



**The Republic of Uganda**

**MINISTRY OF WATER AND ENVIRONMENT  
DIRECTORATE OF WATER RESOURCES MANAGEMENT  
UPPER NILE WATER MANAGEMENT ZONE**

**SUPPORTING COMMUNITIES IN AYILA ABONGO SUB-CATCHMENT TO  
IMPLEMENT THE CATCHMENT MANAGEMENT PRIORITY MEASURES**



**Restoration of Ayila Abongo River System in Ayila Abongo  
Sub-catchment, Albert Nile Catchment – PACKWACH & NEBBI DISTRICTS**

**REPORT**

**Supported By:**

**ARDENT SERVICES INT. LTD**

**JULY 2024**

## Table of Content

## Abbreviations

AWMZ	Albert Nile Water Management Zone
CAO	Chief Administrative Officer
CDO	Community Development Officer
DNRO	District Natural Resource Officer
DWRM	Directorate of Water Resources Management
Ha	Hectares
IGAs	Income Generating Activities
KTB	Kenya Top Bar
KWMZ	Kyoga Water Management Zone
LCI	Local Council One
LCII	Local Council Two
LCIII	Local Council Three
LCV	Local Council Five
MWE	Ministry of Water and Environment
No.	Number
PAPs	Persons Affected by the Project
SAS	Senior Assistant Secretary
SCMC	Sub-Catchment Management Committee
UNWMZ	Upper Nile Water Management Zone
VWMZ	Victoria Water Management Zone

## List of Figures

Figure 1: Map of Ayila Abongo Sub Catchment

## List of Tables

Table 1: Summary of Stakeholders Engaged at National, District & Sub- County Level

Table 2: Summary of Stakeholders Engaged at Community Level (Packwach & Nebbi

Table 3: Location of demonstration plot for Soil and Water Conservation Structures in Ayila Abongo Sub-catchment

Table 4: Areas demarcated along Ayila Abong riverbank and PAPs mapped

Table 5: Apiary Groups formed in Packwach and Nebbi Districts (Ayila Abongo Sub-catchment)

Table 6: Apiary sites selected at Ayila Abongo river system

Table 7: Beehives and Bee equipment distributed per group

## I SECTION ONE: BACKGROUND

### I.1 General project overview

The Ministry of Water and Environment (MWE) through Directorate of Water Resources Management (DWRM) with funding from Government of Uganda is implementing the Water Management Zone (WMZ) Phase II Project which supports communities to implement the Catchment Management Priority Measures in Upper Nile Water Management Zone (UNWMZ), Kyoga Water Management Zone (KWMZ), Albert Water Management Zone (AWMZ) and Victoria Water Management Zone (VWMZ)

In UNWMZ, the Project has supported communities of Ayila Abongo Sub-catchment in Albert Nile Catchment to restore the upstream section of Ayila Abongo River System through introduction of Soil and Water Conservation structures within the farmland adjacent to the buffer zones to prevent soil erosion, ecosystem protection and restoration and introduction of alternative livelihood options for the communities formerly encroaching the riverbanks and buffer zones for survival. This report outlines the followings; Description of the Project Area, Sub-catchment Management Challenges, Sub-catchment priority measures, Overall Scope and Objectives, Approach and Methodology, Cumulative Outputs, Conclusion and Recommendations.

### 1.2 Description of the Project Area

The project targeted Ayila Abongo River system, located in Nebbi and Pakwach districts of West Nile Sub region prioritizing Ayila and Abok Parishes in Alwi sub-county in Pakwach district and Payera parish in Erussi sub-county in Nebbi district, hydrologically in Ayila Abongo Sub-catchment which forms part of Albert Nile Catchment.

The Micro catchment covers an area of 338km<sup>2</sup> with a population of 66,169, endowed with fertile soils, wetland, biodiversity, forest, mineral and energy resources.



