
ECOSYSTEM-BASED APPROACHES TO CLIMATE CHANGE ADAPTATION (EBA)

National Guidelines



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DISCLAIMER

This Ecosystems-based Approaches to Climate Change Adaptation (EbA) National guideline is based on the projects implemented by **NatureUganda** around Echuya Central Forest Reserve and case studies collected and shared with organisations and agencies implementing EbA projects in Uganda. It is prepared within the mandate of NatureUganda in collaboration with EcoTrust (Uganda), IUCN (Uganda), WWF (Uganda), World Vision (Uganda), UNDP Uganda and the Climate Change Department (CCD), the Ministry of Water and Environment.

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About The National Guidelines

There is a lack of information on Ecosystem-Based Adaptation (EbA) technologies in comparison to more 'traditional' adaptation technologies. While an increasing number of EbA resources are becoming available, information has not yet been collated to allow easy access to inform the learning and decision making process.

These guidelines were developed as part of the Darwin Initiative Project "Ecosystem Conservation for Climate Change Adaptation in East Africa". They profile EbA measures that have been used in Uganda providing a description of how these projects were implemented. These give the opportunities to take lessons from such projects for other stakeholders and policy makers to use. Furthermore, EbA approaches are aimed to support both ecosystem services and communities thereby demonstrating the strength in delivering adaptation. In fact EbA improves ecosystem services and builds resilience of local communities to benefit from them.

The Users of these guidelines are advised to consider their ecosystems and associated services to inform planning, designing and implementation of the EbA approaches. By defining adaptation interventions through a participatory Vulnerability Impact Assessment and planning process, EbA options are more sustainable compared to traditional adaptation technologies and therefore will provide better long term impacts. EbA reduces vulnerability to both climate and non-climate risks and provides multiple economic, social, environmental and cultural benefits, including, disaster risk reduction, livelihood sustenance and food security, biodiversity conservation, carbon sequestration and sustainable water management. To this, we are hopeful that the guideline will provide good basis to engage.

Acknowledgement

The National Ecosystem-based Approaches to Climate Change Adaptation (EbA) National Guidelines are a result of an extensive process of consultation and a concerted effort that brought together different stakeholders who have implemented EbA projects in different areas in Uganda. Substantive inputs were provided by a range of stakeholders.

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List of Acronyms

AU	African Union
CBD	Convention on Biodiversity
CBOs	Community Based Organisations
CCD	Climate Change Department
CCEF	Community Conservation Environment Fund
COMESA	Common Market for Eastern and Southern Africa
CSA	Climate Smart Agriculture
DEA	Directorate of Environmental Affairs
DWD	Directorate of Water Development
DWRM	Directorate of Water Resources Management
EAC	East African Community
EbA	Ecosystems-based Adaptation
ECOTRUST	The Environmental Conservation Trust of Uganda
FBOs	Faith Based Organisations
FMNR	Farmer Managed Natural Regeneration
GFS	Gravity Flow Scheme
IBAs	Important Bird Areas
ICRAF	World Agroforestry Centre
IGAD	Inter Governmental Authority for Development
IGCP	International Gorilla Conservation Programme
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KBAs	Key Biodiversity Areas
LC	Local Council
MESF	Mt Elgon Stakeholders Forum
NAADS	National Agricultural Advisory Services
NAPA	National Adaptation Programmes of Action
NAPs	National Adaptations Plans
NBSAP	National Biodiversity and Strategies and Action Plan
NDP	National Development Plan
NEMA	National Environment Management Authority
NEPAD	New Partnerships for African Development
NFA	National Forestry Authority
NWSC	National Water and Sewerage Corporation
SDGs	Sustainable Development Goals
ToT	Training-of-Trainers
UNDP	United Nations Development Programme
UNEA	United Nations Environment Assembly
UNFCCC	United Nations Framework Convention on Climate Change
UWASNET	Uganda Water and Sanitation NGO Network
VIA	Vulnerability Impact Assessments
WV	World Vision – Uganda
WWF	World Wide Fund for Nature

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Executive Summary

These national guidelines on Ecosystem-based Approaches to climate change Adaptation (EbA) document and analyse good practice examples of EbA approaches in Uganda. The guidelines aim to strengthen the capacity of stakeholders at national level to achieve the mainstreaming of ecosystem-based approaches in the national climate adaptation policy framework, and to ensure their sustained implementation on the ground.

Uganda's economy is highly dependent on climate-sensitive natural resources, which are already negatively impacted on by adverse effects of climate change. Many of Uganda's water bodies are shrinking in volume. The rains are becoming more unpredictable and unreliable and some parts of the country are experiencing water stress conditions that traditionally did not experience these conditions.

The increasing climate change related negative impacts are a big threat to all the drivers of Uganda's economic development especially the agricultural, water, and forestry and energy sectors among others. Adaptation to climate change impacts is urgently needed. In Uganda, EbA have been demonstrated through the following scenarios: (a) building resilience through Vulnerability Impact Assessments (VIA) and Community Environment Conservation Fund (CECF); (b) making EbA work through Public-Private-Partnerships (PPP) in ecosystem/ landscape restoration approach; (c) linking EbA to Payment for Ecosystems Services (d) landscape restoration taking actions through local adaptation actions; (e) zones and villages adaptation actions, as an approach to building community resilience and (f) building resilience through Community Conservation Groups and on-farm interventions.

