



## Effects of Wetland Policy on Conservation and Household Incomes in Kabale District, Uganda

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**Abstract.** This study aimed at establishing why wetland degradation persists in Uganda despite Ramsar and other wetland policy interventions. The objectives were to assess local peoples' attitudes towards wetlands; assess the level of illegal activities in wetlands; and assess the contribution of wetland management programs and projects to household incomes. We used a cross-sectional mixed methods design and targeted 120 respondents, including residents and opinion leaders in Kabale District. The study showed that fifty three percent of the respondents perceived wetlands favourably. Fifty seven percent of the respondents reported illegal activities of burning followed by hunting at 20%. Twenty two percent did not get any monetary income from wetlands while 43 percent reported getting between shillings 10,000-100,000 annually. Only 12 percent reported getting above 1 million shillings. Illegal activities persisted because of land shortage and being desperate due to lack of other alternatives. In Kabale District, only Nyamuriro wetland project, covering Ikumba and Muko sub counties, implemented wetland restoration. We concluded that the wetland policy has had little impact on household incomes and illegal activities in wetlands. We recommended continuous sensitisation.

**Keywords:** Wetlands, conservation, policy, household income, management.

### Introduction

Wetlands all over the world have either been lost or threatened in spite of various international agreements and national policies (Turner *et al*, 2000). This is caused by the public nature of many wetland products and services, user externalities imposed on other stakeholders and policy intervention failures that are due to lack of consistency among government policies in different areas.

Uganda ratified the Ramsar Convention on Wetlands of International Importance especially as habitat to the waterfowl. Uganda has gazetted 11 sites covering a total of 354,803 ha under the Ramsar Convention. On the national scene, Uganda's wetlands are managed under the National Wetlands Policy (1995) for the conservation and management of wetland resources.

This policy calls for no drainage of wetlands unless more important environmental management supersedes, sustainable use to ensure that benefits of wetlands are maintained for the foreseeable future and environmentally sound management of wetlands to ensure that other aspects of the environment are not adversely affected.

## **Kabale Wetlands**

According to the wetland status report for Kabale District (1996), Kabale District covers about 1,730km<sup>2</sup> of which 111km<sup>2</sup> or 6% is wetland area. Fifty one (51 km<sup>2</sup>) or 46% of the wetland is permanent wetland, while 60km<sup>2</sup> or 54% is seasonal. The district has got a hilly terrain with distinct valleys with wetlands. These wetlands lie at altitudes varying between 1,525-2,135m (5000-7000ft) above sea level. Kabale District wetlands drain into lakes Bunyonyi, Edward and Victoria drainage systems.

## **Problem Statement**

Wetland conservation and management is a shared responsibility for all Ugandans, but government has a leading role to play. Uganda ratified the Ramsar Convention on Wetlands of International Importance. In 1995 government of Uganda put in place the national policy for the conservation and management of wetland resources. However, despite these efforts, wetland degradation still persists in various forms.

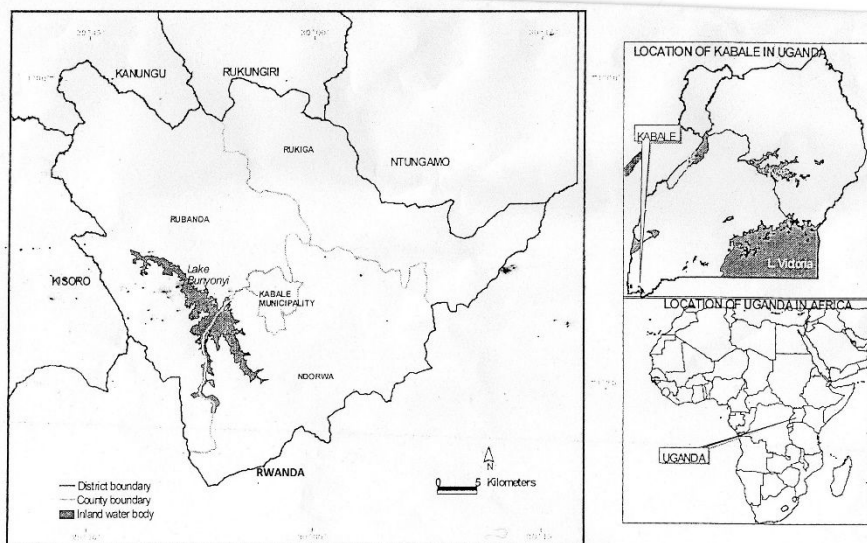
## **Objectives**

The overall objective was to assess the effects of the implementation of the Wetland Policy on wetland conservation and household incomes to achieve sustainable and people-centred wetland conservation. The specific objectives were to:

