



BASELINE REPORT
for
**SMALLHOLDERS ENVIRONMENTAL
AND CLIMATE AWARENESS
PROJECT (SECAP)**



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However, AFARD takes the full responsibility for the views and errors expressed herein.

Robert Bakyalire
June 20, 2024

List of Abbreviations

AFARD	Agency for Accelerated Regional Development
AWO	Arbeiterwohlfahrt
CCAFS	Climate Change, Agriculture and Food Security
CDO	Community Development Officer
CGAIR	Consultative Group on International Agriculture Research
CREMOV	Climate Resilient Model Villages
DANIDA	Danish International Development Agency
DAO	District Agricultural Officer
DFO	District Forestry Officer
DLG	District Local Government
LC	Local Council
LG	Local Government
M&E	Monitoring & Evaluation
NDP	National Development Plan
IGA	Income Generating Activity
NGO	Non-Government Organization
NURI	Northern Uganda Resilience Initiative
SECAP	Smallholder Environmental and Climate Awareness Project
SwB	Seniors without Borders
UGX	Uganda Shillings
VCAAP	Village Climate Action and Adaptation Plans
VHT	Village Health Team
VSLA	Village Savings and Loans Association

Executive Summary

About the Project

The Smallholders Environmental and Climate Awareness Project (SECAP) and Climate Resilient Model Village (CREMOV) Project seek to improve the livelihood adaptive capacity of rural poor smallholder farmers in the two villages Jafurnga and Ngali in Nebbi district to cope with climate risks through i) Targeted communities have improved awareness on climate change and local resilience possibilities; ii) Poor smallholder farmers adaptive capacity on climate change resilience improved; and iii) LG and Sub country representatives have gained improved understanding of climate change adaptation and resilience practices.

Why the baseline study

This study was conducted to determine the baseline status of the project outcome indicators for benchmarking and tracking the project progress. This study a) established the baseline status of the project performance measurement indicators, b) identified critical strategies necessary for improving project performance and c) developed a robust M&E plan with clear and realistic performance targets (project logframe).

Methodology used

Data was collected using both quantitative-based survey and qualitative interviews. Quantitative data was collected using Kobo Collect tool.

The findings

- » The project beneficiaries are geographically located in 2 sub counties of Alala and Kucwiny in Nebbi district. Overall, the project has 75 direct beneficiary households: 25 in Alala sub county and 50 in Kucwiny sub county.
- » While 54% of these beneficiaries are female, 46% are males. Their mean age is 43 years.
- » The average household size is 6.4 people with 89% having some form of education.
- » There was a low rating on the level of awareness about climate change and environment degradation,

their causes and effects among the community and LG leaders. At community level, only 14% knew about climate change and 50% about environmental degradation.

- » Although all the households grew cassava, few grew other climate smart crops (54% sweet potato, 50% sorghum, and 11% banana). All these households used local varieties. No wonder, cassava yield was only 12% of potential yield of improved varieties.
- » Only 26% of the households reported having used last season any 4 out of 9 climate smart agricultural practices that AFARD and the local government promotes.
- » 93% of the beneficiaries save weekly to buffer climate change risks.
- » Only 22% of the beneficiaries had alternative income generating activity apart to complement their subsistence farming. To diversify nutrition and income, 40% of the households have poultry but only 3% carry out vaccination of the chickens while none practices programmed hatching.
- » Only 5% of the households use improved cooking stoves and 22% reported having faced violence during search for firewood.
- » Only 11% of the households are food secure and even lower was the household income security status which was found to be at a decimal 8%.
- » There is no scalable approach to climate adaptation in any of the project areas and this will have to be developed during project implementation.



1. Introduction

1.1 A summary of the project

The Agency For Accelerated Regional Development (AFARD) in partnership with Seniors without Borders (SwB) obtained funding from Civil Society in Development (CISU), Denmark to implement a 9-month “Smallholders Environmental and Climate Awareness Project” (SECAP). The two partners also secured another 30-month Climate Resilient Model Village (CREMOV) Project. The baseline is planned to benefit both projects.

These projects seek to address the key challenge of adverse climate change risks that have led to increased food and nutrition insecurity and extreme poverty in the community. Alarming trend of climate change typically characterized by prolonged droughts and seasonal floods and hailstorms have in the recent past been witnessed in the region. The September 2022 Afro barometer study shows that weather patterns have changed with drought and floods becoming more severe in the last 10 years while the government is doing so little in addressing climate change. Given that the population of Nebbi district primarily derive their livelihoods from rain-fed subsistence crop agriculture and that the district experiences the worst form of climate change, there is gross disruptions of the livelihoods of the population and the many negative coping mechanisms adopted by the people will only continue to exacerbate the situation further. The situation of food and nutrition insecurity and high poverty levels are a common occurrence, with rampant environment and biodiversity degradation. The project results are summarized below:

Goal: To improve the awareness and livelihood adaptive capacity of rural poor smallholder farmers in the two villages Jafurnga and Ngali in Nebbi district to cope with climate risks.

Outcome 1 (Community awareness and collective action): Targeted communities and LLG officials are aware of climate change causes, effects and local adaptation actions, and collectively agree on actions to safeguard high risk practices

Outcome 2 (Institutional and Technical capacity building): Poor smallholder farmers adaptive capacity on climate change resilience improved.

Outcome 3 (Advocacy and Knowledge management): LG and Sub country representatives have gained improved understanding of climate change adaptation and resilience practices.

To achieve the project results, the project will: Mobilize the smallholder farmers in the target villages and conduct awareness and education on climate change causes, effects, the need for collective actions by multiple stakeholders during the SECAP phase of the project. Members of CRAGs will be provided with improved agro-technologies (skills and inputs for tree growing, climate smart agriculture, poultry management, soil and water conservation) and VSLA, Financial literacy and IGA selection, planning and management training to enhance livelihood diversification. Meanwhile the community will have food forests planted and gully dams for water for livestock constructed during the CREMOV phase of the interventions

2. The Study Focus

2.1 Objective Use of the Study

The overall objective of the baseline study was to develop a gender-sensitive evidence-based monitoring and evaluation plan for benchmarking and tracking the project progress. This study was to:

- a. Establish the baseline status of the project performance measurement indicators.
- b. identify critical strategies necessary for improving project performance.
- c. Develop a robust M& E plan (project log frame).