In order to support the future for EbA, policy makers and leaders at all levels will need to take lessons from examples of the EbA projects implemented in Uganda and described here. There is need to prepare strategies for climate change adaptation and mitigation giving greater attention to investments and adaptation strategies on both private and public land. Such strategies include land management, management of ecosystems, conservation, ecosystem restoration and others for multiple benefits. This has been encouraged in the dry-lands, mountainous areas and beyond. The examples of EbA projects have demonstrated that such approaches help to rehabilitate degraded land to increase climate change resilience; increase recognition of the role of EbA in building resilience and build technical and institutional capacity for sustainable land management; and create national and sub-national policies for climate change impact mitigation.

It is therefore recommended that these guidelines provide a framework in advocating for the delivery of interventions through EbA, so that long term adaptation benefits can be realised. Proper planning should however, remain critical in involving communities for participation of communities' driven interventions.

Definition of key concepts and terminologies

Adaptation:

The process of adjustment to actual or expected climate and its effects. Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects (IPCC, 2014).

Adaptation to climate change:

An adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC, 2007).

Adaptive capacity:

The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (IPCC, 2014).

Climate change:

The IPCC (2014) defines climate change as: “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer”.

Community-based Adaptation (CBA):

Reid et al. 2009 defined it as a community-led process, based on communities’ priorities, needs, knowledge and capacities, which should empower people to plan for and cope with the impacts of climate change

Ecosystem approach:

is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD 2011, IPCC 2014).

Ecosystem resilience:

is the capacity of a system to resist/absorb disturbance and/or rapidly recover from disturbance, without crossing a threshold to a different ecosystem structure or state. The disturbance may be natural, like a storm, or human-caused, like deforestation, pollution, or climate change (WRI 2008).

Ecosystem services:

Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are benefits people obtain from ecosystems such as food, fuel, fresh water, regulation of soil erosion, landslides, floods, disease outbreaks, and nonmaterial/tangible benefits like recreational and spiritual benefits of natural areas (IPCC, 2014).

Ecosystem:

An ecosystem is a functional unit consisting of living organisms, their non-living environment, and the interactions within and between them (IPCC, 2014).

Ecosystem-based Adaptation:

Ecosystem-based Adaptation is defined as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change”. Ecosystem-based adaptation uses sustainable management, conservation, and restoration of ecosystems to provide services that enable people to adapt to the impacts of climate variability/change. The approach contributes to reducing vulnerability and increasing resilience to both climate and non-climate risks and provides multiple benefits to society and the environment (CBD 2010, IPCC, 2014)

Hazard:

A hazard is the potential occurrence of a natural or human-induced physical event or trend, or physical impact, that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, and environmental resources (IPCC, 2014).

Mal-adaptation:

Actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future (IPCC, 2014).

Mitigation:

Two forms of mitigation is defined by IPCC, (2014). Mitigation (of climate change) defined as a human intervention to reduce the sources or enhance the sinks of greenhouse gases and Mitigation (of disaster risk and disaster) as the lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability.

Resilience:

Resilience can be defined as the capacity of a social-ecological system to cope with a hazardous event or disturbance, responding or reorganizing in ways that maintain its essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation (IPCC, 2014).

Vulnerability:

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC, 2014).

Vulnerability to climate change:

Vulnerability to climate change has been defined as the degree to which a system is susceptible to, or unable to cope with adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (IPCC, 2007)

PART ONE: INTRODUCTION

1.1 Introduction

Uganda is already experiencing the impacts of climate change. There have been increased floods, storms and high temperatures, more frequent droughts, which is influencing food security and increasing the threat of famine (NAPA, 2007). According to NAPA 2007, up to 80% of the population is employed in the agricultural sector, 38% of people living under the poverty line, a number that has been increasing, possibly due to climate change (NAPA, 2007).

However, through Ecosystem-based Adaptation, interventions that can help such vulnerable communities adapt to climate change through good ecosystem management practices can be implemented. Ecosystem-based Adaptation contributes to reducing vulnerability and increasing resilience to both climate and non-climate risks and provides multiple benefits to society and the environment. Many recent climate change adaptation initiatives have focused on the use of technologies and the design of climate resilient infrastructure. However, there is growing recognition of the role healthy ecosystems can play in helping people adapt to climate change.

1.2 Key guiding principles of EbA

Ecosystem-based Approaches to climate change adaptation (EbA) – also known as ecosystem based adaptation – constitute a promising option for sustainable and efficient adaptation to climate change. EbA is *'the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change'* (CBD, 2010)¹. This definition was added at COP-10 of the CBD held in Nagoya, Japan, in 2010, as part of decision X/33 on Climate Change and Biodiversity. Ecosystem-based approaches to climate change adaptation may include sustainable management as well as conservation and restoration of ecosystems.

The EbA guiding principles are relevant to planning and decision making. Potential opportunities for applying the guiding principles include decisions making on land, environmental, and natural resource management. The Guiding Principles can be useful to a wide range of stakeholders from state, regional, and local government agencies to non-profit organisations and collaborative planning bodies.

¹ Andrade, A; Córdoba, R; Dave, R.; Girot, P; Herrera-F, B; Munroe, R; Oglethorpe, J; Paaby, P; Pramova, E; Watson, E; Vergar, W. 2011. Draft Principles and Guidelines for Integrating Ecosystem-based Approaches to Adaptation in Project and Policy Design: a *discussion document*. IUCN- CEM, CATIE. Turrialba, Costa Rica. XXp.

