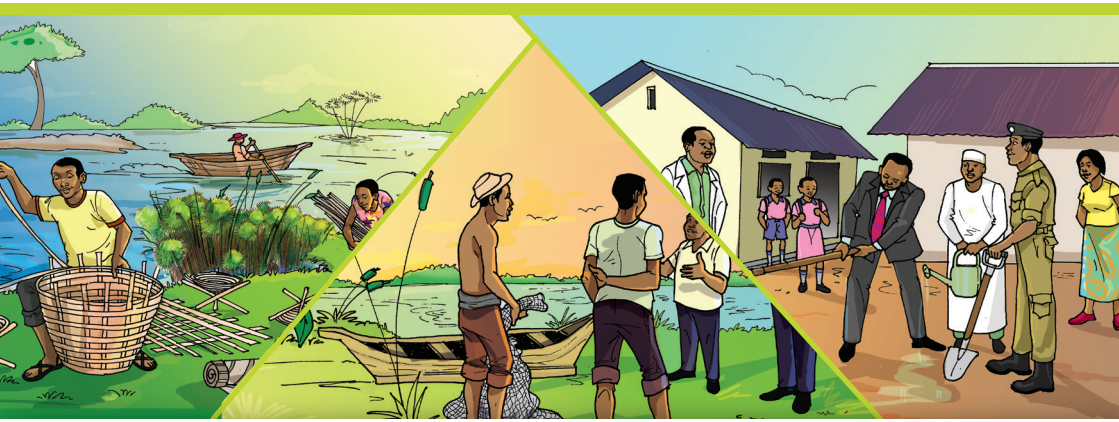
Series No. 14

Guidelines for Biodiversity Conservation in Agricultural Landscapes



Tree TALK

TROPICAL BIOLOGY ASSOCIATION

THE BRITISH AMERICAN TOBACCO BIODIVERSITY PARTNERSHIP

NatureUganda

2014

GUIDELINES FOR BIODIVERSITY CONSERVATION IN AGRICULTURAL LANDSCAPES

Citation:

*Nature*Uganda, Tree Talk, Tropical Biology Association (2014), Guidelines for Biodiversity Conservation in Agricultural Landscapes in Uganda, *Nature*Uganda, Tree Talk, Tropical Biology Association.

Bwindi Mgahinga Conservation Trust (BMCT) Building

Plot 1 Katalima Crescent, Lower Naguru

P.O.Box 27034, Kampala Uganda

Email: nature@natureuganda.org

Website: www.natureuganda.org

Twitter: @NatureUganda Facebook: *Nature*Uganda

ACKNOWLEDGEMENT

The Guidelines to Conservation of Biodiversity in Agricultural Landscapes were produced with funding from the British American Tobacco Biodiversity Partnership (BATBP) under the project 'Addressing sustainable management for Biodiversity and Ecosystem Services in tobacco growing regions of Uganda'. This project is coordinated by Tropical Biology Association (TBA) and implemented by NatureUganda and Tree Talk in collaboration with British American Tobacco Uganda.

We thank Mr. Moses Mapesa, Achilles Byaruhanga, Michael Opige, Jonathan Kisakye, Isaac Kiirya and Gaster Kiyingi for writing and compiling this work and Dr. Balram Dhakal and Dr. Sue Barnard who reviewed this document.

FOREWORD

This publication stems on the fact that the empowerment of local peoples and recognition of their customary rights has powerful social, economic, and environmental impacts. About 70% of the forest areas in Uganda are in community-owned and managed forests. Additionally, overall, Protected Areas cover only 18% of land area of Uganda. This means that most of the biodiversity is in unprotected areas. Considering that up to about 80% of the population are employed in the Agricultural sector, puts the sector in a priority list for better management. It has been estimated by the World Bank that 70% of the country is arable land.

It is important that the government recognizes indigenous and community rights and knowledge as drivers to successful conservation initiatives in modern time. This requires that initiatives for good connection between strengthening Indigenous knowledge and conservation of biodiversity be sought. Both Central and Local Governments need to develop, initiate and support programmes that inspire the communities who depend on and are best positioned to protect the biodiversity. In Uganda, most communities own land and most land is under agriculture. This is also a reflection of what the situation is for communities in Least Developed Countries and emerging economies. With the knowledge and wisdom cultivated through generations, not only are local communities able to protect their ecosystems more effectively than governments do but they protect them less expensively.

This guideline presents steps and recommendations that are intended for national community leaders, local government officials, advocates for ecosystems conservation, and others, who are committed to finding a far-reaching and concrete solutions to biodiversity challenges in agricultural landscapes. For too long the approach to biodiversity conservation has focused on Protected Areas and with barely concrete considerations on conserving the same in the agricultural landscapes. I hope this guideline will turn that around and draw the national conservation efforts to the most important factor in turning the tide against biodiversity loss and saving the world's systems on which life depends: the biodiversity in agricultural landscapes.

Mr. Paul Mafabi
Director, Environment Affairs Ministry of Water and Environment

TABLE OF CONTENTS

List of Boxes

ACRONYMS

CBD	Convention on Biological Diversity
CFR	Central Forest Reserve
COP	Conference of Parties
CWMA	Controlled Wildlife Management Areas
ENR	Environment and Natural Resources
FSSD	Forest Sector Support Department
IUCN	International Union for Conservation ofNature
LFR	Local Forest Reserve
LG	Local Government
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
MEMD	Ministry of Energy and Mineral Development
MLUD	Ministry of Lands, Housing and Urban Development
MTWA	Ministry of Tourism, Wildlife and Antiquities
MWE	Ministry of Water and Environment
NAADS	National Agricultural Advisory Services
NDP	National Development Plan
NEMA	National Environment Management Authority
NFA	National Forest Authority
NGO	Non-Governmental Organisation
NR	Natural Resources
NRM	Natural Resources Management
NU	*Nature*Uganda
PA	Protected Area
PMA	Plan for Modernisation of Agriculture
SWAP	Sector Wide Approach to Planning
UBOS	Uganda Bureau of Statistics
UN	United Nations
UNESCO	United Nations Education, Scientific and Cultural Organisation
UWA	Uganda Wildlife Authority
WMD	Wetlands Management Department

1.0 INTRODUCTION

Until 1890, there was an abundance of wild animal and plant species in great diversity both on land and in water. Land in Uganda was so productive that while on a visit in 1907,Winston Churchill who was British Prime Minister 1940 - 45 and again 1951 - 55 believed that anything (any crop) could grow naturally without any inputs and ultimately described it as "*the Pearl of Africa"*. The first efforts at "nature conservation, or the wise use of natural resources was in 1890 when the Forest Department was created to allow for regulated extraction of timber from the then very abundant, diverse and productive natural forests. By 1920, the Game Department had been created to specifically protect crops from destruction by wildlife. Back then, as is the case to date, most of the country could be described as an agricultural landscape that is also rich in biodiversity – regardless of whether they are Protected Areas or not.

Uganda's human population has however been growing at a high rate and converting a lot of natural area into farmland and settlement. It is estimated that Uganda's human population was about 2 million in 1900, rising to 4.8 million in 1950 and to 24.3 million in 2002 (UBOS, 2002). In 2012 the estimated population of Uganda was 32.4 million, approximately 87% of which is rural and dependant on natural resources. The steady increase in human population is putting increasing pressure on the already stretched environmental resources.

Ecosystems across the country are rapidly being degraded through unsustainable use of forests and wetlands, conversion of forested land for agriculture and settlement, reliance on indigenous trees for fuel wood and pollution of water bodies through agricultural and industrial chemicals. During the period between 1990 and 2005, 1.2 million hectares of natural forests were lost; and even protected areas such as the forest reserves, wildlife reserves and wetlands are becoming increasingly threatened (NEMA, 2008).