2.2 Scope of the Study

The baseline study was conducted in the two project villages of Ngali and Jafurnga, Nebbi district, West Nile, Uganda. It ran from April 4 to May 3, 2024, and covered all the project stakeholders (targeted smallholder farmers, local government officials, cultural, opinion and religious leaders).

Key deliverables of the Consultant were:

- a. Inception Report with the study design, budget, work plan, and data collection and analysis methods, study ethics, and data collection instruments (incl. checklists and questionnaires)
- b. Final study report in English no more than 30 pages excluding annexes composed of Terms of Reference, data tools, filled log frame and all data sets generated during the baseline study such as photos, transcription, and cleaned data in SPSS.
- c. Internal presentation of findings for learning of all AFARD staff

3. Methodology

In this section we present the baseline study design that helped in internal monitoring and external evaluation of the project. The methods for data collection, data analysis and research ethics that were used have also been included.

3.1 Study Focus

The baseline study focused on assessing primarily the baseline indicators to aid benchmarking of progress. To do so:

- » First, we reviewed the proposed indicators to come up with a clear project result map (see Figure 1 below). This was done to ensure that all the three project outcomes and impact can be visibly interconnected.
- » Second, we developed the indicator data sources (see Table 1 below) both to guide the robustness of study tool design and ensure that optimal data is collected.
- » Finally, from the two above, it is evident that the baseline study used a mixed method design approach that was based on quantitative, qualitative, and participatory methods of data collection and analysis.

Figure 1: Harmonized SECAP & CREMOV projects results chain

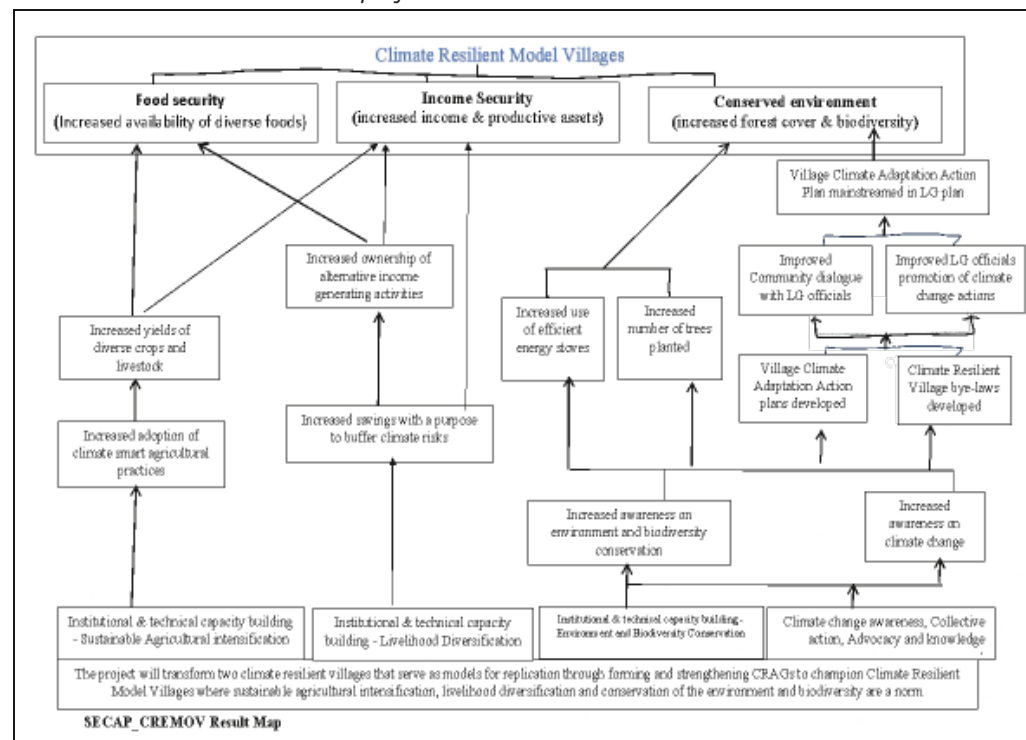


Table 1 below presents a summary of the project methodology – key results, measuring indicators target data to be achieved, data sources and the methods for data collection. The performance measurement indicators (drawn from the log frame) present a succinct summary of the project results (Figure 1). It is evident therefore that the baseline study could only use a mixed method study approach that includes quantitative, qualitative and participatory data collection and analysis methods. This enabled effective triangulation of data from the various sources.

Table 1: Harmonized project performance indicators and their data sources

	Intervention's Logic	Performance Measures	Main Data Source	Methods of Data Collection
Goal	To improve the awareness and livelihood adaptive capacity of rural poor smallholder farmers in the two villages Jafurunga and Ngali in Nebbi district to cope with climate risks.	75% of target households are food secure.	Household	Household survey
		50% of target households are income secure through improved agricultural practices and other income generating activities.	Household	Household survey
		LG officials & local leaders report increased forest cover & biodiversity	LG officials & local leaders	Key Informant Interviews (KII)
		01 local scalable approaches to climate change adaptation drafted.	AFARD	Document review
Outcome 1 (Community awareness and collective action)	Targeted communities and LLG officials are aware of climate change causes, effects and local adaptation actions, and collectively agree on actions to safeguard high risk practicesa	02 Villages developed and implemented community-led climate change adaptation plans.	AFARD	Document review
		03 CRAGS developed and implemented model village standards/byelaws	Household	Household survey
		LG officials & local leaders report high aware of causes and effects of climate change risks.	LG officials & local leaders	KII
		LG officials & local leaders report high aware of causes and effects of environment degradation.	LG officials & local leaders	KII
		90% of targeted HH aware of the causes and effects of climate change.	Household	Household survey
		90% of targeted HH aware of the causes and effects of environment degradation.	Household	Household survey