Table 1: Key guiding principles of EbA¹

Principle	Requirements	Details
Promote resilient ecosystems	<ul style="list-style-type: none"> • Modeling of projected climate change • Revise systematic planning processes • Involve local communities in restoration and management • Adjust management programmes and actions 	EbA approaches cover a broad spectrum in land management, policy and project implementations. Promoting ecosystem resilience for the benefit of communities is the first and most obvious set of actions
Maintain ecosystem services	<ul style="list-style-type: none"> • Valuation of ecosystem services • Determine climate change impact scenarios • Identify options for managing ecosystems or managing use • Involve user communities in adaptation action • Trade-off analysis 	Maintaining ecosystem services is key –and, again, something that the field of conservation must develop better understanding of how to design and implement, and especially improve our ability to effectively measure benefits provided.
Support sectoral adaptation	<ul style="list-style-type: none"> • Approaches in national adaptation plans • Incorporate ecosystem services in land management frameworks • Influence sectoral development plans 	New opportunities are opening up for partnerships and natural system solutions with many of societies' sectors impacted by climate change.
Reduce risks and disasters	<ul style="list-style-type: none"> • Restore key habitats that reduce vulnerability • Involve vulnerable communities in restoration efforts 	There is growing interest in the security, public safety and disaster prevention communities. We are seeing increasing awareness of climate impacts and for the potential of natural system solutions.
Complement infrastructure	<ul style="list-style-type: none"> • Maintain ecological flows in rivers • Restoration of floodplains for flood attenuation • Restoration of forests and watersheds 	Innovations and strategies like these, for complementing infrastructure, are being tested now around the world. They include: land management of forests and watersheds that includes understanding of future scenarios to improve water security in a world of climate change
Avoid mal-adaptation	<ul style="list-style-type: none"> • Improve analysis of impacts from adaptation activities • Reduce negative impacts on natural environment • Avoid inadvertent impacts on natural ecosystems and communities 	Some engineered solutions can have significant negative impacts to natural systems – and we are looking for ways to prevent this in the planning stages - before engineered solutions are designed and implemented.

¹ Adapted from Terena Networking Conference 2011, Bridging Science and Real-World Decision-making. Second International Workshop on Biodiversity and climate Change in China

1.3 EbA approaches and Uganda's efforts

Under the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) Parties are encouraged to adopt EbA approaches, which utilise biodiversity and ecosystem services to support climate change adaptation¹. Through its focal points, Uganda incorporated EbA into the National Biodiversity Strategies and Action Plan (NBSAP II) and prepared a full chapter on Climate Change within the NBSAP II and the National Development Plan (NDP II). In fact, Uganda and Zimbabwe were the two countries that proposed a decision on EbA concept at United Nations Environment Assembly (UNEA) in 2014, in Nairobi.

These approaches are wide ranging and include landscape restoration, mountain management to protect against floods; rangeland management to prevent desertification; and sustainable management of forests to ensure food security. The EbA approaches for adaptation in Uganda emphasise that ecosystems be managed to limit climate change impacts on biodiversity and to help people adapt.

The implementation of EbA is supported by the current National Adaptation Programme of Action (NAPA, 2007) whose pilot projects pick on some of the elements above. The Ministry of Water and Environment has created a full department, Climate Change Department (CCD) that is now coordinating all the issues on climate change in the country. Within NAPA, several projects at landscape level have been initiated, piloted and up-scaled. The Department is building a database of all projects on Climate Change and mapping their locations and contribution to the national efforts². It is soon embarking on the development of the National Adaptation Plan (NAP), and it will be important that ecosystems are integrated into this process.

1.4 Policy framework and EbA in Uganda

The Ugandan Constitution provides a regulatory framework for the implementation of the Policies. The Uganda National Development Plan 2010/11–2014/15 further mainstreams climate change into the development plans, policies and budgets of all sectors. Additionally, the National Development Plan II (NDP II) promotes EbA as one of the strategies in delivering environment and climate change programme of government. Uganda developed a national Climate Change Policy, adopted in 2013, that provides guidance and directions in addressing the problems associated with climate change, while enabling the country to adapt and mitigate the effects of climate change. Its goal is to ensure a harmonised and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda. The Climate Change Policy is supported by a number of other policies, laws and regulations that can be strengthened to address climate change issues. The relevant plans and policies include the following:

1 See for example, CBD Decision X/33 and UNFCCC Decision 1/CP.16
2 <http://ccu.go.ug/index.php/projects>

Table 2: The Climate Change relevant plans and policies

Name of Policy	Date
The National Adaptation Programme of Action	2007
The National Environment Management Policy	1994
National Development Plan	2010
Uganda Forestry Policy	2001
National Environment Management Policy	1994
Uganda Forestry Policy	2001
Energy Policy for Uganda	2002
Renewable Energy Policy for Uganda	2007
National Health Policy	1999
Disaster Management and Preparedness Policy	1999 and revised in 2003
Population Policy and Action Plan	2009
National Water Policy	1999
Agriculture Sector Development Strategy and Investment Plan	2010
Environment Natural Resources Sector Investment Plan	2007
The National Land Policy	2013

The national Climate Change Policy is anchored into the regional policies - EAC Climate Change, New Partnerships for African Development (NEPAD), Common Market for Eastern and Southern Africa (COMESA), Inter Governmental Authority for Development (IGAD) and AU Summit Decisions.

At the international stage, Uganda ratified the UNFCCC in September, 1993 which obliges all parties to cooperate in preparing for adaptation to the impacts of climate change, and to develop and elaborate appropriate and integrated plans for water resources and agriculture. UNFCCC obliges all parties to take climate change considerations into account in their relevant social, economic and environmental policies and actions.

1.5 Institutional framework and climate change

The Government of Uganda has updated its national policies and institutional frameworks to align climate change with other development initiatives.

