Kagera Transboundary Agroecosystem Management Project

Regional Technical Workshop on Land Use planning and Management held on 29th – 31st August, 2011 at White Horse Inn, Kabale-Uganda

WORKSHOP PROCEEDINGS

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List of Acronyms

DFID	Department for International Development Agency (UK)
FAO	Food and agriculture organization of the United Nations
FFS	Farmer field school
GEF	Global Environment Facility
GIAHS	Globally Important Agriculture Heritage Systems/Sites
GIS	Geographic information systems
GoR	Government of Rwanda
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
INBAR	International Network for Bamboo and Rattan
KAGERA TAMP	Kagera Transboundary Agroecosystem Management Project of the Kagera River Basin
LADA	Land Degradation Assessment in drylands project
LD	Land degradation
LoA	Letter of agreement
LUS	Land use systems
MoA	Memorandum of Understanding
NBI-NELSAP	Nile Basin Initiative-Nile Equatorial Lakes subsidiary action programme
NLUPC	National Land Use Planning Commission Tanzania
NPM	National project manager/SLM expert
NRL	Land and Water Division of FAO
PES	Payment for Environmental Services
PLUP/D	Participatory land use planning/development
(P)VLUP	Participatory village land use planning Tanzania
PRESA-	Pro-Poor Rewards for Environmental Services
QA & QT	Questionnaires for assessing SLM Technologies and Approaches (WOCAT)
QW	Questionnaire for assessing Watersheds (WOCAT)
R/N PSC	Regional /National Project Steering Committee
REDD	Reduced emissions from forest degradation and deforestation
RPC	Regional project coordinator
SIDA	Swedish International Development Cooperation Agency
SLaM	sustainable land and ecosystem management
SLM	Sustainable Land Management
WOCAT	World Overview of Conservation Approaches and Technologies

Introduction

The Kagera Transboundary Agroecosystem Management project (Kagera TAMP) supports the adoption of integrated ecosystems for the management of land resources in the Kagera river basin shared by Burundi, Rwanda, Tanzania and Uganda. In order to attain this goal a range of strategic plans and actions have been taken since project inception in April, 2010, including organizing consultative meetings and workshops with stakeholders for optimal realization of best sustainable land management results by sharing of expertise and experiences. From that standpoint, a regional technical workshop for land planning and management was planned and held at Kabale, Uganda on 29th to 31st August 2011.

The workshop was attended by 44 participants including project partners from within the basin countries, FAO-Land and Water Division (NRL), and partners from Kenya (CARE) and China (INBAR). The workshop aimed at developing a coherent strategy for implementing improved land planning and land resources and agro-ecosystems management at farm, community, sub-watershed and district levels with a view to generating a range of benefits in terms of local livelihoods and global environmental benefits A key issue was how to ensure value addition for the range of land managers and producers (subsistence and commercial farmers, herders, foresters and fishers).

In particular, the Kabale workshop allowed participants to share experiences from the region and consider how to integrate four thematic areas:

- Tools and methods for assessment of SLM best practices at field and watershed levels, for local land degradation and SLM assessment (community/district) and climate change adaptation and mitigation (LADA-WOCAT and others)
- Land planning approaches (land use & community territorial planning and watershed management) involving the range of actors (FFS, community leaders, technical sectors and planners at district level, water authorities at river basin level, public and private sector).
- Land tenure and access to resources (land, water, energy, labour)
- PES and other incentive mechanisms eg Marketing, certification, district budgets etc Suppliers and buyers of environmental services)

During the workshop various presentations were made that covered: i) preliminary results in the four countries of the ongoing assessment of SLM technologies and approaches using WOCAT technology questionnaire (QT) and approaches questionnaire (QA); ii) national land use policies and development/ management plans and land planning processes focusing on experiences in their application in the Kagera basin iii) land tenure arrangements and experiences to improve tenure security in the four countries and iv) concept and experiences in the basin of Payments for Environmental Services (PES) which includes financial and non financial incentive measures.

Working groups were set up to identify strengths and weaknesses and to examine government and local authorities' capacities to support participatory land use/resources planning. Participants reviewed issues of land tenure and access to resources and their impacts on land management/degradation and discussed approaches for enhancing land tenure security and equity in resources access as a basis for wider adoption of SLM. Participants also reviewed the concept of PES and a common understanding of PES opportunities and constraints was obtained facilitated by a very instructive field visit. The workshop proposed various opportunities for initiating PES activities in the Kagera basin with attention to water supply, carbon sequestration, agrobiodiversity and bamboo. Efforts were made to link these various issues into a coherent catchment/territorial planning process through a group exercise by country working on a selected catchment map.

Background and workshop objectives

The Kabale workshop was organised following discussions during the Regional Project Steering Committee (RPSC) meeting in Kigali, Rwanda in March 2010. The RPSC endorsed the workshop due to its importance in developing a common understanding and better planning of SLM with its supporting pillars including land planning policies, tenure and PES. The workshop objectives were threefold:

- Opportunity for the project team and partners to better plan sustainable land management (SLM) interventions through participatory approaches from field level to community territory, to watershed/catchment, to district/provincial level and across the entire river basin.
- Sharing a range of tools, methods, approaches and experiences among FAO, the four beneficiary countries and project partners for land planning and management, addressing land tenure issues and conflicts over resources and providing incentives to land users for SLM.

- Determine the benefits that can be generated from sustainable land and ecosystem management (SLaM) in crop, grassland and forest land in terms of i) local livelihoods and value addition for the range of land managers and producers and ii) global environmental benefits (reversing land degradation, carbon sequestration and reduced GHG emissions, conservation and sustainable use of agro-biodiversity and protection of international waters).

Summary of findings and recommendations

The three day workshop was conducted in a series of thematic sessions as summarized below:

1. Workshop opening and welcome address

After introductions by participants, the guest of honor Mr. Sunday Mutabazi, Uganda National Project Focal Point also representing the Uganda Ministry of Agriculture Animal Industries and Fisheries (MAAIF) officially opened the workshop. In his opening remarks Mr. Mutabazi outlined the challenges the project encounters in addressing land degradation in the Kagera basin and called for measures that will help resolve some of those issues.: firstly, the tremendous population pressure on the ecosystems noting that the current East Africa population of 300 million people will have doubled by 2050 and second the rampant poverty and suggestions that the indicators are static or falling. Mr Mutabazi pointed out that there is a current debate on various project intervention approaches, highlighting that local people should see more benefits through the project by improving services delivery, establishing by-laws (penalize for non compliance; decentralized process), capacity building (impart skills instead of the plethora of seminars & workshops), introducing PES (direct cash or support through services), supporting SLM technologies and understanding why they are not adopted), strengthening collaboration and effectiveness of structures and institutions (dispersed public sector, NGOs, CBOs, private sector)) and through good governance that supports good natural resources management (and requires adequate resources). Mr Mutabazi requested that the workshop should provide concrete recommendations to help Governments and motivate leaders (national; districts) to provide resources to invest in ecosystem management. He concluded by thanking FAO and development partners for the technical assistance directed to the project.

The welcoming note was made by Mr. Charles Owach, Assistant Representative/FAO Representation Uganda. Mr Owach affirmed that this is an important workshop in bringing together a collection of technical and policy experts from the four countries to guide sustainable land management (SLM) across the Kagera basin by TAMP and partners as a basis for sustainable and productive agriculture and food security. He advised that the workshop should tackle some key elements of the project which are critical i.e.: land use planning (LUP), land tenure and payments /incentives for environmental services (PES). Mr Owach added that the project development Phase (PDFB) and the project to date have focused on information collection, mapping and assessment, establishing partnerships. He wanted to see the project moving to concrete implementation ion the ground thereby touching the lives of the basin population and ensuring clear outcomes by the end of the project in mid 2014. An integrated approach among all concerned sectors and at various levels is envisaged in order to attain local benefits and global environmental benefits. Mr Owach finally thanked the Governments of the 4 countries and Kabale district for their involvement and support to the project.

There were then two main technical sessions focusing on:
- Review of land assessment and land planning and tenure tools and methods and country experiences
- Identifying opportunities for design and piloting PES in the Kagera Basin

2. Review of land assessment and land planning and tenure tools and methods and country experiences (Session 1)

Land assessment and planning tools and methods at farm, community, watershed and sub-national levels
(Sally Bunning, Lead technical officer, FAO Land and Water Division)

Sally Bunning first gave an overview of Kagera TAMP goal, objectives and challenges. She reviewed the main Kagera basin transboundary issues notably
- poor land and water resources management, soil erosion, affect on land and water quality and water regime,

- burning (bush fires and charcoal production),
- crop and livestock pests and diseases,
- competition for land,
- illicit use of resources in protected areas and wildlife-livestock interactions.

She noted that the project is part of the TerrAfrica/SIP programme for scaling up SLM in Sub-saharan Africa and addresses two GEF -4 strategic objectives:

- SO1 Supporting sustainable agriculture and rangeland management
- SO3 investing in new and innovative approaches for SLM

On Kagera TAMP implementation she noted its ambitious targets and emphasised the need for strong partnership and co-funding in order to meet the goal of implementing SLM on 100,000 hectares and reaching the target beneficiaries by mid 2014. She stressed the need to understand and target the various land user types and to identify and address needs of vulnerable groups.

Targets: SLM implemented on 100,000 has and reaching the target beneficiaries by mid 2014:

- 10% increase in crop, livestock and other products by trained farmers/herders leading to improved nutrition, income and food security
- 30%increase in vegetation cover and 20% increase in C stores on 30,500 ha pasture and crop land, with improved soil productivity and water management, leading to reduced land degradation (erosion etc), drought and flood
- Control of soil erosion and reduced burning demonstrated in target sub-catchments and farmer plots and reduced sediment load in 4 sub-catchments).
- Capacity developed for SLM scaling up by at least: i) 120,000 community members/decision makers, 3,600 FFS members, 300 technical staff, and 25 policy makers
- Regional cooperation generating effective support for transboundary SLM action plans.