Figure 1: Map of Ayila Abongo Sub Catchment

## 2 SECTION TWO: INTRODUCTION

---

### 2.1 Sub-catchment Management Challenges

---

The main issues in Ayila Abongo Sub-Catchment include:

- Indiscriminate wetland conversion for agriculture mainly through drainage leading to loss of water, soil fertility and the original wetland biodiversity. This practice is serious in the Ayila river ecosystem and in the near future will become prominent due to human development pressures;
- Population pressure which leads to encroachment on the wetland and subsequent degradation of the wetland for activities like agriculture. In addition, there is overharvesting of wetlands resources;
- Limited awareness about sustainable management of wetland resources;
- Limited alternative livelihood for the local communities;
- Lack of ownership of wetlands as they are held in trust by government for the people and are therefore looked at as common property;
- Political interference in the enforcement of management regulations;
- Inadequate sensitization of stakeholders on the ecosystem services provided by wetlands;
- Inadequate legal provisions and constraints imposed by the land tenure systems;
- Overgrazing especially during dry seasons;
- Frequent bush burning leading to severe degradation of pastures and loss of wetland
- Land degradation levels in the upper part of the micro catchment ranges from severe in Erussi hills to moderate in the middle section of the micro catchment. The lower portion of the micro catchment has low levels of land degradation.
- Poor farming practices that promote soil erosion; The top-soil, which is high in organic matter, fertility and soil life, has been carried and continues to be carried away into drainage channels, including streams and rivers. As a result of soil erosion this reduces productivity of the land and also contributes to the pollution of adjacent springs, streams and rivers. Above, 90% of the communities in Ayila Abongo are basically dependent on subsistence agriculture, mostly applying poor farming practices that promote soil erosion. The poor farming practices are manifested in the lack of soil and water conservation structures, over-crowding of crops, ploughing or digging along the slopes, overgrazing/overstocking; and inappropriate application pesticides. The lack of contour bands results in uncontrolled downward flow of water and increased sheet-erosion. Continuous removal of soil layers through erosion has progressively removed the fertile top soils, leaving behind the sandy soils. The soil is eventually washed into the wetlands, streams or rivers leading to their siltation and sedimentation, which also contribute to flooding of areas. (Source: *Ayila Abongo Sub-Catchment Management Plan 2020*)

## 2.2 Sub-catchment priority management measures implemented in Ayila Abongo Sub-catchment

---

1. Stakeholders Mobilization and Engagement
2. Support the establishment of soil and water conservation measures on individual farmers/public land to reduce/control runoff to control soil erosion and siltation;
3. Restore the degraded stretches of the Ayila Abongo river through planting tree seedlings along the river buffer boundaries
4. Provide 160 KTB Beehives and assorted bee equipment and support communities to establish Apiary unit as alternative Income Generating Activities (IGAs)

## 2.3 Overall scope and objectives

---

This assignment seeks to support communities in Ayila Abongo Sub catchment to implement catchment-based and community driven actions aimed at improving soil and water conservation, riverbank restoration and community livelihood improvements through promoting Beekeeping as alternative income generating activities. The beneficiaries of these alternative livelihoods are the landowners along riverbanks being restored.

The overall project objectives for this assignment are to:

1. Identify, mobilize, engage, and build the capacity of stakeholders and communities in undertaking catchment-based and community driven catchment management measures.
2. Support communities to implement soil and water conservation measures through establishment of demonstration units in the Sub-catchment
3. Support communities to restore the degraded hotspot of Ayila riverbanks
4. Support communities to establish and promote alternative income generating activities for improved livelihoods

## 3 SECTION THREE: APPROACH AND METHODOLOGY

---

### 3.1 Stakeholders' Mobilization and Engagement

#### **General Approach and Methodology**

The team employed participatory, interactive, consultative and interdisciplinary approaches and methodologies during the stakeholder identification, mobilization and engagement activities at District, Sub- County and Community Level. This is based on the understanding that participatory processes in implementation of catchment management measures lay the foundation for collective decision making on the sustainable management of water and its related resources

As part of the implementation processes, the team identified mobilized, engaged and built the capacity of stakeholders and communities in undertaking catchment-based and community driven catchment management measures at the national, district, sub-county and community level as presented below;

#### **3.1.1 Stakeholders Planning at National Level**

The tasks team at the National level comprising of the Team Leader UNWMZ, Water Officer and Sociologist together with the service provider from ARDENT Int. Ltd, kickstarted the assignment by conducting a preparatory meeting at the zonal office to agree on the sites, stakeholders, inputs, implementation strategies and time frame.