1. Assess peoples' attitudes and perceptions towards wetlands conservation;
2. Assess the level of illegal activities that are still being carried out in wetlands;
3. Assess the contribution of wetland management programs in improving people's household incomes.

## **Study Area and Methods**

Kabale District is located in south western Uganda between latitudes 1°S and 1°30'S and longitudes 29°18'E and 30°90'E, covering an estimated area of 1730 km<sup>2</sup>. It is bordered by Kisoro District in the west, Rukungiri in the north, Kanungu in the northwest, Ntungamo in the northeast and the Republic of Rwanda in the south and southeast as shown in Figure1. The total area of the district is 182,700 ha (NEMA, 1998). The District is located in Kabale-Rukungiri highland ecological zone (Wortmann and Eledu, 1999) with a hilly terrain lying between 1,217-2,347 metres above sea level. It is characterized by broken hills, dead arched rivers valleys and steep to gentle convex slopes adjacent to reclaimed papyrus swamps (Aniku, 2001). The soils in the district are volcanic andosols and humic, dystic and entric nitrosols and ferralsols, usually fertile albeit this fertility has declined due to continuous cultivation (Bamwerinde *et al.*, 2000).



**Figure 1. Kabale District**

The research was carried out using qualitative and quantitative approaches to adopt a cross-sectional research design. This design also enabled the researchers to study both permanent as well as seasonal wetlands; people living near and far away from wetlands and people living in areas with wetland programmes and those without wetland programmes. Opinion leaders were also consulted and these included Local Councillors (LCs) and civil servants. The study adopted a purposive sampling procedure and targeted 120 respondents, including 100 residents and 20 opinion leaders from Wetlands Inspection Division (WID), National Environmental Management Authority (NEMA) and Local Environment Committee Officials.

Primary data was collected using both quantitative and qualitative approaches. Quantitative data was collected using a questionnaire. Then qualitative data was obtained through interviewing key informants and observation. Quantitative data was analysed using Statistical Package for Social Scientists (SPSS) and Microsoft Excel and presented using frequency tables, percentages and tabulations.

## **Findings and Discussion**

### **Wetland distribution in Kabale District**

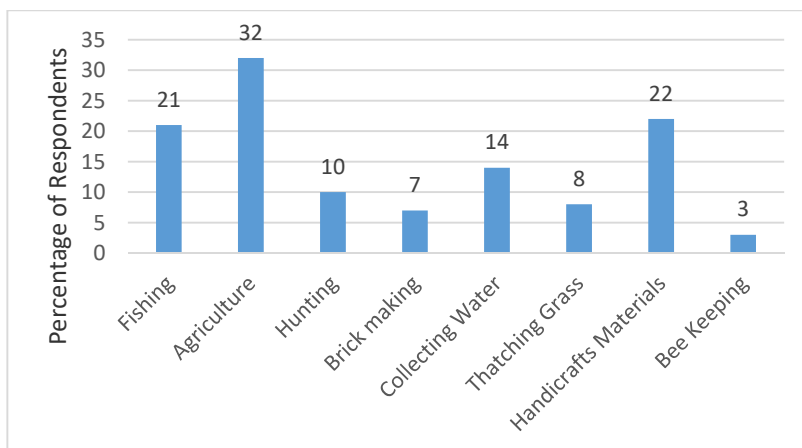
The study covered all the 20 sub counties that make up Kabale District. However it was discovered that only 7 sub counties had wetlands measuring more than half an acre (Table 1). The other sub counties had wetlands that were less than half an acre or less. This is attributed to the government policy of the 1940's when wetlands were seen as wastelands and were, therefore, more useful only if converted to other uses, especially agriculture.