Outcome 2 (Institutional and Technical capacity building)	Poor smallholder farmers adaptive capacity on climate change resilience improved.	• Sustainable Agricultural Intensification	Main Data Source	Methods of Data Collection
		• 70% of the targeted HHs using at least 4 out of 9 climate smart agricultural practices.		
	Intervention's Logic	Performance Measures	Main Data Source	Methods of Data Collection
		• 70% of the targeted HHs reporting increased yields (of crops and livestock)	Household	Household Survey
		• Livelihoods diversification		
		• 90% of targeted households owning alternative income generating activities.	Household	Household Survey
		• 95% of the targeted HHs saving with a purpose to buffer climate change risks	Household	Household Survey
		• Environment and biodiversity conservation		
		• 95% of targeted households using improved energy saving stoves	Household	Household Survey
		• Targeted households have an average of 15 trees planted that are surviving	Household	Household Survey
Outcome 3 (Advocacy and Knowledge management)	LG and Sub country representatives have gained improved understanding of climate change adaptation and resilience practices.	• 75% of targeted households reporting fruitful dialogue with LG officials on climate change	Household LG Officials	Household survey KII
		• LG officials report active use of climate change awareness to promote political and technical adaptation and mitigation initiatives	LG officials	KII
		• 01 Village Climate Adaptation Action Plan is included in Sub-County and District Development Plans	LG officials	Document review

3.2 Study sampling methods and Sample size

The baseline units of analysis were all the 75 targeted households, 10 local government officials, 15 opinion, cultural, and religious leaders. The study purposively sampled and collected data from these units of analysis so that they are profiled to ensure that a database is built on them for follow up monitoring and evaluation.

Table 2: Sample sizes

Units of Analysis	Project Target	Sample Size	Respondents Reached	Respondents
CRAG member households	75	75	74	All CRAG members
Local/village leaders	15	15	25	Cultural, religious or opinion leader
Local government staff	10	10	15	Technical and political leaders (LC 1-5)
Total	100	100	114	

3.3 Baseline Study Phases

The baseline study was conducted in a phased manner as below:

- » Inception phase that included desk review of project documents (approved proposal, proposed monitoring indicators, and other related AFARD monitoring guides, etc.), design and approval of study tools, work plan, and compliance requirements.
- » Field mission for data collection using tools agreed upon with AFARD.
- » Data triangulation and analysis for report elaboration. Preliminary report will be submitted to AFARD and SWB for review and the final report will be prepared for dissemination.

Important to note are:

- » Household surveys were conducted using the Kobo Collect software so that every profiled beneficiary can be tracked overtime.
- » 03 research assistants (RAs) who have at least university education and familiarity with the selected project sub counties, districts, local languages, and experience with digital data collection besides owning a smartphone were recruited and trained for 1-day on how to conduct interviews, do online data recording and uploading, and research ethics issues including health and safeguarding. Their training also involved a mock session and pretesting of the agreed upon instruments.
- » We worked closely with AFARD project team and local government officials including local council (LC 1) to ensure that all the primary units of analysis are reached.

3.4 Methods of Data Collection

Data from the various sources was collected using quantitative, qualitative and participatory methods as is presented below:

- » **Document review:** The following documents were reviewed: the project proposals in order to harmonize the result matrix/chain; and AFARD monitoring and evaluation plan strategy 2020-2025 in order to align the monitoring indicators' definition within the organization.
- » **Household survey:** A structured questionnaire was administered to the beneficiary smallholder farmer household representative who was selected to be a member of the CRAG. This questionnaire covers all indicators needed for the monitoring and evaluation (climate smart agriculture, livelihood diversification, and environmental and biodiversity conservation practices).

- » **Key Informant Interviews (KIIs):** Using an interview guide, KIIs were conducted with mainly the cultural, opinion and religious leaders and local government officials with a focus on all community awareness and knowledge sharing.
- » **Observations and photography:** The consultants also visited community shared resources sites as well as taking photos e.g., poorly managed farmlands, etc.

3.5 Data Management and Ethical Issues

The Consultant managed the study with utmost care and ethical consideration to ensure that valid data was collected, transcribed, and analyzed. To ensure that the consultancy service adhered to the Terms of Reference and an appropriate professional level, the following quality control measures were used:

- » **Joint review of study instruments:** The study team together with AFARD staff members ensured data consistency with internal programme management system.
- » **Pre-testing of study instruments:** This was done prior to the main fieldwork to ensure reliability, acceptability, feasibility, question flow, and the duration of the interview. Here, some changes on the survey tool loaded in kobo collect were agreed and made.
- » **Social mobilization for data collection:** To increase the response rate, the consultants got support from AFARD project staff to undertake prior mobilization of the respondents for a timely administration of the study tools.
- » **Introduction letter:** AFARD Director of Programs availed the study field team with a letter of introduction to facilitate acceptance by the various local institutions.
- » **Consent and confidentiality:** The consultant and research assistants), in line with the Data Protection and Privacy Regulation 2021, got consent from respondents to participate in the study. This process also involved a statement of confidentiality for the respondents explaining the purpose of the study and committing not to divulge individual respondent details except when consented to. Where photography was involved, a consent was again got from the concerned people who were to appear in the photograph.
- » **Health and safeguarding regulations:** The study team adhered to the current Ministry of Health regulations for the prevention of COVID-19 (by use of sanitizers and face masks and avoiding any body contact). Emphasis was also placed on safeguarding of children and beneficiary sexual exploitation.

3.6 Challenges during the Study

The only challenge encountered was the inability to access one of the targeted beneficiaries as she was admitted in hospital by the time the study was conducted. Enthusiasm of the stakeholders also led to over-attendance with some of the KII sessions attended by more people than planned.

4. Result

This section presents findings from the study, and it starts by describing the characteristics of SECAP project beneficiaries. This is followed by an analysis of the baseline status of the project result areas as well as the impact indicators.

4.1 Geographic and demographic characteristics

4.1.1 Distribution of Respondents

It was intended that data be collected from a total of 100 respondents who include all 75 beneficiary households and 25 others drawn from district, sub county as well as local/village leaders. However, during the data collection period, one of the direct beneficiaries was admitted in hospital. The data used for this report is therefore from 74 out of the 75 targeted beneficiaries (Table 3). However, despite targeting 25 respondents from local government and village leaders, a total of 40 was reached. The overall number of respondents is summarized in Table 3 below.

