LOCAL CLIMATE CHANGE ADAPTATION AND MITIGATION PRACTICES STUDY

FINAL STUDY REPORT

Submitted To
Agency For Accelerated Regional Development (AFARD)
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Executive Summary

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 one year "Smallholders Environmental and Climate Awareness Project" (SECAP). This project is intended to improve community awareness and identify actions of rural poor smallholder farmers in the two villages of Jafurnga and Ngali in Kucwiny and Alala sub-counties to address climate change risks. To enable the project achieve its goal of building a resilient climate model village, a local climate change adaptation and mitigation study was commissioned to assess the traditional and local climate change experiences, mitigation and adaption practices in the project area. It aims to strengthen the awareness and resilience of communities in Nebbi district to climate change.

The study was conducted using mainly qualitative research methods including review of secondary literature and a field mission that discussed the issues with stakeholders including district local government officials from community services, health, production and natural resources departments and civil society actors (NGOS), and local communities using Key Informant Interviews, Focus Group Discussions and Transect Walk. Participatory assessment tools such as historical climate trends and timeline analysis and impact chain-based vulnerability assessment were used to collect information on climate change risks, vulnerability and response in the project areas of Ngali village (Alala sub county) and Jafurnga village (Kucwiny sub county) in Nebbi district.

The study focused on answering five key questions, namely:

1. Is your community experiencing climate change and how did you become aware of it?
2. In the past 20 years, what climatic changes have occurred in this community and in what form and intensity did such adverse events occur?
3. In your views, what are the main causes of this climate change and what effects /impacts did the climate change have on your community regarding agriculture and food security, alternative livelihoods and income security, environment and biodiversity, social services, and gender relations and human rights abuses?
4. What local coping mechanisms did the community adopt during these adverse events periods to mitigate and adapt to climate change risks?
5. What can SECAP replicate from the local knowledge and practices to ensure that it builds a climate resilient model village?

An impact chain-based approach climate risk and vulnerability assessment was conducted to assess the impacts and risks along dependency chains of smallholder livelihood systems and identify the socio-economic losses posed by climate change impacts as well as the potential co-benefits of adaptation and mitigation measures in the two communities of Ngali and Jafurnga.

The study found out that weather in the two villages has become warmer (higher temperatures) with long sunshine duration which usually ends up with a long dry spell or drought and heat stress. Rainfall onset and cessation, amount and distribution are also unpredictable. There has become late onset of rain, little rainfall amount in first season, more in second season, and mid-season dry spells. The rainfall is also characterized by strong winds and hailstorms and that the rainfall is unreliable, amount is less and intensity have reduced.

From the analysis, the main events associated with climatic changes that have occurred in Ngali and Jafurnga areas in the last 20 years are; very long drought/ watercourse drying of Azamba stream in Ngali and Oleke wetland in Jafurnga in 2013 and 2019; outbreaks of cassava mealybug and termites in 2019 and 2023; reduced amount and intensity of rainfall in 2006, reduced flooding of River Namrwodo in 2003 and 2006; appearance and proliferation of invasive species in 2003, 2019 and 2023; proliferation of fall army worms and variegated grasshoppers in 2009, 2019 and 2023; outbreak of Contagious Caprine Pleuropneumonia (CCPP) in goats in 2021 and 2023; and great flooding and water logging of gardens in 2023.

The common climate risks identified by the community members included excessive rainfall (with flooding and waterlogging), prolonged dry spells (droughts), irregular rainfall pattern, and hail and windstorms. These were attributed to the indiscriminate cutting of trees for timber, fuel wood, brick burning, charcoal burning, sand mining, bush burning for farming, over grazing along River Namrwodho river bank, cultivation in wetlands and valleys, poor farming practices, and dry season wildfires.

The study identified the following impacts of climate change on the two communities: crop loss or low yields, and death of animals due to droughts and floods, food shortage and malnutrition, children dropping out of schools; increased cases of domestic violence; child labor, child and family neglect; loss of household income and its associated inadequate access to household assets, failure to pay school fees. In addition, there is increased destruction of houses, roads, bridges and schools that limits access to social services, while the drying of wells and streams has resulted into water scarcity and crisis.

In response to the above, the communities have adopted the following coping mechanisms: crop diversification (vegetable and horticultural crops); planting drought, pest and disease resistant crop varieties; using small irrigation facilities like watering cans during the dry season; increased use of agrochemicals; preservation and storage of foods, rationing of food among household members, skipping of meals, stealing food from neighbors, and limiting choices of food to mainly beans, vegetables and cassava that are cheap; cutting of trees for charcoal burning, brick laying and fire wood; sand mining; taking loans from VSLAs; sale of labour; sale and hire of land; hunting and petty trade.

To build climate resilient communities, SECAP should consider and review the following strategies for implementation:

i. Use of the local knowledge system to enhance community awareness on climate change; its causes, manifestations, impacts, adaptation and mitigation measures.
ii. Preference should be given to the restoration of the indigenous tree species to revitalize the multitude of the ecological and livelihood benefits of the indigenous tree species.
iii. Improving access to weather forecast information relevant to local farming.
iv. Provision of training on dietary needs, food preservation, preparation and storage for the community

v. Planting of fast maturing crops, fruit and shade tree species.
vi. Use of energy saving stoves.
vii. Strengthen alternative livelihoods activities e.g., skilling young people in marketable trades, training families on how to identify, plan, start and manage microenterprises to reduce pressure on the natural resources.

