiso districts, the Chairperson of Kinawataka village, Mbuya Zone IV, Kasokoso and Kitintale Zone 12 in Nakivubo wetland and in Namungona area in Lubigi wetland were involved in the witnessing and illegal selling of wetlands. Government therefore cannot get any significant and consistent cooperation and support from these environmental managers (LC1) who are closer to the wetland and support to be more effective.

(v). Enforcement hierarchy of Policies and Regulation

Whereas it is now largely accepted that wetlands are an important resource worth protecting, and whereas enforcement of environment regulations, including those on management of wetlands is expected to be done through a hierarchy of enforcement levels from national (NEMA and Wetlands Management Department), District down to community levels, the enforcement capacity available (in terms of number of personnel, financial resources, etc) at all these levels appears not to be able to match the widespread nature of the problem of wetland abuse. In addition, while the responsibility for wetlands management has been vested under the local authorities, cases of local authority intervention on wetlands management are still few, implying that even where local authority intervention would have been enough to stop wetland abuse, such cases still continue to be referred to NEMA and Ministry. It should be stressed that this state of affairs for a dispersed resource such as wetlands requires enforcement and intervention mechanisms that is as close to the community as possible if tangible results are to be achieved.

(vi). The “anonymous”, “holiday” and “awkward hour” dumping syndrome

Without an effective grassroots enforcement mechanism, it has been extremely difficult to control indiscriminate dumping of materials in wetlands along the roads and other remote areas by anonymous individuals such as truck drivers who probably view wetlands as “good” open space to dump in rather than drive long distances to designated dumping sites. Time and again, people living in and around wetland areas where murrum and waste dumping has taken place have indicated that the dumping is done by unknown truck drivers at awkward hours such as weekends, holidays and nights. This illegal practice is done by high ranking government and business people.

In addition to the above, there has also been a problem of wetland filling during holidays and awkward hours when those dumping probably have full knowledge that enforcement staff are not on duty. It remains an uphill task to prosecute these cases, and the affected wetlands can hardly recover their original state even if the culprits are required to restore them.

EXAMPLES

- (a) The 2006 massive dumping in Kinawataka Wetland by Mr. Hassan Basajjalaba during the nights of the Christmas season. This abuse was done under protection of armed security personnel and it was therefore life threatening and a challenge for the Environmental Inspectors to intervene on time. The matter was taken to the Courts of Law and the degrader opted to settle the matter out of Court and to restore the wetland – there has not any compliance to-date.
 - (b) The dumping at Lutembe bay Ramsar site in Wakiso District by Mr. Sudir Rupalaria was done at night and on holidays with tight security personnel. This matter was later stopped with the help of the Police.
 - (c) Dumping at Kawoya wetland by the management of Shumuk was done during the Easter Holiday of 2008 and mostly at night. A market had been demolished from the same wetland site which was sold to M/S Shumuk. A restoration Order was served to Shumuk and some efforts was made to restore the wetlands however this has not been achieved 100% restoration.
- (vii). Transfer of management and enforcement responsibility to local authorities and to resource users level**

With the expansion of Central Government enforcement machinery not likely to happen in the foreseeable near future, it is plausible to believe that increased local authority and local community role on matters of wetland management, planning and enforcement, including stopping wetland abuse through community policing could be a more sustainable way to stem further degradation. However, there still remains a fundamental weakness in the sense that local authorities have not translated the authority vested under them for natural resources management into meaningful action as far as wetland resources are concerned. The approach adopted by the Wetlands Management Department for community wetland management planning is needs more funds to cope with the demand on the ground.

(viii). Allocation of land in Wetlands by the District Land Boards and Uganda Land Commission

NEMA continues to receive development proposal on wetland areas that have been demarcated as plots by Planning Authorities and land allocated by Uganda Lands Commission which acts are illegal. This apparently continues to send bad signals to other wetland users who seem to perceive a sense of no action being taken in especially urban areas where wetland encroachment continues. In Kampala District, most of the wetlands which served as flood relief areas were allocated for industrial and residential developments and this trend has not been halted completely yet. Worth mention is the difficulty of enforcing planning requirements in peri-urban flood prone

areas where the urban poor communities have massively and indiscriminately encroached into the wetlands.

The concern of allocation and issuance of land titles in wetlands was drawn to the attention of the Policy Committee on Environment (PCE) for action. From May – July 2010, the PCE toured the wetlands located in Kampala and Wakiso district and noted with concerns this illegal act of issuing land titles in wetlands and directed Kampala City Council (KCC) and Uganda Lands Commission (ULC) to cancel all land titles issued in wetlands after 1995. This has not been done.

