

# **Lessons Learnt/Watershed Management in Kiruhura and Ibanda Districts**

*Experiences from Bisheshe and Buremba Water  
sheds in Katonga river basin.*

*Anthony Nyakuni*

## The study addresses the following issues:

- Identify indigenous practices /innovations and improved technologies used by the farmers and communities.
- Identify the byelaws and local policies that may facilitate the wider adoption
- Identify key incentives and disincentives that may widen or hinder adoption.
- Document process used to reach wider adoption for these technologies
- Identify current and potential target groups
- Identify the agro ecological areas suitable for the technology dissemination

## Issues cont'd Objectives

- Characterize the potential and current attributes of the technology that make it highly preferred by farmers
- Identify the current challenges and likely problems that may limit its wider application.
- Identify costs of technology acquisition and implementation of the technology
- Current and potential source of the germplasm.
- Any specific requirements for the technology to be highly adopted
- Estimated costs of its adoption.

## Study area

- Bisheshe and Buremba catchments in Ibanda and Kiruhura districts
- Located within Katonga basin that covers part of western high lands, Katonga River Game Park and Uganda cattle corridor.
- 
- The basin covers eight (8) districts, namely Kiruhura, Ibanda, Kamwenge, Kyenjojo, Mubende, Sembauke, Masaka and Rakai in mid western and central Uganda. Katonga



Boulders and erosion in the watershed

# Farming System

- Majority of farmers are small-scale farmers
- Have small land holdings ranging from 0.5 to 1 ha
- Land fragmentation is common
- Hilly topography and high population density.
- Cultivation on shallow degraded soils
- Annual crops grown such as millet, maize, beans and sweet potatoes.

# Challenges

- Uncontrolled clearance of trees and bushes  
Cultivation on fragile hillsides,
- Overgrazing of hilltops, wild fires,
- Drainage of wetlands
- Continuous cultivation on small parcels

# ***Indigenous technologies Evaluated***

- Mulching crops with grass and crops residues; used for high value crops such as banana and vegetables.
- a. Soak pits constructed in banana plantations to harvest and store run off from the paths and boundaries.
- b. Application of animal manure and kitchen waste to fields;
- c. Trash lines are mainly used to demarcate boundaries of plots or land holdings.
- e. Ridging is practiced mainly in Ibanda catchment for planting Irish potatoes and vegetables.
- f. Burying crop residues and fresh vegetation under soil mounds on which usually sweet potatoes are usually planted.
- 
- h. Fallowing; where the land is rested for one to two years



# Innovations

- **Integration of livestock.**
- The integration enhances recycling of nutrients from both animals and crop residues
  
- **Fuel wood saving technologies**
- The fuel saving technologies (Lorena stoves and Fireless cookers)
- Reduce amount of fuel wood used for cooking
  
- Reduces the time spent by women and children in collecting firewood.
- It improves health of women by reducing the amount of smoke emitted in the kitchens.

***Fanaya juu* terrace in Bisheshe catchment  
*Setari asplendida* grass on embankment.**



***Fanya chini* terrace in Buremba with pits constructed  
in the channel to increase volume runoff to be held**



**Banana established in infiltration pits in Nyakatokye parish in Bisheshe catchment**



**newly constructed infiltration pits with banana in Buremba catchment**





**Goats housed and fed using cut and carry system**



**Mucuna cover established under maize**



**Semi spherical under ground water pond  
with capacity of 150 cu meters,**



**Spherical partial under ground tank for storage  
constructed with bricks and capacity of 15 cu meters.**





Improved 3 hole cooking stove in Bueamba



Ceramic *Jiko* and fireless basket cookers



## **Policies and Local Bye-laws that promote adoption of the technologies**

- Environment Management Policy (1994) and Natural Environment Statute NES (1995) are the overall guiding framework for environment management in Uganda.
- 
- NES established National Environment Authority (NEMA) to monitor, supervise and enforce regulations, standards and guidelines and to coordinate all matters of environment in Uganda,
- 
- (Poverty Eradication Action Plan 2004/5–2007/8 December 2004). Policy and legal provisions were made to allow for decentralized environment management.

## Local policies, ordinances

- 
- Subsequently Environment Committees were established at district, sub-county, parish and village levels
- 
- District Environment Action plan were formulated.
- 
- The Low capacities of the districts and lower levels committees have hindered effective fulfillment of their obligations



## ***Incentives that propelled adoption***

- . Increased market opportunity
- Active participation of the all community level stakeholders.
- Building trust between extension agents and the community.
- 
- Promotion and establishment of community based farmer institutions to take led and jointly pull resources for implementation of technologies.
- 
- Starting conservation activities in farmer's priority interest areas with technologies that increase benefits within short time.
-

- ***Active participation and support by civil and opinion leaders.***
- ***Organizing regular agricultural competition and shows and awarding rewards and certificates promote technology adoption.***
-

## ***Disincentives.***

- The major disincentives that hinder adoption of the land technologies varied within the two catchments
  - 
  - Lack of support from civil and political leadership in promoting conservation activities was a big obstacle. Some local leadership support activities from which they gain politically or directly through tendering processes and kick-backs i.e. construction of feeder road and schools.
  -
- Farmers with small parcels of land were reluctant to adopt physical conservation measures

Farmers who hired land were reluctant to invest extra resources in conservation work.

- The dry weather conditions promote high termites population that destroy young trees and grass.
- 
- Destruction of young trees, grass strips and trash lines by wild fires discourage many farmers from adopting these technologies.
- Poor road conditions and remoteness of the catchment from the main market centers

- 
- Youth not motivated to work on these options due emerging towns and petty trade
- 
- The bad cultural practice of leaving animals loose during the dry season to graze on the crop residues
- 
- Un favourable weather conditions such as long dry spell and unreliable rainfall affected survival of trees seedlings
-

# Challenges for wide adoption of the technologies

- **Biophysical issues.**
- 
- In Bisheshe catchment poor quality soils is underlain with impermeable rocks. This type of soil pose problem for infiltration pits/permanent planting stations for planting trees, crops and pastures.
- 
- Parts of Bisheshe catchment areas have high content of limestone lying underneath the topsoil. This causes overlain soils to have unstable structure rendering them unsuitable for establishment of land management structures.
- 
- The steep hillsides promote run off which often destroy soil and water conservation structures and destroy crops and houses on foothills.
-

- In Buremba unreliable rainfall pattern compounded with prolonged dry spells is challenge for effective tree planting management activities.
- 
- In Buremba, the drier conditions promotes increased termite population that destroy young plants and grass. pose serious problem for construction of large and stable underground water storage tanks.
-

## **Socio-economic challenges.**

- In Bisheshe catchment the small land holdings are challenge
- 
- In Buremba catchment, the bad cultural practices of cattle to graze freely in crop land after harvest of crops constrains planting soil cover crop and for establishment of grass strips.
- 
- Physical conservation structures are expensive in terms of labour and material and hence hinder adoption by resource poor farmers.
- 
- High costs of equipments, tools and improved seeds are challenges for wide adoption of conservation technologies.



## **Institutional challenges:**

Weak collaborations among the institutions especially at sub-county and district level.

Cohesive and top down approaches employed by institutions like National Environment Authority (NEMA) and Wetland Conservation promotes conflict with the community and limits adoption.

Lack of clear policies and strategies on soils and integrated land /natural resources management.

Lack of commitment by majority of field extension agents, to provide regular backstopping and support

# Costs of technology acquisition and implementation

- Start up activities.
- Participatory monitoring and evaluation
- Publicity, and documentation.
- Training and capacity building.
- Technology development.
- Operational costs.
-