Introduction

1.1 A Summary of SECAP

The Agency For Accelerated Regional Development (AFARD), a local non-denominational NGO operating in West Nile regions, Uganda has in partnership with Seniors without Borders (SwB) obtained funding from Civil Society in Development (CISU), Denmark to implement the 9-month "Smallholders Environmental and Climate Awareness Project" (SECAP). SECAP aims to improve community awareness and identify actions of rural poor smallholder farmers in the two villages - Jafurnga and Ngali - in Nebbi district, Uganda to address climate change risks. The SECAP directly targets 75 households organized into three (3) Climate Resilient Action Groups (CRAGs). The project implementation will be through CRAGs and will directly benefit 540 people comprised of household population, village leadership, sub country and district leaders. The indirect beneficiaries will be approximately 1,050 people (52% women). Overall, the project will benefit a total of 1,575 people (52% females). These beneficiaries will primarily be smallholder farmer households and their peers by sharing knowledge of the causes and effects of environmental degradation and climate change.

1.2 Objectives And Use Of The Local Climate Adaptation And Mitigation Study

The main objective of the Local Climate Adaptation and Mitigation study was to assess the traditional climate change experiences, mitigation, and adaption practices in the project area in order to strengthen the awareness and resilience of communities in Nebbi district to climate change. The findings of the study will provide AFARD and SwB with relevant information on the relevant local mitigation and adaptation practices that should be integrated in the implementation of the project.

1.3 Scope Of The Study

The Local Climate Adaptation and Mitigation study was carried out in the 2 villages of Ngali and Jafurnga in Nebbi district between April and May, 2024. Consultations was made with key stakeholders which included, but not limited to, smallholder farmers, local government officials as well as cultural, opinion and religious leaders.

1.4 The Study Deliverables

The key outputs of the study include:

1. Inception Report with the study design and methodology, data collection instruments (incl. checklists and questionnaires) and study work plan
2. Kick-Off Meeting to discuss/review the Inception Report
3. Draft study report not more than 30 pages excluding annexes for review and feedback.
4. Final study report (soft copies as word and pdf document and printed copies) in English including annexes, data sheets, photos and relevant documents.
5. Internal presentation of findings for learning to all AFARD staff

1.5 About the Study Team

This study was conducted by PDCC a legally registered company limited by guarantee with registration number 113304, head office in Nebbi Municipality but actively engaged in all regions in Uganda since 2009. PDCC specializes in agriculture, economic empowerment, climate change, environment, and livelihood development works. We facilitate leadership and organizational development as well as production technologies, smallholder agribusiness, producer cooperative development, farm planning, rural financing, and credit management and farm business development support services.

Our Proposed Methodology

In this section we present the four-step phases of the local climate adaptation and mitigation study to identify clear local responses to climate change, sustainable strategies and challenges that helped in developing the climate change adaptation and mitigation measures at the community level. The methods for data collection, data analysis and research ethics that will be used have also been included.

2.1 The Study Approach

The study was implemented sequentially: Firstly, the review of national-level climate risk and vulnerability assessment for sub national adaptation conducted in 2021 to provide information about current and future risks and the likely impacts of and vulnerability to climate change across the different districts of the country and the study on local climate change adaptation practices in Nebbi and Pakwach districts to assess the local climate change mitigation and adaption practices in the project area in March 2023. Secondly, based on the results of the national assessment and local climate change mitigation and adaptation study for Nebbi and Pakwach districts, an in-depth local assessment was conducted on the level of Jafurnga and Ngali communities of Kucwiny and Alala Sub counties respectively in Nebbi district in April 2024. The first step targeted predominantly at the identification of the climate and hazard profiles using the extreme climate events at the general local government level and also the common climate change and its manifestations at Alwi and Nyaravur sub counties in Pakwach and Nebbi district, whilst the local climate change adaptation and mitigation study aimed at collecting local knowledge about climate change, at identifying past extreme weather events, sensitivity and adaptive capacity indicators and most appropriate climate change adaptation and mitigation measures at Jafurnga and Ngali community level. This is premised at achieving a contextualized understanding of the local drivers of vulnerabilities and at deriving potential adaptation and mitigation measures to reduce adverse consequences of climate change at the local level.

As the production risks posed by climate shocks are connected to other smallholder livelihoods, including infectious diseases, nutritional deficiencies, natural resource degradation, and insecure land tenure and at the same time, smallholder farmers have myriad adaptive capacities, including knowledge, networks, and management practices that have long enabled smallholder systems to cope with both environmental and socioeconomic changes under a changing climate was inevitable. Therefore, it becomes necessary to focus on the full spectrum of dependencies within the connected systems to fully assess climate change mitigation and adaptation potential to develop an appropriate resilience strategy for improving smallholder livelihoods at the local level. At the local level, the district local government, development

agencies and the communities all acknowledge this fact and the need to develop measures for making smallholder livelihood more resilient to climate change risks is eminent.

To assess the interdependence of smallholder livelihoods with respect to climate change risks, impacts, vulnerabilities, adaptation and mitigation issues at the community level, the study raised the following questions:

- Is your community experiencing climate change and how did you become aware of it?
- How is climate change manifesting in your community?
- In the past 20 years, what major climatic changes have occurred in this community and in what form and intensity did such adverse events occur?
- In your views, what are the main causes of this climate change?
- What effects/impacts did the climate change adverse events have on your community in regard to agriculture and food security, alternative livelihoods and income security, environment and biodiversity, social services and gender relations?
- What local coping mechanisms did the community adopt during these periods to mitigate and adapt to climate change risks?
- What can SECAP replicate from the local knowledge and practices to ensure that it builds a climate resilient model village?

To answer these questions, we conducted a impact chain-based climate risk and vulnerability assessment that allows us to locate impacts and risks along dependency chains of smallholder livelihood systems and enables to identify the socio-economic losses posed by climate change impacts as well as the potential co-benefits of adaptation/mitigation measures in the two communities of Ngali and Jafurnga. Impact chain (IC) is a conceptual model used to capture hazard, vulnerability, and exposure factors that lead to a specific risk and it describes the relationship between the components of vulnerability, which are the climate signals (exposure – E), the system's sensitivity (S) towards these signals and its adaptive capacity (AC). Intermediate outputs are potential impacts (PI), as a function of E and S. The final output is Vulnerability (V), a function/relationship of PI and AC.