The Water and Environment sector consists of two sub-sectors: the Water and Sanitation (WSS) sub-sector and the Environment and Natural Resources (ENR) sub-sector. The WSS Sub-Sector comprises water resources management, rural water supply and sanitation, urban water supply and sanitation, and water for production. The ENR Sub-Sector comprises environmental management; management of forests and trees; management of wetlands and aquatic resources; and climate, weather and climate change.

The institutional sector framework consists essentially of: Ministry of Water and Environment with its three Directorates (Water Development-DWD, Water Resources Management-DWRM and Environmental Affairs-DEA); Local Governments (Districts, Town Councils), which are legally in charge of service delivery under the Decentralisation Act; Four semi-autonomous agencies: National Water and Sewerage Corporation (NWSC), National Environment Management Authority (NEMA) and National Forest Authority (NFA) forestry and the National Meteorological Authority (formally established 1st July 2013); NGOs/CBOs (coordinated through UWASNET) and Water User Committees / Associations; and the private sector.

1.6 Major stakeholders, roles and responsibilities in EbA in Uganda

EbA is cross-cutting and involves a number of stakeholders ranging from the local communities, private sector and civil society organisations to local governments to the national governments through ministries, departments and agencies. The different actors play roles ranging from planning, active site actions, coordination, monitoring and evaluation to financial provision. This therefore means that there should be proper coordination of all the stakeholders. In Uganda, the organisations with projects on EbA include **Nature**Uganda, UNDP, IUCN, WWF, CCD, WV-Uganda, IUCN and ECOTRUST.

PART TWO: NATIONAL GUIDELINES

2. BACKGROUND TO THE GUIDELINES

The approaches used in this publication are very specific and dependent on the implementation of EbA projects by various organisations. Therefore the steps stated herein were the steps that were taken by the implementing organisations which may not necessarily be the only steps to follow but rather picking the main components to be included in any other project planned by other institutions. They profile EbA measures that have been used in Uganda providing a description of how these projects were implemented giving opportunities to take lessons for better implementation and influencing of policy.

2.1 Building resilience through Vulnerability Impact Assessments (VIA) and Community Environment Conservation Fund (CECF)



*Building resilience through Soil and Water Conservation technologies in Mount Elgon region.
Photo by Richard Gafabusa - IUCN*

The Community Environment Conservation Fund (CECF) as a tool to catalyse social and ecological resilience was introduced as a revolving fund within communities to allow them participate in nature-friendly activities and improve the management of the environment. This provided an opportunity to finance nature-friendly activities for ecosystem restoration.

Therefore, the IUCN introduced the Community Environment Conservation Fund (CECF) as an enabling framework for communities to access micro-credit and undertake activities that will improve their livelihoods in the short term while helping communities increase their resilience and reduce vulnerability to the impact of climate change by implementing the interventions defined by the VIA tools, a process which is seen to be long term. This model is being implemented in the Mt Elgon region districts of Kapchorwa, Kween, Bulambuli and Sironko, which were identified as being particularly vulnerable to climate change impacts resulting in destruction of river catchments.

The VIA tool was used to forecast future climate variability and recommend strategic priorities for monitoring and management of climate change impacts. It is a much needed tool to help the region prepare for any climate change related disasters. First, communities are assessed and pilot areas are

identified. Here pilot area (at village level) Environment Action Plans are prepared. The implementation however, targets household level since land is owned at household level. A cost-benefit-analysis is carried out to evaluate the performance of the implementation.

The area covered is the mountainous areas (Mt. Elgon) from where the rivers that provide water to the communities originate. The challenges faced are different at different levels of the gradient, that is to say, those in the upstream face acute soil erosion that wash away fertile soils, while midstream and downstream areas face floods and drought. Along the way, the productivity of the land changes and it affects the community livelihoods. In order to control the adverse impacts of climate change (soil erosion and water shortage), the communities build soil and water conservation structures and plant trees along the water catchment areas and rivers banks. Traditionally, communities in these areas grow mostly maize and beans.

The objective of this is to strengthen national capacities to implement EbA options and to reduce the vulnerability of communities, with particular emphasis on mountain ecosystems. It aims to strengthen resilience and adaptive capacity of the communities to the adverse effects of climate change – in this case seeking solutions caused by drought, water pollution, and floods. The communities identify climate change based problems. The implementation is at four pilot sites using entirely nature based solutions.

In order to support communities improve their livelihoods without compromising their natural resource base, the CECF was introduced. Each village is assigned a fixed amount to enable its members to access micro credit, on condition of the community's commitment to the sustainable management of natural resources within their territory. It is a revolving fund on a three months basis. Performance is based on activities on individual land as one of the short term benefit. The CECF was formed with the intention of helping communities in the region engage in activities with less pressure on the land such as tree planting, using napier grass and other Climate Smart Agriculture (CSA) techniques on a long term basis. The fund has tackled issues of governance especially on the pay back mechanism.

A Steering Committee of Mountain Elgon Ecosystem in Uganda was set up to monitor the progress of the various programmes and projects in the landscape and discuss a way forward on promoting sustainable use of natural resources by the communities in the Mount Elgon region. District local governments and other lower local government structures have been engaged to ensure sustainability.

The VIA and CECF concepts and their resultant prescribed interventions has enhanced knowledge through encouraging communities to grow early maturing and drought resistant crops as coping strategies. This has improved food security and income for the communities. The community's understanding on their vulnerability and that of the ecosystems has brought about knowledge and attitude change leading to community cohesions, communities efforts to own forests and they look at them as their own and not merely for government, and are coming up with bye-laws on their own.

Below are the steps used to implement the model.

