



RECENT TRENDS AND CURRENT STATUS OF AQUATIC ECOSYSTEMS  
AND FISHERIES WITHIN THE NILEBASIN AND IDENTIFICATION OF THE  
MAIN MANAGEMENT AND POLICY CHALLENGES BEING FACED.  
COUNTRY REVIEW  
UGANDA

By

Ssemwogerere David  
Agency for Environment and Wetlands (AEW)  
P.o box 22618 Kampala Uganda  
Tel: 256 77 35 17 36  
email:info\_aew@yahoo.com  
ssemwogerered@yahoo.com  
Website:http://aew.nilebasin.com

Presented at

8<sup>th</sup> International River Symposium on” **Water and Food security: Rivers in a  
global context**” held at Brisbane Convention and Exhibition Center,  
Tuesday 6<sup>th</sup> –Friday 9<sup>th</sup> September 2005  
Brisbane Australia,

## **INTRODUCTION:**

Uganda is a land locked country astride the equator between 4° N and 1° S and stretches from 29.5° E-35° W. It is bordered by the Republic of Kenya in the East, Tanzania in the South, Democratic Republic of Congo in the West and Sudan in the North.

Uganda covers an area of about 241,500km<sup>2</sup> of which fresh water constitutes about 15% (open water bodies) while 13% is covered by wetlands. The country is in the Nile Basin catchments. Rainfall is the principle contributor to the surface water bodies. The human settlement patterns and daily living are influenced by rainfall availability.

Water is considered the most strategic resource vital for sustaining life by promoting development and maintaining the environment. Although Uganda is endowed with water resources, this exhibit both seasonal and spatial variability.

The country encompasses both humid and semi arid areas and there are not only difference between wet and dry years but also considerable variations in the onset of the seasons. However, rapid population growth [3.4% annually], increased agricultural production, urbanization and industrialization are the leading causes to the depletion and degradation of the available water resources.

One of the shared visions of the Nile Basin Initiative is to achieve an equitable utilization of the benefit from the common Nile Basin water resource through efficient water use by providing a sound conceptual and practical basis to increase availability of water especially for agricultural production.

Experiences in ensuring this vision is being addressed but there are a number of management policy issues affecting the aquatic ecosystems [rivers, lakes, their catchments and fringing wetlands] and fishery.

### **Recent and Current trends.**

Uganda is one of the more advanced countries in the Nile basin region in as far as environmental management is concerned. In particular, the following broad programmes that deal with the issues of environmental management.

- The leading institution on water issues in Uganda is the Ministry of water, Land and Environment, which operates a Water Action Plan. The plan ensures sustainable management of water resources. The National Water Policy provides for village level operation and management and to protect such sources to ensure safe and clean water. In many rural areas every water source has a water management committee.

- The water statute [1995] incorporates legislation for both water resources and for water supply and sanitation. At the national level, there is a water policy committee which has the overall responsibility of setting national policies,

standards and priorities including coordinating revision to legislation and regulation, sector ministry plans and projects that affect water resources. It also co ordnates the formulation of an international water resources policy.

- Regulations have been formulated under the National Environment Statutes, that prohibit river bank cultivation and generally that govern land - use and environment management in Uganda.

- Environment Management Capacity Building Programme II [EMCBP II], working towards building environment and natural resources management skills at the local government level.

- The Land Act Implementation Unit, working towards the clarifying and strengthening land - ownership of farmers and other users and which is thought to form the basis for sustainable land - use.

- Nile Basin initiative and related programmes and projects aimed at assessing and rationalizing the water resources and their use in the Nile Basin at the national and regional level.

- National Wetlands Programme, working towards the sustainable use of Uganda's wetlands, many of which are riverine.This programme also assists Districts with the formulation of Wetland Action Plans and Management Plans. A ten year wetland sector strategic plan is in place and being implemented.

- The restructuring of forestry activities in Uganda, and the establishing of the National Forest Authority, aiming at reviving the forestry sector in Uganda.

- Tree planting and riverbank/wetland conservation measures under the Catchments Aforestation Pilot Project under L.Victoria Environment Management Project (LVEMP) for purposes of ecological stabilization and aesthetic reasons.

- At the moment Uganda is developing a comprehensive land use policy.

- An interministerial coordinating body of governments, local, regional and international has been proposed with in the water Department. This body intends be multi sectoral with a number of institutions with stake on water issues.

### **Challenges:**

Although progress is being made, the environmental managers agree that in many cases that successes are off-set by slow progress and in some cases failures to plan and control land use, natural resources conversion, waste disposal, and other forms of environmental management

However, the successes and failures need to be considered against the backdrop of high population growth [which triggers high speed habitat conversion], widespread rural poverty [which itself is a major cause of natural resources abuse], lack of appreciation of the importance of Uganda's natural resources base for economic and social development, and limited understanding at all levels about the processes that undermine Uganda's natural resources base.

