



**The conservation of aquatic and terrestrial biodiversity
around Lake Victoria, Sango-bay region- Rakai district,
Uganda**

**INTERIM REPORT SUBMITTED TO RUFFORD SMALL
GRANT**

BY

UGANDA RESEARCH TEAM

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Summary

High human population densities and a reliance on subsistence agriculture are reflected in the heavy dependency of the neighboring community on the Sango bay ecosystems. In particular, wetlands have been drained for sugarcane and food crop production, forests have been encroached on in search of more agricultural and settlement land, poor land management in form of bush burning, over cultivation and grazing continue to characterize the Sango bay area. This has had enormous impacts on the ecosystem in the area along with all that it represents, sustains or is sustained by. Human induced degradation is evident in the Sango bay region with little or no attempts of Human improvement, a situation that qualifies our adopted and modified degradation equation. It is therefore not farfetched, to suggest that the Sango bay region continues to undergo serious environmental degradation that calls for immediate intervention. Emphasis must be centered on increasing communities' participation in planning and implementations of programmes aimed at conserving natural resources in their area to ensure sustainability and effectiveness of such programmes. This work emanates from research field work activities undertaken in the Sango bay area by a team of researchers supported by the Rufford Small Grant.

1.0 Introduction

This report documents the preliminary achievements by Rufford funded research team in Uganda on planned research activities in the Sango bay region over a period of 4 months, February to May 2007. The project was planned to cover six months involving: undertaking participatory action planning meetings, sensitise communities on wetland/aquatic and terrestrial biodiversity values as well as the functions of the general environmental management, enhancing plant diversity through planting trees and carrying out hygiene and home improvement campaigns. This report covers the first three activities including general background information for the study area. Research was undertaken in a participatory manner, involving groups and communities, local leaders at various levels, key informants, opinion leaders and conservation organisations in the area.

1.1 Historical background of Sango bay study area

1.1.1 Setting and population

Sango-bay region is found in Rakai district, which is located in South-western Uganda (Figure1). At the time of the last census (2004), it had a population of 500, 501 and is one of the least densely populated in the country. It relies heavily on its natural resource base that includes forests, lakes, wetlands and rangelands as well as arable land. Agriculture is by far the main economic activity, and the main occupation of over 80 percent of the working population. The majority of the farmers are smallholders who rely on domestic labour, traditional techniques and implements. Production is predominantly subsistence, with surplus produce sold for cash. Animal husbandry, mostly cattle rearing, is the second most important economic activity. Large herds of cattle are to be found in the dry counties of Kabula and Kooki, where arable agriculture is practiced on a more limited scale. Communal grazing and pastoralist are still the dominant techniques of animal husbandry, particularly for cattle and other small ruminants such as goats and sheep. There are opportunities for non-farm development in fishing, and perhaps in minerals. The District appears to have experienced some recent agricultural income growth, but much less than in the main cash cropping areas further to the southwest. There has been considerable growth in the District's towns during recent but the vast majority of Rakai people live in scattered small farmsteads.



Figure 1. Location of Sango bay in Rakai district

1.1.2 Site description

The Sango Bay area, north of the Uganda–Tanzania border, adjoins the Lake Nabugabo area to the north. The main road between Masaka and Mutukula at the Tanzanian border marks its western limit; its eastern limit is the Lake Victoria shoreline. It has a total area of 54000 hectares; central coordinates 31°35' East 0°55' South map. It has a total area of 54000 hectares; central coordinates 31°35' East 0°55' South map

1.1.3 Biodiversity richness in the Sango bay area

There are grasslands, open water, forests and wetlands. Wetlands constitute approximately over 80% of the total area (Figure 2). In total, the forests within this site cover c.15,000 ha. There are five Forest Reserves: Kaiso, Tero East and West, Namalala and Malabigambo (Figure 3). All are of a rather homogeneous nature, broadly classified as swamp-forest, formerly important for its *Podocarpus* timber species, most of which have been logged out over the past 100 years. The canopy is generally lower than that of medium-altitude mixed evergreen forest, although many of the component species are the same. The area is considered of biogeographic interest because it lies in the transition between the East and West African vegetation zones. There is evidence that the area was a Pleistocene refugium. The Malabigambo Forest is contiguous with Minziro Forest of neighbouring Tanzania. The site also contains a mosaic of wetland types, including permanent and seasonal swamp-forests, papyrus *Cyperus papyrus* swamps, herbaceous swamps interspersed with palms, and seasonally flooded grasslands. The Sango Bay wetlands are extensive, stretching along the shores of Lake Victoria from Kyabasimba in the south to Malembo in the north. In areas such as Kyabasimba, the shoreline is varied, with sandy shores, rocky shores, forested shores and a fishing village. The shoreline of the bay itself is fringed by papyrus, merging into the extensive flood-plains of the Bukora river delta. The bay is relatively unsheltered and experiences serious wave action. As a result, there is little fringing water-hyacinth *Eichhornia*, unlike bays in the Entebbe area. At Sango Bay itself, there is a small fish-landing site and an old disused pier, whose structures are important roosts for birds. At the mouth of the River Kagera, the shore is relatively exposed, with mainly sandy shores merging into papyrus swamp. The deposition of silt carried by Kagera river (Figure 3) has led to the creation of a wide shallow belt with a sandbar at the river mouth.