Ms Bunning highlighted the steps to implement SLM through a coherent land use planning and land resource management approach at various levels including:

- Build a geographical information system: (to be used for selection of intervention sites, monitoring progress in implementing the SLM strategy in the 22 districts and scaling up)
- Use tools from LADA-WOCAT-DESIRE partnership for basin, district and local level assessment, mapping and analysis of degradation and SLM
- Use of maps and databases (e.g LUS, LD and SLM maps, maps of catchment/territorial planning- use of WOCAT watershed questionnaire-QW, etc.)
- Participatory assessment and selection of SLM interventions and sites/catchments with stakeholders
- Documentation of SLM technologies (i.e. the management practices) and approaches (How i.e. participatory, watershed approach, village planning process, FFS approach, etc
- Local level land resources Assessment (LADA-Local manual- LD and SLM)
- Demonstration and local adaptation of SLM technologies and approaches with stakeholders at farm and catchment levels and subsequent scaling up
- Participatory land use planning and development process (PLUP and PLUD) at various levels including
    - District land use planning and budgeting for SLM capacity development and intervention
    - Community based land/NR management

Progress has been made in developing the GIS through information exchange with NBI-NELSAP, assessment of LD and SLM and preparation of basin wide, national and district maps of land use systems, land degradation (types, extent, severity, causes, drivers, impacts and responses) and SLM (types, extent and effectiveness). She showed examples of the maps and how they can be used for identifying areas for intervention i.e where a specific type of LD is occurring and is increasing and where no relevant or effective SLM practices are in place. She noted that the quality control is ongoing and correction of certain assessment and mapping errors and once completed the database and maps will be made available to partners

Ms Bunning's presentation also covered additional key issues including:

- Process for identification of catchments and Transboundary intervention areas:
- Characterisation of the target territory
- Developing a territorial pact on the future land use: (negotiated agreement between stakeholders and authorities)

- Participatory watershed management that includes spatial planning and implementation of interventions (upstream-downstream linkages) and local institutional development
- How to integrate community/village planning and watershed management approach
- Providing incentive measures and upscaling of SLM e.g. PES for water, carbon and biodiversity
- Partnerships and cofunding for scaling up SLM

Ms Bunning's presentation elicited several questions and comments by participants.
- It was noted and agreed that a bottom up approach should be combined with top down approach as land use planning and SLM also requires a knowledge base and expertise (technical and policy).
- Cost-benefit analysis of SLM measures is often conducted by projects but when they stop the knowledge is frequently lost. A sustainable database/information system and documentation are needed.
- The WOCAT questionnaires to assess SLM technologies and approaches that have been introduced by the project should be used by SLM experts not extension staff/enumerators that are not trained in SLM. Once the assessment process is applied successfully it can be used to compare SLM experiences for adapting the practices to address problems and for scaling up of the most effective ones across the Kagera basin.
- On the importance of involving geographers and to use maps for watershed/territorial planning it was noted that such expertise is already involved in the Land use systems mapping and LD/SLM assessment and mapping and GIS and will be used as needed. Multidisciplinary SLM teams are being set up at district and national level.
- The project is focusing on land users, but to get best SLM practices adopted we need to consider the land owners and herd owners - who may be absent.
- On the fact that the project is ambitious, it is important to put in place mechanisms to generate the expected partnerships and co-funding (The RPC and budget holder should provide support).

On Partnerships and co-funding: Joseph Anania, Kagera TAMP Regional project coordinator, noted the progress to date (in cash and in kind e.g. human resources, collaborative actions):
- Regional level: Collaboration has been established with NBI-NELSAP for data and results sharing; collaboration is envisaged with LVEMP-2; a partnership is already ongoing and will be formalized with VI Agroforestry for technical support on agroforestry and C trading mechanisms; discussions on collaboration have also taken place with ICRAF (on soil C sequestration etc.) and with CARE Tanzania on PES for water.
- Country level: Efforts are being made to develop partnerships and LOAs with a range of stakeholders (NGOs, GO programmes and projects at district level, etc.) on PES, land use planning tools and methods, SLM assessment and scaling up, etc.

COUNTRY	Partners (for Contracting/LoA 2011/12
Burundi	1. IFDC (Muramvya Province) 2. HUP/FAO : Projet sur horticultures urbaines et périurbaines (Mwaro Province) 3. APRN (Kirundo Province) 4. INECN (Mwaro Province) 5. ISABU (Mwaro Province) 6. Ministère de l'Agriculture et de l'Elevage et PRODEMA
Rwanda	1. Rwanda Agricultural Development Board (RAB); (4 Districts) 2. Vi-Life (2 Districts) 3. National University of Rwanda
Uganda	1. Africa 2000 Network; (Kabare Distrist) 2. Kakuto Community Development Project (Rakai District) 3. Sanga Bee Keepers (Kiruhura) 4. Rubagano Tukore Group (Mbarara) 5. Nyakayojo Tweyombekye Group (Isingiro Dist) 6. Bariisa Bahingye Kweterana-Nshenyi
Tanzania	1. ARI-Maruku 2. Vi Agroforestry 3. National Land Use Planning Commission 4. Vice Presidents Office (Environment) 5. Ministry of Agriculture (Department of Land Use Planning and Management 6. Four District Local Governments (Bukoba; Missenye; Karagwe; and Ngara)

Burundi
- In 2010 the Government of Burundi (GoB) contributed 45,000$ to support transboundary project coordination, information sharing and project monitoring

- The project has made an agreement of collaboration with IFDC who will provided tree seedlings, fertilizer, experimental design support
- In Kirundo province: partnerships include with IFDC for natural resources protection in wetland areas (50,000US$); with FAO project on horticulture and peri-urban agriculture (e.g. providing banana germplasm, etc.
- In 2011 the GoB has agreed to contribute an additional 120,000$ to the project

Tanzania - The more the partners see activities on the ground the easier it will be to identify contributions in cash and human resources:

- The National Land Use Planning Commission (NLUPC) has provided support in developing village land use plans in selected communities in micro-catchments, and will be scaled up to 3 more villages per catchment
- District staff - it is proposed to train district specialists in mapping and GIS
- Agricultural research institute –ARI Maruku collaborates in terms of staff (technical; administration) and infrastructure (office space, etc.)
- Vi-agroforestry is already collaborating and this will be formalized through an overall MOU for the basin and LOAs for country specific support.

Rwanda:

- Support of TSBF/CIAT and ICRAF is envisaged on soil fertility management
- Partnership will be established with VI Agroforestry-
- Districts provide technical staff; they will be trained in LUP, SLM technologies & approaches, etc.
- Rwanda Land resources authority (ex Land centre) will support training of sector level land committees, etc.

Ms Bunning suggested that results of previous SLM analysis/stocktaking should be sought from past studies/projects e.g. forthcoming results of a study on cost benefit analysis through a GEF/UNDP project on Sustainable land use and management in Rwanda. She noted that LOA's are so far rather small in scope but should be expanded to more substantive partnerships and investments once watershed management /community action planning starts in selected catchments. Apart from Burundi, where mainstreaming seems to be effective, , further efforts are needed to get Kagera TAMP integrated into government planning and budgetary processes- there have been delays in including activities in the biennial plans. The issue of training district specialists in mapping and GIS and establishing a GIS centre/capacity in 1 district/country requires further discussion in regard to the project strategy and how to ensure sustainability. Maybe support from national or provincial GIS centres to some districts could be more cost effective than setting up new GIS centres which would require future institutional support.

Country Presentations on SLM assessment (WOCAT QT&QA)

In March'2011 Kagera TAMP organized a two and a half day training for three persons per country, including NPMs, in the assessment of SLM technologies and approaches in the Kagera basin using WOCAT questionnaires (QA and QT)[1]. Field SLM assessment by countries was initiated in August 2011. The Kabale workshop enabled each country to present initial results of SLM assessment, problems encountered and lessons learnt.

In Burundi

Those trained in SLM assessment first trained 20 enumerators in the use of QT & QA questionnaires who would proceed in conducting the assessment. Through the SLM assessment, 16 technologies were identified and 15 technologies and 18 approaches were evaluated respectively. SLM Technologies recorded were classified into 4 groups:

- ✓ Rehabilitation of the crests by reforestation and planting of perennial shrubs
- ✓ Integrated management of hillsides by reforestation of hilltops, construction of soil erosion structures including bench terraces in agricultural areas and management of marshlands
- ✓ Conservation Agriculture by mulching
- ✓ Protection of buffer zones and international waters

In Rwanda

[1] World Overview of conservation Approaches and Technologies network hosted by the Centre for Development and Environment University of Berne, Switzerland

SLM assessment involved selection of 12 enumerators based on their background in SLM. Other 6 SLM experts from different ministerial departments were also trained. 2 enumerators were assigned in each district. Enumerators were required to complete 1 QT and QA in two days. The standard templates were used for compiling the information. Six days were allocated to enumerators to complete the survey of 3 technologies and 3 approaches. During the workshop Desirée Kagabo (SLM expert trained in QT/QA) showed the example of Bench terraces (Terraces radicales) assessment.

In Tanzania they went through the same process as Burundi and Rwanda by training enumerators to conduct SLM assessment. 5 Technologies were assessed. However it became clear in the presentation that they have been confused on what an approach is. Their initial experiences were not very successful as the trained SLM experts had pre-commitments and were not available - those used found QT and QA assessment and documentation too complicated, not practical, farmers do not keep records; farmer schedule tight, low level education etc. Most of the TS were land users' initiatives with no government support and mostly in cropping systems and areas with low soil fertility. A number of technologies were recorded including: Agro forestry, Application of well decomposed FYM, Slashing/controlled burning, Forest management by intercropping trees with annual crop etc.