#### **3.1.2 Stakeholders mobilization and Engagement at District Level**

The team led by the DNROs of Pakwach and Nebbi districts paid courtesy to the CAOs and District Chairpersons of Pakwach and Nebbi to brief them about the proposed interventions, introduce the service provider and seek for their support. The district stakeholders embraced the project and requested for the progress report during implementation

#### **3.1.3 Stakeholders mobilization and Engagement at Sub- County Level**

The sub-county stakeholder's mobilization and engagements were conducted at the sub-county headquarters of Alwi and Erussi in Pakwach and Nebbi districts respectively. The main objective of the sub county level engagement was to mobilize and create awareness amongst the sub-county stakeholders on the project goal, objectives, and activities and to seek feedback to ensure better project alignment and implementation at sub-county, parish and village levels. A total of 10 members (05) in Alwi and (05) in Erussi were engaged at Sub- County levels. Find their details presented on Table I



**LCIII Alwi sub-county addressing participants during stakeholders engagement at Alwi sub-county in Pakwach district**

**Table I : Summary of Stakeholders Engaged at National, District & Sub- County Level**

S/n	Level	Institution	Category	No.
1.	National	MWE	Team Leader UNWMZ	01
			Water Officer	
			Sociologist	01
		ARDENT Int. Ltd	Service provider	01
2.	District	Pakwach	Chief Administrative Officer, District Chairperson, District Natural Resource Officer	03
		Nebbi	Chief Administrative Officer, District Chairperson, District Natural Resource Officer	03
3.	Sub-county	Alwi (Pakwach)	Sub-county Chief (SAS), Community Development Officer (CDO), Sub-county Chairperson (LCIII C/P) (Vice Chairperson of Ayila Abongo Sub-Catchment Management Committee), Agric. Officer, Parish Chiefs	05
		Erussi (Nebbi)	Sub-county Chief (Secretary of Ayila Abongo Sub-catchment Management Committee,	05

			Community Development Officer, Sub-county Chairperson (Chairperson of Ayila Abongo Sub-Catchment Management Committee), Agric. Officer, Parish Chiefs	
--	--	--	---	--

### 3.1.4 Stakeholders’ mobilization and Engagement at Community Level

#### (a) Awareness raising on eco-system conservation at Ayila Parish, Alwi Sub- County in Packwach District

Stakeholders’ mobilization and awareness raising on the need for ecosystem conservation were carried out at Ayila parish headquarters drawing 150 members from 06 villages adjacent to Ayila riverbank (Pajao East, Nyabang, Amojjo, Nyarieggi, Nyarieggi South and Nyamcara west). The Local Council I Chairpersons, LCII and Sub- County stakeholders (LCIII, SAS, CDO, Agric and Parish Chief) also attended the meeting. The purpose of the meeting was to inform the community about the proposed interventions, their benefits to the socio-economic development and the need for their participation in the implementation processes. Beekeeping as one of the alternative IGAs was also introduced during this session. All the stakeholders embraced the interventions.



The water Officer (UNWMZ) during awareness creation at Ayila Parish in Alwi sub-county

**(b)Awareness raising and training on Soil and Water Conservation at Alwi Sub-County in Packwach District**

This meeting was conducted at Abok Parish headquarters to inform the community about the importance of SWC Structures such as trenches, percolation pits, grass bund, soil bund, etc, followed by theoretical training and concluded by practical demonstration of the structures at one of the farms voluntarily offered. A total of 50 community members and 05 sub-county stakeholders attended the training.