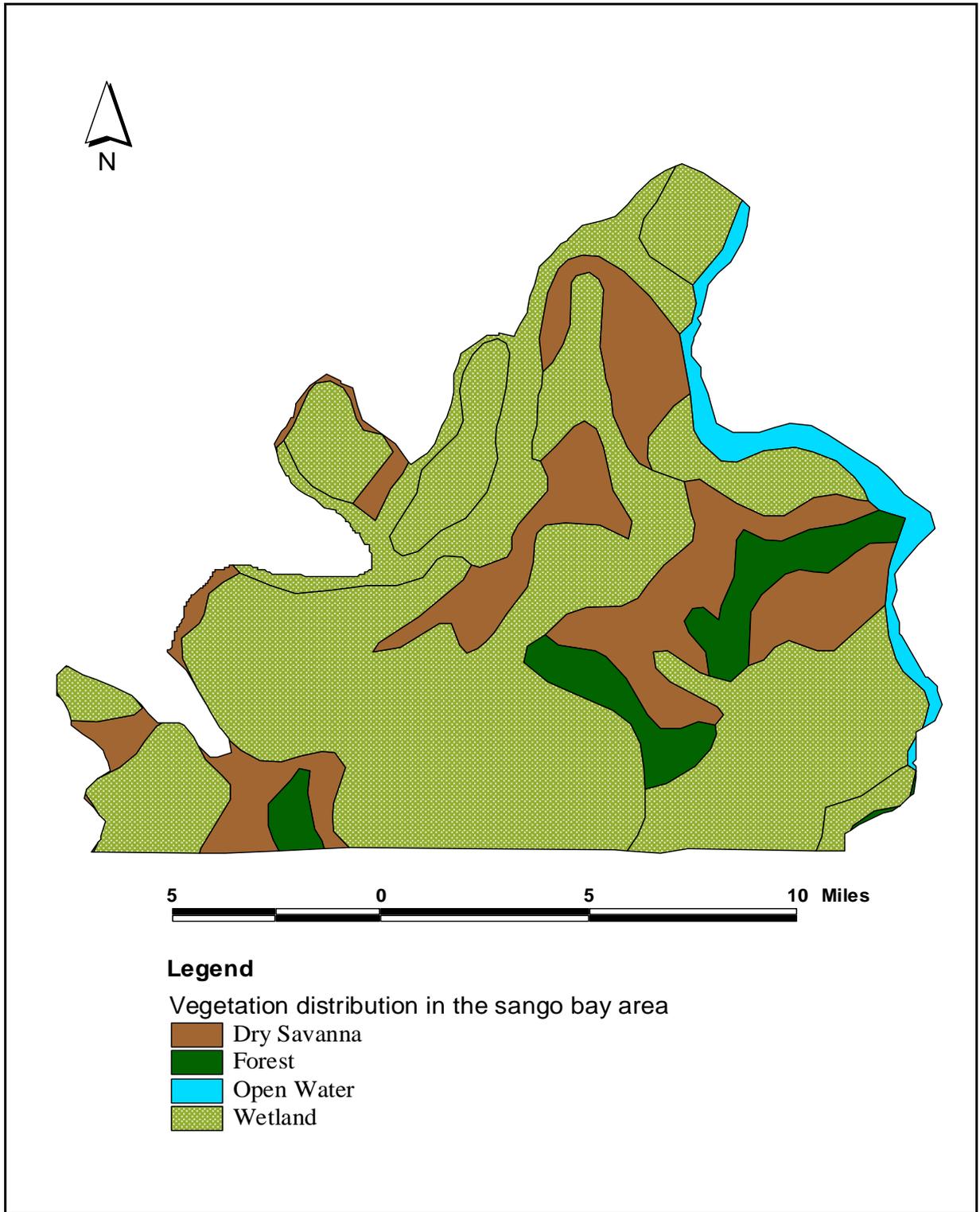


Figure 2: Biodiversity distribution in the Sango bay area

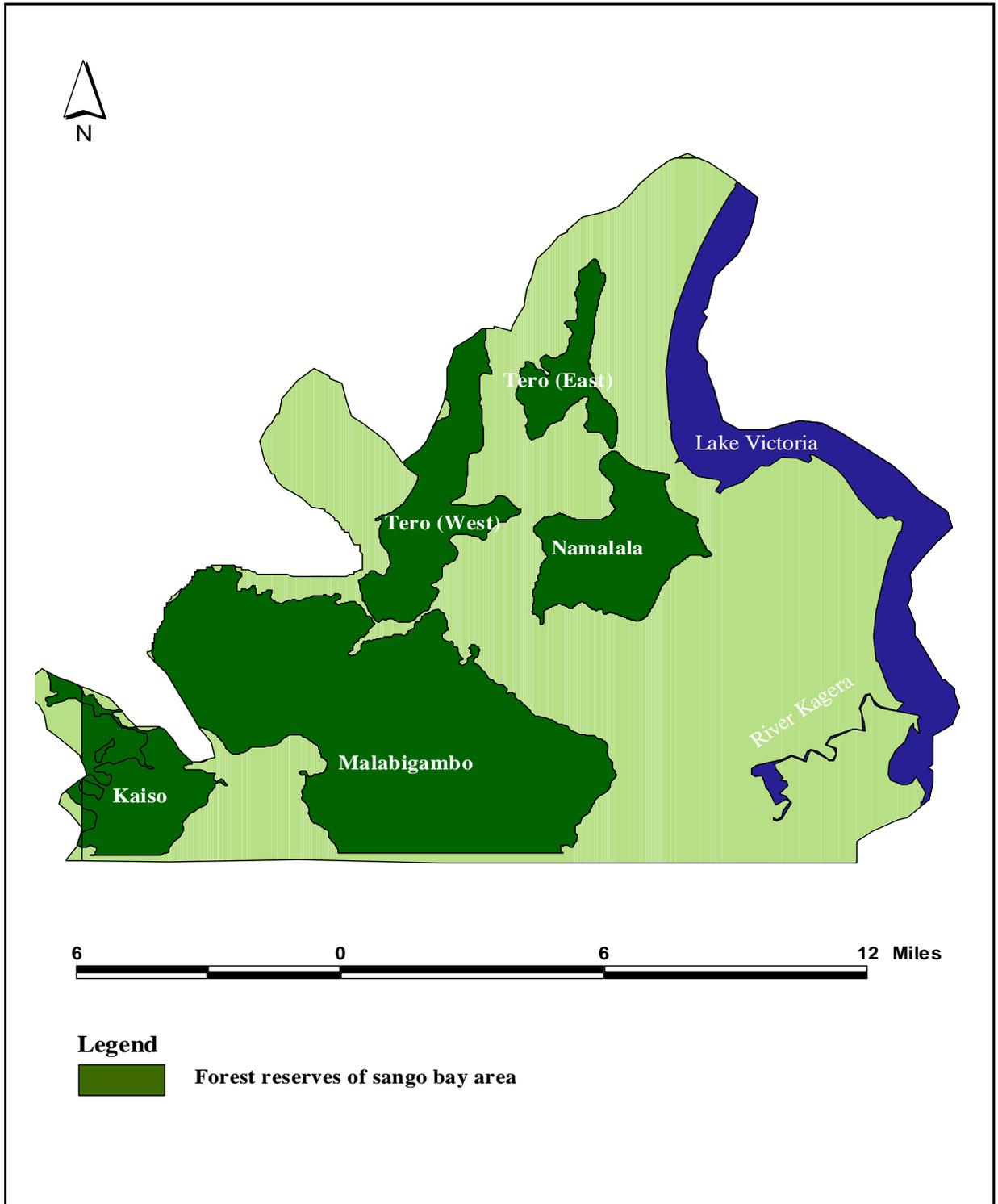


Figure 3: Forest reserves of the Sango bay area

1.2 Objectives of the Project

1.2.1 General Objective

To promote, with the communities and local leaders at all levels the conservation of aquatic and terrestrial biodiversity around Lake Victoria, Sango-bay region in Rakai district.