In Uganda
SLM assessment was carried out between June and August 2011. Six districts were involved (Kabale, Ntungamo, Mbarara, Isingiro, Rakai and Kiruhura). The assessment process captured the current state of land resources and land use; described conservation effort, defined technology and approach; and analyzed impact of conservation intervention. The success of QT and QA as SLM assessment tools in Uganda are:

- ✓ 33 technologies were documented in 6 districts
- ✓ 9 approaches were used to realize the technologies
- ✓ The Ugandan SLM specialists who participated in the survey agree that the WOCAT tools could be modified and used as a basis for the development of a regional database on conservation technologies and approaches

There were preliminary results from SLM assessment in Uganda including:

- ✓ The most common problem leading to land resource degradation in the 6 Ugandan districts was soil erosion
- ✓ The most common technology was tree planting, used both as a preventive and a mitigation intervention
- ✓ The most common approach was observation, with land managers learning from one another and initiating technologies

Constraints observed by the 4 countries and recommendations from the discussions for continuing the SLM assessment and documentation have been summarized in the following table

SLM Technoloys and Approaches Assessment Feedback and Recommendations		
Constraints	Countries	Response and Recommendations
Training too short and need for practical session	BU, RW, TZ	- Organise a refresher training of SLM experts (4 days including practical session) - They must be experts /technicians NOT enumerators who use the questionnaires and must be available to then conduct the assessment - Those trained could do a test technology and approach together in practice and link through skype with Lehman Lindeque or Sally Bunning (WOCAT trainers) for advice if needed
Inadequate time for the SLM assessment; RW allocated 6 days for 3 Ts and As	BU; RW	Allocate longer in the field for SLM experts to conduct the T and A assessment at least in the initial assessments
Technical difficulties - Many questions are difficult to answer by enumerators; - District agric specialists did not have quantitative information (RW). - Collected figures by enumerators were inaccurate or inconsistent – required much cross-checking, and referral until a reasonable level of credibility was achieved	BU, RW	- The tool is very sound and has been perfected over many years of practice in many environments but needs adequate training and time and investment to fill gaps in information. - Hire and train a team of SLM specialists to conduct the assessment (crop, soil, water pasture, livestock, forestry etc) - Data must be carefully cross-checked after submission of questionnaires by experienced SLM specialist (to check reliability, avoid contradictions and ensure complete
Questionnaire too long and detailed - QT has 52 questions	BU; RW	Use shorter version of WOCAT questionnaires that were designed for producing a 4 page case study (e.g.

SLM Technoloys and Approaches Assessment Feedback and Recommendations		
Constraints	Countries	Response and Recommendations
- Enumerators found questionnaires long and tiresome		TerrAfrica SLM in practice book) and used successfully by LADA project resulting in SLM best practice books in Senegal, Tunisia,
Evaluation included technologies which are not suitable for adoption	BU	Careful selection of technologies and approaches and sites where best practices are applied through participatory process with district teams
Lack of access to certain technologies	BU	not clear what this means
Difficulties to find photos on approaches	BU	Need to plan for appropriate photos to be taken during the SLM implementation
Scarcity of information - Poor level of quantitative knowledge among field SWC and agriculture specialists - Lack of readily available facts or figures may lead to the problem of inaccurate estimates and guesses - Lack of farm records at farmers level ,hence more time taken to explore and often end up with estimation	RW ; TZ	Need to identify the extension/technical expert very familiar with and who has supported the SLM technology/approach adoption. If someone informed is not available another case should be identified
Farmers' schedule was tight, hence more time taken for reschedule to complete the work		Need to schedule in advance with farmers' and technical/extension agent taking into account their availability and knowing how long the process takes – e.g 2 shorter visits maybe better than one very long one and maybe one in the field at the technology site and one in the farm household to access any records
Not clear how to select what is a best practice		A participatory process is needed with district technical specialists, extension officers and farmers and local leaders to select what are considered as best SLM practices (Ts and As)

Summary discussion on the SLM Assessment process:
Ms Bunning appreciated the feedback and experiences and noted that during the SLM expert training in Kigali it had been specified that experienced SLM experts need to conduct the assessments and they should conduct the assessment and compile the required data with the land users and those extension staff/technical specialist who are very familiar with and had supported the adoption of the specific technologies and approaches . She also confirmed that the QT and QA are available on the WOCAT site for downloading in French, English and other languages.
Ms Bunning clarified that the aim had been to ensure that each country had some experiences of using the WOCAT assessment tools before the workshop so that feedback could be obtained. This had happened but had clearly led to the assessment exercise being initiated too quickly without adequate planning and with enumerators rather than SLM experts from a range of specializations as had been advised during the training. It was acknowledged that the training should have included at least a full day for practicing using the questionnaires.
It was acknowledge that the questionnaires are very comprehensive and allow to conduct a full assessment of the technology and its approach including information on costs and benefits/ impacts on livelihoods and ecosystem services which is needed if we are to advise governments for their wide scaling up.
In conclusion, it is recommended that the WOCAT tools and methods/ are imbedded in the project to ensure that relevant data are gradually collected and compiled and that a country data base is established. Nonetheless, the process should be re-launched in October /November 2011 so that an initial set of assessed Technologies and Approaches can be completed by the end of 2011 with a view to publishing a book of SLM in Practice in the Kagera basin for use in training and for extension purposes during 2013. Gaps in data should be filled during implementation and adaptation and trhough systematic monitoring of selected SLM technologies and approaches.

Catchment selection in the four countries

The NPMs for each country presented how they conducted the catchment selection process:

Rwanda (Theobald Mashinga)
It was observed that 10 catchments/sites have been selected in the 6 districts using the agreed project selection criteria, only 6 will be initiated in the first rainy season (Sept-Dec 2011). TORs have been developed for catchment mapping and diagnostic assessment Key activities are being identified and

budgets developed through LOAs with Rwanda Agriculture Board (RAB) (under which research and extension are merged) and Vi-Life programme.

Tanzania (Fidelis Kaihura)
Field visits were organized in 4 districts and village NR mapping conducted with farmers and leaders. Discussions were held with village and ward leaders for area characterization (Socioeconomic and biophysical aspects). Reconnaissance visits were made and 11 micro-catchments selected (equivalent to ward level in 2 of the 3-4 villages).
Community planning: 10 district specialists in Bukoba and Ngara and 7 in Karagwe were trained in Participatory village land use planning (PVLUP) and mapping using National land use planning commission (NLUPC) methods and manual. In 5 villages VLUP have been completed with a 0 draft and maps including by-laws and general recommendations.
In September it is planned: i) to identify management interventions for identified LUS in each village; ii) to support harmonisation of GIS mapping skills for 6 trained persons; and iii) use of the catchment/ landscape approach.

Uganda (Wilson Bamwerinde)
The catchment site selection in Uganda was based on land use maps, QM assessment, selected district SLM teams, links with collaborating institutions, accessibility and in agreement with farmers: There are a total of 10 sites selected.

A pilot study on SLM adoption was conducted by an MSc student to identify constraints and factors that influence SLM uptake and how to improve, challenges and opportunities. Ms Bunning clarified that the report is awaited shortly and will be made available for suggestions on how to further asses SLM adoption across the countries and basin.

Burundi (Salvator Ndabirorere)

The Burundi NPM informed the participants that catchment identification was done in February, 2011. With support from the province agricultural directors and based on the project catchment selection criteria and the QM/land degradation maps, 7 catchments have been identified in 5 provinces as follows: Kirundo (1), Muramvya (1), Gitega (2), Karusi (1) and Mwaro (2).

Summary of sub-catchments to be targeted

COUNTRY	Sub-catchments initiated 2011/12	Total Catchments targeted (by 2014)
Burundi	7	21
Rwanda	6	10
Uganda	6	11
Tanzania	4	11
Tota	24	53

Review of land planning and land tenure issues

Tanzania (Jason Kami)
The Tanzania Land use planning and Tenure situation was presented by the consultant Jason Kami. a) Land Use Planning in Tanzania is governed by the national land law which gives a framework and guidelines for Village land use planning. Village Land Use Guidelines have been revised to allow proper land administration and management; harmonized and effective planning and management of land and its natural resources. Guidelines for participatory VLUP provide for an effective system involving local people in the preparation and implementation of village land use plans whereby villagers and their institutions gradually build their capacity to manage village land.

b) Land tenure in Tanzania is governed by the 1995 Land Policy. Among the major issues aimed at being addressed is to give equal status to grant the right of occupancy and customary right of occupancy. The Village Land Act of 1999 provides for registration and issuance of Certificates of Customary Rights of Occupancy (CCROs) as a measure of land security enhancement in rural Tanzania. The Act stipulates the procedures to be followed to obtain CCRO. One important procedure is adjudication of parcels of land of applicants. The Law offers methods of adjudication namely spot or sporadic adjudication and village or systematic adjudication. Systematic adjudication is viewed internationally as a simple, more enabling, appropriate and sustainable regulatory tool for agribusiness and livestock in rural Tanzania. In order to

come up with a comprehensive systematic adjudication, the Ministry of Lands and an Human Settlements Development prepared a manual to be used as guideline in the process, providing a methodology for more effective and expeditious mean of formalizing land rights in rural areas.

Rwanda (Didier Sagashya)
The consultant, Didier Sagashya, made a presentation on the Rwanda Land Policy and Tenure System but did not present experiences in land use planning.
Over the years the Rwanda land use policy has evolved from the Pre-colonial era governed by the customary law under the leadership of chiefs and Kings to the colonial period using a written law providing titles for the foreigners and also allowing aspects of the customary law. After independence land registration process was first initiated. From 1994 land was redistributed and shared. However after 2005 there was an important shift in the Rwandan land tenure system. With the Organic Law in place, there was a right of ownership of customary land under lease. Then there was freehold according to land use planning. The Land Tenure Systems according to organic land law (OLL):

- Leasehold: is from 3 to 99 years depending on use. All customary land getting 99 years lease.
- Freehold – depends on completion of development in accordance with land use planning (residential, commercial, industrial developments).