**Water Officer training communities on Soil and water conservation strucures at Abok parish**

**(c)Awareness raising on Eco-system conservation, Soil and Water Conservation and alternative livelihoods at Erussi Sub- County in Nebbi District**

The team conducted 01 community sensitization meeting integrating all the priority measures; including ecosystem conservation, Soil and Water Conservation and alternative livelihoods targeting 02 villages of Jupageta and Madi Upper in Payera parish, Erussi Sub- County in Nebbi District. The community embraced the Soil and Water Conservation intervention but resisted the demarcation of the riverbank boundaries attributing it to land grabbing by government indirectly. The team employed a one-on-one approach of engagement beginning with the elders and a dialogue with the local leaders, this led to the positive change of attitude towards riverbank restoration.

**Table 2: Summary of Stakeholders Engaged at Community Level (Packwach & Nebbi**

S/n	Activity	Parish	Subcounty	District	Category	No.
I.	Awareness on Eco-system conservation and livelihoods	Ayila	Alwi	Packwach	SAS, LCIII, Agric. CDO, Parish chief, LCII Chairperson	06
					LCI Chairpersons	09

					Community	150
2.	Awareness on Soil and Water Conservation	Abok	Alwi	Packwach	SAS, LCIII, Agric. CDO, Parish chief,	05
					Community	50
3.	Awareness raising on ecosystem, Soil and water conservation and livelihoods	Payera	Erussi	Nebbi	SAS, LCIII, Agric. CDO, Parish chief,	05
					Community	88
	<b>TOTAL</b>					<b>313</b>

### 3.2 Support communities to implement Soil and Water Conservation Measures through establishment of demonstration units in the Sub-catchment

The project trained 100 community members to implement Soil and Water Conservation structures such as Trenches, Percolation Pits, etc on 5.5 ha of land provided by individual farmers as demo plots (02 ha in Packwach and 3.5 ha in Nebbi) districts. Each host farmer signed a land provision consent form as their commitment in ensuring that all the interest farmers access the demo plot for learning without any interferences. About .....members provided labour for trenching. Trenches prevent continuous removal of top fertile soil into the valley through soil erosion.

**Table 3: Location of demonstration plot for Soil and Water Conservation Structures in Ayila Abongo Sub-catchment**

S/n	Host Farmer	Village/Parish	Sub-county/District	Ha of land	Structures	Kms/ No.	GPS Location
1.							
2.							
3.							
4.							
5.							



**Demo sites for Soil and Water Conservation Structures in Erussi Sub-county, Nebbi District**



## 3.2 Support communities to restore the degraded hotspot of Ayila riverbanks

### 3.2.1 Demarcation of the degraded section of Ayila Abongo Riverbank

In Pakwach district, demarcation of Ayila Abongo river system, started with measuring 30ms of the buffer zone from the highest water point and planting teak tree seedlings along the marked buffer zone boundaries on one side of the riverbank, which stretched up to 06kms long, covering 06 villages of Nyabang and Pajao East in the downstream, Amojjo village in the middle stream and Nyariegi, Nyariegi south and Nyamcara west upstream of the river system all in Ayila parish, Alwi Sub- County, Pakwach district. 180 ha of the buffer zones were restored. Similarly, in Nebbi district, 30ms of the buffer zones were marked on both sides of the riverbank for about 5kms covering 02 villages of Jupageta Upper and Madi upper in Payera parish, Erussi sub-county in Nebbi district. A bout 300 ha of the buffer zones were restored. The project cumulatively demarcated 11kms of the riverbank and restored 480ha of the buffer zone.



