

# Assessment of Natural Resource Management in the Selected Villages around Lake Bunyonyi Basin in South Western Uganda

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**Abstract:** The study was about *Natural Resource Management around L. Bunyonyi basin* and was guided by the following objectives; To examine the methodology of digging trenches and checkdams and to determine the farmers participation rate of Natural Resource Management Practices. The study employed a cross sectional descriptive design that employed both qualitative and quantitative approaches. The quantitative approach was used to quantify incidences in order to describe current conditions while qualitative approach was used to explain the events and describe findings using interviews and documentary review and used a target population of 200 respondents from the twelve selected villages comprising of household heads and project representatives and used a sample of 80 respondents out of the study population. The interview guides and questionnaires were also used. Data analysis involved editing, coding, classifying and tabulating the collected data. The researcher employed both qualitative and quantitative data analysis techniques. Qualitative data, particularly responses from interviews was analyzed following the content analysis. Findings revealed that a total of 816 trenches and 500 check dams have so far been dug in both Kabale and Rubanda districts, majority have been stabilized by Napier and we are yet to stabilize a few remaining early July after receiving some rains. Generally, the participation of farmers in soil and water conservation activities continued to be very low compared to the previous months due to COVID-19 pandemic. Males participated in natural resource management than females because of the differences in gender roles in the society. Few people participated in NRM activities because of the guidelines that had been set by the government and the extension of the lock down. A total of 265 males, 133 females, 56 youth and 03 Batwa participated in NRM activities in both Kabale and Rubanda districts. The study concluded that in areas where more men participated in the digging of trenches and check dams, there were more that had been dug. Also, the men were more actively involved than their female counterparts. Rights of ownership of land determined a lot in the participation as men had more powers to make decisions. More trenches were dug than the check dams because of the fatigue associated with digging the dams in stony areas. The Youth had a low adoption rate yet the future of this country lies in their hands. The women and Youth should be actively engaged in the activities of natural resource management since they are closer to the environment. More public sensitization should be done to make the dwellers much more informed of how they will benefit from the practices. Agriculture extension services should be extended to the farmers and through this they will learn how to conserve their soils and water. Government support inform of finance for the village saving and loans associations and tools to dig trenches and check dams is required.

**Keywords:** Natural Resource, Management, Lake Bunyonyi, South Western Uganda

## Background:

With support from the local governments of Kabale and Rubanda districts and Non-Governmental Organisations such as African International Christian Ministry (AICM), Farmers in the villages surrounding Lake Bunyonyi have been contributing to the inclusiveness and low- carbon economic transformation of communities in the Lake Bunyonyi basin. This has promoted sustainable economic growth, increased employment, reduced poverty, improved nutrition, and the sustainable management of the environment through agro forestry and fruit tree growing by the communities around the lake. This comes after increased levels of environmental degradation that was originating from farmers unsustainable land management practices such as defforestation, bushburning and over cultivation. These approaches had resulted to low crop productivity, food insecurity and the pollution of Lake Bunyonyi the second deepest lake in Africa and this caused the need for this study.

## Objectives:

- I. To examine the methodology of digging trenches and checkdams.
- II. To determine the farmers participation rate of Natural Resource Management Practices

**The Natural Resource Management (NRM) and Functional Landscape approach (FLA) Approach around Lake Bunyonyi**

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- a. Community participatory approach: Due to land fragmentation where there are few farmers with consolidated land and thus the whole community has to be mobilized.
- b. Group participatory/Farmer Field School approach: FFS approach that aims at promoting soil and water conservation in the area was used which entitles NRM and FLA.

### Methodology

1. The Extension officers give technical support to the communities to dig trenches from top to bottom, this is because run offs start from hill top to down the hill, and check dams were dug where there is a lot of run offs to avoid creation of gullies and rill erosion.
2. The constructed trenches are planted with elephant grass and staria grass and Calliandra trees for stabilization. These grasses also provide fodder for animals.