Step one:

Conduct Vulnerability Impact Assessment to understand the situation and propose possible strategies.

Step two:

Conduct a participatory planning with the community to agree on the strategies and buy-in prior to implementation

Step three:

Train the communities on the agreed EbA interventions and conduct joint practical sessions to ensure the interventions are being implemented rightly

Step four:

Introduce the Community Environment Conservation Fund (CECF) as an enabling framework for communities to access micro-credits for ecosystems services. This incentive scheme aims to inspire interest and ensure sustainability of the interventions in both short and long term.

Step five:

Ensure landscape participation and lesson sharing through a joint landscape stakeholder forum.

2.2 Making it work through Public-Private-Partnerships (PPP) in ecosystem/ landscape restoration approach



*Ecosystem and landscape restoration in the Mt Rwenzori region.
Photo by Martin Asimwe WWF-Uganda*

The PPP in ecosystem integrity and reducing pressure on ecosystem goods as used by WWF Uganda is another aspect of promoting EBA. In Rwenzori region and around Kalinzu Central Forest Reserve, WWF has ensured ecosystem integrity through working with a multiple of partners who include CSO, Government and Private Sector Partners to promote Forest Landscape Restoration Approaches, FSC Forest Certification, Integrated Water Resources Management, Clean and Renewable energy promotion (Champion District Initiative) as well as Sustainable Conservation financing initiatives.

Adopted by WWF Uganda, the Poverty Action Plan was used in the implementation process and in creating resilience outside conventional Protected Areas. It is therefore advised that the Poverty

Action Plans which are available be made part of the planning tools to use in planning interventions by the implementers. In the PPP, funds to support ecosystems conservation were channelled to communities to help them maintain the functioning of the watershed.

This approach follows 10 principles, which include among others being legally acceptable, conforming to approved plans (e.g. Environmental Action Plan) and with an emphasis on nature-based economic benefit (e.g. bee keeping). In order to build solid community responses on resilience, the model uses three steps: 1) recruitment, where a group of farmers located at the identified intervention sites are taken through the cost-benefit-analysis on water point restoration and indigenous tree planting. Once they appreciate that this initiative adds value to restoration, they express interest in the whole programme; 2) vulnerability assessment of the site with records of landslides, frequent bush fires and land that has not had good agricultural value. This is aimed at focusing priorities and interventions; and 3) implementation of activities (e.g. friendly forestry activities) that meet the community's vision of a resilient landscape that provides environmental services and environmental goods.

As an incentive to the community, community tree nurseries were supported to provide planting materials and WWF-Uganda would buy quality seeds from such community nurseries. Through training, the community improved the quality of the seedlings from their nurseries and eventually they got money from the sale of the tree seedlings at a prevailing price – this is a first way of getting income. One issue was that there was no restriction to farmers on how to use the money got from the sale of tree seedlings and therefore most of the money never got to be reinvested in conservation programmes.

Implementation of the above approaches has always been guided by the principles of ensuring simultaneously, environmental sustainability, economic benefits, social benefits and mainstreaming climate change adaptation. The main lessons learnt from this initiative included the need for constant caution against mal-adaptation/ environmental leakages, and the need to link interventions to livelihood improvement. As a result, there is reduced landslides, reduced incidences of fire on bare hills and reduced siltation of water and responsible forest management. Synergies have been built at local level through building capacities of the local government leaders, recruiting and training extension staff, and development of options for climate change adaptation

Below are the steps used to implement the model.

Step one:

Seek financial support of the community conservation-based businesses from the private sector whose businesses depend on the ecosystems

Step one:

Recruit farmers, where a group of farmers located at the identified intervention sites are taken through cost-benefit-analysis on water point restoration, forest-landscape restoration and indigenous tree planting.

Step three:

Perform vulnerability assessment of the site with records of landslides, frequency of bush fires and land that has not had good agricultural value

Step four:

Implement agreed interventions (e.g. friendly forestry activities) that meet the community's vision of a resilient landscape that provides environmental services and environmental goods.

Step five:

Initiate community conservation-based businesses that can support the interventions through providing inputs or seedlings and build resilience to climate change

2.3 Linking EbA to Payment for Ecosystems Services



Households organized in 'working units' accessing tree seedlings for planting in own gardens supported through PES funds.

Photo by Richard Gafabusa - IUCN

The Environmental Conservation Trust of Uganda (ECOTRUST) adopted the Payment for Ecosystems Services (PES) to work as a benefit and financing scheme to the households engaged in ecosystem restoration. This is aimed at increasing the household income and interesting communities to monitor the health of the environment.

ECOTRUST implements a model based on Payment for Ecosystems Services (PES) in collaboration with the District Local Governments, IUCN, UNDP and Ministry of Water and Environment. The

application of the model (PES) supports smallholders who are actively engaged in managing and protecting ecosystems, while at the same time investing in opportunities that improve their own resilience to climate change. A VIA is done and completed on climate change related issues that is used in the implementation of EbA activities and used to follow the implementation and adaptation linkages.

The PES is an incentive scheme and is used as a sustainability measure to support EbA interventions where groups (households) receive money from the PES scheme over time as a means to inspire interest in tree planting for the good of the landscape. In this model, the entry points for the EbA interventions are households organised in '*working units*' using a landscape approach. The village level '*Working unit*' consists of 3-10 households within a given village with a combined land size of at least five hectares. However, individual achievements are proportionately rewarded in terms of payments per hectare from the scheme, which encourages hard work within the group. Activities involved in PES are soil and water conservation (terracing, grass bands, mulching) and tree planting as a mitigation measure as well as creating resilience following the carbon scheme. The design has been with district technical staffs to design the dimensions and structures depending on how many trees can be planted in a hectare.