Marking of the riverbuffer zone at Erussi sub-county Samples of Teak tree seedlings procured



**Demarcation of the riverbank by planting teak tree seedlings along the river buffer boundaries**

**3.2.2 Participatory Mapping of the Persons affected by the Project (PAPs)**

Participatory Mapping of the Persons affected by the Project (PAPs) was done during marking of the riverbank boundaries guided by the LCI Chairpersons and the elders. This process provided information on the details of households with land holdings and ownership rights along the degraded riverbanks which informed the selection of the beneficiaries of the IGAs and were later on registered as PAPs. The distances of the areas affected in the restoration efforts were recorded and the lists of affected community members (PAPs) was drawn, and these community members are the primary beneficiaries of the IGAs. In summary, a total of 134 household heads (72 in Packwach and 68 in Nebbi) were mapped as PAPs (see Annex).



**Registration of PAPs of Ayila river system at Erussi Sub- County in Nebbi District**

**Table 4: Areas demarcated along Ayila Abong riverbank and PAPs mapped**

S/n	District	Sub-county	Parish	Villages	Riverbank demarcated (Kms)	Buffer zones restored (ha)	PAPs Mapped (No.)
1.	Packwach	Alwi	Ayila	Nyabang, Pajao-East, Amojjo, Nyariegi, Nyariegi South & Nyamcara West	6kms (one side)	18 ha	72
2.	Nebbi	Erussi	Payera	Jupagetha Upper & Madi Upper	05kms (both sides)	15 ha	68
<b>TOTAL</b>	<b>02</b>	<b>02</b>	<b>02</b>	<b>08</b>	<b>11</b>	<b>480</b>	<b>140</b>

### 3.3 Support communities to establish and promote alternative income generating activities for improved livelihoods

The project introduced Beekeeping as an alternative Income Generating Activity that should be embraced by the community as a source of household income rather than cultivating the riverbank and buffer zones as the only source of survival. Beekeeping has low cost of management, generates high incomes and demonstrates sustainable use of the buffer zones.

#### 3.3.1 Target Beneficiaries of Beekeeping alternative (IGA)

The priority beneficiaries of the IGAs are those communities that were affected by the demarcation and restoration of degraded riverbanks in the target project hotspot areas hereto referred as “Project Affected Persons (PAPs)” (Find the List attached as an Annex).

#### 3.3.2 Group Formation

The assignment provides that the target beneficiaries will access beekeeping as alternative IGA using group approach which calls for group formation. The main justification for using the group approach over individual implementation is that groups; Create resource synergies as more vulnerable people come to work together; enhance efficiency as it ensures reduced unit cost of delivery; Group members hold each other accountable and are likely to expend funds on only agreed/planned IGA activities/inputs; and promotes the culture of cooperation, joint venture, cohesion and social support. Therefore, the 140 PAPs were organized into 05 functional IGA Groups (03 in Packwach and 02 in Nebbi) districts. Members of the groups participatorily agreed on the group names and democratically elected their leadership in the following positions; Chairperson, Vice Chairperson, Secretary, Treasurer, Defense (Riverbank Protection Committee

member). Gender balance was considered during election of the executive committees where 02 women were given opportunity to take up the key executive positions. However, the majority of the group members are males because they were registered as household heads.



**Training Apiary beneficiaries on the relevance of groups at Alwi sub-county**



**Group formation processes at Alwi sub-county in Packwach district**

**Table 5: Apiary Groups formed in Packwach and Nebbi Districts (Ayila Abongo Sub-catchment)**

S/n	Name of the Group	No. of members			Village	Parish	Sub-county	District
		M	F	T				
1.	Ayila Nyabang – Pajao East Apiary Group			21	Pajao East	Ayila	Alwi	Packwach
2.	Ayila-Kasegali Beekeeping Group			31	Amojo	Ayila	Alwi	Packwach
3.	Ayila-Nyariegi South Apiary Group			20	Nyariegi South	Ayila	Alwi	Packwach
4.	Ayila Source Apiary Group	30	04	34	Jupugeta Upper	Payera	Erussi	Nebbi
5.	Ayila Madi Upper Apiary Group	30	04	34	Madi Upper	Payera	Erussi	Nebbi
	Total			140				

### 3.3.3 Apiary Site Selection

The project team together with the service provider carried out an elaborate Apiary site assessment during demarcation of the riverbank and proposed the following sites as potential sites for establishment of Apiary IGA because of their location at the buffer zone, near the water source and within the flowering tree species that attract bees. Members collectively agreed and the land owners voluntarily offered some metres of land as access to the buffer zone for Apiary activities. They signed the land consent forms.