All land is under the government land registration program with the following advantages:

- Land registration guarantees ownership of land (both for Men and Women);
- It recognizes people with interest on land (men, women, children)
- It increases security of tenure to land holders;
- Increase investment on land
- Reduce land related disputes
- Establishes a reliable and transparent land registry across the country;
- Access to credit/loan whereby land may be used as collateral
- Improve land market and linked transactions
- Improves planning and development of infrastructures
- Protection of women rights over co-owned land

The on-going Rwanda program for Land Tenure Regularization is supported by the GoR, DFID, SIDA, IFAD and EU. Great achievements have been made already under this programme:

- Land tenure regularization: parcel by parcel and cell by cell
- Estimated 8 to 10 million parcels of land in Rwanda in 2148 cells
- Participatory approach with Cell Land Committees and Village leaders
- General Boundary principle – Land surveying – with aerial/satellite orthophotos

The impact of Rwanda land tenure regularization on Kagara TAMP area:

- Security of tenure i.e. positive effect on SLM investment
- Baseline study has impact on evaluation of the land tenure regularization
- National Strategy (land use) to be translated up to catchment and watershed areas

Uganda (Wilson Bamwerinde on behalf of Bernard Bashaasha, consultant)
The Uganda Land Planning and Tenure issues were presented by Mr Wilson Bamwerinde the National Project Coordinator as the consultant was not available to attend the workshop.

a) Land Tenure: It was noted that in Uganda the law recognizes 4 types of land tenure: Customary, Freehold, leasehold and Mailo. These land tenure types and their implications on Natural Resources Management (NRM) and development were characterized as follows:

1) Freehold: Held in perpetuity; no ground rent; easily transferrable-good as collateral; bestows too much power to land owner; can block developments of public interest; Costly in terms of time & money to process and Encourages long term and NRM investments
2) Leasehold: Next preferable: has problem of ground rent and an expiry date; Type of development is conditional; Appropriate in urban areas; Regarded most conducive for land use planning; Does not encourage long term and NRM investments
3) Customary: Most dominant in the Kagera TAMP districts; Regarded not conducive for development; Blamed for the rampant land fragmentation; Actual size unknown hence hard to plan for; Reinforces gender disparity in land ownership as culture bestows ownership to the men; Does not favor long term and nrm investments

4) Mailo: Negligible in the Kagera TAMP districts so far visited

Some efforts to improve the land tenure situation in Uganda were suggested by the NPM:

- Sensitization on conversion of customary and leasehold to freehold (rural areas)
- Encouraging formation (and sensitization) of sub-county land committee to educate local communities on land matters

b) Land Use Planning: It was generally observed that there is no typical land use planning system in Uganda as exemplified by the following facts:

- The physical planning Act (2010) designates the whole of Uganda as a planning zone and hence provides the legal framework for land use planning
- Although the constitution provides that land belongs to the people, the development & organization of the land belongs to the govt.
- Uganda's Land use planning process can be characterized as moving in "reverse order"
- The Land Act (1998) is said to be "orphaned" due to the absence of a land policy
- The same can be said of the National Land use policy (2007) that should have been based on a land policy
- Currently Uganda only has a draft land policy whose target completion date remains unclear
- Uganda has no national land use plan

The implication of land use planning under Kagera TAMP districts are that: two districts of Kiruhura and Rakai have made progress in preparing land use plans. Kiruhuura district has two land use plans that include the one for Kiruhura town council covering an area of 8 sq. km and another one for the Rushere town Board. The Land use plan for Kiruhura town council and surrounding areas was prepared in partnership with a private firm (*Danbik Enterprises)* through a bidding process. Rakai district too has land use plans for urban areas including ones for Kalisizo and Rakai town councils and additional ones for Kasensero and Mutukula town Boards the later in partnership with the UN-Habitat. The remaining districts have no land use plans of any kind. Nonetheless the districts of Kabale and Ntungama have enterprise zones designed on the basis of topography, temperature, rainfall and guesstimates of soil quality. The enterprise zones for Kabale have been mainstreamed in the district development plan but those of Ntungamo district have not. The level of consultation in designing these zones is undocumented.

The Uganda NPM made the following conclusions:

- There seems to be adequate legal provisions for land use planning at all levels in Uganda
- The Absence of land use plans appears to be on account of inadequate financing,
- There is lack of political will, insufficient appreciation of the usefulness of plans,
- There is lack of technical expertise rather than absence of the required legal provisions

Burundi (Gilbert Bigirimana)

The Burundi Land Use Planning and Tenure Issues were presented by Maitre Bigirimana Gilbert. He mentioned two useful tools for analyzing land planning and tenure as:

- ❖ Various policy and law documents eg letter on tenure policy (2009 and 2010) & new tenure code (of 9th August'2011)
- ❖ Institutional Mechanisms eg.
- Legitimacy of the administrators
- An innovative tenure code that institutes important community services
- Aspects and rights and land tenure

Contribution to TAMP Kagera

- Support set up of a strategy of effective communication of important land planning tools
- Support the popularization of the tools to the community level (at hillsides)
- Select pilot communes in the areas of intervention to support putting in place in set operationalization of the new land tenure code
- Contribute to the reinforcement of the capacities of the actors for a better understanding of the land use planning and land tenure documents

Summary discussion: take home messages from group work by country

Rwanda:

- Take advantage of momentum in terms of LUP and tenure- land tenure support implementation, LUP guide implementation in micro-catchment approach
- Facilitate land consolidation to benefit from PES
- Think beyond SLM- small income generating projects, innovative e.g. ecotourism
- TAMP should take care of abandoned land and vulnerable people – develop bankable project using land as collateral for SLM
- Local government (district) and national support exchange and provide information to project
- Question: area of intervention, initial catchments very small (how to asses impact, is it demonstration how to encourage larger interventions. FAO as member of AU to develop other programmes/projects- GEF CC etc.

Tanzania:

- Integration of project in government (national and district) budgeting to ensure effective implementation beyond project end
- Integrate and coordinate expertise of various sectors in local area (SLM teams)
- Challenges of SLM adoption look into various incentives measures- subsidies, add value to land, markets, PES.
- Cofunding- explore various resources in area to enhance higher level adoption
- Policies provide favorable environment for implementation (within national framework)
- Granted rights clear but customary rights need efforts, GO has started, project needs to help secure land tenure.
- Emphasize awareness raising in importance of SLM for interventions to be effective and widely adopted

Uganda:

- Land tenure policy lacking behind other countries- barrier to sustainable land management
- Experience from Tanzania village level planning and Rwanda on land tenure policy
- Need for strategy on advocacy on land planning and tenure issues and communication strategy
- Emphasis on benefits of SLM and explore possibly for land ownership certificate as incentive to encourage SLM
- Tools: GIS important, technical staff in project should have working knowledge
- More support on data gathering and analysis for use of WOCAT tool
- Africa 2000 network model- revisit steps and see how to improve for other watersheds and partners
- Katobi Model watershed in district with website and maps etc to learn from, also has sustainability issues to learn from
- Review methods to scale up experiences
- Involve Uganda wildlife conservation network in scaling up
- Co-unding need to look at existing partners and see how they can collaborate – involve GO ministries more effectively (Min Finance , Water and Environment, etc.
- Learn from Ecotrust and Kenya Vi Agroforetsry experiences
- Make climate change adaptation and mitigation more explicitly present in the project
- M&E: what is M&E of TAMP, clear indicators of change.
- How can project ensure livelihood and marketing issues addressed

Burundi :

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Experience in the region with the watershed approach, Africa 2000 Network, Uganda

Mr. Wilberforce Serwanga the Director Africa 2000 Network (A2N) made a presentation on the functions of A2N in Uganda. He mentioned that Africa 2000 Network-Uganda is a national NGO which is operating in all the 4 regions of Uganda. Its vision is to improve and sustain livelihoods for smallholder farmers. It has a mission to alleviate poverty by supporting smallholder farmer groups to undertake initiatives geared towards livelihood improvement and natural resources regeneration and conservation. A2N operates in 16 Districts of Uganda under the following programs:

- Natural Resources Management
- Community Empowerment
- Market Access
- Information Communication & Networking
- Instructional & Organization Development

Under the natural resources management A2N has the following areas of intervention

- Soil and water conservation
- Agroforestry
- Production and productivity enhancing technologies
- Fuel saving stoves

Wiberforce informed participants that A2N can collaborate with Kagera TAMP by sharing its experience in Participatory Learning whereby this is achieved by involving communities in needs assessment through discussions with local leaders, community leaders, extension workers, NGOs, private sector, and any other relevant persons or agencies. He sited an example of one area of intervention in Uganda, Kyantobi in Bubare Sub-county. Through watershed management approach and diagnostic assessment conducted in that area, A2N realized the following achievements:

- Watershed activities attracted other development partners
- A2N support to strengthen PDM
- UNDP financed 9 PDM plans including some watershed villages
- Watershed villages received fruit tree seedlings
- Training in SLM
- Community library
- Other enterprise supported by district LG e.g zero grazing & piggery
- Agroforestry became an income generating activity
- Other villages beyond watershed replicated nurseries

3. Identifying opportunities for design and piloting PES in the Kagera Basin (Session 2)

Introduction to Payment for Environmental Services, FAO
Presentation by Ms. Bernardete Neves, consultant, FAO Land and Water Division
(see the more detailed report by Neves.pdf)

Ecosystems provide goods and services to a variety of users. While farmers have direct increase the performance of the ecosystem's provisioning services (food, fiber, timber), regulating (climate and water regulation) and supporting services (nutrient cycling and soil formation) that do not directly improve production are rarely considered in farm management decisions, especially in absence of adequate information about long-term impacts of land and water management.

Payments for Environmental Services (PES) refers to agreements where the connection between on farm provisioning services and off-farm regulating services is made clearer and adequate incentives provided by off-farm beneficiaries of integrated NRM decisions. Currently most schemes focus on improving watershed management, carbon sequestration or avoided loss of storage (REDD) and biodiversity conservation, usually associated with landscape protection. Concrete examples are presented below. PES may be used temporarily to overcome SLM adoption barriers, and/or in combination with permanent payments or

investment in alternatives to restrict use of certain resources such as forests. Even in cases where PES is used as regular agriculture development investment to encourage SLM adoption, some level of continuous support will be needed to ensure the sustained adoption of the practices and farmer are able to adapt to changes without going back to previous degradation patterns.

Despite the fact that most PES schemes cover start up costs via public or donor funded programmes, the goal is to engage the users of the environmental services as a sustainable source of financing. Only if their contributions are earmarked for investment in these activities will they continue to support the scheme. These can be collected locally or into a national budget that then makes proportional reallocation to the local areas. Payments or co-investment in improving farm or forest management has to be conditional on adoption of a group of practices that are expected to result in improved ES delivery, without which this would not be possible. To maintain this conditionality, payments must be designed to be retractable or terminated if agreement is breeched. PES schemes investing in community projects cannot fulfil this condition. Both conditions are essential to engage private sector and ensure long-term sustainability.

Several countries in the region are progressing to view PES as a potential new source of additional funds for NRM, by engaging with those who bear the costs of degradation to co-fund public investments in improving enforcement and technical capacity for improved management. In fact, there are already a number of PES initiatives in the region. A review for Kagera TAMP[2] carried out in late 2010 found seven in full operation: 4 encouraging tree planting for carbon sequestration, two of which within the Kagera basin and two supporting SLM to reduce siltation in water courses used for drinking water supply to Dar es Salaam and Nairobi. Several other schemes are found in the region, but at earlier stages of development. More details on some of the more advanced schemes were discussed in the presentations that followed.