Table 3: Distribution of study respondents

	District	Sub counties		Number reached
Category	Nebbi	Alala	Kucwiny	
CRAG member households	-	25	49	74
Local/village leaders	-	12	13	25
Local government staff	4	6	5	15
Totals	4	43	67	114

Characteristics	Males	Females	Total
Total number of beneficiaries	34	40	74
Gender (%)	46	54	100
Total HH population	265	263	528
Average household size	6.9	6.0	6.4
Number of people with disabilities	20	5	25
Number of people with HIV/AIDS	1	1	2
Number of people with chronic illnesses	20	22	42
Number of people by age group			
0 - 17 years	162	115	277
18 - 35 years	51	55	106
36 - 59 years	32	75	107
60 years and above	20	18	38
Average age of beneficiary household head	43.5	43	43.2
Education status (%)			
No education	1.4	9.5	10.8
Primary education	40.5	44.6	85.1
O Level	4.1	-	4.1
A Level	-	-	-
Vocational	-	-	-
Tertiary	-	-	-

Marital status (%)			
Married	40.5	48.6	89.2
Single	4.1	1.4	5.4
Divorced/separated	1.4	1.4	2.7
Widow(er)	0	2.7	2.7

Table 4 below presents a summary of the demographic characteristics of the household population. From the data collected, the following were found:

- » The project beneficiary households were 54% females and 46% males. This is in line with the set project reach target of 52% female.
- » The total household population however are 49.8% females and 50.2% males.
- » The average age of the beneficiaries is 43.2 years (males 43.5 years and females (43 years).
- » The mean household size (averaged number of people per household) is 6.4 people (highest in male headed households 7 people compared to only 6 people in female headed households). This is a big number of people to care for under subsistence agriculture.
- » Children and youth (0-35 years) compose 72.5% of the total population, which without decent employment means a very high dependency rate.
- » Majority of the people are married (89%).
- » The population also are mainly with primary education (85%). This means that the selection of peer trainers should be very carefully done to ensure that the few educated members are not overwhelmed with roles and responsibilities. In addition, education (and training materials) should use local language to ensure effective understanding.

4.2 RESULT 1: Community awareness and collective action.

O-1.1: Number of villages that developed and implemented community-led climate change adaptation plan

Both the household survey and the KII found out that none of the villages had a climate adaptation plan (Baseline 0). The project plan to support the villages to develop this plan is a positive approach to climate risk mitigation.

O-1.2: Number of CGRAGs that developed and implemented model village standards/byelaws

Both the household survey and the KII found out that none of the CRAGs had a climate adaptation byelaw (Baseline 0). The project plan to support the CRAGs to develop these standards is a positive approach to climate risk mitigation.

O-1.3: LG officials & local leaders report high aware of causes and effects of climate change risks.

The KII with both local government and community leaders revealed that there is generally a very low awareness of climate change, its causes and effects. The few leaders who reported having known something also intimated that this was from private readings of newspapers and listening to radio. They hinted that they have never had any specific awareness and education for leaders on climate change. Many requested the project to provide them with ample information on climate change. **(Baseline: Low)**. There is therefore a need to provide targeted information and education for leaders on climate change if they are to champion relevant policy change for climate adaptation and mitigation.

O-1.4: LG officials & local leaders report high aware of causes and effects of environment degradation.

Like for climate change, the KII with both local government and community leaders also found out that there is generally a very low awareness of environmental degradation, its causes and effects. These leaders have never been provided with relevant information on environment conservation (Baseline: Low). There is therefore a need to provide targeted information and education for leaders on environment degradation if they are to champion relevant policy change for environment conservation.

O-1.5: % of targeted HH aware of the causes and effects of climate change.

The household survey asked respondents whether or not before the SECAP project, they knew of climate change and its causes and effects. Only 13.5% (20% males and 6% females) had awareness prior to the project (Baseline 14%).

The main causes and effects are summarized in Table 5 below. There were two main causes mentioned as responsible for climate change and they included i) reduction of tree cover through tree cutting for firewood, charcoal burning, poles for construction and ii) indiscriminate bush burning that kills all vegetation. Another view given during the KIIs with LG officials and community leaders was bad farming practices like over cropping in the same area and overgrazing. Meanwhile the major effect of climate change mentioned by the majority of people interviewed was low productivity for mainly crops but also animals. Also mentioned were high temperatures, prolonged drought, reduced rains, strong winds, floods and all these lead to food and income insecurity as emphasized by the LG leadership. There is a need to increase the awareness of the local community members and their leaders (including government officials) on the broader understanding of climate change including what they do at individual, household and community levels as well as what is done external to their environment so that positive knowledge, awareness and practices necessary to stir change are adopted.

Table 5: Beneficiary highlighted causes and effects of climate change

Causes of climate change	Effects of climate change
» Bush burning	» Strong wind
» Charcoal burning	» No rainfall
» Cutting of trees	» Too much/too little rain
» Lack of trees	» Destruction of farms
	» Destruction of houses
	» Hunger
	» High temperature
	» Land can be left bear
	» Low crop yield
	» Prolonged dry spell
	» Short planting season
	» Soil erosion

O-1.6: % of targeted HH aware of the causes and effects of environment degradation.

The household survey asked respondents whether or not before the SECAP project, they knew of environmental degradation and its causes and effects. Only 50% (68% males and 35% females) had awareness prior to the project (Baseline 50%).

The main causes and effects of environment degradation mentioned are summarized in Table 6. Negative coping actions (tree cutting, sand mining, charcoal burning, brick making, and monocropping) were also blamed by KIIs with local leaders. These activities were noticeable during the research data collection visits.

There is a need to increase the awareness of the local community members and their leaders (including government officials) on the broader understanding of climate change including what they do at individual, household and community levels as well as what is done external to their environment so that positive knowledge, awareness and practices necessary to stir change is adopted.

Table 6: Beneficiary highlighted causes and effects of environment degradation

Causes of environment degradation	Effects of environment degradation
» Brick making	» Contamination of water sources
» Sand mining	» Damage crops
» Unsafe disposal of polythene bags (kavera)	» Flooding
» Bush burning	» Too much heat
» Tree cutting	» Little rainfall, change of seasons
» Charcoal burning	» Low crop yields
» Ignorance	» No/Low rainfall
» Loss of soil nutrient	» Low soil fertility
» Over cropping	» Community conflict
» Planting the same crop on a piece of land	» Soil erosion
» Poverty	» Soil infertility
	» Too much wind
	» Weather change

4.3 RESULT 2: Institutional and technical capacity building.

O-2.1: % of the targeted HHs using at least 4 out of 9 climate smart agricultural practices.