(ix). Poverty and wetland resources use relationship

Over the recent years, there appears to be increasing cases of activities being implemented in wetlands in the name of fighting against poverty. While some of these activities are out-rightly not compatible with wetland conservation nor wise use goals, their promoters have vigorously defended them as intended to assist in the fight against poverty. Activities such as brick making in wetlands which are done for economic gains have tended to give no regard at all to conservation nor restoration of the affected wetlands. It is probable that this attitude stems from the old perception that wetlands in their natural state are wasted land.

(x) Involvement of Army Veterans in Wetland Degradation

During the last five years, NEMA has noted with concern the massive involvement of Army Veterans in wetland degradation. The encroachment is done in an organized and done very quickly in big numbers that overwhelm the capacity of government to intervene on time. In most cases, by the time NEMA in collaboration with the Lead Agencies (WMD, KCC, Police) intervene a lot of irreversible damage has already been done. Although the cause of the Army Veterans (development after the wars) is genuine, the lack of guidance in undertaking their projects poses a big challenge for environmental conservation.

EXAMPLES

- (a) **Army Veterans in Portbell Luzira.** In December 2002, a group of Army Veterans numbering over 500 invaded the Portbell Luzira wetlands and started uprooting the wetland vegetation to erect structures for settlements. They disguised under training in fish farming. The then Minister of State for Environment, Late Hon. Kezimbira Miyingo, inspected the area on 30th January 2003, and addressed the Veterans and directed them to leave the area. Since then Government has failed to evict these Veterans from the wetland.
- (b) **Army Veterans at Kinawataka Wetland, Katogo** at the confluence where the five arms of Kinawataka Wetland join to cross the Mbuya – Kireka Road

are among the key environmental degraders. The key activity here is car washing in the already polluted waters from the industries upstream. The Veterans numbering over 300 foiled Police, NEMA and WMD eviction on 30th March 2008 which was intended to close the washing bay and also start on the demolition of the illegal structures in the wetland. NEMA later worked with Ministry of Defence to assist in the restoration of this wetland.

- (c) **Army Veterans at Kawala – Bwaise (Along Northern By-pass)** unlike others Veterans in Kinawataka, are not regulated and not cooperative. They are mostly engaged in petty trade and cultivation and have constructed new houses within the core Lubigi wetland. They have threatened Government officials several times and going in such location always needs Police which makes the venture expensive.
- (d) **Army Veterans at Kawanda recently** caused the recent degradation of Nakyesanja wetland that drains into Mayanja-Kato System at Kawanda. This was done through deposition of murrum from the Uganda Transmission Company Limited (UETCL) Bujagali Substation construction site; fortunately working with the contractor, they have honored the Environmental Restoration Order and are currently removing the murrum.
- (e) **Army Veterans in Kyetinda wetland** had also invaded the wetland for putting up a market like those in Kawanda. This wetland is located a few kilometers from the National Water and Sewerage Corporation water treatment plant. These Veterans were flushed out of the area with the help of Uganda Peoples Defence Force and the Police.

(xi) January 2006 Executive Order by H.E The President

In January 2006, HE The President issued a Directive stopping all evictions of encroachers in Wetlands and Forest Reserves. The directive was unfortunately misunderstood and led to more encroachment in wetland and forest reserves. The consequences of the above Executive Order included among others:

- Microclimate deterioration e.g. In Kabale and Kisoro Districts.
- Deteriorating water quality resulting in increased costs for treatment of water by National Water and Sewerage Corporation (NWSC) at Gaba. For example, the treatment costs at Gaba Water Works has increased four fold over the last 10 years as a result of the encroachment modification of Nakivubo wetland located upstream of the water abstraction point.
- Declining fisheries due to loss of breeding habitats and over fishing leading to loss of income and employment;
- Increased flooding and damage to infrastructure;
- Increased incidences of water borne diseases;

- Loss of soil fertility;
- Declining water levels with negative impacts on boreholes and other water sources; and
- Loss of biological diversity.

6. HAVE UGANDA’S WETLANDS BECOME WASTELANDS AGAIN?

As has been clearly pointed out, the size of Uganda’s wetlands has been reducing since the colonial times. The key underlying causes being population pressure, political interference, climate change, among others as indicated above. Despite the above challenges, Uganda’s wetlands have not become wastelands as it was in the period before 1986. To-date, the Government of Uganda has put in place and achievements the following in wetlands conservation:-