Sustainable agriculture depends upon maintenance and protection of healthy and resilient biodiversity and ecosystem services (e.g. for water, soil fertility, climate regulation, biological control, fuel). This is important if people are to benefit in terms of improved livelihoods, food security and nutrition, and agro-companies are to maintain and develop their growing operations in future, especially given the likely changes caused by climate change and an increasing population. The rural population across Uganda are beginning to feel the consequences of increasingly degraded ecosystems. Agriculture is particularly facing increasing challenges, such as the increasingly unpredictable seasons resulting from climate change. Government Institutions such as the National Forestry Authority, the District Forestry Services, Environment Offices, and the Uganda Wildlife Authority are increasingly challenged to protect and restore the lost environmental resources.

2.0 GUIDING CONCEPTS AND PRINCIPLES FOR BIODIVERSITY CONSERVATION

2.1 The Concept of Preservation

Prior to 1900, there was an abundance of biodiversity; with the human population and human activities quite low. There were natural solutions to human activities such as hunting, fuel wood and agriculture. Ecosystems were resilient and self-sustaining with a natural ability to recover; man's effort was geared towards how to tame nature – getting rid of "unwanted" plants including trees and wild animals while preserving the "wanted" plants for agriculture and animals for livestock and pets. This was largely the case till the 1930s to 1950s when it was realised that some plant and animal species and indeed whole ecosystems were being wiped away and land converted for agriculture with monoculture crops. It was then decided that some areas be set aside as wildlife reserves and national parks for "preservation" of biodiversity. It was however later realised that the natural ecosystems played a strong ecological role in supporting agriculture and the water supply systems, thus strengthening the need for preservation of important ecosystems. Although preservation excluded direct use of resources and conversion of land for agriculture, it became widely acceptable by the elite and the State to the effect that large chunks of land were taken from people for forestry and wildlife leading to conflicts. This was later eased when the preservation concept was reconsidered to become conservation.

2.2 The Concept of Conservation

Ordinarily, conservation is used interchangeably with preservation. In natural resource management, however, conservation refers to "wise-use" including extractive use; while preservation refers to exclusion of any extractive use but rather for ecological functions and common good services like climate regulation, hydrological cycles, air and genetic resources. The concept of conservation recognizes the fact that despite the exceptional ecological importance of natural ecosystems and biodiversity, direct or consumptive use should not be precluded but rather allowed,based on the principle of wise-use. The concept promotes planning, control, coordination and monitoring in the use and management of the natural resources by stakeholders. The policy and legal framework on natural resource management and biodiversity in Uganda captures the concept of conservation and the notion of wise use quite clearly.

2.3 The Concept of Sustainable Development

In 1980, the World Conservation Strategy of the International Union for the Conservation of Nature coined the concept of "sustainable development" to mean improving the quality of human life while living within the natural ability of the supporting ecosystems such as wetlands, forests, woodlands, grasslands to do so for the present and future generations.

In other words sustainability is all about meeting the needs of the present without compromising the ability of future generations to meet their own needs from the same environment (ecosystems). This concept was strengthened by the World Commission on the Environment and Development in 1987 when they released their report "Our Common Future" (UN 1987). Report of the World Commission on Environment and Development, General Assembly Resolution 42/187, 11 December 1987. Sustainable management of natural resources in effect leads to sustainable development which is a dynamic process where natural resources use, investments for example in agriculture, technological development and institutional changes take into account present and future needs of people and biodiversity (plants and animals).

The three main pillars of sustainable development are economic growth, environmental protection, and social equality. The concept is built on participatory principles and direct involvement of local stakeholders in the design and joint management of natural resources at local and national level. While many people agree that each of these three ideas contribute to the overall idea of sustainability, it is difficult to find evidence of equal levels of initiatives for the three pillars in countries worldwide. Often priority is on economic growth at the expense of environmental protection (and biodiversity conservation for that matter) and social equity to the extent that even where double digit economic growth exists, the majority of the population are slum dwellers and the rural poor.

2.4 The Concept of Public Trusteeship (Common Property Rights)

Sometimes referred to as Public Trust Doctrine, this concept relates to collective ownership, protection and use of essential natural and cultural resources. The purpose of the trust is to manage the resources in a manner that makes them available to the people for their common use and benefit for present and future generations.

In Uganda, the 1995 Constitution establishes the Public Trust Doctrine by stating that-;

"The Government or Local Government as determined by Parliament ...shall hold in trust for the people and protect natural lakes, rivers, wetlands, forests, game reserves, national parks and any land to be reserved for ecological (biodiversity) ...purposes for the common good of all the citizens" article 237 (2) (b)".

The same is re-stated in the Land Act (Section 45 [1]) and repeated in other laws relating to natural resources like water, forestry and wildlife. The ownership and responsibility for protection is by the State and use or benefit for the people. This has many times been misinterpreted though, with the State mostly denying people access and use; while people forcefully (illegally) partake of the resources. The concept is a lot more practical for formally gazetted protected areas like Wildlife Reserves, Forest Reserves and National Parks.

2.5 The Concept of Common Property Rights

This concept is embedded in the traditional natural resource management practices in many Ugandan societies. It is premised on the philosophy of collective ownership, protection and benefit/use, unlike the legalistic Public Trust concept where ownership and protection is vested in the State and the people can only access and use resources with permission of the State. The concept is based on goodwill and societal norms without any legal backing, save for the provision in the Land Act that allows for land associations. This concept is a lot more practical for private and customary lands especially in permanently settled landscapes for agriculture, livestock and fishing.

2.6 The Precautionary Principle

The principle is based on the assumption that there is always a risk for any action or decision taken especially where available information is inconclusive on the extent or impact of risks. Sometimes, decisions and actions taken relating to natural ecosystems result into irreversible damage to the environment. In any case planning and decision-making often occur within a context of uncertainty and therefore a level of risk.

The precautionary principle therefore is about avoiding potential irreversible or irreparable damage or impact to an ecosystem or landscape. It may mean that a given resource be it a wetland, river, lake, grassland, woodland or forest or portions of it be left intact or used minimally because of other high values such as water supply functions (hydrological cycle), high biodiversity, breeding grounds e.g. of fish, habitat for directly useful insects such as bees, medicinal plants.

The principle is probably the basis for present day requirements of Environmental Impact Assessments before any decisions are made on fragile ecosystems and landscapes and change of land use practices as articulated in the Environment Act.

2.7 The Principle of Prior Informed Consent

Prior informed consent allows for exchange or dissemination of information regarding the risks or dangers of using chemicals e.g. agricultural and livestock chemicals. The objective is to give opportunity to competent authorities and individual users to assess the risks associated with the chemical content of any substances or inputs to be used to for example boost agricultural production. In Uganda, the Agricultural Chemicals Act provides further guidance on use of chemicals and fits in with this principle.

2.8 The Principle of Equity

The principle of equity recognizes the fact that benefits from natural resources such as wetlands, forests, biodiversity accrue beyond individual, family and political boundaries at local and national levels and that every individual has a right to a healthy and clean environment. The benefits are for both the present and future generations. So people beyond our own boundaries have a right to benefit from the natural resources in the same way as those in our boundaries of jurisdiction say for respective local councils and district councils. In the same way those unborn have a right to benefit from the same resources and therefore, we should guard against any tendency to destroy biodiversity and its habitats. The 1995 constitution of Uganda provides for this principle when it states in chapter 4, article 39; "every citizen has a right to clean and healthy environment", and goes on to confer a duty on every individual to protect the environment.