1.2.2 Specific objectives

- Undertaking participatory action planning meetings.
- Sensitising communities on wetland/aquatic and terrestrial biodiversity values.
- Training communities in participatory planning tools.
- Enhancing plant diversity through planting trees.
- Carrying out hygiene and home improvement campaigns.

1.3 Justification for the Project

Unrelentingly, human beings have steadily reduced the natural environment and the biodiversity it contains. Population growth translates in increased demand for food, which traditionally entails opening more land. Ninety percent of the land surface has been disturbed to some extent, and five percent is burned annually. Tropical rainforests, believed to contain a majority of the species on earth, are being destroyed at the rate of 1.8% per year, twice the rate ten years ago. Global fishing interests are rapidly depleting the oceans of most of the commercially valuable species. This in turn, is affecting other species that depends on the fish such as sea birds and other aquatic organisms. This destruction of natural habitats translates into a phenomenal loss of biological diversity.

In Uganda, the proximate sources of biodiversity loss are habitat destruction and modification. In some cases, this is direct and deliberate, as with clearing for human settlement and agriculture while destruction in other cases is indirect and unintended, as with the consequences of pastoralism or forestry, the effects of pollution, or the effects of introduced species. The joint effect of human numbers and human behavior in relation to the relevant natural environment account for not only immense loss of biological diversity but also economic impact of about 4% to 12% of the national GNP lost as a result of

environmental degradation (Slade and Weitz 1991: NEMA 2001). As if this is not enough, land degradation is one of the fundamental issues confronting efforts to increase agricultural production, reduce poverty and alleviate food insecurity (Kisamba Mugerwa, 2001)

The project aimed at contributing to answering the big question of what can be done to conserve our biological diversity. Education and awareness, increased participation of local communities, availing information to make and adopt policies that promote conservation, strengthening institutions that promote conservation of natural resources and enhancing plant diversity are considered very important for this Rufford funded project in the Sango bay area by the Ugandan research team. The timing of Rufford funded conservation project in the Sango bay area is therefore timely and will go a long way in contributing towards efforts aimed at conserving critical ecosystem in the area through a number of activities:

2. Activities carried out

The trainings involved theoretical and participatory engagement in the following areas:

1. Providing information to enable policy makers come up with an amendment that calls for the conservation and sustainable use of environment and wildlife, without degrading or depleting the resources.
2. Training communities, environmental best practices and conservation of their biodiversity (both aquatic and terrestrial).
3. The project also involved trainings in, participatory planning, monitoring and evaluation, project prioritisation training for Community Based Extension Workers (CBEWs) and individual community groups, as well as group leaders,

3.0 Achievements (summary)

1. Three Meetings were made with the local authorities to discuss the possibilities of advocating for new village policies on sustainable environment and wildlife management the local council (LC) leaders agreed to include this option into the new gathering at the

district level, and promised to push it to the national level. Some of the topics agreed upon were;

- to encourage the government and other well wishers to construct eco-san toilets
- relocate people that are living very close to the wet lands
- Make the cut one tree, plant three phenomenon compulsory for all those people that will cut any tree in the forest.
- Tree harvesting has to be licensed and only in areas with large tree cover.

A committee was formed composed of five women and ten men, this committee will be responsible for organising debates on key environmental issues, awareness raising, source for local funds to maintain their immediate environments like garbage control, waste water management etc.

2. Communities were trained on the following key areas:

- Wetland and terrestrial biodiversity values,
- Environmental enrichment,
- Pollution control and Environmental hygiene,
- Climate change mitigation measures,
- Eco-system restoration , and
- Environment and development

3. The project also involved trainings in, participatory planning, monitoring and evaluation, project prioritisation training for Community Based Extension Workers (CBEWs) and individual community groups, as well as group leaders. These people will be the ones to ensure that the project is sustainable. They will carry out follow up and report to the research team

4.0 Achievements (some details)

4.1 Participatory action planning meetings

4.1.1 Visit to Rakai District headquarters

The first assignment hinged on holding participatory planning meetings in the various parishes of the Sango bay area. The research team paid a visit at the Rakai district

headquarters. Najuma Florence the District Environment officer welcomed the research team in the district. On behalf of the district leadership and the people of Rakai district, she expressed gratitude to **Rufford Small Grant for Nature Conservation** for having funded the project and was delighted with the timeliness of the project, in view of escalating problem of natural resource degradation in the Sango bay region. She appreciated the content of intended project activities and was helpful in giving the research team background information on the Sango bay area an area she described as “one of the most important biodiversity – rich area not only in Rakai district but the country and the region at large”. The research team briefed her on intended Rufford funded project in the area by highlighting on the projects’ purpose and objectives. The project team leader requested her to come and officiate as chief guest on project’s first participatory planning meeting commencement with Kabonela parish.