To make this model work, Parish Climate Change Adaptation Planning was done. This informed where the incentive scheme should be designed and adopted. Several households are clustered to a '*working unit*' with a combined land size of at least five hectares to plant trees, dig trenches, grass bands and contours for monetary gains and climate change related issues. Tree nurseries are set up for communities from which seedlings are bought to implement PES. The interventions chosen are guided by community interest, problem to be addressed and long term benefits of the interventions. During the implementation of the chosen interventions, emphasis is made on understanding the following: (a) each household must understand that they have responsibilities and roles to play, (b) investments in interventions need to be sustained/maintained so as to achieve desired outcome, (c) they follow a given technical guidance to ensure correct application of the intervention, and (d) using the incentive individually and achieving together a landscape approach.

In a way of making communities understand, the model emphasises trainings that are conducted on various issues as highlighted in the VIA report. Overall, the focus on resilience of the communities to improve the ecosystems through PES provides better delivery of interventions since it provides short term gains. The formations of groups are advantageous since they can get funds from the Communities Carbon Fund to complement PES. Building on the reliance of the communities is key when focussing on the ecosystems based adaptations.

Below are the steps used to implement the model.

Step one:

Conduct Vulnerability Impact Assessment and planning to be used in the implementation of EbA activities and monitoring implementation and the adaptation linkages.

Step two:

Form a network of 'working units' within the areas where the VIA has been conducted. The village level 'working unit' consists of 3-10 households within a given village

Step three:

Introduce the PES as an incentive scheme. This is used as a sustainability measure to EbA interventions where groups (households) receive funds from the PES scheme over time as a means of inspiring interest in tree planting in the landscape

Step four:

Ensure that all the 'working units' are following a given technical guidance to ensure correct application of the intervention and full realisation from the PES scheme

Step five:

Make sure that the incentive is applied on individual basis to reward individuals for their efforts and achieving together at the landscape level

2.4 Landscape restoration taking actions through local adaptation actions (Farmer Managed Natural Regeneration, FMNR)



Community FMNR champions being taken through practical field silvicultural practices
Photo by Cotilda Nakyeeyune - World Vision, Uganda

The purpose of the Farmer Managed Natural Regeneration (FMNR) model is to create awareness, identify community champions who are passionate about environmental conservation and train them to influence others to ensure natural regeneration vis-à-vis actual planting of new trees.

Farmer Managed Natural Regeneration (FMNR) model is being used by World Vision-Uganda to address environmental degradation challenges while contributing to reducing the effects of Climate Change. The model hinges on the ability of most indigenous tree species to regenerate or coppice

naturally, if allowed to. Hence it seeks to build this awareness among communities to help them cope, and to challenge them to allow tree stumps to coppice, nurture the coppices, and do all it requires keeping regenerating more trees for ecosystem is to be resilient. At farm level, this is done in three simple steps; 1). Surveying the farm to identify existing tree stumps, and choosing the ones for regeneration. 2). Thinning out the coppices on the selected tree stumps to leave 3-5 shoots, and pruning them. 3). Tying together the pruned shoots or coppices for support. It may also be necessary to mark the pruned coppices with coloured material as a signal to others that they should be protected. The pilot schemes are in four districts at sub-county level to enable significant change.

The model is implemented at household level since most land and resources are owned at that level. The model is used wherever there are living tree stumps with the ability to re-sprout or seeds in the soil that can germinate. The model encourages regeneration other than raising tree seedlings in a nursery. The FMNR model is an approach that requires little investment. The main component is awareness creation at all levels, from village level to the relevant district level departments and structures. Awareness creation for attitude change from exotic trees for commercial farming to natural regeneration is also central to this model. This is done through reorientation and working through existing farmer groups, youth groups and 'saving groups', local councils, parish development committees, environmental committees, schools etc.

With the support of the sub-county leadership and technical staff, individuals within villages who are interested and passionate about environmental conservation are identified in a participatory process and are trained as Community FMNR Champions (or ToTs). The community FMNR champions are then tasked to implement regenerate trees on their land, and influence their neighbours to do the same. The district Local Governments have appreciated the FMNR model and got involved in the planning processes. The model can eventually be included in the District rolling plans as well as disaster preparedness plans (at both district and sub-county levels) for scaling up to more sub-counties. This is done to build the community resilience to climate change as a means on improving the water table, access to wood and other tree products, control of erosion and strong winds and as a pest control mechanism.

The FMNR model comes as a solution to challenges that have prevented the scaling up of tree growing efforts not only in project areas but also country wide. There is a challenge of low survival rates due to bush burning, prolonged droughts, and cattle keeping which are characteristics of the pilot regions. Communities recognise that there are changes in weather patterns that have led to prolonged drought, more pests and diseases, stronger winds, and floods and are able to link this to deforestation thereby justifying community involvement in FMNR for better environment and reduced drought periods.

Below are the steps used to implement the model.

Step one:

Create awareness on the application of FMNR in comparison to conventional forestry management in drier landscapes

Step Two:

Identify Community FMNR Champions from within villages/ communities who are interested and passionate about environmental conservation

Step Three:

Train champions in the technology of natural regeneration (Training of Trainers) for them to influence and train their neighbours to do the same

Step Four:

Ensure that there is natural regeneration uptake by the implementers. The model hinges on the ability of most indigenous tree species to regenerate or coppice naturally

Step Five:

Ensure that the recruitment covers a wider area. The model can eventually be included in the District rolling plans for scaling up to more sub-counties.