## Wetland Usage

**Table 1.** Sub counties of Kabale district with and without wetlands

Sub counties with wetlands		Sub counties without wetlands	
1	Bufundi	1	Buhara
2	Bukinda	2	Hamurwa
3	Butanda	3	Kabale Municipality (Northern division)
4	Kashambya	4	Kabale Municipality (Southern division)
5	Muko	5	Kitumba
6	Rubaya	6	Kyanamira
7	Rwamucucu	7	Ikumba
		8	Kamuganguzi
		9	Maziba
		10	Kamwezi
		11	Kaharo
		12	Bubare
		13	Ruhijja

For Kabale wetlands, agricultural use takes the largest percentage at 32% closely followed by handicrafts or weaving materials at 22% (Figure 2).



**Figure 2.** Use of wetlands in Kabale District

Agriculture ranks highest because of land scarcity, the wetlands being fertile as compared to the hill sides. Water collection stood at 14% because the people assumed that water will always be there. Moreover, in the villages, water was considered to be free. Bee keeping is the least because it is a new activity practiced only in Muko and Ikumba Sub counties promoted by Nature/Uganda as a mitigation measure against wetland burning and for creating non-agricultural uses for wetlands. This is aimed at reducing the pressure on wetland.

## Attitudes towards Wetlands and their Conservation

Respondents were asked to indicate their views regarding wetlands and wetland conservation by stating whether chosen statements about wetlands are true or false. These attitudes and perceptions were:

1. Wetlands as regulating rainfall and controlling floods
2. Wetlands as being of low economic use and value
3. Wetlands being important only when people get products from them.
4. Wetlands as encroaching on agricultural land.
5. Wetlands as unhealthy places harbouring mosquitoes, cholera, odour, etc.

On an average scale, respondents' overall attitudes and perceptions towards wetlands were found slightly favourable to wetlands as slightly more than half of the respondents (53%) had attitudes and perceptions favourable to wetlands. Forty one percent (41%) of the respondents' attitudes and perceptions were unfavourable to wetlands and wetland conservation. This is still too big a proportion of the population to have substantial wetland conservation go on smoothly. Forty one percent (41%) of the respondents have unfavourable attitudes because of fewer sensitisation meetings conducted and very little presence of NEMA as the lead agency in regard to sensitization in the district.

### **Local People's Monetary Contribution to Wetland Conservation**

Respondents were asked how much of their own saved money would be committed to wetland conservation. Only 23% of the respondents expressed willingness to contribute their own money toward wetland conservation. This monetary contribution ranged from UGX 500/= through 1,000/=, 5,000/= to UGX 10,000/= However 47% of the respondents were not willing to commit their personal income towards wetland conservation. Hence there still needs to be a committed sensitisation to reverse these attitudes unfavourable to wetland.

### **Local People's Attendance of the Wetland Policy Sensitisation Meetings**

Sixty percent (60%) of the respondents had not attended wetland sensitisation meetings at all, while 40% said they had attended these meetings. With 60% of the respondents having missed wetland policy sensitisation meetings, then their attitudes towards wetlands and wetland conservation had to be unfavourable.

### **Frequency of the Sensitisation Meetings**

When asked how frequently wetland sensitization meetings had been conducted, 13% of the respondents had completely forgotten. However, 60% of them reportedly had not attended any meetings at all. These sensitisation meetings were not enough as they had been too rarely held for everyone near the wetlands to have been adequately informed of wetlands and wetland conservation policy. However 31% of the respondents indicated that these meetings were held 3 to 4 times a year while 27% indicated once or twice a year, which might not have been enough to have any positive effect on wetland conservation as shown in Table 2.