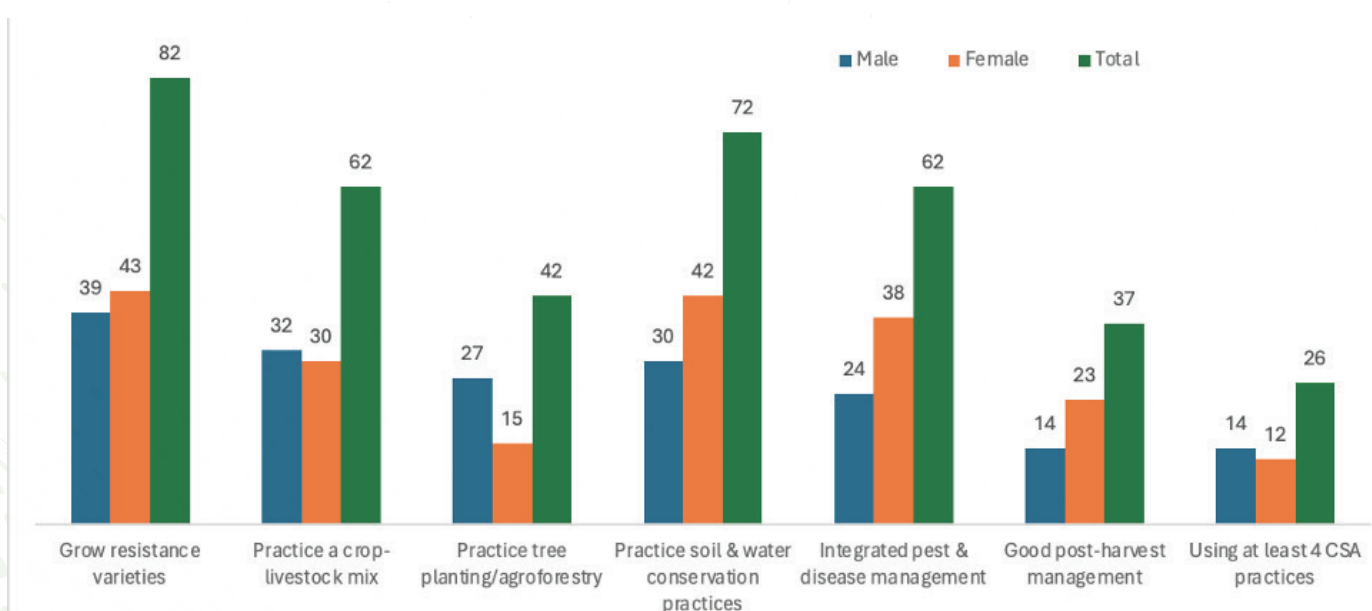
Climate smart agricultural practices are very important ingredients of climate change resilient efforts. Households were asked about their use of such practices in last season on-farm activities. The study found out that only 26% were applying at least 4 of the 9-climate smart agricultural practices that the project will promote. Figure 2 below summarizes the status of practicing CSA practices (Baseline 26%). Of these, the key practices in use are the use of drought resistant crop varieties, soil and water conservation, crop-livestock mix and integrated pest and disease management. Gender variations also exist in this CSA practice use.

1. The 9-climate smart agricultural practices that AFARD promotes are shown below. It is not expected that all the 9 practices will be relevant to all the farmers but the yardstick of adherence to CSA practices is adoption and use of any 4 of the 9 mentioned above. While there are many practices that constitute CSA, AFARD's choice of the 9 practices was informed by previous studies focusing on the smallholder farmers and the general land characteristics in the community. The practices include the following:
2. Use of resistant crop varieties – The crop varieties, livestock types and tree species selected are always having resistance or tolerance traits to dry weather, pests and diseases. Here, guidance is also given by officials from the Ministry of Agriculture, Animal Industry and Fisheries. Likewise for tree species to be promoted, the District Forestry Officials are involved. The resistance and tolerant traits are then evaluated together with the other product attributes required for the different crops, animals and trees.
3. Practicing a crop/livestock mix on the farm – This involves the integration of livestock and crops to increase productivity and reduce soil nutrient losses. This enables the farm-level nutrient flows between the crops and the animals on the farm (crops provide feeds to the animals that in turn provide manure to the crops).
4. Soil and water conservation practices – Here the focus is on minimizing soil and moisture loss, especially resulting from run off. Practices that reduce run off speed like the construction of contours, working across the slope, optimum livestock stocking, drainage channels as well as terracing are encouraged.
5. Integrated pest and disease management - This emphasizes a multipronged approach to pest and disease management and the focus is on practices that do not call for the use of chemicals. Chemicals are used as a last resort and even then, inorganic chemicals are discouraged. Practices in use here include organic manure, resistant varieties/types, crop/animal hygiene (and vaccination for livestock),

seed selection and sorting among others, field scouting and animal surveillance.

6. Tree planting/agroforestry - This is the integration of tree growing and crop or animal farming so that the farmer benefits from the trees in terms of soil protection, nutrient addition to the soil, source of feeds to the animals, biodiversity and ecosystem health as well as diversified income.
7. Crop rotation and intercropping - Growing of different crops on the same plot (intercropping) or growing different crops on the same piece of land at different times (crop rotation) has a number of advantages which include efficient use of soil nutrients as different crops feed at different soil depths and require different nutrients, there is crop and disease cycle interruptions which contributes to pest and disease management as well as addition of nutrients to the soil (especially by legumes). All these contribute to preservation of soil health and improved crop performance. The farmers are advised on which crops to intercrop and or rotate.
8. Mulching – Here the farmers use vegetative materials to cover the soil surface and this protects the soil from run off which can cause erosion as well as flooding in some cases. The mulch reduces the force and speed of the run-off water. This improves water penetration into the soil, conserving as well as reducing soil loss due to erosion. It also reduces direct sunrays from hitting the ground which can lead to soil nutrient loss through vaporization as well as soil capping. After some time, the mulching material decomposes and improves the nutrient levels in the soil, thereby improving soil quality which improves productivity.
9. Timely operations – This refers to doing the right activities at the right time. Immediately after enterprise selection with the farmers, a crop calendar is agreed and this spells out the activities to be carried out and the timing of each of the activities. This will ensure a lot of benefits to the crop for example escape from high pest and disease incidence periods, maximum benefit from the usually short rain periods, collective procurement of inputs and sale of produce as the crops are at the same stage of growth.
10. Good post-harvest management practices - This involves good postharvest handling practices and here the return of crop residues to the field, reduction of post-harvest losses through value addition like drying, cleaning/sorting and storage are emphasized. The farmers are trained on the different post-harvest management practices as part of the production cycle.