We also identified: 1) the common climate change risks at the community level, trends of past extreme weather events, and possible impacts on the community; 2) the climate change vulnerability status of smallholder farmers (exposure, sensitivity and adaptive capacity) at the community level; 3) the adaptation and mitigation measures used at the community level; and drew lessons from local experiences for replication in SECAP.

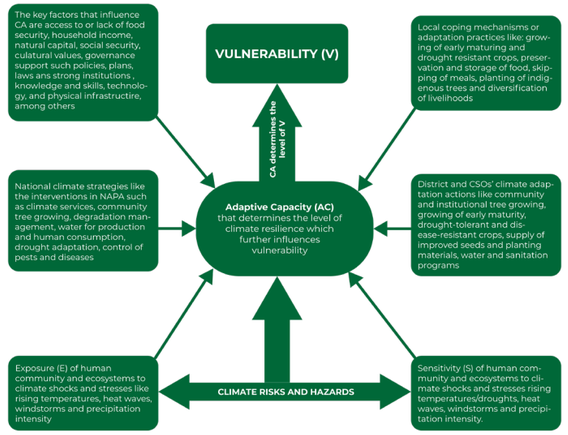


Figure 1: Impact chain-based conceptual framework

2.2 Local Climate Change Adaptation and Mitigation Study Focus

In order to operationalize the local climate change adaptation and mitigation study objectives and scope of work, Table 1 below presents the focus of the study, guiding questions (as developed by AFARD) as well as the data sources and data collection methods.

Table 1: Study focus, key questions, data sources and data collection methods

Key question	Major data source	Main data collection method
Is your community experiencing climate change?	▸ Secondary data, community, local leaders (Opinion and cultural leaders)	▸ Literature review ▸ FGD
How did you become aware of it (sources of info)?	▸ Community, local leaders (Opinion and cultural leaders)	▸ FGD
How is climate change manifesting in your community?	▸ Secondary data, community, local leaders(Opinion and cultural leaders)	▸ Literature review ▸ FGD
In the past 20 years, what climatic changes have occurred in this community?	▸ UNMA climate data observed and projected (Arua and Wadelai weather stations) ▸ Satellite images for land use changes and bio-physical changes from NEMA and Changes in biomass for Greater Nebbi in last 10 years-NFA ▸ Community members (smallholder farmers, cultural and opinion leaders)	▸ Trend analysis ▸ Historical analysis ▸ Seasonal calendar

In what form and intensity (above normal level rainfall, temperatures, hailstorm, wind, etc.) did such adverse events occur?	▸ Community and local leaders (cultural and opinion leaders)	▸ Key Informant Interview ▸ FGD
In your views, what are the main causes of this climate change?	▸ Community and local leaders (cultural and opinion leaders)	▸ Key Informant Interview ▸ FGD
What effects /impacts did the climate change have on the community – ▸ Agriculture and food security?	▸ Community members (smallholder farmers)	▸ FGD (Food crop vulnerability assessment)
▸ Alternative livelihoods and income security? Livelihood assets.	▸ Community members	▸ FGD (Vulnerability assessment)
▸ Environment and biodiversity?	▸ Local leaders (cultural, opinion, political and technical-Natural resources officer and extension worker) ▸ District and National state of environment reports	▸ Key informant Interview ▸ Transect Walk ▸ Literature review
▸ Social services? As above under community service infrastructure	▸ Local leaders (cultural, opinion, political and technical) ▸ District and National state of environment reports	▸ Key informant Interview ▸ Transect Walk ▸ Literature review
▸ Gender relations and human right? Access to and control of resources	▸ Female members of the community	▸ FGD
What local coping mechanisms did the community adopt during these periods to mitigate and adapt to climate change risks?	▸ Local and Cultural leaders, extension workers, Village Health Team (VHT)	▸ FGD
What can SECAP replicate from the local knowledge and practices to ensure that it builds a climate resilient model village?	▸ Analysis of the findings from the above interrogations	▸ Section Review

2.3 Local Climate Adaptation and Mitigation Study Sites and Respondents

As per the terms of reference, the local climate adaptation and mitigation study was conducted in the 2 villages of Ngali and Jafurnga in Nebbi district local government of respectively. The respondents will include AFARD SECAP staff, individual male and female smallholder farmers, sub-county officials, Community Based Organizations (CBOs), Non-Governmental Organizations (NGOs) and district officials among others.

2.4 Sampling Methods and Sample size

Drawing from table 1 above, the primary local climate adaptation and mitigation study units of analysis included all the all targeted households, cultural leaders, opinion leaders, women; and SECAP project staff. The study team will purposively sample and reach out to these units of analysis to collect the different data needed given that they have lived in the villages for long, experienced the various climatic changes, and therefore have accumulated knowledge on climate change and its impacts on the community overtime.

However, the secondary local climate adaptation and mitigation study units were local council one representatives, local government leaders, and religious leaders in the Nebbi district. As we noted above, this category of respondents are frequently transferred from one lower local government and community to another, thus unable to allow gain the deeper insight of the climate change situations in the communities.