2.9 The Principle of Bottom Up

One of the most effective ways of achieving public participation in planning, decision making, implementation and ultimately monitoring is to allow for a bottom-up approach to management issues. Given the fact that it is land owners and resource users who are in direct contact with biodiversity, who partake of the resources and are involved in agriculture, this approach guarantees sustainability, moreover it does tap into traditional knowledge of the local communities. This principle is embedded in the Local Government act which devolves power, functions and services to the grassroots local communities.

2.10 The Principle of Locus Standi

This principle, captured by the 1995 Constitution of Uganda, article 50, provides for any aggrieved person to seek the intervention of courts of law in case of abuse of environment and human rights without necessarily being directly affected. *Locus standi* provides a basis from which any individual, who after all has a right to a clean and healthy environment and also has a duty to protect the environment according to the same Constitution, can seek court redress in case of actions leading or likely to lead to environmental degradation and biodiversity loss.

Linking the Guiding Concepts to Biodiversity Conservation Guidelines

The following section lists seven step by step guidelines for conservation of biodiversity in agricultural landscapes based on ten Guiding Concepts and Principles for Biodiversity Conservation and existing legislation on environmental conservation and governance in Uganda. The authors of these guidelines have also used their experience of engagement with a wide range of stakeholders in agricultural landscapes to document best practices in conservation and correlate them with existing strategies and practice to enhance conservation in smallholders farming systems as well as large agribusiness enterprises. Hinging on existing laws and regulations helps form a legal backing to push for policy reviews to enforce the implementation of the guidelines.

3.0 GUIDELINES FOR BIODIVERSITY CONSERVATION IN AGRICULTURAL LANDSCAPES

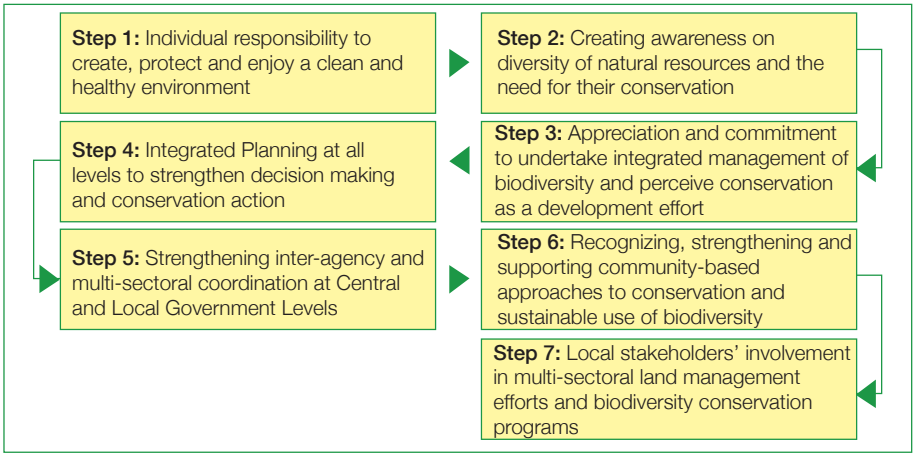
Biodiversity refers to and includes the structural elements of ecosystems/landscapes such as genes, species, plant and animal communities and the ecological processes that link all elements in a dynamic and ever changing state. While conservation refers to the in-situ maintenance of ecosystems and natural and semi-natural habitats, and of viable populations of species in their natural surroundings

The Policy and legislative framework in Uganda provides guidance on Biodiversity Conservation and use of Natural Resources nationally in line with the CBD guidance. It has been observed and noted that the policy and legal framework for management of the Environmental and Natural Resources (ENR) sector in Uganda is relatively well-developed with fairly comprehensive policies, laws, regulations, guidelines, and plans for sound environmental management as a whole and for specific sectors such as wildlife, forestry, wetlands, fisheries, water resources, mining, and energy, but that it is implementation of policies and legislation that is limited.

What is therefore required is capacity to interpret and apply the policies and legislation at district, sub-county and in effect community level in respect to use and management of natural resources and biodiversity conservation in agricultural landscapes. It must also be noted that save for open water and gazetted protected areas for wildlife and forest conservation, the rest of Uganda is both a rich biodiversity and agricultural landscape.

Agricultural landscape is an area with land use or manaagement systems that include crop and animal husbandry. Such landscapes are habitats of all plants and animal species too.

Step by step guidelines for conservation of biodiversity in agricultural landscapes



3.1 Step by Step Guidelines

Step one; every Ugandan living on agricultural landscape to know or be made aware that he or she has both a duty and a right to create and protect and enjoy a clean and healthy environment.

The Constitution of the Republic of Uganda, 1995, imposes a duty on every Ugandan to create and protect a clean and healthy environment. Every Ugandan Citizen, therefore, should know or be made aware that he or she has a duty to create and protect a clean and healthy environment, article 17 (1) (j). Further, article 39, gives every Ugandan a right to live and enjoy a clean and healthy environment.

It is not the duty of government but every Ugandan to create and protect a clean and healthy environment wherever they live. The clean and healthy environment is an environment where the interaction of the structural elements of ecosystems such as plants, animals, water, soil and gases produce goods like food, fibre, medicines, wood and services like clean air, clean water, climate regulation, soil fertility, soil moisture all of which are essential for human survival. The environment is the natural surrounding which in effect is biodiversity and geo-diversity.

Awareness creation is important so that people know their rights and duties in creating, protecting and enjoying a clean and healthy environment

Step 2; People to know or be made aware that the natural resources in their diverse forms belong to the people of Uganda, current generations and yet unborn generations and so current generations must use them wisely, therefore the need for conservation.

The Constitution of the Republic of Uganda, 1995; The Land Act of 1994; and indeed all the other sector laws clearly state that Land and all Natural Resources (article 237) including forests, wetlands belong to the people of Uganda. The State or Government is a custodian – holds in trust for the people, both present and future generations

Natural resources are owned by the people

Leaders particularly at the Local Government and Community level need to appreciate the fact that land and biodiversity, belong to the people of Uganda. People therefore have a duty to protect biodiversity under the guidance of the leaders in a participatory manner as articulated in the local Government Act, 1997.

Step 3: People and their leaders to appreciate and be committed to undertaking integrated management of land, water and biodiversity and perceive biodiversity conservation as a development activity with economic returns.

Creating and protecting a clean and healthy environment based on natural resources that belong to the people may be achieved through the Ecosystem Approach. The 'Ecosystem Approach', as defined by the CBD, is a strategy for the integrated management of land, water and biodiversity that promotes conservation and sustainable development in an equitable way.

Integration means that ecosystems such as forests, wetlands, grasslands, agricultural lands must be understood as important for human sustenance holistically whether protected by law or not. Therefore in deciding on the various uses for the different ecosystems, they must be considered and treated as equally important and precaution taken not to engage in actions that may be destructive or cause irreversible changes to any of them. Box 1 provides gaps that need to be addressed.

Box 1: Gaps in appreciation of biodiversity conservation

There is a widespread perception in Uganda, including among highly learned people, politicians, and technocrats that sustainable natural resources management and biodiversity conservation are not "development" activities.