Figure 2: Household use of climate smart practices (%)



Poultry production is an important activity that contributes to resilience to climate change through affording the members alternative income and nutrition. It is also important for its less reliance on weather compared to crops. The study indicated that only 40% of the households have local chickens (mainly females) and key poultry management practices in use are having separate poultry houses and provision of supplementary feeds. Routine pest and disease control and vaccination are in limited use. And no household reported practicing programmed hatching, a technology that leads to fast multiplication of the poultry population.

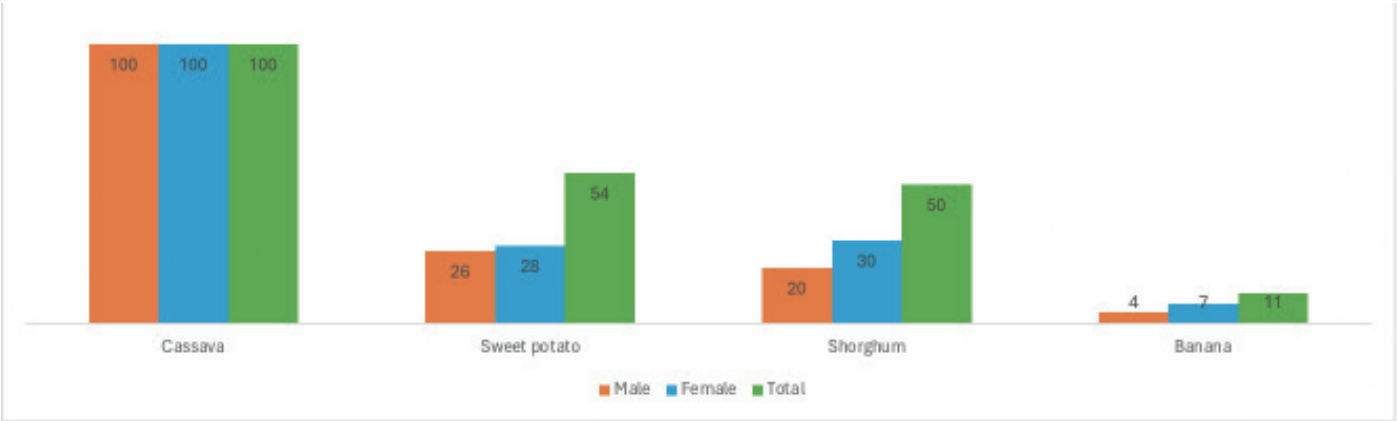
Table 7: Poultry rearing practices

Practice	Male	Female	Total
Have chicken	14	26	40
Have separate poultry house	20	14	34
Use supplementary feeding	16	10	26
Carries out routine vaccination	1	1	3
Conducts parasite and disease control	7	4	11
Practice programed hatching	0	0	0

O-2.2: % of the targeted HHs reporting increased yields (of crops and livestock)

The project has been adopted to promote the four major climate change sensitive crops (cassava, sorghum, sweet potato and banana) and local poultry as is recommended by the Uganda Updated Nationally Determined Contribution 2022. Respondents were asked if last year they grew these crops and what varieties they grew. Figure 3 shows that all families grew cassava as opposed to only 54% that grew sweet potato, 50% sorghum, and 11% banana. All households reported that they grew local varieties that means these crops are less resilient to climate change. Meanwhile for birds only 40% reared. There is a need to provide improved crop and bird varieties to the beneficiary households so as to increase production and productivity for better resilience to climate change shocks.

Figure 3: Growing of climate smart crops (%)



Production trends of the key crops grown in the project area was also examined as this contributes to food and income security as well as preparing the communities for resilience against climate change shocks. It was noted that although the households have on average 8 acres of land (11 acres males and 5 acres females), they were hardly using 2 acres. This was attributed by the local leaders to limited access to inputs as a religious leader said,

People in our village keep their local seeds and planting materials. that is what they use the next season. If the weather is bad, some families have nothing to plant. so, in most cases, we grow local varieties that have very low yields. This practice cannot motivate families to grow large acres of land of any single crop.

A look at the yield of cassava shows that the households achieved only 12% of potential yield of improved variety. This yield for cassava, with a mean household size of 6.4 already points towards a food shortage situation since cassava is the main staple food (Baseline 0%). Table 6 below presents the status of production of the 4 crops among the beneficiaries.

Table 8: Productivity of main CSA crops and livestock

Crop	Average acreage/unit			Production (kg)/unit			Average sales (Ugx)		
	M	F	Total	M	F	Total	M	F	Total
Cassava	1.9	1.7	1.7	670	984	830	156,176	99,925	125,770
Sweet potato	0.3	0.4	0.4	58	52	55	10,526	5,714	8,000
Sorghum	0.47	0.43	0.45	880	250	500	9,000	9,545	9,324
Bananas	0.50	0.35	0.41	0	0	0	0	0	00
Poultry	7	3	5	10	6	16	73,416	89,910	80,303