**Table 2.** Frequency of attendance of wetland sensitisation meetings

Frequency	Number of times	%
Don't know	06	13
Once or twice a Month	14	29
Once or twice a year	13	27
Three to four times a year	15	31
Total	48	100

The reason for the lower percentage in the frequency of meetings is that there was very little presence of NEMA as it only concentrated on direct wetland zoning without enough sensitization. According to the study, those who had attended NEMA's meetings were few. The only evidence the research team found for sensitisations was an old 2004 NEMA calendar in one of the respondent's house. According to the wetland policy, government is supposed to carry out wetland public awareness campaigns using mass media like radio and television plus circulating printed materials like posters and leaflets to change people's attitudes and perceptions. The research team never found any such materials in the area apart from the only calendar in only one household in the whole district.

### Local People's Awareness of the 1995 Wetland Policy

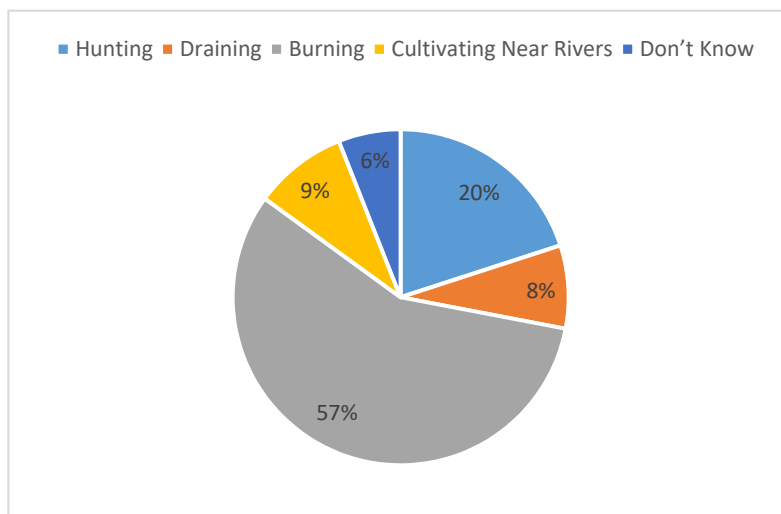
The majority of the respondents (58%) were aware of the Wetland Policy while 42% were not aware of the policy. This is because NEMA only concentrated on zoning wetlands and carried out very few sensitization meetings with the communities.

Alongside the wetland sensitization campaigns was supposed to be the discussions of the guidelines to wetland use. These guidelines spell out how much portion of the wetland should be given out for public use and the nature of agrochemicals for wetlands. Only 17% of the respondents expressed knowledge of these guidelines to wetland farming or gardening while 83% expressed ignorance of the guidelines for wetland use.

The majority of the wetlands had no wetland user groups and people still use the wetland on an individual basis. In fact, 60% of the interviewed respondents were not in any wetland user group or any registered group.

### Illegal Activities taking place in Wetlands

Fifty seven percent of the respondents were still burning the wetlands (especially at night) (Figure 3).