Table 2: Sample sizes

Units of analysis	Sample size	Respondents Met	Respondents
CRAGS member households	50	64	Selected CRAG member
Cultural leaders	4	2	A representative of a recognized cultural institution
Opinion leaders	8	6	A representative of the vulnerable groups in the 2 villages (Elderly, women, men, PWD)
Religious leaders	3	1	A representative of the main 3 religions (Catholic, Anglican and Muslim)
Local council one official	2	2	A representative of LC 1 executive
Local government staff	3	8	Political and technical staff (DEO, LC V, Sec Production, SAS, LC3 Chair and Secretary for production, and Extension worker)
AFARD staff	2	2	SECAP field staff
Total	72	85	

2.5 Local Climate Adaptation and Mitigation Study Phases

The four -step phases of the study is presented in figure 2 below. While the focus of the inception phase was on study instruments approval, field mission focused on primary data collection, reporting ensured that preliminary report was submitted and presented to AFARD team and the final dissemination stage focused on the submission of final study report and the related data sets. Important to note are:

- The Focus Group Discussions and Key Informant Interviews were conducted by the consultants to elicit in-depth information on the key questions of the study.
- PDCC recruited 2 research assistants (RAs) who have at least university education and familiarity with the selected project sub counties, districts, local languages, and experience with note taking and data transcription in using qualitative data collection techniques . They were provided a 1-day training on how to conduct interviews, note taking, recording, transcription 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 were reached.

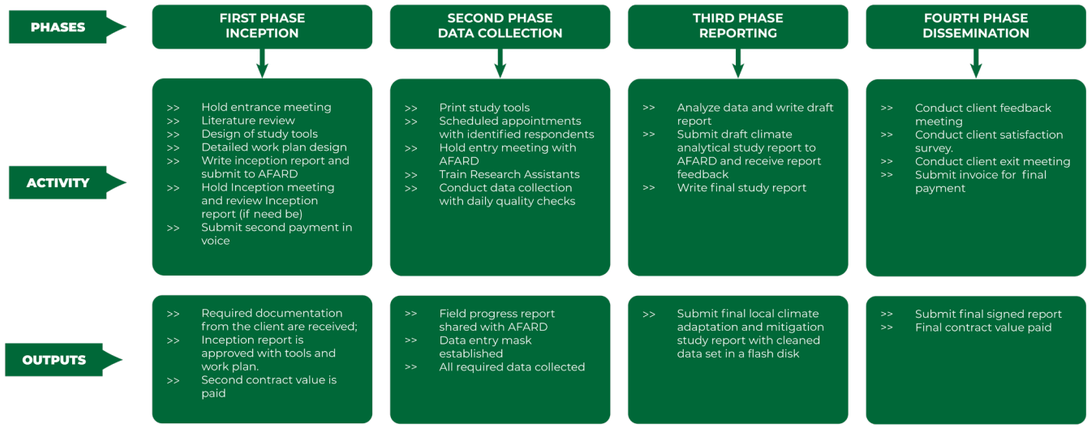


Figure 2: Our four stage methodological framework

2.5.1 Data Collection Methods

To elicit comprehensive information from the various stakeholders, the following data collection methods were used, namely:

Document Review: We reviewed the following documents – Climatic trends, risk perceptions and coping strategies of smallholder farmers in rural Uganda, Uganda Climate Change Vulnerability Assessment report, local climate change adaptation practices report for Nebbi, Nebbi district state of environment report 2022, Nebbi District 5-year Rolling Development Plan 2023/2024-2027/2028, Uganda Climate Risks and Vulnerability Assessment for Subnational Adaptation Report 2023, Uganda National Development Plan III and the different sector reports of the project area (district and sub county local governments), Spatial meteorological data from National Environment Management Authority (NEMA) and Uganda National Meteorological Authority (UNMA),among others.

Focus Group Discussions (FGDs): Using interview guide, 4 FGDs (2 in Ngali and 2 in Jafurnga) were conducted with mixed male and female community members (opinion and cultural leaders) and female to discuss the common climate change risks, local observed climate change past extreme weather events, climate change impacts on agriculture and food security, alternative livelihoods and income security, environment and biodiversity, social services, and gender relations, climate change adaptation practices, and the community's capacity to adapt to the changing physical conditions. On gender relations, a separate women (opinion and cultural leaders) FGDs only was conducted in the 2 project villages.

Key Informant Interviews: Key informant interviews, using semi-structured interview guides, were conducted with several players including local government political and technical leaders, cultural leaders, religious leaders, opinion leaders. This focused on climate change exposures, adaptation practices, and the community's capacity to adapt to the changing physical conditions.

Transect Walks: Two transect walks were conducted with selected SECAP beneficiaries and opinion, religious and local leaders in the two villages. This focused on cross-sectional representation of natural resources and mapping climate change impact hot spots including degraded areas, settlements along riverbanks, floodplain plots, woodlots, and livestock, among others.

Historical and Seasonal calendars: Crop calendars for the main food and income crops focused on the impacts of climate risks such as drought, dry spell, heavy rainfall, high temperature, etc. on the growth stages (land opening, planting, and harvesting) and yields of the different crops. Farmers and other participants were asked to estimate the number of times that such climatic events occurred in the last 20 years (chance of occurrence) and their assessment on the impact on yield (impact) of each event.

Observations: As we conduct the transect walk and visit the community during the interviews, we made physical observations of the climate change risks, impacts, coping practices in the community. This was supplemented with taking of photographs of the biophysical features like degraded land, cultivation practices, etc.