In reality however, biodiversity conservation is a development activity with short, medium, and long term economic returns. Unfortunately, policy makers at central and local government level and similarly, small scale farmers make decisions based on what may appear to be more immediate returns; they reduce the value of biodiversity conservation and the associated future potential benefit streams to nearly zero. Even the National Development Plan (NDP) fails to incorporate biodiversity conservation—further relegating its potential as part of the development agenda. Some identified gaps based on knowledge acquired during implementation of the BATBP project and a review of existing scenarios across the country shows how such perceptions affect decisions that impact biodiversity:

i. Encroachment on Forest Reserves in most of northern Uganda and other parts of the country has happened with the knowledge of politicians. Almost all local forest reserves in northern Uganda have been encroached upon and converted into agricultural land. Most central forest reserves have been encroached upon as well and NFA has on several occasions been officially directed to stop evictions of encroachers on forest reserves.

ii. Other forest conversions have happened and set precedents, for example on Bugala Islands where commercial oil palm plantations have replaced medium altitude moist evergreen forests. Once a mature, complex forest is converted to plantation, it could take generations to return – and in many cases, it may never come back. Ecological functions, potential economic returns, and future options are greatly narrowed once conversion has occurred.

iii. Areas that still have viable wildlife populations in central and northern Uganda and offer considerable opportunities for development of wildlife enterprises such as sport hunting, game farming and game ranching as provided for in the constitution and wildlife law are continuously converted into agricultural land for livestock or crop production.

iv. There is low but rapidly growing population density in Northern Uganda with a high total fertility rate of 7 compared to a national average of 6.4 (UBOS, 2012). This means that there is more demand for food to feed the increasing population causing conversion of forested land into agriculture production fields.

v. Agriculture, especially growing of paddy rice in wetlands is also increasing together with activities like brick burning, sand mining while the local governments is getting overwhelmed due to lack of human and other resources. If this trend continues, the region is bound to lose biodiversity in wetland ecosystem but there are also direct health implications to individuals farming in wetlands without protective gear for their hands and feet.

The people and their leaders to appreciate and be committed to undertaking integrated management of land, water and biodiversity conservation

The BATBP project is using a holistic local landscape approach in mid northern Uganda that seeks to reconcile commercial agriculture, conservation and other land uses to enhance community livelihood options. The project is working with a wide range of stakeholders including farmers, schools, policy makers, local government, extension workers/community development officers and religious leaders. The project is engaging these stakeholders to; develop of initiatives for biodiversity and ecosystem services for conservation and livelihoods improvement, improve understanding of biodiversity and ecosystem services that are essential for sustainable agriculture and to restore key forest and wetland ecosystems in the area. This livelihoods-based landscape approach has received great acceptance by communities because of its potential to improve incomes while enhancing conservation in communities vastly dependent on nature.

Step 4: Undertake integrated land use planning at community, sub county and district level. This will ensure that consideration and actions are agreed on in regard to forestry, wetland and biodiversity management as well as agricultural production and livelihood support based on technical officers working together as a planning committee.

Integrated management of land, water and biodiversity (or the ecosystem approach) requires or pre-supposes that integrated land use planning does happen. The Local Government Act CAP 243, section 35 - 37, provide for local government planning units and com-

mittees which in actual fact are all the technical officers responsible for forestry, wetlands, environment, agriculture, livestock, land at district and sub county levels working together to prepare and produce plans for council approval. The land policy 2007 provides for integrated land use planning. So the policy and legal framework is in place, what is required is the action to use the ecosystem approach.

Box 2: Examples of needs for ecosystem approach at local government level

Environment and Natural Resource Management government institutions are constrained by inadequate budgets and technical capacity.

The creation of several new districts in the past decade has resulted in serious budgetary and capacity constraints at district level and complicated further issues of coordination between local government departments at district level and central government agencies. The following are illustrative examples:

i. Although Uganda Wildlife Authority has been hailed as a largely well-organized, professionally run institution, it still lacks sufficient capability to manage conflicts effectively through the use of the ecosystem approach to land, wildlife, and forest management.

ii. The former Uganda Forest Department was restructured into the present NFA, the FSSD, and the DFS, but none of these new entities has lived up to the expectations of the architects of the restructuring exercise. The three entities are under-staffed and under-funded and unable to stem rampant incursions into CFRs and LFRs, let alone ensure sustainable management and conservation of forest patches on privately and communally owned lands.

iii. NEMA operates fairly effectively at the headquarters and staff can easily reach environmental trouble spots such as encroached upon Wetlands. However, the agency‘s presence upcountry is hardly felt. NEMA and District Environment Departments (NEMA‘s proxies at district level) are constrained by limited staff and funding.

It must however, be noted that local governments are constrained by inadequacies of technical staff capacity and funding. It therefore becomes impractical for integrated planning (let alone integrated land use planning) to happen. Box 2 illustrates the scenarios most local governments have to address for the ecosystem approach to be applied.

Undertake integrated land use planning at community, sub county and district level.

Step 5; Strengthen inter-agency and multi-sectoral coordination at Central and Local Government level and between the 2 levels.

Inter-agency and multi-sectoral coordination is key for sustainable development and indeed biodiversity conservation. The Constitution and the various policies and laws make very clear the need for inter-agency and multi-sectoral coordination also echoed by the CBD. Indeed there have been attempts to strengthen coordination among the various ministries and their affiliated departments through the Sector Wide Approach to Planning (SWAP) but these efforts have not yet produced results. International conservation organizations and non-governmental organizations would add value to sustainable ENR and biodiversity conservation in Uganda if their work was harmonized and closely coordinated with Ugandan institutions.

Strengthen inter-agency and multi-sectoral coordination at central and local government level and between the 2 levels.

Box 3 below illustrates the need for strengthening interagency and multi-sectoral coordination in order to achieve sustainable development and biodiversity conservation.

Natural Resource policies are interpreted to favor production over conservation. Other Naturel Resource (agriculture, energy) agencies fail to coordinate and cooperate with their conservation counterparts; even within conservation agencies, there may be failure to coordinate because of misinterpretation of policies and roles and/or because agencies are under different ministries. Inadequate coordination and lack of cooperation between central government and local authorities in policy implementation often lead to contradictions, confusion, and conflict in land use practices resulting in threats to biodiversity, as well as missed opportunities for collaborating on sustainable natural resources management. Some examples are described below:

Box 3: Strengthening interagency and multi-sector coordination

(a) Agricultural agencies have interpreted policies and legislation to mean encouraging conversion of important biodiversity habitats, such as wetlands, savanna grasslands, and forests for crop and livestock production as well as elimination of other forms of biodiversity that are considered vermin or pests. Even when it has been demonstrated that conservation complements agricultural production as evidenced in aspects of water catchment, soil stability, and fertility including pest control, misinterpretation and over-zealousness in implementation of government programs (e.g., PMA, NAADS) have largely resulted in more biodiversity habitat reduction to support increased production. The issue really is mainly misinterpretation of legislation in favor of production as opposed to conservation.

(b) The conservation agencies, including UWA, NFA, NEMA, and WMD, are yet to agree on an effective coordination mechanism to address issues of common concern given that their mandates overlap in mission and geographical coverage. In the Albertine Rift for example, all four agencies have a role to play in regulating and monitoring economic activities such as mining, oil extraction, hydropower generation, tourism and fishing. All are described as lead agencies, often resulting in duplication of effort or, conversely, with inadequate roles due to capacity deficiencies – limited human resources, finances, and logistics.