In order to be addressed adequately, these issues require a concerted, multi-sectoral, multidisciplinary and long-term effort. Any tangible progress or lack of it, to tackle the underlying causes of environmental degradation, will be in subsequent successes or failures in enhancing environment management in Uganda. By any means, given the magnitude of the issues and the complexity of its causes, progress will remain to be slow for many years to come.

The Republic of Uganda Constitution [1995], the National Environment Statute [1995] and its regulation, the Wild life statute [1996], the Local Government Act [1997], the Land Act [1998] and the newly created forest Act [2003] cater for most of the environmental concerns in the Country.

However, the Environment and Natural Resources Sector has to deal with a whole series of challenges, some of which apply to many other sectors as well, and some of which are specific.

### **Specific Challenges:**

#### **Ownership.**

The ownership of a section of water body or fisheries and other natural resources is still a problem that leads to either over or under exploitation.

In Uganda swamp fisheries and many wetland products are a still a free resource usually harvested in the dry season by communities. The Valuation of these resources, especially water and fish as a benefit needs to be put on economic scales. Ownership before and after exploitation in many areas of the country is still undefined.

#### **Trans-boundary water resources management:**

This raises the issue of upstream and downstream concerns and the associated watersheds and land use practices.

Poor land use results into increased run off that leads to erosion and excess nutrient loading usually from catchments to lakes and rivers. In turn, this causes eutrophication and proliferation of obnoxious macrophytes. (E.g. River Kagera

and the water Hyacinth). There is general lack of understanding of the potential effects of the hydrology and movement of water by many catchments users.

### **Institutionalization and legal framework:**

In Uganda many environmental institutions are young and some are still in their formative stages. The Constitution of the Republic of Uganda (1995) empowers Government to protect in trust all natural resources including water and fisheries for the common good of all the people of Uganda.

Among other laws that govern water resources are the National Environment Statute (1995), Wildlife Statute 1996, Fisheries policy 2002, Water Act 1995, to mention a few.

Since a number of institutions have a stake in the management of water bodies depending on use, there are usually conflicts resulting from their mandates. For example the Ministry of Water, Lands and Environment is the lead agency for water issues, but it's the responsibility of Ministry for Agriculture to provide water for production.

The fisheries Department is also responsible for managing the fish in Ugandan waters including the ones in protected areas which are managed by Wildlife Authority located in another ministry.

The Wetlands Inspection Division which is the lead agency for Wetlands management in Uganda uses a multi-sectoral approach because wetland management is cross cutting and many of them are not protected. It is therefore a challenge to coordinate all the key players involved in the management of wetlands and the general environment at large.

The main issue of institutionalisation is that there are no adequate mechanisms to coordinate participation by the different players who are often mandated to deal with water and fisheries issues.

There also exist conflicting national and local policies, for instance industrialization and rural transformation versus environmental protection and sound natural resource management. It may be interesting to note that among regionally shared resources like Lake Victoria the Nile perch and water hyacinth to date is still unclear, yet these have all caused imbalances on the ecosystem.

### **Poor land use and physical planning:**

This has led to development without assessing environment impacts. Planning is often interfered with by the politics. With the increasing population, land is becoming scarce which implies that the pressure on the natural resources has increased. There are persistent practices that lead to land degradation and these

include bush burning, poor water conservation methods leading to soil erosion, land tenure, and unplanned developments.

### **Inadequate regulations, Laws and policies enforcement.**

Although the country has made substantive improvements in environmental management, there is limited appreciation, knowledge and understanding of the environmental process, laws, policies and regulations.

The implementation of the laws is still difficult due to uneven monitoring, poor management of data, lack of indicators and continuous reporting.

The law enforcement which is a decentralized function needs to be beefed up with personnel, techniques and equipments to deal with the actual issues which are still new to many people in Uganda.

### **Poor Funding of Management Activities.**

Inadequate budgets and lack of prioritization usually leaves environmental activities especially at local governments under funded. It becomes therefore more difficult for extension staff at the Districts to manage water catchments adequately.

Further still, it's of rare cases the Government comes out to support NGO /CBO dealing in Water related issues.

### **Political Interference:**

Usually in environmental management decision making and law enforcement, politicians at all levels are major environmental culprits, either directly or by promoting environmentally unsound investments and local land use systems for vote seeking; an overall erosion of political and financial support for the environment sector.

This is for instance reflected in Poverty Eradication Action Plan (PEAP) and other policy documents where the importance of environmental management is under played or left out all together.