- (i) Twelve Wetlands of international importance such as the Lake George wetlands, Mabamba, Bisina, Opeti, Nabugabo, Lutembe, Murchison fall National Park, Nakivale, Lake Mburo, etc have been designated as Ramsar Sites as part of the obligation of Uganda being a signatory to the Ramsar Convention.
- (ii) Government of Uganda through the National Environment Management Authority (NEMA), Wetlands Management Department and District Local Governments has taken steps to stop the degradation of wetlands through sensitization on wise use of wetlands and enforcements of the national laws.
- (iii) NEMA in collaboration with the District and Communities has been piloting the use of the “Ecosystems Approach” in the restoration and Management of fragile areas including wetlands, riverbanks and lakeshores. This approach is being piloted in the districts of Jinja, Kamuli, Mukono, Kayunga, Kalangala, Mbarara, Ntungamo and Kasese Districts.
- (iv) In collaboration with National Water and Sewerage Corporation (NWSC) who are implementing the Kampala Sanitation Program, NEMA permitted NWSC to under the Permitting System to ensure that their project wetland areas of Nakivubo, Kinawataka, Lubigi and Nalukolongo are not degraded any further. Implementation of these provisions shall involve survey of the areas, restoration of the wetlands, deployment of the private security in the wetlands for 24hours surveillance and fencing off the entire wetland.
- (v) Physical demarcation and gazettement of critical wetlands in urban areas. The procurement of demarcation pillars is in advanced stages.
- (vi) The Wetlands Management Department has also published wetlands resources use Guidelines to provide guidance to those who intends to carry our activities in wetlands. These include Guidelines for Wetlands Edge Gardening, Guidelines for Smallholder Paddy Ricer cultivation in Seasonal Wetlands, Guidelines for sand and clay mining in wetlands and for the rehabilitation of

Sand and Clay mining areas, Guidelines for Fish Farming in Seasonal Wetlands and many others.

- (vii) Government through the Wetlands Management Department in the Ministry of Water and Environment has been assisting communities in the development of Wetlands Management Plans.
- (viii) Restoration of wetlands: In 2001, Government started the process of physical restoration of critical wetlands in the country working closely with the local leaders and communities. To-date the following are some of the wetlands that have been restored.

	<i>Wetland</i>	<i>Location</i>	<i>Importance</i>
1.	Nakaiba	Masaka Municipality in Masaka District	Tertiary treatment of Wastewater from Masaka Municipality
2.	Nabajjuzi	Masaka Municipality in Masaka District	Water treatment for Masaka municipality and surrounding areas
3.	Kinawataka	Kampala and Wakiso district	Tertiary treatment of Wastewater from Kampala city
4.	Katengo	Kyotera Town Council in Rakai District	Water treatment for Kyotera Town
5.	Lubigi	Kampala and Wakiso District	Flood control and wastewater treatment
6.	Kodike	Kobwin sub-county	Water for production (human and Livestock)
7.	Agu	Ngora sub-county.	Water for Kumi Town
	Abuket	Kyere sub-county (Serere County) Soroti District	Water for production (human and Livestock)
6.	Awoja	Gweri sub-county, Soroti District	Water treatment for Soroti Municipality
7.	River Semuliki	Ntoroko District	Water for production (human and Livestock)
8.	Muhanga	Kabale district	Water treatment, flood control and reservoir for Kisizi falls hydropower
9.	Kyeirungu	Buhweju, Bushenyi district	Water for production (human and Livestock)
10.	Chondo	Ntungamo District	Water for production (human and Livestock)

- (i) 32 Community Based Wetland Management Plans have been developed and are being implemented through mobilization of stakeholders and funds to implements the various activities for the conservation of wetlands.
- (ii) Government has taken Court action against a number of wetland encroachers and these are at different level of arbitration and hearing.

- (iii) Establishment of the Environmental Protection Force (EPF). In December 2009, Cabinet approved the establishment of the EPF to primarily enforce all conservations laws. Operationlisation of the force commenced ion December 2010.

In line with the above, challenges and achievements, the following are the suggested recommendations for the way forward:-

- (i) H.E. The President should be requested to reverse the Presidential Executive Order through issuing a new one with the effects of encouraging encroachers to vacate all the Forest Reserves and wetlands voluntarily, strengthening all the institutions mandated to manage these resources, curtailing local political interferences and restoring the rule of law over the management of these important resources;
- (ii) Government of Uganda should reaffirm its commitment to maintaining the current wetlands estimated to cover 11% of the country and direct all encroachers to voluntarily vacate wetlands;
- (iii) Support all efforts being implemented by NEMA and the Ministry of Water and Environment to remove all encroachers from wetlands and hold politicians interfering with the exercise personally accountable;
- (iv) Provision of more funding to NEMA and the Wetlands Management Department to operationalize the EPF and also carry out a nationwide sensitization, physical wetlands boundary demarcation and restoration and gazettelement of all vital wetlands; and
- (v) Cancellation of all land leases and titles in wetlands so that the NEMA and the Wetlands management Department can work with the Ministry responsible for Lands, Justice and Constitutional Affairs to identify, isolate and hold the perpetrators individually accountable, as well as, withdraw these titles and leases from their holders.

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