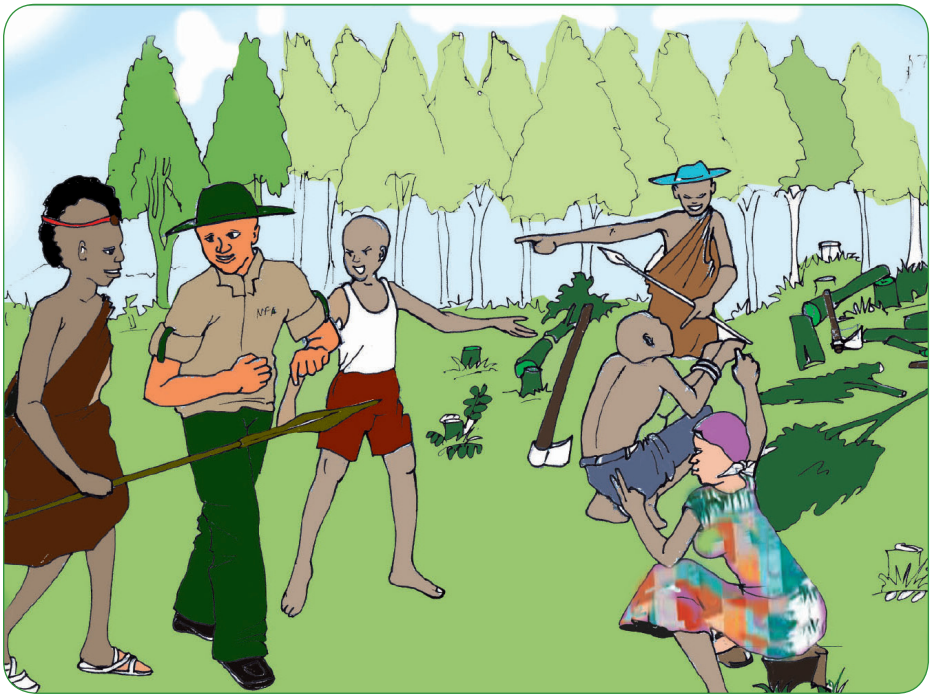
(c) Energy; to transition from fuel wood and charcoal to other affordable, renewable sources of energy, close collaboration is required between government departments that are mandated to regulate the utilization of firewood and charcoal –such as the MWE and the Ministry of Energy and Mineral Development – and NGOs that are involved in the biomass energy sector. It will also require collaboration with NFA and the National Forestry Advisory Services and Forest Departments at Local Government level to better regulate harvesting of timber, charcoal production, and sale.

Step 6: Recognize, strengthen and support community-based approaches to conservation and sustainable use of biodiversity in situ, including indigenous and local community conserved areas.

The breakdown of common property rights and traditional resource management and dispute resolution in most parts of the country and particularly in northern Uganda has resulted into land fragmentation, commercial land transactions, land grabbing, and unclear boundaries of communal and privately owned lands all fueling land tenure/land use conflicts. Such circumstances make biodiversity conservation even more difficult.

It however, appears that there is still some opportunity for a return to some form of common land rights and integration with traditional resource management systems.

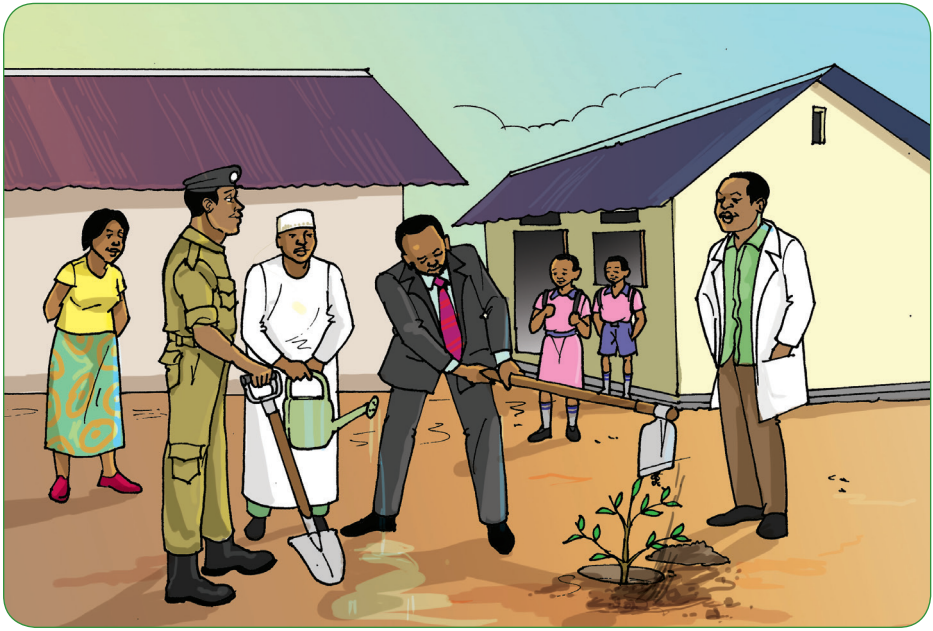
Significant biodiversity can still be found on privately owned/customary land in central and northern parts of Uganda. In Acholi sub-region there are still reasonably intact and respected traditional hunting grounds that can be transformed into an economic incentive.



Recognize, strengthen and support community-based approaches to conservation and sustainable use of biodiversity in situ, including indigenous and local community conserved areas.

Step 7: Involve stakeholders particularly local and community representatives in multi-sectoral land management efforts and biodiversity conservation programs, Community Based Organizations, Non- Governmental Organizations at local and international level.

Practical involvement of local communities and use of indigenous knowledge and traditional cultural institutions that are often provided for in respective policies and legislation for example in respect to forestry, wildlife, land and wetland management results into a productive relation for biodiversity conservation. Engaging and collaborating with local communities is very important in resource management in agricultural landscapes. Local policies, plans and strategies can be developed by incorporating traditional knowledge and customary rules for resource use. Usually communities are aware about what is happening around them and are informed about the measures that have been used to respond to changes within a given locality and their effectiveness or failure.



Involve stakeholders particularly local and community representatives in multi-sectoral land management efforts and biodiversity conservation programs. Community based organizations, non-governmental organizations at local and international level

3.2 Strategic Adaptive Management

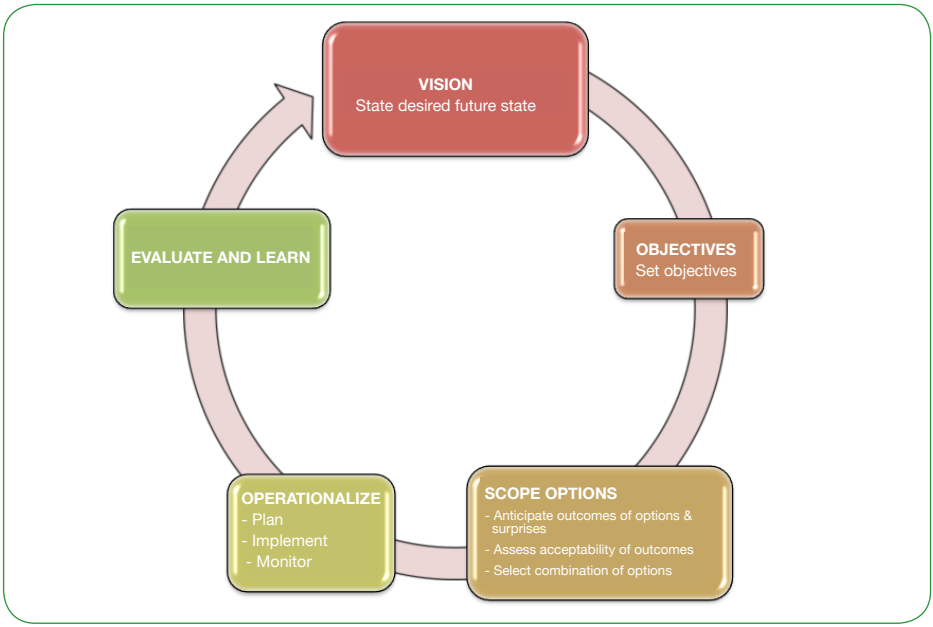
The seven steps described above combine into a Strategic Adaptive Management Cycle (SAMC). The SAMC in this case using the ecosystem approach to enhance biodiversity conservation in agricultural landscapes, has stakeholders involved at three main points in the cycle at which decision making is strongly value based, with multiple and often conflicting objectives at stake.