The environmental sector is fully aware of the above, and other, challenges, and is actively addressing many of them, and because of their occurrence the water bodies have continued to suffer from the followings.

- Decline in biodiversity and apparent disappearance of vital species in water bodies. e.g.; in Lake Victoria there changes in ichthyomass [fish sizes] and changes in fisheries species composition. It is expected that other changes in biodiversity may exist but are probably not documented.

- Deteriorating water quality: Decline in transparency caused by algal blooms, dominance of blue green in lakes Victoria, Kyoga and Albert, oxygen deficiency, doubling in the concentration of phosphates. Siltation occurring from poor land use practices has a negative effect of the resurgence of sudds notably on Lake Kyoga and Albert Nile.
- Discharge of Industrial and domestic effluents resulting from poor physical planning of the riparian zones.
- Wetland has been degraded leading to loss of their originality, diversity and water. Increased flooding for cities and municipals.
- Inadequate funding of management activities results into poor extension services and lack of enforcement among others. The officers are thin on ground and are unable to deal with the increasing degradations especially in urban areas.
- Information deficiencies.

**ACTIVITIES CURRENTLY BEING UNDERTAKEN TO ADDRESS CHALLENGES, INITIATIVES THAT ARE BEING PLANNED AND MAJOR GAPS.**

There are two lines of actions being pursued.

The first, is an immediate campaign to increase knowledge, understanding and strengthen enforcement mechanisms to implement the existing laws and regulations.

Secondary and probably more important in the medium and long term, there is need to strengthen the process of environmental decision making in Uganda. This involves strengthening the institutions and programmes that deal with environmental and natural resources management, notably at the lower government levels, streamlining policies, clarifying roles and responsibilities and increase resource allocations.

Such measures are imperative to sustain the the efforts of the proposed campaign, but will also help to generally strengthen the overall efforts to ensure sustainable natural resource use, which forms the basis for long term and sustainable economic prosperity in Uganda.

The medium and long term actions include:

## **1. Water Sector reforms:**

The Government of Uganda through the Ministry of Water, Lands and Environment has under taken four major Water reform programmes with the purpose of preparing a comprehensive Water Sector Development plan (WSDP) to be included in the National Development Plan (NDP). The four sub sector components include:

- Urban Water supply and Sanitation
- Rural water supply and Sanitation
- Water resources Management
- Water for Production

Water for production is the sub-sector programme, which addresses the issues of water for Food and includes;

### **a) Water for crops-irrigation:**

Agriculture is the basis of the country's economy based on rain -fed farming and very little irrigation.

The current irrigation stands at about 7618ha with potential of irrigating up to between 210,000-410,000ha. Policies that specify demand driven negotiation approach with priority on small holder technologies have been developed.

The policies specify that Governments in partnership with private sector should do construction of strategic cost effective irrigation schemes. The Uganda Government also encourages small scale and commercial irrigation and **rainwater harvesting** for Agriculture .This is to make use of the excess water, which would originally cause floods, and erosion. The water would be used for irrigation crops.

### **b) Water for livestock and wildlife:**

The increase in population pressure has resulted into increased human settlement and this has had an effect on livestock and wildlife. The livestock: human ratio has been reducing over a period of time. In the case of wildlife, the size of protected area in some cases has also reduced to accommodate the increasing settlement. Conflicts between Wildlife and human have centered mainly on the use of land and water resources in the protected areas with a reduction in size from 49,800 to 21,000km<sup>2</sup>.

Government has developed plans to supply water for livestock (Valley Tanks and Dams) so that the ratio of livestock to human being improves.

### **c) Water for aquaculture:**



In order to subsidize the capture fisheries and reduce pressure on Lakes, there exists potential for aquaculture. Plans to improve aquaculture as means to reduce pressure on the fisheries of natural lakes are priority on government's programme.

#### **d) Water for Industries.**

There was earlier no deliberate efforts to supply water for industrial processing but as many industries are established in Uganda, there may be a shift from dry processing to wet processing.

The supply of water for industrialists is high on Government's programmes.

**2.** Government is enhancing programmes to strengthen the analysis and importance of sound environmental management in key policy documents like the Poverty Eradication Action Plan (PEAP) and the program for Modernization of Agriculture (PMA).

**3** It is proposed to publicly make environment and natural resources management a Government of Uganda priority area, and raise internal and external resources for environmental programmes and institutions, notably through Poverty Alleviation Fund (PAF), meeting and other donor conferences.

**4.** The development of an environmental Action plan, and subsequent sectoral natural resource management plans that deal with the major areas of concern: land-use, protected area management, forestry, wetlands, water resources, pollution and waste management, environmental monitoring, policy, legislation, and information education and communication.