2.6 The Study Process

The study was conducted in following four preparatory phases to collect relevant information on the climatic and socio-economic situation in Nebbi district (desktop research), as well as establishing initial stakeholder commitment (in individual meetings with the client and other stakeholders):

1. A kickoff meeting with AFARD-SECAP team was then used to define the scope of the study, establish a common understanding on the terms of field activities, and clarify expectations from AFARD-SECAP team and researchers.
2. Focus Group Discussions (FGD) and Key Informant Interviews (KII) with targeted households, opinion leaders, cultural leaders, women groups and lower local government staff was conducted to identify the common climate risks, impacts, vulnerability, adaptation and mitigation measures in Ngali and Jafurnga villages.
3. A transect walk was conducted by the consultants and community members to identify the environment and climate hot spots, landcover (loss tree species, wetlands and modified vegetation), land use (agriculture, grazing, settlement and infrastructure), among others, in Ngali and Jafurnga villages.
4. With the information from the FGDs and KIIs, an expert IC-based CRVA was conducted by the team of consultants and AFARD SECAP team. Here, the CRVA process was conducted to produce a qualitative IC that models the risk of excessive rainfall, extended dry spell and high temperatures for vulnerable smallholder communities in Ngali and Jafurnga.

2.7 Data Management and Ethical Issues

PDCC managed the 4-phased approach with utmost care and ethical consideration to ensure that valid data was collected, transcribed, and analyzed in order that the study report was written and presented to AFARD timely. To ensure that the consultancy service was provided in line with the Terms of Reference

and at an appropriate professional level, the following quality control measures were used:

e. *Joint review of study instruments:* The study team together with AFARD staff members were jointly involved in this process to ensure data consistency with their internal programme management system.

f. *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. Social mobilization for data collection: To increase the response rate, the consultants requested support from AFARD SECAP staff to undertake prior mobilization of the respondents for a timely administration of the study tools.

g. *Introduction letter:* AFARD availed our field team with a letter of introduction to facilitate acceptance by the various local institutions.

h. *Consent and Confidentiality:* The consultant's team (PDCC and research assistants), in line with the Data Protection and Privacy Regulation 2021, sought consent from respondents to participate in the study. This process also involved a statement of confidentiality for the respondents that explained the purpose of the study and committed not to divulge individual respondent details except when consented to. Where photography was involved, a consent form from AFARD was also used.

i. *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). The RAs also signed AFARD children policy and prior to taking photographs the consultants and RAs asked the participants to sign the consent form.

2.8 Report Dissemination

This draft study report was submitted to AFARD/SwB for internal review and timely feedback was used to complete the final report. However, AFARD took the responsibility for the dissemination of the printed and electronic copies of the study reports.

2.9 Limitation of the Study

The meteorological data from Uganda National Meteorological Agency (UNMA), biomas and land use data from National Forestry Authority (NFA) were not accessed as the officers responsible did not have them. PDCC team had to rely on data from National Environment Management Authority (NEMA) only that is not customized to village levels.

3. Study Findings

3.1 Description of the Study Area

Nebbi District is located in the North-Western part of Uganda (West Nile sub region). It is bordered to the North by Madi-Okollo district, Zombo to the west, Pakwach to the South-East and the Democratic Republic of Congo to the South-West. In 2010 and 2017 the counties of Okoro and Jonam County were split off Nebbi to form Zombo and Pakwach Districts respectively, leaving Nebbi with only Padyere County.

According to the District Development Plan (DDP) for 2020/21-2024/25, the district has only one permanent water source (River Namrwodho), many seasonal streams like Nyacara, Namthin, Ayila, Paicing and Alala and together with associated wetlands they cover 8% of the total district land area. There are only four forest reserves that include three local forest reserves (LFRs): Acwera (21 ha), Erussi (21ha) and Nebbi (10ha), and one central forest reserve (CFR), Omier (2,380ha). The district forest coverage is 7% of the total land area.

The district lies between altitudes 2289 ft to 5224 ft above sea level. The landscape offers one of the best sceneries in Uganda. The generally extensive plains of the east gently rise into the undulating hills of the West. Faulting and rifting along the western arm of the East African rift valley zone extends from the neighboring district of Pakwach from Panyimur into Jukia hills in Nebbi District. Up arching and tilting affected the Erussi and Goli uplands. The district has a raised plateau with metamorphic rocks with granitic intrusions and other features.

The district is divided into 13 Lower Local Governments that include eleven (11) rural Sub-Counties; Akworo, Kucwiny, Ndhew, Atego, Nebbi, Erussi, Parombo, Padwot, Alala, Acana and Jupangira), two (2) Town Councils; Parombo and Nyaravur-Angal Town Councils; and a municipal council; Nebbi Municipal Council with three divisions of Thatha, Abindu and Central.The District has 60 parishes, 596 villages while Nebbi Municipality has got three (3) Divisions, nine (9) Wards and 46 cells. The district has a population of 298,300 (Male: 145,300 (48.7%) and Female: 153,000 (51.3%).

The district is located within a humid equatorial region, prevailing winds and water bodies including River Namrwodho, and many seasonal streams that occasion differences in precipitation patterns. Nebbi district experiences a purely tropical climate due to its location within the eastern topographical rainfall zone. The dry and sub-humid climate is associated with orographic rainfall and hail/thunderstorms. The

district used to get an average rainfall of 1,100mm per annum. Rainfall is bimodal in nature with peaks in May and October. The first short and usually unreliable rainfall is from late March – May, while the second and more reliable rains are in the July – November period. Dry spells are experienced in June – July and December – early March. Temperature is generally high except in Erussi and Ndhew Sub-counties. However, the rainfall pattern is gradually changing to one peak per annum. The diverse climate is due to the district's unique biophysical characteristics influenced by large rivers, water bodies and a highland to the west (Erussi). Variations in sea surface temperatures in the distant tropical pacific and Indian Oceans strongly influence the timing of annual precipitation in Nebbi district. The low land areas of Parombo, Nyaravur-Angal Town council, Kucwiny and Alala sub counties experience less precipitation than the west and is more susceptible to drought and floods.