These are:

1. Setting the Vision
2. Evaluating the acceptability of predicted consequences of potential management options
3. Reviewing the outcome of management relative to the vision

Below is a summary of components of strategic adaptive management where all relevant stakeholders including communities take part. The illustrative adaptive management cycle is applicable to all ecosystems and combinations of ecosystems in any given landscape; however, it is important to draw/define the boundaries. In practice, a landscape may comprise of settled areas, areas for cultivation, wetland, forested and grassland areas some of which may be private, public or gazetted as protected by government all of which ordinarily are habitats for biodiversity.

The Strategic adaptive management cycle



Strategic adaptive management requires awareness of the policy and legal framework as well as the guiding concepts and principles; building trust, confidence and cooperation so as to cultivate willingness for collective action, mutual respect and social learning (learning together); and technical backstopping especially to guide decision making at the three critical points of vision setting, evaluation options and reviewing.

This model can be used for management of wetlands, forest reserves, wildlife reserves or landscapes with all of those, plus settlements and agricultural practice. The key elements are that a vision, the desired future, must be set; options for achieving the vision agreed on and ultimately a review undertaken after implementation that provides an opportunity for all to learn and change strategy (adapt) as need may arise based on experience and the outcomes all done with active involvement of all relevant stakeholders.

All the ENR policies and legislation provide for involvement of stakeholders particularly local communities in the management of natural resources and even prescribe mechanisms for doing so which is formation of committees (for environment, wetlands, wildlife, forestry, land etc). The various legislation also require that when preparing a management plan, the management authority must consult other government agencies, local communities and other interested and affected parties. Since biodiversity is considered a national and even international resource, stakeholders for biodiversity conservation and management can range beyond local and regional borders.

A set of guiding principles is therefore necessary and has been developed in many parts of the world to which all stakeholder participation processes should ideally conform, these are:

- Have a clearly stated purpose.
- Identify the stakeholders to participate in the selected process.
- Define and communicate levels of decision-making and stakeholder involvement.
- Seek to notify stakeholders of participation processes through appropriate mechanisms.
- Seek to obtain commitment from all stakeholders to a participatory process based on relevance, integrity, mutual respect, transparency and inclusiveness in order to seek the best possible solution.
- Ensure that the process provides the opportunity for input from all stakeholders within reasonable timeframes, emphasizing the sharing of information, joint-learning and capacity building.

- Ensure that processes recognize all knowledge, indigenous and ordinary, as well as the diversity of values and opinions that exist between and among stakeholders.
- Promote participation by stakeholders through timely and full disclosure of all relevant and appropriate information.
- Provide feedback on the outcome of the process to stakeholders and demonstrate how their inputs have been considered in the decision making process.
- Ensure that methodologies accommodate the context of the issue at hand and the availability of resources (people, time, money) and do not conflict with these guiding principles.
- Promote effective co-operative governance at a national, regional and local level.
- Give particular attention to ensuring participation by marginalised communities, communities with specific concerns, or communities that have traditional/historical rights in any area or for a given resource e.g fishing, grazing, hunting.
- Effect capacity building within the relevant institutions at local government level to support these guiding principles for stakeholder participation.

There are different types of management frameworks that can be used to strengthen the Strategic Adaptive Management approach like Participatory Management and Consultative Management.

3.3 Participatory Management Vs Consultative Management

Strategic Adaptive Management is an approach to stakeholder involvement which is participatory and not merely consultative. Consultative management only requires managers or government agents to either consult with, or offer an opportunity for comment, to interested and affected parties. The manager does not need to act on that consultation. By contrast, participatory management requires that stakeholders have a role within, and influence decision making. This does not mean they make all the decisions because the ultimate responsibility always lies with the designated manager/management institution. However, it means that stakeholders must have the opportunity to make constructive input to management decisions that concern them.

The ENR policies and laws provide guidance of what constitutes an acceptable decision. Moving beyond consultation to truly participatory management is a complex task. A balance must be struck between exercising the authority vested in the different government agencies responsible for forests, wildlife, wetlands, fisheries, local government, agriculture, livestock and co-operating with local communities and society at large to meet their expectations and ensure their rights as enshrined in the Constitution.

Some central principles for achieving a more participatory management and decision-making process are:

- Focus on the future, shared needs and values.
- Use a consensus-seeking approach.
- Involve stakeholders early in the process, allowing them to take part in describing the context, defining the 'problem', determining the vision, objectives and operating principles for management.
- Aim to learn together and share information, not to educate stakeholders, or to present and defend a near-final plan or proposal for their approval.

3.3.1 Focus on the future

Processes aimed at reaching agreement on objectives within or between organisations will entail dealing with peoples' perspectives, sensitivities, values and prejudices. Since strategic and co-operative management for biodiversity conservation is new to many local governments, any attempt to initiate it, and to develop common objectives, will encroach on people's comfort zones. Resistance to change, if not properly managed, can escalate conflict, and decrease commitment and motivation. It is important to recognise that this resistance is natural. It arises out of a fear of losing stability and of the unknown. Uganda is a country that has undergone many changes especially in governance, decentralization is being tried with varying success and so implementing a relatively new strategy to biodiversity conservation has the potential to attack old comfort zones. It is better to focus on what the future can bring, than how the present or past will change.

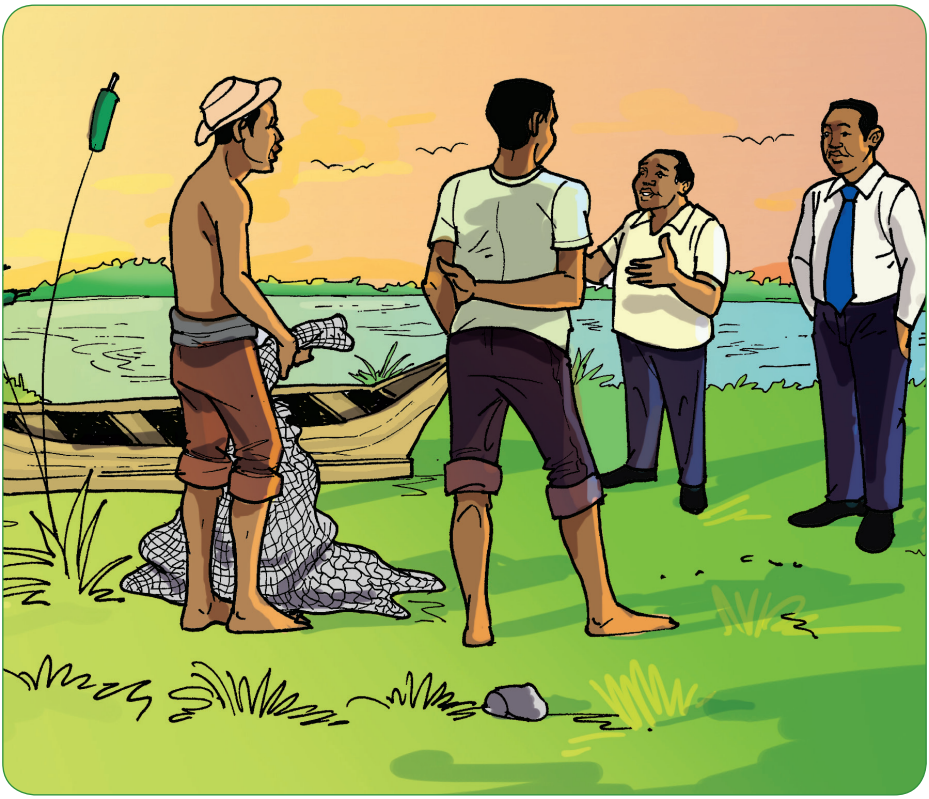
Overcoming resistance to change hinges on developing an atmosphere of trust. The best way of achieving this is to ensure that the process of change focuses on future needs, of both individuals and institutions, rather than present or past problems. Needs involve values and a structured process of negotiation is the best way to integrate values and meet needs. A focus on values and the future has the remarkable tendency to dissipate the conflict that often arises from defence of current territory, personal desires/beliefs, or present ownership.