Resources:
FAO State of Food and Agriculture 2007: paying farmers for environmental services
http://www.fao.org/publications/sofa-2009/sofa2007/en/
FAO PES website: www.fao.org/es/esa/pesal
for case studies on water PES see also:
database: http://www.watershedmarkets.org/
report: http://pubs.iied.org/13542IIED.html
and previous edition, including also PES for biodiversity and carbon: http://pubs.iied.org/9066IIED.html

Building PES in the Rushebeya-Kanyabaha wetland, NAHI
Presentation by Mr Byamukama Biryahwaho, Director, Nature Harness Initiatives
Mr Biryahwaho (BB) is Chairman of the International Advisory Committee of PRESA- Pro-Poor Rewards for Environmental Services see document NAHI.pdf)

In Uganda PES is being explored as an incentive-based mechanism to help implement conservation measures mandated by law for wetlands.

About 23,000 people make a leaving from intensive horticulture farming in the Rushebeya-Kanyabaha wetland near Kabale. Effectively leaving a 30m buffer on either side of the stream would affect the livelihoods of a significant number of people. There is a need to identify hotspots for protection and alternatives for the people affected, together with SLM support in the plots on the slopes around the wetland that are no longer cultivated due to the decline in soil fertility.

An earlier Community Wetland Management Plan was to be implemented via Parish wetland committees invested in a range of activities to increase protection of the wetland and its watershed functions and biodiversity values, while providing alternatives or compensation to the communities working on them. A 5m buffer has been agreed with the community but implementation is also difficult due to continuous funding for investment in alternatives and keeping wetland management committees operational (bicycles, boots, sitting allowances are lacking). Currently, funding for the wetlands programme is lacking and support for these activities has largely stopped. NGO continue some of this work on project-based interventions but the parish wetland committees no longer meets. In the upper part of the wetland, the regulation is respected to

[2] Berttram, D. 2010. Positioning the Kagera TAMP Project in the PES Landscape of East Africa. http://www.fao.org/fileadmin/templates/nr/kagera/Documents/davina/Positioning_the_Kagera_TAMP_-_D._Berttram_updated_case_studies_april_2011.pdf

create a sanctuary for the Sitatunga birds but there are still some threats from hunters using fire to reveal the birds.

PES has been explored, with facilitation by the NGO Nature Harness Initiative –NAHI[3] to secure a permanent source of funds for improved wetland water storage and filtration functions of the wetland[4]. This initiate is partly supported by a regional PES network operated by ICRAF, funded by IFAD: Pro-Poor Rewards for Environmental Services (fig. x below)

Field visit to Rushebeya-Kanyabaha wetland (Working group 2)

A field visit followed the presentation to give participants an overview of PES in practice. Three groups were formed: 1) went to the upper, better preserved, parts of the wetland, 2) met with farmers in the middle part of the wetland, where cropping is most intense to discuss their willingness to increase protection of the wetland for the benefit of 3) visited the Kisiizi Power Limited – a Church of Uganda owned subsidiary of Kisiizi Hospital using the outflow of the wetland to power its own facilities and sell electricity to neighboring communities.

Water is drawn from a waterfall at the exit of one of the wetlands and low dry season flow has reduced the productive capacity of the hospital's mini-hydro. During these periods only the smaller of two turbines operates preventing this non-profit hospital from producing extra electricity for sale and causing blackouts to some communities which are also farmers in the wetland where the powering water flows from. Reduction in water flow in the dry season is attributed to a recent expansion in the conversion to cropping, reducing the wetland's natural capacity to store water and regulate flow- see figure x below for more examples of the ecosystem services performed by wetlands.

Silt load in the water is currently not a major issue. Sediment load in the pipelines is cleaned once a month by hospital staff. Cleaning is done alternatively in the pipelines leading to one or the other turbine, thus not preventing production. The amount of waste arriving to the station is however a concern and has caused damage to the infrastructure in the past. To address this problem, the hospital staff is considering liaising with the administrative authorities upstream to fund a waste collection program.

Hospital authorities and wetland farmers have never met to discuss each others' role in the system. NAHI has been providing information to both sides on the implications of their actions and facilitating negotiations. At the moment the power company is willing to fund improvements in NRM, starting by reactivating the wetland committees to develop a management plan on which they can base negotiation for investment- they are awaiting delivery of this proposal from the communities.

The visit was extremely useful to introduce the concept of water supply protection downstream through upstream land protection and the need for discussion and understanding of the situation, needs and interests of all concerned stakeholder groups in initiating a PES scheme.

Rwanda National PES taskforce: theoretical basis and national PES goals, WCS
Presentation by Mr Michel Masozera, Director, Rwanda Programme Wildlife Conservation Society
(see report PESinRwanda.pdf)

Mr. Masozera noted that a PES task force has been formed to harmonize scattered initiatives under various bodies: MINAGRI, RDB, REMA, MININFRA etc. into a national framework for developing and implementing PES.

Water users such as tea and hydropower companies will be asked to contribute for the protection of Nyungwe NP and the water protection functions it serves. The two main arguments being developed to support this negotiation are centred on the production losses or increased production costs due to land degradation which are ultimately passed on to consumers:

> -due to reduced water flows the generation of electricity from two hydropower stations, Ntaruka and Mukungwa, has declined from 11.25 MW to 2.5 MW and from 12.45 to 5 MW respectively in the last two decades (Safari, 2010)
>
> - increased sedimentation resulting from erosion due to the cultivation of the Gishwati forest led to rising treatment costs of drinking water and higher maintenance costs of water and hydropower

[3] Nature Harness Initiatives (NAHI) http://www.natureharness.or.ug/content/rushebeya-kanyabaha-wetland
[4] see RAMSAR handbook 18: wetland management http://www.ramsar.org/pdf/lib/hbk4-18.pdf

plants: the cost of energy per kWh has increased from 7.5 cents USD in 1997 to 20 cents USD in 2005 (NELSAP, 2006)

Since 2005, the National Tourism Revenue Sharing Programme allocates 5% of annual tourism revenues to community projects in three parks to reduce pressure in the parks resources. ReDirect has been supporting a similar initiative since 2009 to test different combinations of payments and investments in fours cells in the buffer zone of the Nyungwe national park; In both cases, more work is needed to improve the conditional these investments are made on performance by the communities.

Tanzania Equitable Payments for Watershed Services (EPWS), CARE
Presentation by Mr Lopa Dosteus, EPWS programme manager, CARE International in Tanzania
Dosteus.pdf

Mr. Lopa Dosteus EPWS programme manager, for CARE Int. in Eastern Tanzania, presented a drinking water scheme has been maturing since 2006 in the Ruvu river, Uluguru Mountains. About 650 smallholders (farms < 2ha) in the Kibungo sub-catchment are demonstrating the impact of a range of SLM option increase drinking water quality by reducing erosion from farmland. It includes a combination of terracing (fanya juu and fanya chini) grass strips (including pineapple), riparian buffer restoration (e.g. with sugar cane) and agroforestry (170,000 trees have been planted since 2009, with a survival rate of 85%- no carbon credits are claimed).

Estimated results have been presented to several major water users in Dar es Salaam, who draw their water from the Ruvu river making a business case to justify investment upstream. The city Water and Sewerage Corporation (DAWASCO) has been involved in the process since the start and is making a preliminary contribution to support this demonstration effort.

So far the project is covering the largest part of the costs, with 1.3USD million with about half spent on SLM support on the ground. PES are made in cash to individual land-owners after implementation of agreed practices. Payments are calculated based on: size of landholdings, size of converted land, opportunity costs, technology/land-use change applied, maintenance costs and labor input; Costs of adoption vary between 50-200USD/ha (see table x below). First payment issued in 2010- 1376USD for 144 farmers.

In addition, the initiative also offers in kind incentives, in the form of training to village SLM trainers, improved seeds (maize, beans, groundnuts, cabbage, and tree seedlings), equipment and investment in new income-generating activities: introduction of cash crops such as bananas, tomatoes, beans and cabbage, with market support and introduction of livestock to collect organic fertilizer.

Monitoring of hydrological impacts are activity-based- according to the adoption of land use practices and water flow and sediment load at the mouth of the subcatchment where the scheme is operating. On farm benefits reported so far show that farmers start realising increase of crop yields to more than 3 times per unit area practiced with recommended SLM. This scheme is already being replicated using the same methodology for buyer's profiling and building a business case for private sector investment in SLM to reduce silt load in the stream being tapped by Morogoro town.

Table 5. Costs of Implementing Sustainable Land Management (SLM) Practices in the Kibungo Juu Subcatchment (Uluguru)

	Establishment costs (US$/ha)	Maintenance costs (US$/ha)	Opportunity costs (US$/ha)	Total costs (US$/ha)
	Year 1	Year 1-4	Year 1-4	by Year 4
Afforestation, reforestation	87	76	756	3,415
Pineapple contours (with agroforestry and grass strips)	58	116	176	1,226
Kilaka terraces (with agroforestry and grass strips)	334	192	1,058	5,334
Fanya Juu terraces (with grass strips)	320	38	44	648
Riparian restoration, sugar cane planting, tree planting	8	40	58	400
Average implementation costs	137	83	242	1,437

Source: Adapted from CARE International and World Wildlife Fund for Nature (2008) and World Overview of Conservation Approaches and Technologies (2007).