3.2 Farmers' Awareness And Manifestation Of Climate Change

Awareness in the context of this study refers to the degree in which individuals are aware that climate change is happening, and that mitigation and adaptation actions requires farmer awareness of climate change, at least tacitly, and that human activity is an underlying cause of the issue. The SECAP baseline study a direct question to the beneficiary households if they knew of climate change, only 14% responded that they knew (20% males and 6% females). Community FGDs and KIIs confirmed this position. This was in part due to the fact that in the local language there is no collective term for "climate." When the communities were engaged in discussing the different aspects of climate – temperature, sunshine, wind, and hailstorm, it emerged that they have a vivid history of climate change dynamics. One 80-year-old elder pointed out that, "this is a new reality of life that we must contend with. When I was young, such situations were not known to us. Rainfall was predictable. Wind direction, some birds, and the clouds would show us how soon it will begin to rain. That is no more."

In addition, they were also asked to provide answer to the question how climate change is manifesting in their community, and or whether they have observed climate change in their communities, that is if they have noticed any change in sunshine duration and intensity, cloud cover, temperature and in the amount, frequency and the timing of rainfall and the changes in the incidences of droughts, flooding, growing season (time of planting) and concerns about changes in climate; changes in farming operation, rainfall patterns and temperature. All the farmers and local government staff agreed that the weather has become warmer (higher temperatures), strong and frequent wind and hailstorms, long sunshine duration which usually ends up with a long dry spell or drought, heat stress, rainfall onset and cessation, amount, and distribution of rainfall across Alala (Ngali) and Kucwiny (Jafurnga) sub counties in Nebbi district. Perceived changes in weather patterns by farmers included erratic rainfall onset and cessation, which was described as either early or late; poor rainfall seasonal distribution; and little rainfall. The community members across the two villages reported late onset of rain. Farmers' experience of seasonal distribution of rainfall were divided into four categories: normal, little in first season, more in second season, mid-season droughts and variable. The changes in the rainfall amount was reported to be either, less, high or variable. From the community members the two villages receive relatively low rainfall amounts and thus have low agricultural potential. Also supporting the view that incidents of drought had increased due to rising temperatures, and erratic rainfall and unpredictable rainfall pattern that at times is characterized by waterlogging and floods, availability of water has reduced as wells and bore holes have dried and water volume in Azamba and streams have also reduced due to droughts. Changes in precipitation—onset or cessation, intensity, length of rainy and growing seasons—affect crop production depending on their timing and magnitude. Production uncertainty associated with between and within-season rainfall variability remains a fundamental production constraint (Thornton et al. 2009).

Among the community members, women believed that wind is becoming warmer and stronger as ambient temperature is increasing over the years and the rest of them were unaware about the wind pattern and its intensity. They also reported there is increase in the frequency and quantity of hailstorm and also increased wind speed. In Ngali, for instance, elder farmers report hailstorm heights of one or two centimeters in the last 5 years, with hailstorm cover lasting for two to three days. The responses from all participants prove that the community is aware of climate change as a reality.

3.3 Trends In Temperature, Precipitation, Sunshine, Wind And Hailstorms

The community members in Ngali and Jafurnga were asked, what form and intensity (rainfall, temperatures, hailstorm, wind, etc.) did such adverse events occur and how these have changed over time and between generations in the last 20 years?

3.3.1 Temperature And Changes In Temperature

From the community members' indigenous knowledge, the respondents reported there are two temperature seasons, namely, first and second season. The first season is classified as the warm season. The season was known to occur from February to May, after the dry cold wind (Harmattan). Sunshine was very intensive and temperatures were very high, both during day and night. This situation resulted in people sleeping in the open compounds during nights. Narratives of the community reveal that temperatures have increased more during the first season in recent times. The second season is classified as warm and wet. The season used to start from July to November, with moderate daily and night temperatures, high amount of rainfall, five (5) days of less intensive sunshine, less frequent hails and windstorms and it was certain and predictable. The study revealed that now there temperatures are hot with reduced amount of rainfall, two weeks of intense sunshine, increased frequency and amount of hailstorms, increased wind

Both the first and second seasons have become more heat- intensified these days than in the past. ''These days, one still feels abnormal high temperature even if you are sleeping in the compound. In the past people packed back into their huts after 4:00 am because it was extremely cold at that time. Today, temperatures remain warm from night to dawn, and so people sleep in the open compound till daybreak. In the future, the world may perish due to extreme high temperatures'' as said by women FGD in Ngali village.

3.3.2 Rainfall and Changes in Rainfall

Table 3: Seasonal changes in climate characteristics

Climate change elements		***Summary of changes in climatic characteristics***	
		Past characteristics	***Present characteristics***
First Season	Temperature and heat intensity	Starts from February-May High daily temperatures High night temperatures Certain and predictable Short duration	Starts from April-May Very high daily temperatures Very high night temperatures Uncertain and unpredictable Long duration
	Rainfall Sunshine duration Hailstorm Windstorms	Starts from Early February-May High amount of rainfall Certain and predictable Long duration	Starts from April-May Low amount of rainfall Strong winds and hailstorms Uncertain and unpredictable Short duration
Second season	Temperature and heat intensity	Starts from July-November Moderate daily temperatures Moderate night temperatures Certain and predictable Long duration	Starts from September-December Very high daily temperatures Very high night temperatures Uncertain and unpredictable Short duration
	Rainfall Sunshine Hailstorm Windstorms	Starts from July-December Moderate amount of rainfall Certain and predictable Long duration	Starts from September-November Low amount of rainfall Uncertain and unpredictable Short duration

The community members reported that there are two rainy seasons. The first and second rains. Both seasons were classified as wet and moderately wet. In the past first season rainfall onset was early in February and rainfall cessation was in late May. In the last 20 years, the community members reported late onset of rainfall in March and early cessation in May. The late onset of rainfall coupled with the early cessation means there is shorter growing season.