**Table 6: Apiary sites selected at Ayila Abongo river system**

<b>S/n</b>	<b>Name of the Group</b>	<b>Name of the Host</b>	<b>Village</b>	<b>Parish</b>	<b>Sub-county/ District</b>	<b>GPS Location</b>
1.	Ayila Nyabang – Pajao East Apiary Group		Pajao East	Ayila	Alwi/Packwach	
2.	Ayila-Kasegali Beekeeping Group		Amojo	Ayila	Alwi/Packwach	
3.	Ayila-Nyariegi South Apiary Group		Nyariegi South	Ayila	Alwi/Packwach	
4.	Ayila Source Apiary Group	Osaga Richard	Jupugeta Upper	Payera	Erussi/Nebbi	
5.	Ayila Madi Upper Apiary Group		Madi Upper	Payera	Erussi/Nebbi	

### **3.3.4 Training in Apiary establishment, management, value addition, market linkages and business planning**

Trainings of the Apiary groups were carried out at the sites both theoretically and through demonstrations by the Apiary service provider from ARDENT Int. Ltd. The training modules included;

- Understanding of Apiary enterprise
- Types of beehives
- Benefits of beekeeping
- Suitable sites for beekeeping
- Installation, operation and maintenance of beehives
- Pests control
- Harvesting processes
- Value addition and market linkages
- Business planning

A total of 134 beneficiaries were trained in Apiary establishment, management, value addition, market linkages and business planning in Packwach and Nebbi districts



The service provider conducting practical training of the Apiary groups at Erussi sub-county

### 3.3.4 Distribution and Installation of Beehives

The project procured the KTB Beehives and essential bee tools and equipment outlined below;

- 160 KTB Beehives
- 04 Bees suits
- 04 Bee Smokers
- 04 Buckets
- 15 Knives
- 05Kgs of Bee wax
- 04 Gumboots
- 04kgs of Nails and 04 hammers for installation

The MWE representative officially handed over the hives and tools to the beneficiary groups, witnessed by the Sub- County Chairpersons of Erussi and Alwi who also doubles as the Ayila Abongo Sub-catchment Management Committee Chairperson and Vice respectively. The beehives and tools were then allocated to the Apiary groups followed by participatory installation processes by the respective group members at the central site identified per group. Find the distribution details tabulated below;



SCMC C/P (LCIII Erussi Sub-couny inspecting the beehives: Official hand over of the beehives



Official hand over and distribution of the hives at Alwii Sub-county in Packwach district

Table 7: Beehives and Bee equipment distributed per group

S/n	Group Name	No. mem	Bee hives	Bee Suits	Smokers	Gumboots	Buckets	Knives	Bee wax
1.	Ayila Nyabang – Pajao East Apiary Group	21	26	01	01	01	01	03	1kg
2.	Ayila-Kasegali Beekeeping Group	31	32	-	-	-	01	03	1kg
3.	Ayila-Nyariegi South Apiary Group	20	22	01	01	01	01	03	1kg

4.	Ayila Source Apiary Group	34	40	01	01	01	01	03	1kg
5.	Ayila Madi Upper Apiary Group	34	40	01	01	01	01	03	1kg
	<b>TOTAL</b>	<b>140</b>	<b>160</b>	<b>04</b>	<b>04</b>	<b>04</b>	<b>04</b>	<b>15</b>	<b>05</b>