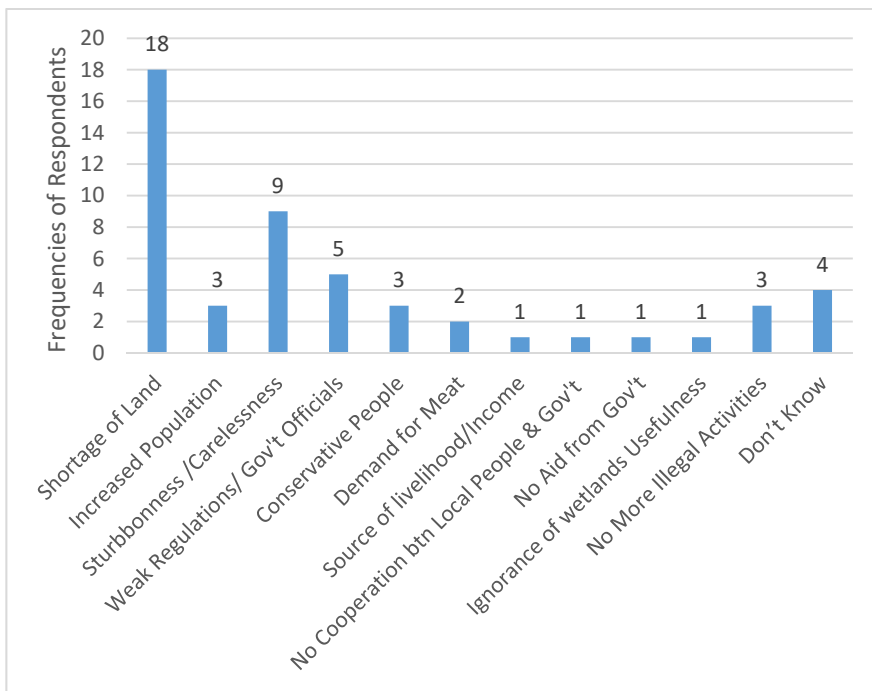


**Figure 3.** Illegal Activities in Kabale Wetlands

The main reasons is because burning is undertaken by desperate and sometimes landless people or people without enough land who do it under the cover of the night. This is closely followed by the hunters at 20% since wetlands are the only source of free meat. There is still draining as well as cultivating near rivers which is still done irrespective of whether sensitisations are carried out or not. The main reasons being that government’s intervention after the zoning had been very minimal.

**Persistence of Illegal Activities despite the Wetland Policy**

According to the respondents interviewed, illegal activities have persisted due to the shortage of land (29%) followed by desperate people who are stubborn and careless at (17%) as can be seen from Figure 4

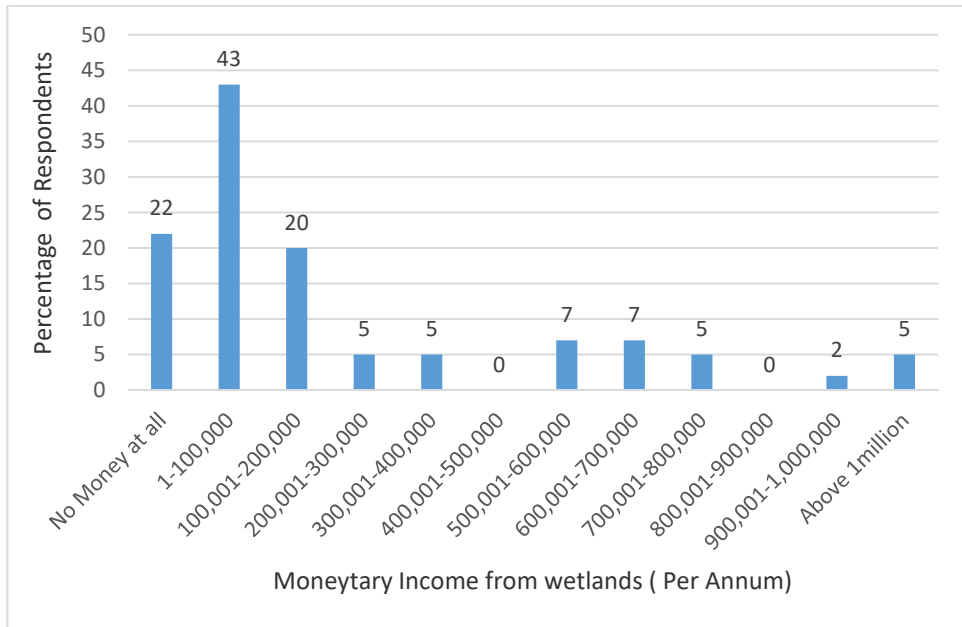


**Figure 4.** Why illegal activities have persisted in wetlands

The stubbornness and carelessness is mainly due to over dependence on wetlands and lack of any other alternatives.

**Household Incomes from Wetlands in Monetary Terms**

Kabale wetlands provide craft and building materials for the local population and fetch good prices locally on the rural scale. A head load of papyrus reeds goes at UGX 2,000-3,000/= . Mats made from wetland grass go for UGX 3,000 to 4,000/= . Fish production from wetlands in Kabale is not highly monetized because of general decline in the fishing business due to the shrinkage in wetland coverage. However respondents were told to monetize all products they get from wetlands and the results have been presented in Figure 5.



**Figure 5.** Household incomes from wetlands expressed in monetary terms

Apparently, 22% of the respondents don't get any income at all from the wetlands and so have no incentive to conserve wetlands which is another reason why some respondents' attitudes are not favourable to wetlands.