### Activities were guided by:

- A. Digging trenches guided by the measurements below:
  - a. Length= 10M
  - b. Width= 2.5ft
  - c. Depth= 2-3ft depending on gradient & volume of water
  - d. Tie band= 1-1.5ft
- B. Check dams are guided by measurements: dug 5m in depth and 3 m in length to tap excess water that could erode soil with its fertility to low land areas.
- C. Grass strips to retain water in the soil and its fertility.

### Progress of NRM Activities.

In conserving soil and water, the farmers have been trained to dig trenches 3ft deep and 2.5-3ft in terms of width and 10m in length before a tie band could be put and 2.5m in width



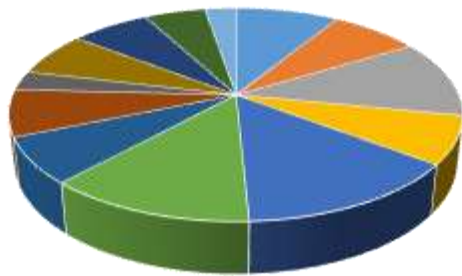


**PROGRESS IN THE CONSTRUCTION OF TRENCHES AND CHECK DAMS**

Village	Trenches Previously dug		June		Total	
	Trenches	Check dams	Trenches	Check dams	Trenches	Check dams
Kyevu	69	54	01	00	70	54
Musamba	60	48	01	01	61	48
Ndarura	93	57	3	00	96	57
Murambo	57	46	01	02	58	48
Kashenyi	110	90	3	3	113	93
Kagasha	99	81	03	02	102	84
Karengyere	55	51	3	00	58	51
Katembe	56	8	2	00	58	08
Bigyegye	23	14	3	00	26	14
Matakara	53	13	4	0	57	13
Karambo	53	6	0	0	53	6
Hamukaka 1	41	14	2	0	43	14
Hamukaka 2	21	10	0	0	21	10
<b>Total</b>	<b>790</b>	<b>492</b>	<b>26</b>	<b>8</b>	<b>816</b>	<b>500</b>

A total of 816 trenches and 500 check dams have so far been dug in both Kabale and Rubanda districts, majority have been stabilized by Napier and we are yet to stabilize a few remaining early July after receiving some rains. The above data is illustrated by the following pie chart.

Trenches and checkdams dug in both Kabale and Rubanda districts



- Kyevu      ■ Musamba      ■ Ndarura      ■ Murambo      ■ Kashenyi
- Kagasha      ■ Karengyere      ■ Katembe      ■ Bigyegye      ■ Matakara
- Karambo      ■ Hamukaka 1      ■ Hamukaka 2

Below is the composition of people that participated in NRM in Kabale & Rubanda districts.

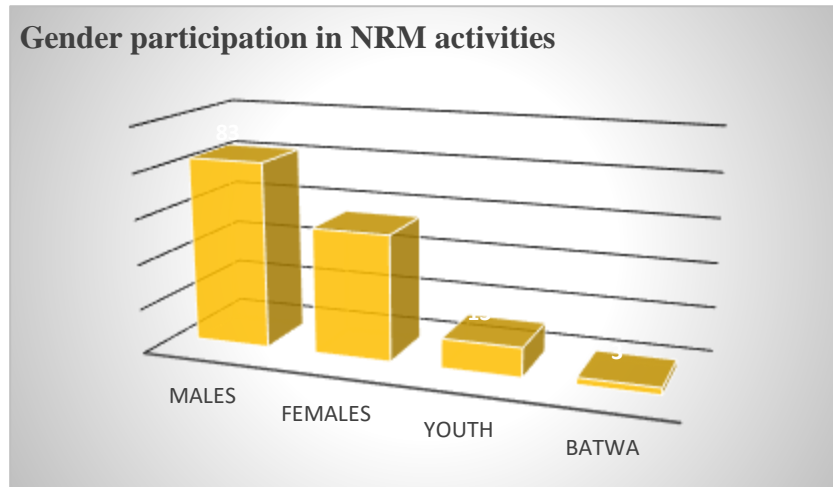
No	Village	Males	Females	Youth	Batwa
1	Kyevu	09	04	2	00
2	Musamba	09	07	2	0
3	Ndarura	13	11	1	0
4	Murambo	07	04	2	3
5	Kashenyi	20	9	2	0
6	Kagasha	13	11	01	0
7	Karengyere	12	10	3	0
8	Katembe	53	8	16	0
9	Bigyegye	11	14	1	0
10	Matakara	27	17	5	0
11	Hamukaka 2	23	5	7	0
12	Karambo	59	19	9	0