4.1.2 Community participatory planning meetings

Following a successful visit at the district headquarter and with initial information acquired from the district Environment Officer, the research team planned for subsequent community meetings. We agreed on holding planning meetings in each of the 12 parishes adjacent to Sango bay to minimize on distance to be travelled by participants and to maximize on outreach in terms of coverage. The first meeting was held at Kabonela trading centre in which parish and involved all stakeholders: Sub-county leaders, community/group leaders, opinion leaders and key informants. The major aim of these meetings was to introduce the research team members in the study area, carrying out preliminary pre-visits to the potential study areas while interacting with community members and leaders and planning with communities in a participatory manner for other forthcoming project activities like dates, venues and time of planned sensitisation meetings. Community planning meetings Marjory comprised of research team members, representatives of local at all levels, representatives of conservation organisations operating in the area, opinion leaders and other stakeholders.

The following among others constituted the agenda for each of the 12 community participatory planning meetings conducted:

- Representative of local council welcoming all participants in the area.

- Team leader introducing members on the research team.
- Team leader giving highlights on background information, rationale for the project, objectives and purpose of the project.
- Each team member highlighting on his/her roles and responsibilities.
- Introduction of community groups and individual participants.
- Communities sharing their expectations from the project.
- Head of field work activities on behalf of research team members highlighting on what is expected of communities with emphasis on community participation.
- Assistant head of field work activities on behalf of research team member highlighting on methodology to be used in the study with emphasis on sensitisation meetings, training sessions, transect walks and Focus Group Discussions.
- Committees formed at every parish level to act as contact persons between the project and communities while at the same time helping in mobilisation.
- Research team members together with communities in a participatory manner plans for sensitisation and training programs. Dates, venue, number of representatives, topics to be covered set for every parish.

5. 0 Sensitisation of communities on biodiversity values

Communities were sensitized on a number of conservation issues pertaining the Sango bay area. Sensitisation meetings targeted natural resource users (local communities and leaders) in an attempt to enlighten communities and increase their awareness on conservation values, functions, challenges and suggested solutions and best practices. The Composition of membership was representative enough covering all age and social groups. Though we had planned to have each sensitisation meeting of about 50 representatives, attendance most of the time exceeded 100 participants (figure 4) as it was very difficult to stop some persons like children and friends of selected representatives from attending.



Figure 4. Attendance in one of the community participatory planning meetings

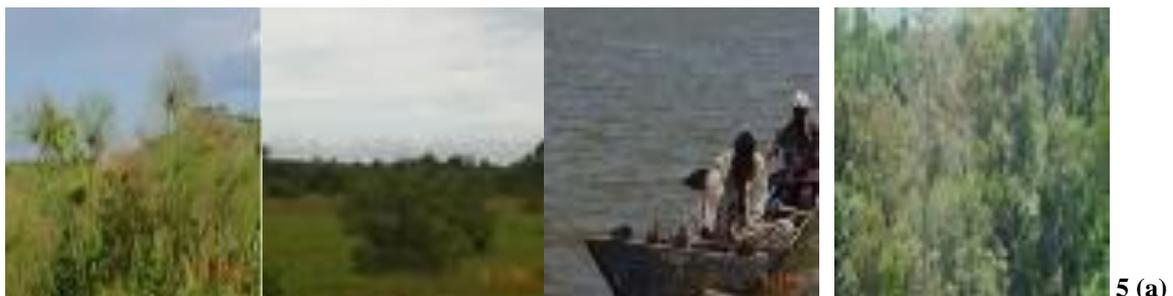
5.1 Knowledge on natural resources definition.