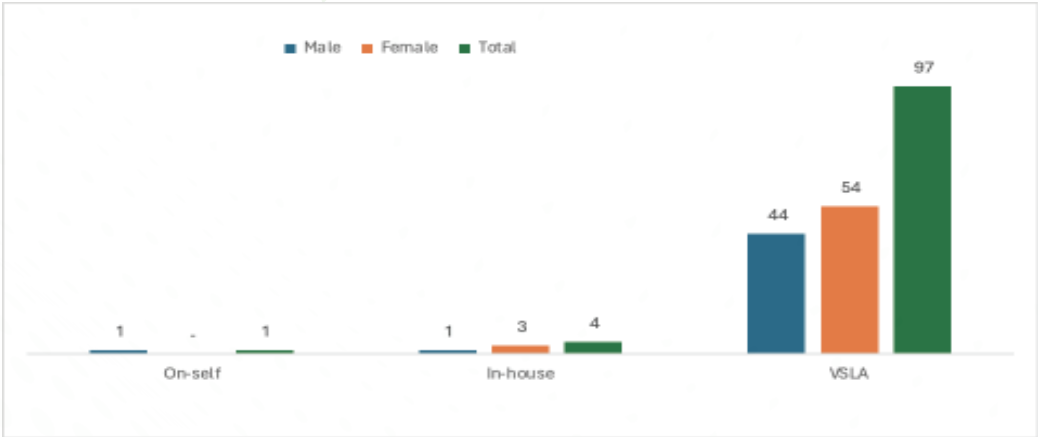
O-2.3: % of targeted households owning alternative income generating activities.

Beneficiary households were asked if apart from farming they have an alternative income generating activity (IGA). Only 22% (14% males and 8% females) indicated that they had an IGA (Baseline 22%). The main sources of alternative income are: for men Boda riding, construction work, grazing animals, firewood selling, brewing local potent gin, motorcycle repair, retail shop, carpentry, and for women Selling fish, cassava, milk, firewood, charcoal burning, and daily wage labor. There is a need to train project beneficiaries in IGA selection, planning and management so that they are able to identify local business opportunities, use VSLA loans to capitalize them and be able to diversify their income sources to reduce over dependence on subsistence farming that currently is highly susceptible to climate change.

O-2.4: % of the targeted HHs saving with a purpose to buffer climate change risks

The beneficiary households were asked if they were saving to buffer climate risks. Majority of the beneficiaries (93%) indicated that they have weekly savings (Baseline 93%; more for females 52% than males 41%). However, when asked whether they had a family development plan towards which the savings are directed, only 52% responded that they had (more for males 30% than females 22%). As Figure 4 shows, most of those households that are saving are doing so in VSLA groups. The KII with local leaders and FGDs with CRAG members highlighted one fact that all the VSLAs in use are those formed by community members and are not using the recommended practices as one member said, “our VSLA only has savings and loan rules. There are no documented guidelines or training that we have to run the VSLA.” The project therefore need to improve on the management of the VSLAs to ensure that they conform to best practices necessary for running successful and sustainable VSLAs. At the start, mentors from these groups should also be trained to ensure that they have hands-on guidance to their CRAGs on how to effectively change from old to new VSLA management practices.

Figure 4: Where beneficiary households save (%)



O-2.5: % of targeted households using improved energy saving stoves

Beneficiary households were asked about their use of an improved energy saving stove. As Table 9 shows, only 5% use improved cook stoves (Baseline 5%). In addition, more money and time is spent per week in search for firewood; actions that reduce family time for undertaking productive economic activities. Moreover, 22% of the households reported having experienced violence when searching for firewood. During FGDs, women pointed out that, “as we trek long distances in search for firewood, we are abused and sometimes physically beaten by people on whose lands we fetch firewood.”

Table 9: Energy use for cooking (%)

Practice	% age		
	Male	Female	Total
Use improved cook stoves (%)	1.4	4.1	5.4
Number of headload used in a week	2.4	2.2	2.3
Amount would be spent on firewood (per week)	10,618	8,088	9,250
Hours spent fetching firewood (per week)	7.4	6.7	7
People who faced violence during search for firewood (%)	11	11	22

O-2.6: Number of targeted households having an average of 15 trees planted that are surviving

Given that this indicator tracks trees surviving after being planted with project support, at the time of the study no seedlings had been given out (Baseline 0).

However, on their own, many households have fruit trees (69%), firewood trees (36%), herbal trees (27%) and timber trees (13%). Overall, 35% have at least 15 trees and more. The local government officials emphasized the need for provision of quick maturing tree seedlings so that the project villages can be made green again after the massive tree cutting in the area.

Table 10: Summary of current tree population by category

Type of trees	%age		Total
	Female	Male	
Fruit trees	30	39	69
Herbal/medicinal trees	11	16	27
Firewood trees	19	17	36
Timber trees	2	11	13

4.4 RESULT 3: Advocacy and knowledge management.

% of targeted households reporting fruitful dialogue with LG officials on climate change

Project targeted households were asked whether they have fruitful dialogue with their local governments on climate change. Only 24% (20% females, 5% males) responded that they had such meetings (Baseline, 24%).

LG officials report active use of climate change awareness to promote political and technical adaptation and mitigation initiatives

Working with communities calls for collaboration and involvement of different stakeholders including government officials. However, the sub county and district officials during the KIIs said that there has been no specific dialogue with communities concerning climate change except during other social functions when they also talk about climate changes as they address the people. This was attributed to

lack of resources to convene such dialogues (Baseline, Low).

Number of Village Climate Adaptation Action Plan included in Sub- County and District Development Plans

There is currently no documented Village Climate Adaptation Action Plan. However local government officials are willing to participate in the process of developing such action plans and mainstreaming it into their development plans. (Baseline, 0).

4.5 Impact level indicators

G-1. % of target households are food secure

One key impact of the project is to ensure that the targeted households are food secure. A food secure household is that which: 1) eats at least three meals daily; 2) eat at least 7 of 12 food types weekly; 3) shares food equitably among men and boys, women and girls as a family, 4) have men and boys eating green vegetables without any complaint, and 5) has women and girls eating traditionally forbidden foods. Constructed using the composite index method (see below variables), CRAG households were asked questions related to the necessary parameters. Table 11 reveals that only 11% of the beneficiary households were food secure. There are good practices related to equitable food sharing (93%), eating of green vegetables (76%) and women and girls eating traditionally forbidden foods (74%). [Baseline: 11%]. The project therefore needs to increase the production and consumption of diverse foods while sustaining and/or increasing current feeding practices. Increasing household productivity will also increase the number of meals a family can eat on a daily basis.