3.3.2 Seek consensus

Many people understand that negotiating means reaching compromise on solutions to the respective party's problems. In general such negotiation for compromise (Figure 2) leads to pragmatic but short-term solutions. However they are value neutral and are not durable beyond the specific negotiation circumstances. Each time another problem arises, no matter how small, decisions have to be re-negotiated. Perennial encroachments into and evictions from forest reserves are a typical example. This would clearly not be suitable for strategic management where the people want to develop a plan that takes them well into the future and for generations.

An alternative approach focuses on developing a common understanding among parties of the values and needs which the future must hold. This is a far more useful approach toward conflict resolution. More importantly, it forms a firm foundation for value-based decision making so fundamental to effective biodiversity conservation and sustainable development.

Negotiation for compromise for pragmatic but short-term solutions



Parties discuss their different problems and the solutions they each want and agree to reach a compromise

Cooperating for Consensus

Parties agree and commit to working toward shared future needs while being guided by values

Note: Consensus is defined as general, or widespread, agreement. Achieving consensus does not mean that everyone is in complete agreement with everyone else. Consensus can be achieved if people agree to hold different views on a subject, or even agree that there is more than one legitimate view.

Sufficient consensus is when there is sufficient agreement to proceed with a course of action though some participants may disagree. Consensus is therefore often a judgment call that must be made by the group of people concerned, in the best interests of the group.

3.3.3 Respect the rules

The key to consensus and acceptance is how one gets there rather than the specific end point achieved. The most important procedure in this alternative approach to negotiation is to have all parties lay their values, needs and problems on the table, at the start of the exercise. The best way to achieve this is simply to ask everybody around to say what they think the problem is, and what they think a good future situation would be. Write each comment down with the person's name. To avoid people keeping their agendas hidden and/or having unreasonable demands the facilitator should introduce the only three rules of the "game":

- Recognise that the best way to achieve what you need is to help others achieve what they need.
- Follow the maxim – Seek first to understand then to be understood.
- Accept other people's views and understanding of the issue at hand. Ask another person to explain what they said in more detail, or why they feel the way they do, but their perspective must be accepted. It is part of the playing field.

Following these three rules means that all the 'cards' are laid on the table and each person knows how others see the problem and the future. The resultant list of perceptions of the problem and the future forms the basis for all other steps. Everyone now knows what the others want and what they value. This basic procedure,i.e. laying all the cards on the table before attempting to discuss their merits, can be used at any point in a planning process. Now all parties have been exposed to ALL the possible solutions to a problem before attempting to select one to implement. All too often people try to select the best of the immediately obvious solutions without sufficient analysis of either the problem, or the possible solutions. Unnecessary, or even antagonistic, debate is then inevitable because the foundations for making a decision have not been properly laid.

3.3.4 Level the playing field for mutual learning

In most cases consultation processes happen at or towards the end of an internal or expert planning process and are used to 'sell' or defend a near-final decision or proposal to stakeholders. This cannot achieve stakeholder buy-in or cooperation or elicit the stakeholder needs, values, knowledge or experience that can create wise, fair or durable decisions. Examples abound in Uganda of Forest Management Plans, Agricultural Plans, District Local Government Plans, Environment Plans, Wildlife Plans that have been prepared through a consultative process as opposed to a participatory process. In fact often times the various stakeholders demand to comment on rather than be part of the process formulating the proposals either out of sheer laziness or inadequacy of resources.

It is therefore imperative that from the earliest stages everyone be given the opportunity to voice their perception or analysis of the "problem" in a 'round table' setting where specialist, management and stakeholder contributions are given equal consideration. Honestly look for the best outcome using everyone's suggestions. Everyone should be prepared to accept an outcome that may be different from their original perceptions, as long as this is still within the law, value set and policy. This can be a source of anxiety for government officials who are used to making their own decisions, but it is the only way to build cooperation toward a truly shared vision of the future.

3.3.5 Lay a firm foundation for long-term cooperation

Successful participatory management does not involve or require continually calling or assembling all the stakeholders every time a decision needs to be made. Most stakeholders are just as busy as everybody else and will quickly develop 'participation fatigue'. If one can get agreement on the overall objectives and principles through a truly inclusive process early on – and build trust, consensus, mutual understanding and ongoing relationships along the way – one can largely proceed to make the day to day decisions without continuous participation of everybody. Regular meetings will be needed to keep everyone informed and to discuss a way forward for new issues that arise. But, when these new issues arise, the original objectives and principles provide the guidance needed to keep things on track.

The Strategic Adaptive Management Cycle can be applied to harmonise interactions of people with nature including sustainable use of wetland resources while improving their productivity, Collaborative Forest Management and sustainable land use. The lessons obtained during interactions with communities should inform the managers the biggest and recurring dangers to conservation of a certain resource but also about the practices that have led to conservation or wise use of environmental resources in other or same communities. The following scenarios depict possible impacts that can be addressed or identified using SAMC.

3.4 Setting a Vision – Scenario Planning

Setting a vision or the long term desired future (scenario) involves what is termed scenario planning. A long term desired scenario is determined through analysing existing environmental conditions, available technology, assessing options and projecting into the future before embarking on implementation and subsequent reviews following the adaptive management cycle.

Below we cite examples of scenarios based on use of wetland ecosystems wetlands. Similar scenarios do exist as a result of use of other resources including forest ecosystems and land for agriculture, therefore the SMAC can be applied across management of all natural resources.

Wetland and Biodiversity Management

In developing a plan, four scenarios are possible. The scenarios are built around four key uncertainties: (1) the level of environmental awareness and green technology at national and global level; (2) the power and influence of grassroots environmental organisations; (3) conflict between different user communities; and (4) challenges posed by invasive species.

It must be stated that none of the scenarios present an ideal or preferred outcome, highlighting the fact that any development trajectory poses challenges and tradeoffs and therefore the people themselves must make a choice based on analysis of the various consequences and trade-offs, mindful of the policy and legislative framework and the right of future generations and the neighborhood.

Scenario one: Food Basket and Agro-Processing

Propelled by concern for the global environmental trends and increased agricultural production, enormous economic investments are made in green technology. These technologies include energy from solar roofs, wind mills to biofuel feed stocks, mechanised agriculture with genetically modified varieties and use of agro-chemicals. Local environmental groups are gradually assimilated by powerful, global agricultural companies and the desire to produce more food for export. The shift of influence to larger scales , affects approaches to local environmental issues at local or site level.