It was very necessary for both the research team members and participants to understand the concept of natural resources. After a through discussion and analysis, an agreement was reached on the definition of “Natural resources” as stated below:

“Naturally occurring substances that are considered valuable in their relatively unmodified natural form. A commodity is generally considered a natural resource when the primary activities associated with it are extraction and purification, as opposed to creation. Examples given by participants include forests, wetlands, lakes and natural grasslands among others”

5.1.2 Identification of key natural resources

During participatory meetings with community members and leaders, an agreement was reached to have a transect walk of about 1 kilometer to verify some of the examples of sites they feel represent natural resources. This seemed very easy for all members having participated in natural resource definition exercise. Example of identified sites are shown in figure 5 (a)-(d)



Wet land

5 (b) Savannah

5 (c) Lake

5 (d) Forest

5 (a)

5.3 Communities' understanding of the importance of Natural Resources with reference to Sango bay.

In all sensitisation meetings, when this question was put to participants, responses were limited to direct extraction purposes on which over 90% of the population in the area depends on for their livelihood (table 1).

Table 2. Communities assessment of the importance of important natural resources

Natural Resource	Attached importance by the community	Estimated %age of people it supports	Addition importance generated with contribution of research team members
1. Forests	Source of wood fuel and charcoal	90	Water shed
	Medicinal products from roots, leaves, bark, fruits, seeds and stems	60	Rain fall formation
	Source of construction materials: polewood, thatching grass, timber and ropes	100	Cultural values
	Source of raw material used in carving handcraft, making bee hives, mortars and pestles, instruments and tools.	80	Eco-tourism
	Source of foods including honey, vegetables, mushrooms, fruits and termites	70	Clean air
	Source of grass for grazing and fodder	75	
	Hunting areas for wild meat	50	
	Others: crop stakes, sand, fertiliser	80	
	Forest land converted to crop farms	90	
2. Wetlands	Building materials	70	Regulation and conservation of water by acting as sponges
	Hand craft materials	80	Water purification
	Grazing land	75	Climate modification
	Fish food	60	Habitant for flora and fauna
	Thatching grass	75	Flood control
	Source herbal medicine	65	Tourism
	Drained for crop gardens	95	
3. Savannah (Wood-grass mixtures of different densities)	Grazing land for both wild and domestic animals	80	Tourism industry in form of game reserves and national parks
	Source of herbal medicine	70	Habitant for both ground and below ground biodiversity
	Building materials: polewood and thatching grass	80	Flood control
			Act as water catchment areas
4. Water bodies including lakes	Fishing	90	Hydro electric power
	Water for domestic use	100	Tourism
	Transport	75	Water for agricultural and industrial use
			Habitant for flora and fauna
			Climate modification

Results in table 2 show communities narrow perception on the importance of natural resources with majority of community members (70-100%) only aware of direct and economic values of key natural resources in their areas characterized by extraction.

4.8 Best conservation strategies developed together with communities of the Sango-bay area in a participatory manner.

Participants recognized and agreed on the need to conserve aquatic and terrestrial biodiversity in the Sango bay area due to ecological, economic, social importance of such biodiversity. All the four broad categories of natural resources (water bodies (lakes), wetlands, forests and savannah) were given great importance. Communities requested the research to expound on each of them giving more information on its importance, challenges and proper conservation practices. An agreement was reached to handle one resource at a time in planned training sessions. For this first phase we have successfully trained communities on two important natural resources: lakes and wetlands and we hope to handle the remaining two alongside other planned research activities in subsequent phases depending on availability of funds.

APPENDIX 1

Research team

The disciplinary orientation of the project spans the project requirements. Not only do we have environmentalists, socio-economists, gender specialists, environment scientists, GIS specialist who helped us come up with included maps, we also have committed members of the communities and local leaders at all levels that have provided useful guidance and indigenous knowledge. Core research team that is committed to the success of this project is shown in table 1.

Table 1. Composition of Uganda research team

Position	Name	Role and responsibilities
Project leader	Dr. Celsus Senhte, BVM, MSc Makerere University	Coordination of project activities Participatory Research Methods Environment impact assessments Report writing
Theme Leader	Byaruhanga Chris Dickson BDVS, MSc Makerere University	Head of field work activities Participatory Research Methods GIS analyst Environment and conservation strategies Report writing
Theme Leader	Tusiime Loyce BSc, PGD Makerere University	Assistant head of field work activities Participatory Research Methods Gender and development consideration Database management and report writing
Researcher	Ms. Annet Nakyeyune BDVS, MSc Makerere	Participatory Research Methods Environment and sustainable development Project Planning and management Information Communication Technology Application

What is remaining?

A.

- 1) Purchase of seedlings
- 2) Tree Nursery bed preparation
- 3) Distribution of tree seedlings to selected communities
- 4) Hygiene and home improvement campaigns and competition

B.

- 1) Preparation and submission of final report
- 2) Accountability
- 3) Appreciation letter
- 4) Way forward