The rainfall is characterized by strong winds and hailstorms. This has resulted into the reduction in yields of crops like cowpea that require adequate rainfall amount, destruction of crops, housing, latrines, bridges and schools. The onset and cessation of rainfall also influences perceived characterization of the amount of rainfall received. The community members report that the rainfall is unreliable, amount is less and intensity have reduced. It may rain heavily once in March and comes again in May (FGD, Ngali). In the second season in the past onset of rainfall was reported in early July and cessation in early December with adequate amounts and intensity.

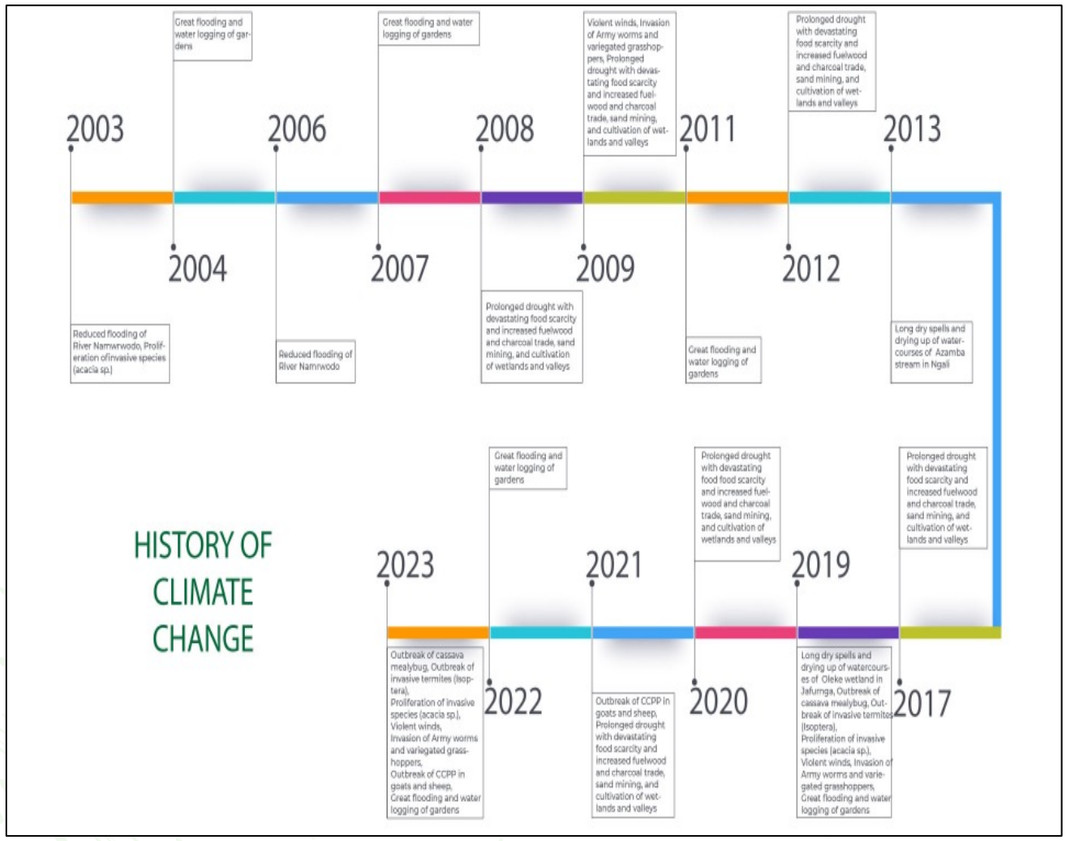
The community members also reported that presently second season onset of rainfall is in September and cessation in November. The seasonal distribution of rainfall is variable, rainfall duration is two months and amount received is less. It was also reported that the types of winds have changed in nature over the last 20 years as there is growing uncertainty about the direction of flow and it has become more intensive and destructive in recent times than in the past.

3.4 Main Local Events Associated With Climatic Changes

The analyses show that over the last 20 years, some events associated with climatic and environmental changes have occurred in the Ngali and Jafurnga areas. The outbreak of cassava mealybug (Phenacoccus manihoti) and invasive termites (Isoptera) occurred two times in 2019 and 2023, appearance and proliferation of invasive species (acacia sp.) have occurred three times in 2003, 2019 and 2023. Periods of long droughts and the drying up of watercourses have been observed in 2013 and 2019 and bush fires and field fires have been occurring annually .

The increase in violent winds and reduction in cloud cover have also been observed three times in 2009, 2019 and 2023, while the proliferation of army worms (Spodoptera frugiperda) and variegated grass hoppers (Zonocerus variegatus) that devastate maize crops, cassava stalk and leaves have occurred three times in 2009,2019 and 2023. Importantly also is the outbreak of Contagious Caprine Pleuropneumonia (CCPP) in goats and sheep that occurred in 2023. The increase outbreak of crop pests and diseases, and livestock parasites and diseases is attributed to the increase in temperatures that promote the multiplication of pests and pathogens in crops and livestock.

The most recurrent opinions are: “The climate is not like the climate of the past; ’’nowadays, we cannot explain the different seasons with precision, or even locate them in time and space’’.



3.5 The Common Climate Risks in Nebbi District

The following were identified as key and priority climate risks and hazards in the two villages during the consultations among the various stakeholders and while reviewing the existing relevant literature like reports and other publications:

a. Increasing temperatures and heat intensity
b. Excessive rainfall (flooding and water -logging)
c. Prolonged dry spells (droughts)
d. Irregular rainfall pattern (heavy rain from July-December 2023 and instead of 2 seasons but now there is only one main season in September to November)
e. Hail and windstorms

3.6 Causes of Climate Change in the Community

To identify the main causes of climate change from the local perspective, the community members and lower local government leaders were asked in their own views what they think are contributing to the climate change in their communities. They attributed the climate change risks to the indiscriminate cutting of trees for timber (Saw milling in Jafurnga Forest reserve), fuel wood, brick burning, charcoal burning, sand mining, bush clearing and burning for farming, uncontrolled grazing, over grazing along River Namrwodho river bank, cultivation in wetlands and valleys, poor farming practices, and dry season wildfires.