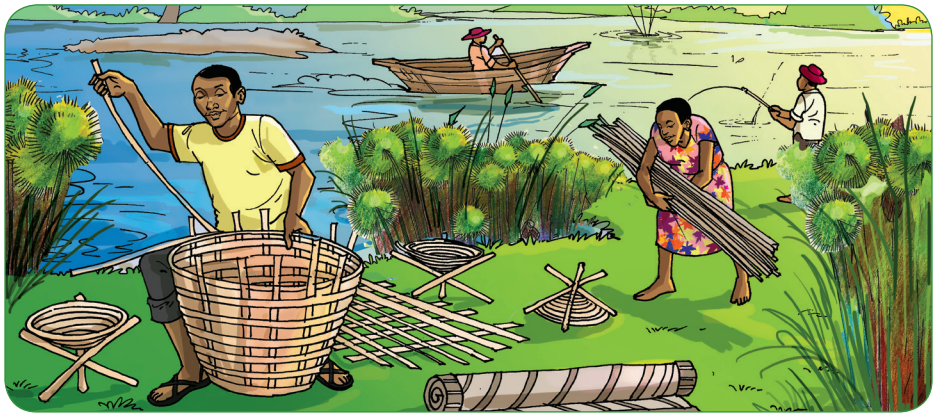
In future, the population is expected to increase substantially and the Wetland system becomes heavily polluted, leaving the long-term health of the population at great risk and losing all wetland biodiversity including fish. Agricultural production reduces and people begin migrating out of the site leaving the huge infrastructure development to go to waste.

Scenario 2: Going Green

Grassroots environmental organisations work to transform Local Government of a District increasing funding to district wide environmental projects and biodiversity conservation. Strong steps are taken to address local environmental needs, including cleaning the Wetland and re-introducing fish and biodiversity. However, over time, the new institutions become more narrowly focused and less responsive to evolving needs for the community.

The trend toward top-down management of local resources leaves a bad taste of government institutions in local people's mouths. This rigidity meets a severe challenge when an intense, persistent drought strikes.

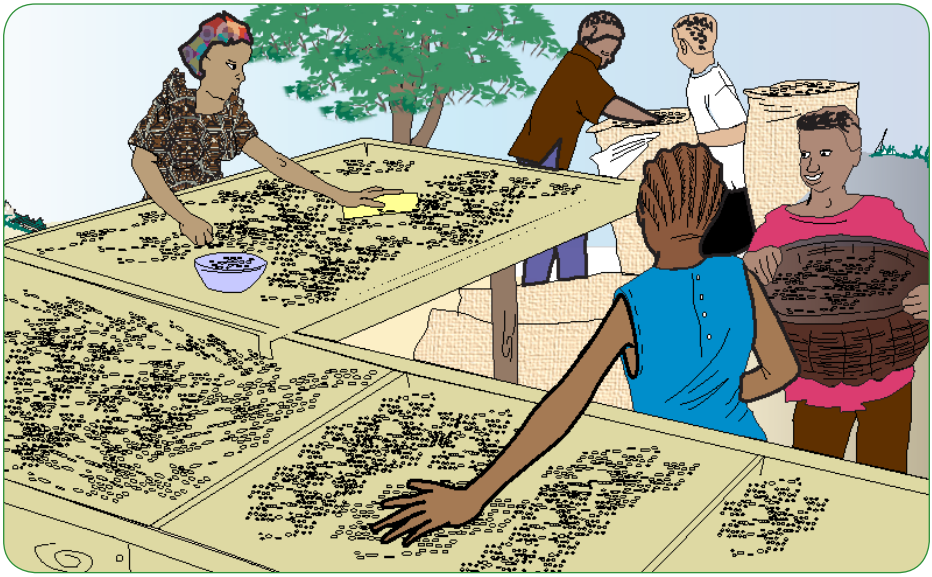
Scenario 3: Sustainable Use of a Wetland



Scenario 3: Sustainable Use of a Wetland

Local people and organisations develop increasingly successful sustainable innovations for managing the Wetland through an ecosystem approach. The wetland biodiversity is conserved; fishing for both food and sport is good business. Water is clean. And the Wetland supports agricultural production with good harvests. Use of the wetland intensifies, and the institutions representing the expanding user community become more diverse – tourism, fishing, agriculture, water, wildlife, forestry, local government, trade and commerce. However, conflict arises among the different interest groups, various coalitions form, and political gridlock ensues. Emerging issues continually challenge those who wish to conserve the Wetland. In future, the ecological health of the wetland improves.

Scenario 4: Increasing Productivity of a Wetland



Initial success in the economic production of an introduced exotic fish species in a wetland excites the local community. A fish processing plant is set up. Several job opportunities are created. However the exotic fish species preys on all other fish species and other forms of biodiversity and creates an ecological vacuum and a nutritional deficiency. In future, new and harmful invasive plant species emerges and becomes a new set of problems for the District and Wetland management. This catalyzes change and refocuses management efforts. Eventually, preventing future exotic and invasive species takes center stage and fish management reorients the diverse interests of different user groups and biodiversity conservation.

4.0 REFERENCES

Agricultural Chemicals Act, 2007. Ministry of Agriculture, Animal Industry and Fisheries.

Agricultural Policy (Draft) for Uganda. 2011. Ministry of Agriculture, Animal Industry and Fisheries.

Environment Act for Uganda. 1995. Ministry of Water and Environment.

Fisheries Policy and Act, 2002. Ministry of Agriculture, Animal Industry and Fisheries.

National Forest and Tree Planting Act. 2003. Ministry of Water and Environment.

Land Act for Uganda. 1998. Ministry of Lands, Housing and Urban Development.

Land Policy Draft (9) 2011. Ministry of Lands, Housing and Urban Development.

Land Use Policy for Uganda. 2007. Ministry of Lands, Housing and Urban Development.

Local Government Act. 1997. Ministry of Local Government.

The Constitution of the Republic of Uganda. 1995. Ministry of Local Government.

National Wetland Management Policy for Uganda. 1996. Ministry of Water and Environment.

Uganda Wildlife Act. 2000. Ministry of Tourism, Wildlife and Antiquities.

Uganda Wildlife Policy. 1999. Ministry of Tourism, Wildlife and Antiquities.

Reinette Biggs, Matthew W Diebel, David Gilroy, Amy M Kamarainen, Matthew S Kornis, Nicholas D Preston, Jennifer E Schmitz,, Christopher K Uejio, Matthew C Van De Bogert, Brian C Weidel, Paul C West, David PM Zaks, and Stephen R Carpenter (2009). Frontiers in Ecology and Environment. Preparing for the future: teaching scenario planning at the graduate level. Front Ecol Environ 2009; doi: 10.1890/080075

State of Uganda Population Status Report, 2012. Uganda Bureau of Statistics (UBOS).

About *Nature*Uganda

*Nature*Uganda, the East Africa Natural History Society is the oldest conservation organization in East Africa having been set up in 1909 as a scientific organization with the primary aim of documenting the diversity of wildlife in East Africa. Although the activities of the society were disrupted by political instability in Uganda in 1970s-1980s, the activities were rejuvenated in early 1990s with the identification of Key Biodiversity Areas (KBAs) such as the Important Bird Areas (IBAs) and Ramsar sites. Over the past20 years, the activities of the organization have diversified to embrace biodiversity conservation and sustainable Natural Resource Management.

The organization implements research, conservation and advocacy programmes with particular focus on priority species, sites and habitats across the country. This is achieved through conservation projects, environmental education together with government lead agencies, local government and local communities, and membership programmes activities such as Public Talks, excursions and Nature-walks that are key advocacy and public awareness tools. Our mission is to promote the understanding, appreciation and conservation of nature.

In pursuing this mission *Nature*Uganda strives to:

- Create a nature-friendly public
- Enhance knowledge of Uganda's natural history
- Advocate for policies favorable to the environment
- Take action to conserve priority species sites and habitats

*Nature*Uganda is the BirdLife International partner in Uganda and a member of IUCN.

***Nature*Uganda**

Bwindi Mgahinga Conservation Trust (BMCT) Building
Plot 1 Katalima Crescent, Lower Naguru
P.O Box 27034, Kampala
Tel: +256 414 540719
www.natureuganda.org

NatureUganda NatureUganda