Table 11: Food and nutrition status

Practice	%age		
	Female	Male	Total
Eat 3 meals a day	20	24	45
Eat at least 7 out of the 12 food types in a week	23	23	46
Women eat traditionally forbidden foods	39	35	74
Men eat green vegetables without complaint	45	31	76
Women and men eat the same foods	53	41	93
Met all 5 parameters	5	5	11

G-2. % of target households are income secure through improved agricultural practices and other income generating activities

The project also seeks to improve on the income security of targeted vulnerable households. The availability of adequate income with which a household can meet its basic needs is critical for resilience against climate change. Given that rural households rely not only on cash income, the study adopted AFARD's use of asset poverty approach in order to gauge the level of income security. An income secure household is one with a net worth (from both liquid and productive assets less debt) able to afford them three-month cost of living above the US\$ 2.2 new international poverty line.

Asset poverty explained

AFARD uses asset poverty measurement approach as proposed by Haveman and Wolff (2004). The preference for this approach is because asset poverty measures the economic ability, using productive assets, an individual or household has to sustain a basic needs level of consumption during temporary hard times for a period of 3 months. Leonard and Di (2012: 1-4) stretched this period to 9 months because

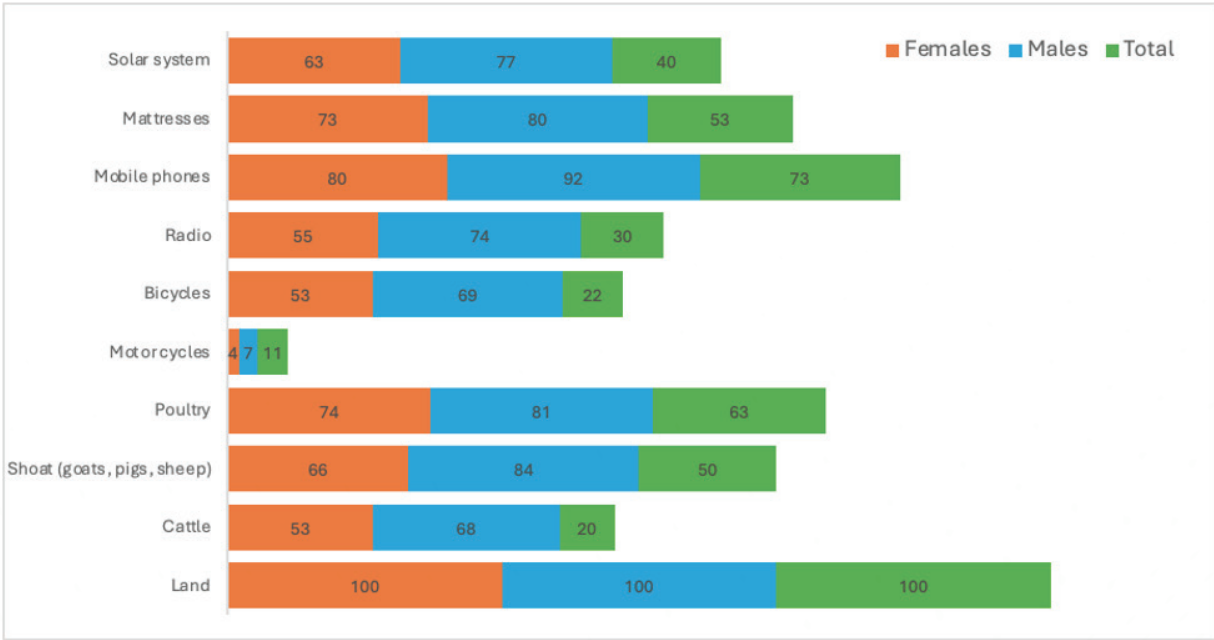
asset accumulation at levels equal to nine-months' worth of income at the international income poverty level or greater ably improves a family's odds of permanently escaping poverty. By use of this method, a household is asset poor if its net worth is unable to meet its consumption needs over a 3-month period. It is considered non-poor if its net worth is able to meet its 9-month consumption needs.

To compute a household's net worth first, all its productive assets are valued at the current market price. Second, the asset value is added to the current cash savings (i.e., cash at hand, bank, remittance, and debt lent to others). Third, the current value of debts taken from other people/firms is deducted from the asset and cash savings value to get a financial net worth. Finally, the financial net worth is subjected to the required household consumption at the international poverty line of US\$ 2.2 per person per day. At USD 1= UGX 3,800, this means a household of 7 people needs UGX 58,520 per day or UGX 21,359,800 annually. Thus, any household with less than UGX 5,339,950 needed for its 3-month consumption is poor.

Ownership of Productive Asset

Productive assets are critical in asset poverty measurement because they are both stores of wealth but also means of resilience to poverty given that households in state of shocks can dispose of them for ready cash. CRAG members were asked about their ownership of productive assets. Figure 5 shows that the most common assets are the low-cost value assets like land, mobile phones, poultry, mattresses, and shoats (goats, sheep, pigs) as compared to those assets that need more money to buy like motorcycles, cattle, and bicycles. By gender, there was only a negligible difference among female and male members in the ownership of the assets. Males-headed households owned more assets.

Figure 5: Household asset ownership by gender (%)



Asset poverty status

Using the above analysis, the study found out that the average total financial net worth of the targeted households was a dismal UGX 1,1 million (higher for males UGX 2 million than their female counterparts with UGX 400 thousand). This net worth value can barely afford a monthly cost of living for a 7-person household. Thus, as Table 12 shows, 92% of the targeted households were asset poor/income insecure; highest among females (96%) than males (85%) [Baseline, 8%].

Table 12: Asset poverty status (%)

	Males	Females	Total
Average value of debt (UGX)	174,668	79,625	123,293
Average value of liquid assets (UGX)	147,382	60,568	100,455
Average value of productive assets (UGX)	2,041,912	445,283	1,178,869
Average value of Net worth (UGX)	2,014,627	426,225	1,156,031
Poor households (%)	85	96	92

G-3. Local government officials and local leaders report increased forest cover/biodiversity in their community.

There is currently no project supporting tree growing or biodiversity conservation. (Baseline, 0).

G-4. Number of local scalable approaches to climate change adaptation drafted.

The project is still at startup phase. (Baseline, 0).

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