Source: Branca, G., Lipper, L. **Neves, B., Lopa, D.** and Mwanyoka, I. 2011. Payments for Watershed Services Supporting Sustainable Agricultural Development in Tanzania. The Journal of Environment & Development 20(3) 278–302 http://jed.sagepub.com/content/20/3/278.abstract
previous version available as ESA Working Paper No. 09-10 September 2009, FAO, Rome
ftp://ftp.fao.org/docrep/fao/012/ak597e/ak597e00.pdf

For more on this case see:

Approach documented in WOCAT SLM in Practice: Guidelines and Best Practices for Sub-Saharan Africa
http://www.wocat.net/uploads/media/Flyer_SLM_in_practice.pdf

CARE/WWF Building a PES business case guidelines
Dosteus Lopa, CARE Tanzania and Mark Ellis-Jones, WWF Kenya
http://www.fao.org/es/esa/PESAL/PESmaterials1.html (zip folder at bottom of the page)

working paper summarizing the case study: ftp://ftp.fao.org/docrep/fao/012/ak597e/ak597e00.pdf
and published in Journal of Environment and Development at:
http://jed.sagepub.com/content/early/2011/07/20/1070496511415645.full.pdf+html

Tanzania tree carbon project Emiti Nidwo Bulora, VI Agroforestry
Presentation by Mr Damas Masologo, Project Manager , Vi - Agroforestry, Kagera
(see report Vi.pdf)

In Western Tanzania, within the Kagera Basin, the Plan Vivo project is an example of a more established scheme, ongoing since 2007. Emiti Nidwo Bulora operates in Karagwe District and it includes about 1000 smallholders, at various stages of enrolment. It aims to produce 59 823 tCO2 per year which gives an average of 65 carbon credits per farmer, sold at about 10USD each. PES is made in cash, per tree planted in woodlot, inter-planting, fruit orchards and boundary planting. Contracts are signed for 10 years with annual payments spread across years 1-5 and then year 10. After this period, trees may be sold for timber and replanted. The project specifications are built according the Plan Vivo framework for developing community-based carbon benefits.

Project overview at: http://www.planvivo.org/projects/registeredprojects/emiti-nibwo-burola-tanzania/

Plan Vivo Tools and Resources:

- Introductory powerpoint with guidance for project developers
- Plan Vivo Guidance Manual for guidance on developing activities with communities, developing technical specifications, setting up administrative and governance structures and other aspects of project development.
- Use the Plan Vivo eligibility checklist to quickly check if the Plan Vivo System and Standard is applicable to your project or project concept: http://planvivo.org.34spreview.com/wp-content/uploads/Plan-Vivo_basic-project-eligibility-checklist.pdf
- Project Registration Process: step-by-step guide: This document describes each stage in the project registration process and provides costs associated with registration
- Carbon Project Proposal templates: Project Idea Note Template and Guidance
- Carbon Project Design templates: Project Design Document Template

Uganda and Kenya SLM carbon credits, VI Agroforestry

Presentation by Mr Bo Lager, Program Director SSC-VI Agroforestry (see Vi.pdf)

Another well established PES scheme for carbon benefits from SLM (ie. including soil carbon benefits) has developed in Kenya since 2009 and is currently being replicated in Uganda. The Western Kenya smallholder Agricultural Carbon Finance project is operating in 6 divisions in Kitale and Kisumu, involves 15,000 farmers and project role out over 9 years will involve 60,000 households in 3,000 farmer groups, covering 45,000 ha.

Project implementation is led by VI Agroforestry offering technical assistance to participant farmers for adoption of an SLM portfolio that to increase carbon storage in trees and in soil organic matter. The SLM portfolio used includes: (i) agroforestry, agro-silviculture, shade growing of perennial crops, silvopasture; improved tillage & residue management; water harvesting for agriculture, terracing, erosion control), (ii) restoration/rehabilitation of degraded land (organic amendments to restore soil productivity; riverbank tree planting) and (iii) Livestock management (promotion of zero grazing and fodder, manure). Consequently, carbon benefits are accounted from: (i) increase in soil organic carbon, (ii) reduction in fertilizer use and increase in N-fixing species, (ii) reduction in biomass burning. The goal is to lock 1.2 MtCO2 over 20 years, from 2009 or 60,000 Mt per year at an average 1.4 tons of CO2e/ha/year.

PES is made in cash representing 60% of the revenues from carbon credit sales, and 40%[5] in-kind in the form of long-term technical assistance for the sustained adoption of the SLM portfolio agreed for each farmer. From VI longstanding experience in the area, these practices result in considerable improvements in increasing yields and agricultural profitability.

Currently carbon credits from land and forest are sold at lower prices[6] than those from energy efficiency and other sources of GHG reduction. This is partly due to a perceived higher risk of reverting to previous practices and releasing the accumulated carbon. For this reason, this project has to have a 60% permanence buffer- ie. of 100 carbon tones sequestered, only 40 are sold for credits, the rest stays as a guaranty.

For these two reasons, the carbon revenues of this project are fairly low: considering a carbon price of about USD 4 per ton CO2e, and that farmers receive 60% of this revenue, each farmer with about 1ha would receive US$2.5 per year. However, considering that this will also pay for intensive agriculture extension assistance, and for 10 years, the benefits are considerable.

Resources:

Carbon accounting methodology endorsed by the Verified Carbon Standard:
http://www.v-c-s.org/methodologies/adoption-sustainable-agricultural-land-management-salm

Overview of the project by the Biocarbon Fund, the investor:
http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22753334~pagePK:64257043~piPK:437376~theSitePK:4607,00.html

VI website with overview of their activity: http://www.sccportal.org/projects/Sustainable-agriculture.aspx

[5] the 40% share also covers costs with monitoring, reporting and verification (MRV) of carbon sequestration and administration.

[6] for an overview of carbon prices see:
http://www.ecobusinesslinks.com/carbon_offset_wind_credits_carbon_reduction.htm

Summary of recommendations for next steps on PES for Kagera TAMP (working group 3)

The working group session on day 3 aimed at collecting suggestions for follow up action on land planning, including PES options, in each country.

Participants were requested to focus on specific sub-catchment as an example and suggest:
- Methods that can be used to support planning (record who can provide these manuals)
- Map the application of possible SLM interventions in the subcatchment
- Discuss which environmental services will be improved by each SLM, considering carbon, water, biodiversity. Map and list the beneficiaries of these environmental services, within and beyond the subcatchment, considering carbon, water, biodiversity
- Partners for land management plans- who can provide technical assistance? If available note manuals available (including for monitoring of SLM adoption and impact).
- List the partners that can co-fund this PES investment (eg. Various government programmes, ongoing development projects etc)
- Discuss which compensation options could be included in the PES package? Consider cash payments and in kind investments in technical assistance with SLM implementation, marketing, finance for agribusiness and off-farm activities etc

Results for each country are summarized in Annex 2.

→ **Recommendation**: It was suggested to prepare an organigram of the project partners, by country for SLM implementation (including administrative authorities and technical partners, from local to national and regional level) (all NPMs) to help partners across the four countries to each other's institutional settings.

Analysis of Agriculture Markets' dynamics and opportunities in Rwanda and within EAC and CEPGL frameworks
Presentation by Mr. Venuste Rusharaza, UN Economic Commission for Africa (see UNECA.pdf)

Results of the study revealed that:
- Rwanda is not food sufficient & remains net food importer of food crop commodities;
- Lack of adequate marketable surplus of agricultural commodities domestic & regional markets identified as key problem posing a serious setback to domestic & regional trade, and this results to negative impacts on Kagera TAMP partner countries' economies, and general social welfare of her population.

Venuste pointed out that there is need for concrete strategies to increase quantities of marketable surpluses. To be able attain that the following recommendations were made:
- Reclamation and valorization of marshlands, estimated as 219,791 ha;
- land consolidation.
- construction and maintenance of appropriate terraces (radical terraces along steep gradients and progressive terraces along gentle slopes);
- Application of other soil erosion control and mitigation measures;
- Promoting agro-forestry technologies;
- Crop-livestock integration; and others.

Mr. Rusharaza concluded by asserting that wider application and scaling up of all the above mentioned best practices identified under the different Sustainable Land Management (SLM) technologies is a prerequisite for linking the envisaged development agenda of Kagera TAMP with the markets, domestic, sub regional and international.

FAO Globally Important Agriculture Heritage Sites- Tanzania
Presentation by Mr F.M. Banzi, national coordinator of FAO-GIAHS Project, Tanzania
(see GIAHS.pdf and http://www.fao.org/nr/giahs/en/)

1) The Kihamba agro-forestry on Mt. Kilimanjaro is a Globally Important Agriculture Heritage Site because:
- Historically supported highest rural population densities known in Africa without undermining sustainability (800 years old)
- Multi-tier agro-forestry system (perennial trees, banana, coffee, vines and annual crops) on small plots (Kihamba)
- Intricate irrigation system with traditional storage ponds (Nduwa)

- Kihamba is the focus of family life of the Chagga tribe, people are born, come of age, marry and are buried on their Kihamba
- The Kihamba's high biomass, biodiversity and sustainability are critical for the ecology of Mt. Kilimanjaro, including its function as a water tower for the surrounding region and as a carbon sink

Through the GIAHS project, the team is developing a Dynamic Conservation Action Plan to preserve this system, while helping it adapt to current agriculture demands and environmental change. This includes:

- Strengthen community institutions for environmental management and marketing (CBO and organic coffee/vanilla cooperative)
- Improvement of management of coffee through training in IPPM, Erosion control (terraces, soil cover) and Rehabilitation and increasing capacity of traditional irrigation ponds (Nduwa) and canals to address longer dry spells (climate change)
- Introduction of vanilla as additional source of income (fits into Kihamba ecology) and Introduction of aquaculture (trout) as additional source of income/protein
- Establishment of a Kihamba heritage museum and Recognition of the area as a National Heritage

2) Maasai Pastoralism is a highly flexible and sustainable mobile livestock keeping system, moving herds (cattle, goats, sheep, donkeys) and people in harmony with nature's unpredictable patterns in a semi-arid environment, including under conditions of climate change. It supports 600.000 Maasai in Tanzania and has important synergies with wildlife.