The majority of the respondents (43%) got between UGX 10,000-100,000/= per year. However 20% got between UGX 100,001-200,000/=, while 12% of the respondents got between UGX 200,001/= up to above 1million. The main reason for this very little income from wetlands is that wetlands are still being lost to illegal activities and hence harvestable products like papyrus are not enough to bring up peoples incomes. As earlier stated, 22% of the respondents didn't get any monetary income at all from wetlands. This explains why some respondents were not willing to pay for any wetland conservation activities. This also explains why there were still illegal activities in wetlands as local people didn't value wetlands unless they get money or other wetland products. In comparison with Emmerton *et al.*, (1999), 45% of Nakivubo wetland used for crop farming alone would yield UGX 200 million per year while the rest of the area left intact would generate 180 ton of papyrus per year worth UGX 17.5 million and UGX 32 million per year from brick making while UGX 6 million per year would be from fish farming. For such an effect to be achieved in Kabale District wetlands, we needed a lot of community sensitization for community support of the wetlands and wetland policy.

### **Nyamuriro Wetland Conservation Project**

The name Nyamuriro is derived from Iyamuriro meaning *place for rain charming*. This shows how wetlands were always associated with rainfall. This project that started in 2007 is implemented by Nature Uganda with financial support from USAID. Nyamuriro wetland project had done the following in line with the Wetland Policy in only Ikumba and Muko sub counties:

1. Establishment and empowering wetland management committees, demarcation and zoning Nyamuriro wetland.



2. Planting of papyrus in the buffer area, established water and soil conservation structures on the hill slopes facing the Nyamuriro wetland to reduce the rate of run off to the wetland.
3. Introduction of income generating activities such as fish farming, bee keeping, goat keeping and fruit growing that would solve wetland dependence.

Nature Uganda also planted trees on the severely eroded hill slopes to stop further erosion and provide fire wood and timber in the future.

According to the Project Manager of Nature Uganda in 2008, the very community members that had descended on the wetland to decimate it in the 1990s were the ones that were actively involved in replanting it – an indication of behavioural change towards wetland restoration.

### **Effects of Wetland Policy Implementation in Kabale District**

According to the Wetland Policy, the frequency of harvesting papyrus in one area should not be greater than once in every 15 months, otherwise the rate of growth and the amount which can be harvested will decline. The papyrus harvesting observed in Rwanyena village, Rubaya sub county just next to Lake Bunyonyi, was unsustainably done to the extent that run off from the upland areas went direct into the lake without any wetland vegetation to filter it. In view of the papyrus harvesting that is not sustainable to the extent of washing red soil into the lake, the Wetland Policy has had little or no effect towards papyrus harvesting and regeneration.

In view of the fact that 41% of the total respondents interviewed in this study had unfavourable attitudes and perceptions towards wetlands and wetland conservation in general, the Wetland Policy has had little effect towards changing local people's attitudes and perceptions.

The Wetland Policy clearly forbids burning and drainage in wetlands but the fact that 57% of the respondents reported that burning of wetlands still takes place, 20% still do hunting while 8% still drain wetlands, then the wetland policy has had little effect towards wetland conservation.

## **Conclusions and Recommendations**

### **Conclusions**

There is very little wetland coverage for the whole of Kabale District. Only seven sub counties had wetlands and 13 sub counties had no wetlands. The communities in these 13 sub counties have no access to wetland products like papyrus and others.

Considering Nanyunja's observation in literature review about local people's attitudes and perceptions, which might appear high because of fear of government and sometimes the desire to look positive and pleasant (Nanyunja, 2001). Local people's attitudes and perceptions were unfavourable to wetlands and awareness of the Wetland Policy is still low. There is urgent need to have these perceptions and attitudes reversed to being favourable and knowledge of the good intentions of the wetland policy increased through a lot of sensitisation. Those whose attitudes and perceptions were favourable to wetlands and wetland conservation had not translated it into actions that supported their beliefs because of lack of sustained sensitisation and lack of alternatives to wetland unsustainable activities.

The zoning of wetlands into use areas and non-use areas of wetlands was a good measure to ensure wetland protection. However due to lack of sustained sensitisation and awareness

creation the community developed negative feelings and attitudes about government's otherwise good intentions.