13	Hamukaka 1	9	14	5	0
	<b>Total</b>	<b>265</b>	<b>133</b>	<b>56</b>	<b>3</b>

A total of 265 males, 133 females, 56 youth and 03 Batwa participated in NRM activities in both Kabale and Rubanda districts during the month of June, 2020.

**Participation in NRM activities as of June, 2020.**

In June 2020, community participation in NRM activities were composed of both males, females, youth and Batwa as usual across all the two districts.



Generally, the participation of farmers in soil and water conservation activities continues to be very low compared to the previous months due to COVID-19 pandemic. Males participated in natural resource management than females because of the differences in gender roles in the society. Few people participated in NRM activities because of the guidelines that had been set by the government and the extension of the lock down.

Challenges	Proposed Solutions
Corona Virus Disease(Covid-19) was a big challenge as most of the work stopped due to fear of death	Some farmers continued to dig trenches and check dams on their own.
Land fragmentation has affected us in terms of linear planting and spacing as recommended	The project officer and VNRMCs have always tried to have trees planted as recommended.
In some villages, cows still silt the dug check dams while drinking water tapped by the check dams.	Community to keep watching and penalize those whose animals silt check dams as well as de-silting check dams and trenches.
Some project villages were blocked by mudslides and they could not be easily accessed.	The project Officer used the boat to transport items for NRM such as Napier.

**Conclusions:**

The study concluded that in areas where more men participated in the digging of trenches and check dams, there were more that had been dug. Also, the men were more actively involved than their female counterparts. Rights of ownership of land determined a lot in the participation as men had more powers to make decisions. More trenches were dug than the check dams because of the fatigue associated with digging the dams in stony areas. The Youth had a low adoption rate yet the future of this country lies in their hands.

**RECOMMENDATIONS**

The women and Youth should be actively engaged in the activities of natural resource management since they are closer to the environment.

More public sensitization should be done to make the dwellers much more informed of how they will benefit from the practices.



Agriculture extension services should be extended to the farmers and through this they will learn how to conserve their soils and water.

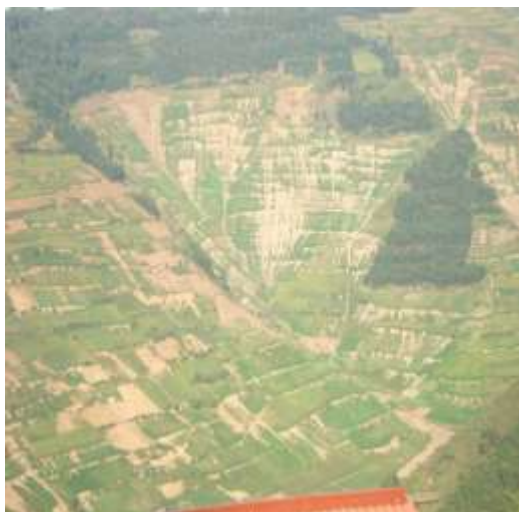
Government support in form of finance for the village saving and loans associations and tools to dig trenches and check dams is required.

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### Comparative Analysis:

Case study 1: Comparative study showing the rate of degradation in non-compliant villages.



a)

Case study 2: Comparative study with in the early adopter villages around Lake Bunyonyi.



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