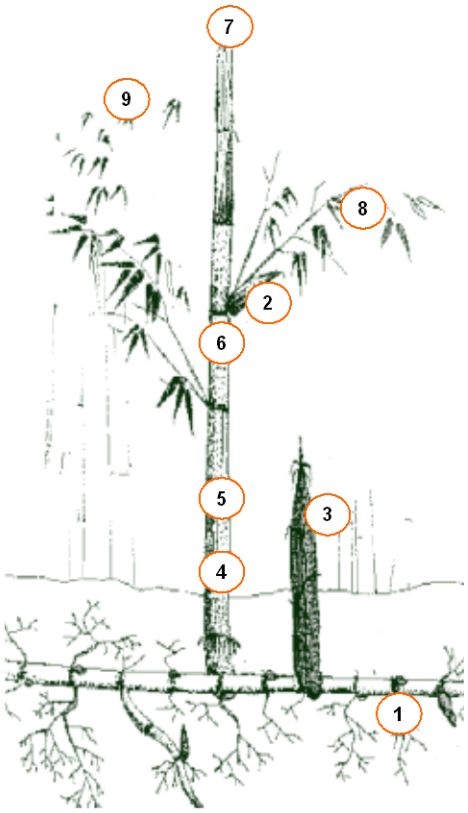
- Controlled burning and seasonal grazing encourages general productivity of pastures wildlife co-depends on
- Feed facilitation: Cattle, goats and donkeys are applied selectively to pastures and graze only certain species/parts of plants, allowing other species palatable to wildlife to grow
- Wild herbivores stay close to cattle herds and homesteads for protection from predators

In this case, the Dynamic Conservation Plan aims to:

- Strengthen community institutions for planning, NRM and tourism (establishment of CBO, by-laws)
- Improve management of pastures, animal health and Construction of water facilities for livestock in harmony with grazing cycles, to improve pasture productivity (2 dams)
- Development of the area as a pastoral/cultural tourism destination
- Recognition of the area as a National Heritage to be included in the National heritage law

Bamboo environmental benefits and income sources, Rwanda Bamboo Society and INBAR
Presentations by Mr. Johnson NKUSI, Executive Director, Rwanda Bamboo Society and Mr. Giles Henley, International Network for Bamboo and Rattan- INBAR
(see Bamboo1.pdf and Bamboo2.pdf)

Mr. Nkusi and Mr. Henly provided examples of the product and environmental services that bamboo can provide.



9	Leaves	Manure, Fodder
		Extracts, Medicine
8	Twigs	Brooms, Cloths
7	Top	Chopsticks, Toothpicks
		Bamboo poles
		Scaffoldings
6	Middle upper	Blinds, Mats, Carpet
		Chopsticks, Toothpicks
		Handicrafts
5	Middle lower	Flooring
		Laminated furniture
4	Base	Charcoal, Pulp
3	Shoots	Vegetable
2	Sheath & Rhizome	Handicrafts
1		
	Leftovers & processing waste	Fiber boards
		Charcoal
		Pulp
		Lumber
		Fuels

The parts of a bamboo plant are utilised for many different products *Zhu 2005*

Highlights were:

- Bamboo is a fast growing woody grass, and therefore can contribute to increase carbon sequestration- in some countries- Bamboo can be considered as forest and can be used in Afforestation / Reforestation projects[7]. It also releases 35% more oxygen than equivalent timber stands and can avoid deforestation as it can be to produce timber and charcoal needs
- It is a highly renewable material that requires no replanting, grows without fertilizers or pesticides and is harvested from controlled stands with an astounding growth cycle of 3-5 years
- It provides food for wildlife and can act as a filtering reducing silt and chemical leaching into water courses

→ **Recommendation**: it was suggested to explore the option of including bamboo as one of the SLM options supported by the Kagera TAMP portfolio, especially for application in riverine strips, degradaded hilltops, ravine plugging and brick extraction pit rehabilitation.

[7] For more on CDM methodologies see http://cdm.unfccc.int/methodologies/index.html

4. Workshop conclusions and next steps

❖ ***SLM Assessment – WOCAT methodologies***

- o WOCAT methodologies/approaches should be imbedded in the project to ensure that relevant data are gradually collected rather than being demanded abruptly and with inadequate preparation.
- o The WOCAT questionnaires to assess SLM technologies and approaches that have been introduced by the project will be used to compare SLM experiences for scaling up of the most effective ones across the Kagera basin.

❖ ***Land Planning and Tenure***

- o Security of tenure is positive on SLM investment
- o Kagera TAMP baseline studies may contribute on evaluation of the land tenure regularization
- o National Strategy (land use) to be translated up to catchment and watershed areas
- o In some basin countries (Rwanda, Tanzania & Burundi) land planning has made some advancement. In Uganda there is adequate legal provisions but with absence of land use plans apparently due to inadequate financing, lack of political will, insufficient appreciation of the usefulness of plans and lack of technical expertise
- o Kagera TAMP will take a leading role in sensitizing responsible institutions on land tenure and land use planning as key pillars for sustainable land management

❖ ***Payment for Environmental Services***

- o As a GEF project Kagera TAMP requires co-funding to fully implement its own proposal. By engaging environmental service users, it can raise additional funds for implementation of current plans and for long-term financing of extension services that can in fact support the sustained adoption and expansion of SLM, as initiated by Kagera TAMP.
- o Much of the Kagera TAMP investment in selecting participants, building technical capacity and facilitating SLM adoption coincides with the basis for PES for water benefits. Thus the additional cost of adding a real PES component would actually maximize the investment and represent very little additional costs. In fact, as an SLM project funded by GEF, it is already a PES scheme for Global Environmental Benefits (GEBs). Building a strong basis to pass these costs to local beneficiaries of SLM environmental benefits is consistent with GEF PES policy.
- o Using a PES thinking, even in absence of PES investors, may also be beneficial for Kagera TAMP on its own since no incentives for sustained SLM adoption have been considered so far.

Sally Bunning and Bernardete Neves both provided substantive technical support in the planning and conducting the workshop, helping to develop the SLM strategy and providing technical support on methods in reviewing progress and planning the next steps with the NPMs and RPC.

Annex 1- Workshop Agenda and list of participants

DAY 1: 29 August 2011 (Monday)		**Responsible**
8.30	Registration	
9.00	Welcome of participants and presentation of the workshop objectives and agenda	Joseph Anania Regional project coordinator and Sally Bunning Lead technical officer
9.15	Welcome Address by national focal point/identified guest of honor and FAO Representation Uganda (5 - 10 mins each)	Host country
Session 1: Review of land assessment and planning tools and methods for farm, community, watershed and sub-national levels and preliminary results of the LD/SLM assessment and identification of project sites/interventions for promoting sustainable land management		**Chairperson: Joseph Anania**
9.30	**1. Land assessment and planning tools and approaches** (FAO & partners) • LD/SLM assessment of local study areas (LADA-Local) • SLM assessment and mapping (LADA-WOCAT QA, QT, QM) • Watershed and landscape/community territory approaches • Participatory land use planning/ participatory negotiated territorial development (PLUP/PNTD)	Sally Bunning
10.00	Tea/Coffee break	
10.30	2. **Country progress** in the identification of project sites and assessment of SLM technologies (QT) and approaches (QA)- 10 minutes/country + 10 mins. on Uganda Pilot study on assessing SLM adoption	KARUMBETE Donatine (Burundi) Desire Kagabo MBARUSHIMANA (Rwanda) Michael Waluse (Tanzania) Tibesigwa Lawrence (Uganda)
12.30	**Plenary discussion on assessment and planning tools/ methods**	Facilitator- Sally Bunning
13.00	Day 1 – Lunch	
Session 2: Review of land planning and land tenure issues and experiences in the 4 countries and suggestions for Kagera TAMP (preliminary results)- 20 mins per country to include • Land use planning tools/approaches/experiences for selected Kagera-TAMP catchments/community territories/districts (provinces) • Land tenure /access rights issues in the Kagera basin • Application of relevant policies, legislation and national action plans - How Kagera TAMP will support their implementation		**Chairperson Salvator Ndabirorere**
14.00	**Burundi issues and experiences**	Salvator Ndabirorere Gilbert BIGIRIMANA
14.30	**Rwanda issues and experiences**	Theobald Mashinga Didier SAGASHYA
14.30	Tea/Coffee break	
15.00		Fidelis Kaihura

	Tanzania issues and experiences	Jason Kami
16.00	**Uganda issues and experiences**	Wilson Bamwerinde
17.00	Concluding discussion on Session 2 (land planning, land tenure and access rights issues and experiences) with a focus on suggestions for Kagera TAMP implementation at country and river basin levels	Sally Bunning and one of the land tenure moderators
DAY 2	**30 August 2011 (Tuesday)**	**Chairperson Salvator Ndabirorere (cont)**
8.30	Recap from Day 1, focusing on Session 2 Continuation of country presentations:	Joseph Anania
9.00	**3. Land assessment and planning/management experiences of project partners** • Watershed management approach by Africa 2000 in Kabale	Mr Wilberforce Serwanga Africa 2000 Kabale
9.30	Analysis of Agriculture Markets' dynamics and opportunities in Rwanda and within EAC and CEPGL frameworks?	Mr. Venuste Rusharaza/ UN Economic Commission for Africa
10.00	Tea/Coffee break	
Session 3: Identifying opportunities for the design and piloting of Payments for Environmental Services in the Kagera basin		**Chairperson Theobald Mashinga**
10.30	Introduction to Payment for Environmental Services (PES) and Experiences in the Region and opportunities for PES development with the Kagera TAMP project	Bernadete (Nanete) Neves
11.30	PES in Kabale: Rushebeya Kanyabaha wetland (biodiversity and water)	Byamukama Biryahwaho (BB) NAHI
12.00	The Rwandan PES Task force and emerging experience in the country	Michel MASOZERA Director, Rwanda Programme Wildlife Conservation Society
12.30	Discussion	Facilitator: Nanete Neves (NN)
13.00	Lunch	
13.30	Study trip to Rushebeya Kanyabaha wetland Group work assignments	Facilitator: Tree groups: Byamukama Biryahwaho Nanete Neves Sally Bunning
19.00	Return to hotel	
DAY 3	**31 August 2011 (Wednesday)**	