2.5 Zones and villages adaptation actions, an approach to building community resilience



Provide an option for domestic animals through an ecologically friendly dam in water stressed regions

Photo by Semambo Muhammad - CCD, Ministry of Water and Environment

The Climate Change Department (CCD) adopted the zoning approach and was implemented in different ecological zones of the country as proposed in NAPA document (2007) to address climate change issues with the communities taking the lead to build their own resilience to climate change. The CCD, formerly the Climate Change Unit (CCU), uses the zoning approach to target beyond the village levels. There are 5 ecological zones the CCD identified to be used as pilot areas. This was as a result of adaptation programmes started as a requirement by UNFCCC that demanded that each country submits the national adaptations programmes and actions that focus on the immediate and urgent responses to address climate change issues.

The five ecological zones/ecosystems include semi-arid (with areas experiencing acute drought), highland ecosystems, aquatic ecosystems in reference to the islands, Lake Victoria ecosystem-focusing on the boundaries of the districts surrounding the lake - and low land ecosystem. The models used in the integration of the ecosystems are community based.

The CSOs and District Local Governments conducted Vulnerability Impact Assessments in chosen communities and came up with interventions on what could be done to address climate change issues. The Participatory Rural Appraisal (PRA) tools were used with the communities to build climate change resilience. In the above pilot areas, there is a lot of water shortage, extreme drought, floods in other areas and environmental degradation. This was curbed by using an integrated approach suggested in the NAPA defined priority projects.

The approaches at demonstration pilot sites included construction of energy saving cook stoves using locally available materials, tree planting programme emphasising use of indigenous trees, fast maturing crops because of the weather patterns, water harvesting techniques (roof water harvesting, valley dams), soil and water conservation and irrigation techniques to maintain buffer zones. All the above is done through a pragmatic approach.

The pilots helped improve communities' understanding of resilience. The experience is that local communities define resilience through the problem they face and how it can easily be addressed. The following are ways of how resilience is understood:

1. Community management of financial resources channelled through district local governments to counter climate change depending on the problems being faced,
2. Available sustainability options to counter climate change, say for instance use of water harvesting techniques to counter drought,
3. Use of revolving fund/resources, say for instance, passing on same quantity of seeds from harvests to another beneficiary/farmer in the food security programme
4. The ability of an individual to sustain hardships due to bad weather better than other people from the same community thereby affirming that individual's resilience

Lessons from this model and experiences from pilot sites are shared widely. The activities are intergraded in the district plans. The interventions guided the development of National Climate Change Policy and will be used in the development of National Adaptations Plans (NAPs). It is therefore necessary to involve communities as well as involving the local authorities at the front for the local community and natural ecosystem adaptations.

Below are the steps used to implement the model.

Step one:

Prepare country/national adaptations actions that focus on the immediate and urgent responses to address climate change issues.

Step two:

Map out and define the ecological zones or ecosystems where climatic stresses such as acute drought and floods are and proposed interventions.

Step three:

Together with CSOs and District Local Governments conduct Vulnerability Impact Assessments and confirm appropriate interventions.

Step four:

Together with the communities, build climate change resilience by encouraging community managed financial resources channelled through districts local government for local actions.

Step five:

Through Participatory Rural Appraisal (PRA), evaluate the interventions and ensure the integration in the district annual rolling plans.

2.6 Building resilience through Community Conservation Groups and on-farm interventions



Planting shrubs along the contours to stabilise soils in hilly areas of Kabale - a way of increasing agricultural productivity

Photo by Edward Perry - BirdLife International

Nature Uganda is building the capacity of the local conservation Groups commonly referred to as Collaborative Forest Management Associations. This is done through implementing a national policy on Collaborative Forest Management (CFM). The policy aims at ensuring that the communities continue to benefit from the forest while appropriately managing it and ensuring that the non-timber forest products are domesticated on-farm to ensure sustainability of the resource. Building the capacity of communities and other stakeholders in conservation ensures that they can sustainably use natural resources both inside the forest while improving the ecological integrity in the long term through providing non-timber forest products 'on-farm'.

PART THREE: KEY OUTPUT AND NATIONAL EXPERIENCES

3.1 Case study I: Influencing national policies

The results from the implementation of EbA projects have had a great influence on the national negotiations on development and environmental issues. This has ensured that the outcomes of negotiations during consultations on policies consider ecosystem services as priorities for national development and adaptation. It is important to note that policy-makers had an understanding of EbA since most had interfaced with one initiative or the other. This strengthened the positions during consultations. At the national level, the experiences from the implementation of EbA programmes or projects played a great deal in the following policy development:

- a. The development of the National Climate Change Policy and the recognition of CSO contribution by including one seat in the National Steering Committee on Climate Change. The goal of the policy *'to ensure a harmonised and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda'* contains the EbA principles of multiple benefits, multi sector inclusion, coordinated action and resilience.
- b. The inclusion in EbA interventions in the National Biodiversity Strategies and Action Plan (NBSAP II). Through the thematic Working Groups on *Aquatic and Terrestrial Biodiversity* and on *Climate Change*, Uganda has consistently linked biodiversity conservation with benefits from the ecosystem to the community. The NBSAP II provides strategies that include EbA to act on threats that might compromise the ability of the population to continue to benefit from these values in the context of climate change.
- c. The inclusion of EbA strategies as key strategies in delivering environmental programmes of government in NDP II. The NDP II prioritises three sectors (agriculture, tourism and minerals) and two others (infrastructure and human resource). The environment-development linkages in these are essential in crafting sustainability indicators and measures to ensure that identified activities are not deleterious to the environment to which EbA is included.
- d. The United Nations Environment Assembly (UNEA), adopted an Ecosystem-based Adaptation decision in 2014. The decision was presented by representatives from Uganda and Zimbabwe. The Uganda group presented this based on lessons from the various EbA programmes in the country that are delivering on environmental management.