#### **Government also needs:**

To analyze and, where needed, improve the performance of environmental institutions, programmes and projects, streamline their operations and monitoring their outputs.

To incorporate environmental concerns in all government and non-governmental operations, and strengthen environmental assessment, decision making, monitoring and law enforcement.

To initiate programmes in priority areas in need of immediate action and to involve various stakeholders.

**KEY RESEARCH ISSUES WHERE FURTHER INVESTMENT IS NEEDED IN ORDER TO IMPROVE THE INFORMATION BASE UPON WHICH FUTURE TRAINING, MANAGEMENT AND POLICIES CONCERNING AQUATIC ECOSYSTEMS AND FISHERIES CAN BE USED.**

The need for research and training coordinating body at various levels of governments, local, regional and international is also important. This body should be multi sectoral because a number of water related events that affect water bodies go on in other sectors.

There are four major categories of research and training that are very necessary to guide investment.

**1. Research related to fisheries.**

- Water habitat types and biodiversity especially the haplochromines and many swamp fisheries like cyprinodonts, and seasonal swamp species.
- Population studies, breeding and recruitment of organisms in the water sheds.
- Migrations.

**2. Research related to the Aquatic ecosystem and catchments management.**

- Comprehensive research and training in irrigation to farmers.
- Climate change and the potential water resources [water is available for production] for food production.
- Promotion of indigenous water conservation agricultural practices.
- Major cause of water quality changes along the Nile.
- Soil properties.
- Erosion and sedimentation.
- Biodiversity change.
- Socio economic.
- Conflict between conservation and production interests.
- Need for a coordination of various research bodies.
- Ecological
- Human Health.

**3. Research and training related to policy issues.**

- Review of policies and legislation to ensure that conducive policy, legal and regulatory framework is in place linking national, regional and international laws. This involves a review of the environment laws.

**4. Research on investment needs to promote the involvement of private sector especially in agro processing, food processing, and also training in balancing environment and development.**

- Capacity Building-technical capacity in irrigation and soil water management
- Inadequate knowledge on breeding and stocking techniques for some key species
- Awareness programmes to industrialists
- Tailor made training to law enforcement and extension officers at local government levels.

**KEY LOCAL, NATIONAL, REGIONAL AND INTERNATIONAL INSTITUTIONS AND INDIVIDUALS INVOLVED IN AQUATIC ECOSYSTEM AND FISHERIES MANAGEMENT IN THE COUNTRY AND WHO SHOULD BE ENGAGED IN FUTURE RESEARCH ACTIVITIES.**

The following are some of the institutions that are involved in aquatic ecosystem and fisheries management in the country.

**Local and National.**

**Universities,**

- Makerere University Kampala
- Mbarara University of Science and technology, Mbarara
- Nkumba University, Entebbe

**Ministry of Agriculture, Animal Industry and Fisheries.**

- Fisheries Department
- National Agriculture Research Organization
- Fisheries Research Institute
- Land Use research at kajjansi.

**Ministry of Water Lands and Environment.**

- Directorate of water Development
- Water Resources Management Department
- Water Supplies Department
- National Water and Sewerage corporation
- Forestry Department
- Physical Planning

**Ministry of Energy**

- Uganda Electricity Board

**National Union Researchers and Resource Users [NURRU]**

### **Ministry of Tourism Trade and Industries.**

- Uganda Investment Authority
  - Uganda Manufacturers Association
  - Uganda Wildlife Authority
- 
- City and Municipal Councils Environment, production and Health sections
  - Ministry of Finance, planning and economic development.
  - National Agriculture Advisory Board [NAADS]
  - Program for Modernization of Agriculture [PMA]
  - Private sector foundation.
  - Agency for Environment and Wetlands

### **Regionally.**

Currently, there are a number of institutions in place

- East Africa Community
- Lake Victoria Fisheries Organization
- Global Environment Facility
- IGAD
- Nile Basin Initiative.
- Nile basin Society

### **Internationally especially for the Nile Basin**

- IUCN The world conservation union
- Conservation like the Ramsar sites, UNESCO's MaB reserves
- Birdlife international
- The Nile Basin Initiative.

### **References:**

- AEW field notice
- Ministry of Natural Resources (1995) the National Water Policy Uganda.
- Ministry of Natural Resources (1995) Uganda Water Action Plan, Kampala Uganda.
- The Constitution of the republic of Uganda (1995)
- The Local Government Act (1998)
- The National Environment statute 1995
- The National Environment Authority 2001, state of Environment Report, NEMA, Kampala
- National Policy for Conservation of Wetlands (1995)