8.30	Field trip group work reporting	Nanete Neves
9.00	PES for Water: Engaging the private sector in supporting SLM adoption upstream for reduction in water treatment costs downstream	Dosteus Lopa, CARE-Tanzania
9.30	PES for Carbon: Capitalizing on carbon benefits of SLM project: VI Agroforestry experience in the region	Bo Lager, Program Director SSC-VI Agroforestry
10.00	Discussion on opportunities and constraints for PES in the Kagera	Facilitator: Nanete Neves (NN)
10.30	Tea/Coffee break	
11.30	**PES for bundled benefits:** Globally Important Agricultural Heritage Systems (GIAHS) in Tanzania (and Kenya)	F.M. Banzi, national coordinator of FAO-GIAHS Project, Tanzania
11.45	**Bamboo as one of the SLM options in Kagera TAMP portfolio** • Review which value chains are already ongoing in Kagera Basin: charcoal? handicrafts? + SWOT and overview of which projects are 'in the pipe' or what would be necessary / easily feasible; - marketing success stories • Review the contribution of bamboo in the Kagera basin to SLM: soil carbon sequestration? wildlife protection? water flow regulation	Johnson NKUSI, Executive Director, Rwanda Bamboo Society
12.00	Discussion on Potential for Environmental Services- i.e. highlighting the environmental and livelihood benefits of bamboo Discussion on opportunities and constraints for PES in the Kagera basin – focus on biodiversity, bamboo and bundled benefits	Moderator: G. HENLEY (INBAR)
12.30	Lunch	
Session 4: Land planning, tenure, SLM and PES linkages and their implementation in the Kagera basin		**Chairperson Fidelis Kaihura**
13.30	**Group work: Land planning and PES linkages –development of a catchment/community territory case study and action plan for Kagera TAMP for roll out in each country:** - identification of interventions, partners and resources available to facilitate land planning and development of PES linkages	Moderated by NPMs, land, tenure and PES resource person in each country
15.40	Tea/Coffee break	
16.00	Group reporting and discussion (4 groups x 10 mins. each)	
16.40	Concluding suggestions and recommendations for follow up for country and river basin implementation by Kagera project and partners Recommendations for catchment/district/country level actions and for partnerships and further support (to be further developed by each country team with advice of technical sectors and PSC)	Sally Bunning and Nanete Neves and Joseph Anania and NPMs
17.15	Closing	Host country

List of Participants

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Workshop evaluation

Of about 50 participants, only about 30 remained for day 3 so we only collected 21 feedback forms. Overall, the workshop was rated very highly, with an overall of 8/10. Content and Interaction rated 8 and Logistics and Facilitation rated 7. Highest ratings (10) were given to content and interaction, with many participants noting that the programme was very interesting and that the workshop allowed for very good working environment and networking. Lowest ratings were given to Facilitation (3) (due to the fact that while interesting, the programme was too full to allow for appropriate discussion and distilling of lessons from the presentations made) and to Logistics (5) due to the lack of timely payment of DSA to the participants, which they consider has an impact in the morale of the team and gives an impression of lack of professionalism in preparing the workshop. All participants mentioned either one or the other of these two major problems.

- 10 participants mentioned that the delay in paying DSAs shows lack of preparation and affects the morale of the participants
- 11 participants mentioned that the programme was too full and did not allow for appropriate time for presentations, discussion and distilling messages on how it applies to each country

→ so, every participant mentioned either one or the other problem.

Other comments to be taken into account in future events were:

participants:
- very positive to have combined practitioners and policy makers
- useful for networking with project participants and staff

programme:
- excellent to have had a field visit in the programme; and it was very interesting; however some of the vehicles and drivers were of bad quality
- very useful in initiating or consolidating PES efforts/interactions and networking

organization:
- very good with a useful and interactive group of people organizing and presenting
- hotel was very nice and pleasant surroundings, working environment was perfect, with mutual respect and cordial behaviour
- the fact that all the discussions were in English this was limitation for French-speaking participants
- presentation should be sent to us earlier for proper scrutiny and quality assessment; also timming
- participants should be lodged in the same place to allow for discussion
- preparing a CD with resources at the end of the workshop would be useful
- useful to conduct every 1-2 years
- suggestion to arrange transboundary exchange visits

Annex 2- Suggestions from country working groups

Burundi	Rwanda	Tanzania	Uganda
1. Land use planning at various levels	**(**Farm →farmer group →catchment → community→ ward/subcounty →district)		(Tools/Materials, Methods and Partners (TA

Burundi	Rwanda	Tanzania	Uganda
and funds)			
		Landscape: • Highland steep slopes, small valleys and streams • Land use/ settlement banana coffee system • Lowland- grazing, scrub	3 levels • macro (watershed), • meso (sub-catchment) • community and micro (catchment, farm)
2.. Map out SLM interventions (technologies) on the catchment i) Highland→Midhills →Lowland →Wetland. ii) Upstream and → downstream of the catchment (river basin) **and identify approaches for SLM implementation and for monitoring adoption and impact** (Tools/Materials, Methods and Partners)			
Existing data and sources (ministries/districts):			
• Strategy for catchment area management' • national action plans • district admin laws, • plans for commune/ district	• Topographic maps; • District development plans and LUPs • Land tenure regularization information (RNRA) • Crop intensification program • LUP materials (also from NGOs, CBOs..)	**Xxx**	**xxx**
Tools and Methods			
	• Mapping of land cover and LUs • Watershed approach –PRA, transect walks, FGD, key informants discuission, • Community LUP	• PVLUP • PRA, • watershed management approach, etc	• Watershed level: GIS, mapping land use DEM, admin boundaries • Community: participatory tools for mapping and planning, hotspots, id best practices, institutional analysis, resource flows, policies and laws (traditional, customary)→ possible solutions • Farm level plans
SLM practices & partners			
1. Kibogoye • Agroforestry Cassia siamea & Maesopsis (termite resistant) • Collect rainwater • Contour lines and furrows, • Buffer zone 50m along lakeshore • Lake is a Protected area 2. Integrated cohoha basin management • Antierosive measures • Bamboo and shrubs	• Woodlots • Agroforestry • Terraces bench and progressive • Agronomic- Mulching, push, pull, rotations, ISFM- FYM etc, • Rainwater harvesting • *Add livestock management→ fodder*	• Agroforestry • SWC • Conservation agric • Rangeland management Partners - DC, Vi agroforestry, local CSOs, res, sector ministries	

Burundi	Rwanda	Tanzania	Uganda
• Water harvesting • Seedlings and other inputs • Agronomic: Crop rotation, agroforestry • Structures: antierosion trench along contour, microwoodlots, buffer zone along river • Vegetative: tress along roads, lutte contre deforestation			
Partners and their relevance			
• Population • Association de pecheurs' • Service technique • Belgian technical cooperation • INECN- national institute gestion protected area management	• Rwanda agric board (RAB): national agric. research and extension merged, develop LOA • Vi Life: agroforestry and energy • TSBF-CIAT: ISFM developing LOA • Rwanda NR authority: • National University of Rwanda: • Private sector federation (trading seeds and fertilisers) • CSOs and CBOs • NGOs (DUHAMIC (post harvest technology)	• District council (LGA) • National progs ASDP/DADPlans, WSDP-waters ector, TANAPA- • NLUPC • Research & training	• National: energy, land, NAADS, • District:planning, agric, envt, vet, production • Sub-country (watershed several subcounties)- • Local GO and local leaders-
1. Which environmental services will be improved by each SLM measure (Carbon, water, biodiversity)			
• Biodiversity • Increase fish production • Tax from Ecotourism	• Vegetative SLM: carbon sequestration, biodiversity soil fertility, water quality • SWC Structures: reduced sediment load, reduced damage infrastrycture • Agronomic : increase crop yield, SOC, income	Agroforestry • C seq, • water, • fauna and flora SWC • SOC • water CA • C seq • water, • fauna and flora Rangeland • xxx etc	• Water: domestic water, production, • SWC: + ISFM: soil, carbon and organic certified products • Livestock: value chain- manure, fodder→ SOC, certified organic products • Crop diversification, germplasm, post harvest → C and biodiversity, • Wetland: aquaculture, restoration/protect-tion, → water, carbon + biodiversity • Forest: woodlot, beekeeping medicinal plants→ water, C and biodiversity • Biodiversity: xxx • Rural energy-micro HEP, biogas, energy saving stoves and biofuels (reduce deforestation),
Partners			

Burundi	Rwanda	Tanzania	Uganda
catchment 1 • IFDC • FAO catchment management, seeds etc Catchment 2			• GIS- ICRAF • NEMA- wetlands • Community: NAADS, NAHI, CARITAS, WVI, A2N district NRO
Impacts			
Catchment 1 • Natural Forest de la Kabira protected upstream through management downstream (wood provision , etc.), imp climate regulation and water tower and regulation→ Nile and Congo basins • Transboundary with RWA Catchment 2 •			• Water: domestic water, production, • SWC: + ISFM: soil, carbon and organic certified products • Livestock: value chain- manure, fodder→ SOC, certified organic products • Crop diversification, germplasm, post harvest → C and biodiversity, • Wetland: aquaculture, restoration/protect-tion, → water, carbon + biodiversity • Forest: woodlot, beekeeping medicinal plants→ water, C and biodiversity • Biodiversity: • Rural energy-micro HEP, biogas, energy saving stoves and biofuels (reduce deforestation),
Beneficiaries of these environmental services within & beyond the sub-catchment			
Participatory approach integrated catchment management • Population • Administration local • Services techniques • Management committees hill or village level	• Local population • Riparian popn- upscaling • Districts- infrastructure, food security • Beekeepers	Men and women: • farmers, • herders • tree growers, • fishers BUWASA (water authority	• Water PES: cities around lake Victoria • SWC, Livestock, Crop diversification- farmers, herders • Wetland: farmers, fishers • Forest: beekeepers, users of medicinal plants • Rural energy: communities
Which institutions/partners can provide support, beyond those mentioned above?			
	• REMA • Rwanda cooperative agency • FAO • MINIRENA • DNN designated national authority for CDM	• CARE • Laragewwe district community union • Lake Vic region localk auth cooperation • LVEMP • NBI • EAC LVBC	**xxx**
What compensation options could be included in the PES package? (for labour, loss of productive land, investment, etc.) **Consider cash payments and in kind investments in technical assistance with SLM implementation, marketing, finance for agribusiness and off-farm activities etc**			

Burundi	Rwanda	Tanzania	Uganda
	Didn't understand the question (said not applicable as don't intend to remove people from their land	Compensation • Cash payment • Other incentives- training, inputs, implements, subsidies • Income generating activiktie; fish, bee dairy cattkle goats Links to profitable markets •	**Xxx**
List the partners that can co-fund this PES investment (eg. Various government programmes, ongoing development projects etc)			
	• WCS • REMA • EWASA electricity water and sanitation authority	• Sector ministries • Nat and reg programmes • Bilat and multilat orgs • Foundations Belinda and gates • Interested NGOs • East Africa community	**Xxx**