**Ayila Madi Upper Apiary group members receiving beehives at Erussi sub-county in Nebbi district**

**Word from the Chairperson Ayila Abongo SCMC (LCIII Erussi Sub- County**

After witnessing the handover of beehives and tools to the Apiary groups, the SCMC Chairperson of Ayila Abongo Sub catchment (Hon.....) in his message, thanked the MWE for commencing implementation of the Sub-catchment priority measures consolidated in the Sub-catchment Management Plan and implored the community to embrace the project. He thanked the community for organizing themselves into groups and commended them for strategically naming their groups beginning with Ayila as the core river system that has brought them together. He called upon the to take great care of their enterprise since it generates high level of household income. He however noted that, Apiary is a new alternative IGA in the area and called for close supervision by the experts. The Chairperson concluded by requesting the CDO to follow up the groups and build their capacity in group dynamics



**Ayila Nyarieg South Apiary site located in Nyarieg South village, Ayila parish, Alwii suc-county in Packwach district**



**Ayila Source Apiary site located in Jupugeta Upper in Payera Parish, Erussi Sub-county in Nebbi district**

## **4 SECTION FOUR: CUMULATIVE OUTPUTS OF THE INTERVENTIONS**

---

### **4.1 Stakeholders' Mobilization and Engagement**

- The project mobilized and engaged 19 stakeholders at Sub- County, District and National Level and 313 persons at Community level through courtesy calls, interactive meetings and dialogues

### **4.2 Soil and Water Conservation Measures**

- The project established 5.5 ha of Soil and Water Conservation demonstration plots and trained 138 persons on the construction of soil and water conservation structures

### **4.3 Riverbank restoration**

- The project demarcated 11kms of the Ayila riverbank and restored 300 ha of the buffer zones

### **4.4 Alternative Livelihood Support**

- The project built the capacity of 140 persons in Apiary establishment, operation and maintenance, value addition, market linkages and business planning and supported 140 Households with 160 KTB Beehives and essential bee equipment as alternative IGAs

## 5. SECTION FIVE: CONCLUSION AND RECOMMENDATIONS

---

The general field results indicate that, all the planned key priority measures of Ayila Abongo Sub-catchment Management Plan were successfully implemented with Soil and Water Conservation measures registering overwhelming support from the community in Nebbi district due to the hilly nature of their agricultural landscape that requires such structures. This calls for the need to upscale the interventions to the entire Sub-catchment. In addition, the communities were informed to learn from the established demo sites and transfer the knowledge to their respective farms.

Demarcation of the riverbank boundaries registered resistance from some land owners adjacent to the riverbank in Erussi Sub- County due to the challenges of limited land which is fragmented in nature driven by high population pressure in the area however, the one-on-one engagement approach crowned by involvement of the elders resulted into a positive change of attitude towards riverbank restoration. Sustainability of the protected zones to gain natural regeneration remains a collective responsibility of the land owners, elders, local council I and II, the SCMCs and the sub-county leadership to follow up and ensure compliance. In addition, the communities have expressed willingness to afforest the buffer zones with fruit trees such as mangoes as a permanent measure to protect the buffers from cultivation. Therefore, there is need to source for the tree seedlings and ensure timely supply

The upstream of Ayila riverbanks are heavily degraded through Sand mining, cultivation of bananas, sugarcane, yams, cassava among others, to derive food and livelihoods. The benefits that accrue from cultivation and sand mining over weighs the returns expected from beekeeping provided as alternative IGAs. This will therefore make it difficult for the landless communities who survive along the riverbank and buffer zones to voluntarily leave encroachment. This concern emerged during introduction of Apiary enterprise as an alternative source of income. The majority proposed that IGAs such as piggery, poultry, goats rearing, fish ponds and small-scale irrigation have economic values that contribute significantly towards encouraging communities to evacuate the wetlands.

Lastly, the 05 Apiary IGA groups were formed and leaders elected however, they lack adequate knowledge and skills in group dynamics. Therefore, there is need to engage the Sub-county Community Development Officers to further support these groups in preparing the group constitutions, Operational and Maintenance Plan if their enterprise all aimed at enhancing their functionality to achieve the purpose of their existence