3.2 Case study II: Involving the key stakeholders for collective action and greater impact, a case of Mt Elgon Stakeholders Forum (MESF)

Collective action is the co-ordination of efforts among groups of individuals to achieve a common goal, when individual self-interest would be inadequate to achieve the desired outcome (Olson 1965). To demonstrate this, we look at how this has worked with the Mount Elgon Ecosystem Stakeholders Forum (MESF). This forum was facilitated by IUCN Uganda – for coordinated actions. It included all the actors within the landscape from the District Local Government, other lower local governments,

NGOs in the areas, CBOs and to key individuals. Stakeholder engagement was done at various levels: (a) mobilising community around the Gravity Flow Scheme (GFS) to plan and manage the catchment to sustain the gravity flow of water as a nature based solution to drought; (b) community forum to discuss the management and sustainability of the GFS with clear individual and collective roles; (c) engagement and interaction between upper and lower catchment population in development of entire catchment management plans; and (d) MESF at whole catchment level under the chairmanship of the top district official. Having conducted a stakeholder assessment, it provided an opportunity to strengthen the ecosystem aspect and coordinate all the interventions from all players within the landscape.

The MESF provided one solution to resource management and that is stakeholders building community resilience to better cope with climate change impact. This process is very important. It provides an opportunity for a participatory engagement, changing peoples' attitudes and engaging the relevant stakeholders. It also helps build trust of communities which has been known to require long term engagement involving all the relevant actors, especially for controversial areas where communities are not certain about issues of land tenure. Participatory planning along with communities is very crucial so that all partners, beneficiaries and stakeholders are engaged in the processes right from initial stages for ownership and sustainability.

3.3 Case study III: Sharing information, buy-in and adoption

Different information dissemination channels have been seen to work with different targets. The government best option to ensure buy-in and adoption of intervention is through integration of the intervention into the District Development Plan. However, to provide the technical resource, the district local government are provided with technical information online and on CD ROMs. The Climate Change Department (CCD) has shared the outcome of the piloted interventions and lessons through this channel. This option provides a quick channel of communicating urgent and immediate adaptation needs and they provide an opportunity of learning the climate change process. The outcome of this will be useful in the development of the National Adaptations Plans (NAPs).

Being relatively a new concept, buy-in and adoption is best done through awareness and training programmes. This has been the main channel used by in Farmer Managed Natural Regeneration (FMNR) and across other models. This has helped in creating awareness at village level and inspiring attitude change. The training of farmers can take any form from exchange visits, training of community FMNR Champions and at national conference.

More importantly, the buy-in and adoption of the ecosystems approaches were best incorporated within well-defined short and long term benefits. All the models tried to provide both options of short term benefits to individuals or households and long term benefits to the entire landscape or community. All the stakeholders involved in EbA projects have been able to document and share findings on potential environmental, social and economic gains of the schemes. These are widely shared allowing communities to replicate the programme at household level.

PART FOUR: APPLICATION

4.1 National guideline as a tool for advocacy tool

This Ecosystems-based Approaches to Climate Change Adaptation (EbA) national guideline provides targeted operational advice to stakeholders and implementers. Importantly, the guidelines are seen as a living document that can be updated by drawing on additional lessons from other EbA processes. It presents a first step in ensuring a long-term adaptive approach to adaptation that endeavours to build the evidence base on EbA to inform climate change adaptation now and in the future. This is therefore produced to guide key frameworks in advocating for the delivery of interventions through the concept if long term impacts are to be realised.

The guidelines are formulated through a combination of theoretical desk investigations and a participatory, collaborative process involving targeted consultation through EbA case studies from partner organisations and agencies. The theoretical background work was carried out to profile EbA initiatives to explore the who, what, where, when and why of EbA. In addition, principles of good practice EbA were considered in conjunction with the tools and approaches currently employed to evaluate EbA and adaptation more broadly from an operational perspective. Key recommendations from the partner organisations and agencies were used as advice to the uptake of the approaches described.

4.2 National guideline as planning and development tool

The National EbA guidelines provide descriptions of models with key considerations. The described models highlight the need of initial studies or Participatory Rural Appraisal (PRA) to be done in developing adaptation planning, including awareness on the vulnerability and its reduction, and suggesting a more understanding of what is necessary for adaptation planning as development tool. These EbA guidelines therefore emphasise mainstreaming adaptation, which essentially means integrating awareness of climate change into all stages in decision-making, especially in key sectors that may be more sensitive to climate change. It is therefore advised that the planning should remain a main stem of delivery of interventions and that the way planning together with the communities for communities' driven interventions has been emphasised in the national guidelines be copied.

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About *Nature*Uganda

NatureUganda, formally the East Africa Natural History Society, is the oldest conservation organisations in East Africa having been set up in 1909 as a scientific organisation 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 past 20 years, the activities of the organisation have diversified to embrace biodiversity conservation and sustainable Natural Resource Management.

The organisation 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 favourable to the environment
- Take action to conserve priority species sites and habitats

GOAL is contributing to biodiversity conservation and sustainable natural resource management at both national and international levels.

MISSION is «Promoting the understanding, appreciation and conservation of nature». In pursuit of this mission, NU strives to:

Create a nature-friendly public;
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