The level of illegal activities had not reduced to the extent of stopping completely. Because of a lack of a supportive mechanism to people's ways of life that heavily depended on wetlands, these illegal activities had silently but persistently remained. For instance the biggest illegal activity which is burning is done carefully at night to avoid being spotted and apprehended.

With few exceptions in Muko and Ikumba sub counties where Nature Uganda was active, there were no wetland management plans, programmes and institutions to cement, backstop and integrate the conservation and wise use of wetlands into daily people's livelihoods. The wetland user groups were lacking in a majority of wetlands.

Nyamuro wetlands conservation project had a lot of successes for wetland conservation and improving the livelihoods of the people near wetlands but its achievements are only localized to Nyamuro wetland alone in Ikumba and Muko sub counties.

Apart from the zoning of wetlands into use and non-use areas, there had been very little government involvement in wetland policy implementation. This resulted into a number of goals, policy strategies and key principles not being implemented. There was little implementation of the wetland policy aspirations like wetland restoration. This led to the low wetland coverage in the district and consequently low household incomes from wetlands.

## **Recommendations**

Wetlands still have the relevant potential and play a crucial part in wetland adjacent communities in their day to day lives. This was seen from the fact that the once dilapidated Nyamuro wetland after a few years of restoration from the NGO Nature Uganda, regained its lost glory with the community that had once decimated it. Therefore every effort of wetland recovery needs to be implemented in the whole district beginning with the sub counties with no wetlands.

Wetlands like the Kaniabaha wetland that provide water for hydroelectric power (HEP) generation for Kisiizi Hospital and neighbouring areas should be targeted for Ramsar designation to accord them the protection that goes with Ramsar listing of wetlands. Wetland restoration should be immediately embarked on by the different stakeholders beginning with the sub counties where wetlands have been completely decimated.

Local communities surrounding wetlands should be targeted as beneficiaries in a number of government programmes, NGOs and other development partners so that they get empowered to divert their attention from the few remaining wetlands. Wetland user groups should be formed where they are non-existent as a way of increasing wetland sensitisation followed by formation of wetland management plans that involve both communities and government. This is realistic if the district targets more wetland management programs and projects to cover the 13 sub counties with fewer and little wetland areas.

There should be continuous wetlands sensitizations across the whole district both the active and passive ones. The active one which involves sensitization meetings with the local people need to be scheduled periodically as the passive one on radios in form of songs and plays are instituted on the various radio stations in the region.

## **Acknowledgement**

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## References

- Aniku J.R.W., (2001) Vegetation. In Mukiibi JK (Ed.) *Agriculture in Uganda*. Vol. 1. Fountain Publishers. Pp. 66-103.
- Bamwerinde WB, B. Bashasha, W. Sembajjwe and F. Place (2000). Determinants of land use in Kigezi Highlands of South western Uganda. *Africa crop science proceedings. Africa Crop Science Journal*. Pp. 859-866.
- Emmertson L, Iyango L, Luwum P and Malinga A (1999). *The present Economic value of Nakivubo Urban wetland, Uganda*. National wetlands conservation and management programme, IUCN-Biodiversity Economics for Eastern Africa.
- Nanyunja, R. (2001). Awareness and attitudes towards wetland conservation in Rakai District. A case study of Sango Bay Area. Unpublished M.Sc. Dissertation- Makerere University-Kampala.
- NEMA (1998). *State of Environment Report for Uganda*. Kampala: National Environment Management Authority.
- Turner R. Kerry, Jeroen C.J.M. van den Bergh, Tore Soderqvist, Aat Barendregt, Jan van der Straaten Edward Maltby, and Ekko C. van Ierland, (2000). The values of wetlands. Landscape and Institutional perspectives. *Ecological Economic analysis of wetlands: scientific integration for management and policy. Ecological economics* 35 pp. 7-23.
- Wortmann, C.S., Eledu, C.A. (1999). *An Agroecological Zonation of Uganda: Methodology and Spatial Information Network for Bean Research in Africa*. Occasional Paper No. 30. Kampala: CIAT.