3.7 Climate Change Impacts

3.7.1 Climate change impacts on land cover and land use in Alala and Kucwiny sub-counties, Nebbi

The two transect walk exercises carried out in Ngali (Alala) and Jafurnga (Kucwiny) and discussions show that over the years the land cover has degenerated from forests (especially the riverine forests and other types of vegetation such as along Namrwodho river, Azamba and Oleke streams) to either modified vegetation characterized by mainly acacia and grassland or bare land. Notably, a number of tree species have disappeared due to environmental degradation and impacts of climate change and the community no longer benefits from their lost socio-economic and climate values that include food/ fruits, timber, medicinal herbs, housing, shade, wind break and modification of micro climate. Such tree species include thoo (oil seed), cwaa (tamarind- fruit), vudhu (timber, medicinal herb), bei (timber), tidu (mahogany- timber), cumu (timber, fruits), rith (housing), olemu (berry/fruit), yao (shea tree- oil seed, fruit), Acogo (berry/fruit), Nyilia (medicinal plant), abondo (nectar/pollinator, rubber), aryemu (medicinal plant), cege (medicinal plant), among others. Besides, most riverine grass species no longer exist as the streams have become seasonal while most of the bank of river Namrwodho that lies in Nebbi District have been degraded by human activities such as cultivation, sand mining and charcoal production. The lost species include reeds, sedges, papyrus (wetlands) and others.

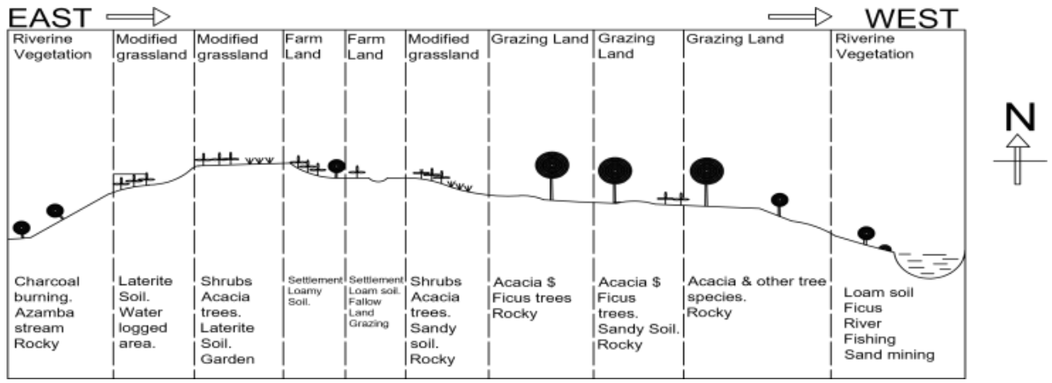


Figure 3:Transect diagram for Ngali village

Loam Soil

Sand Mining at River Namrada

Invasive Weed Species

Dried Borehole

Grazing Area

Cultivated Land

Modified Grassland

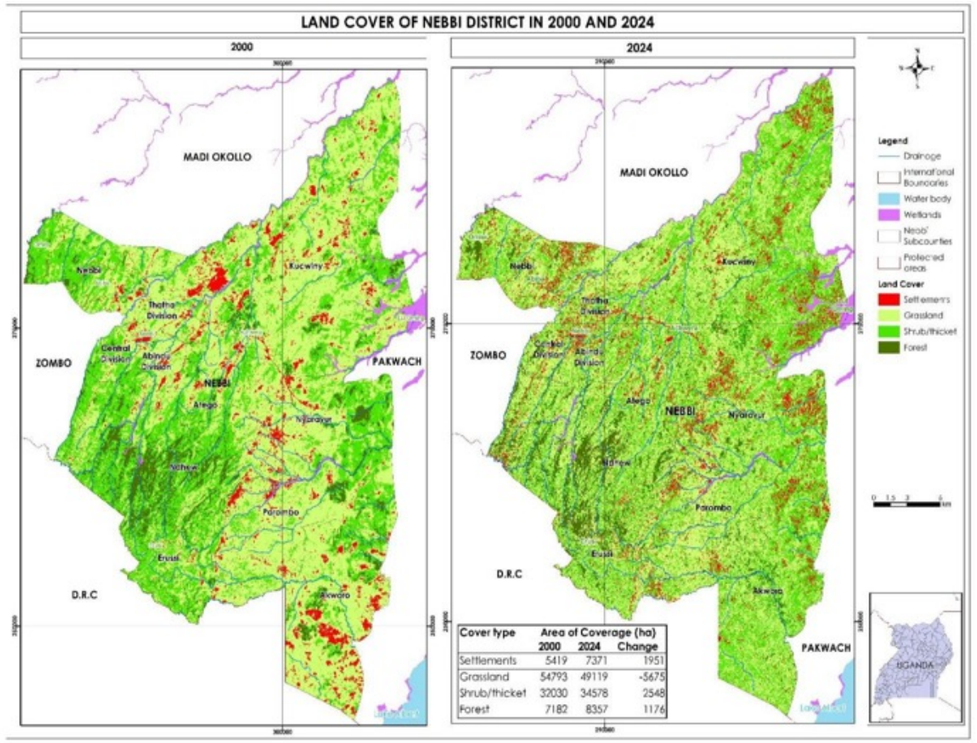
Siltation in River Namrwodo

New Weed Species

Stony Land

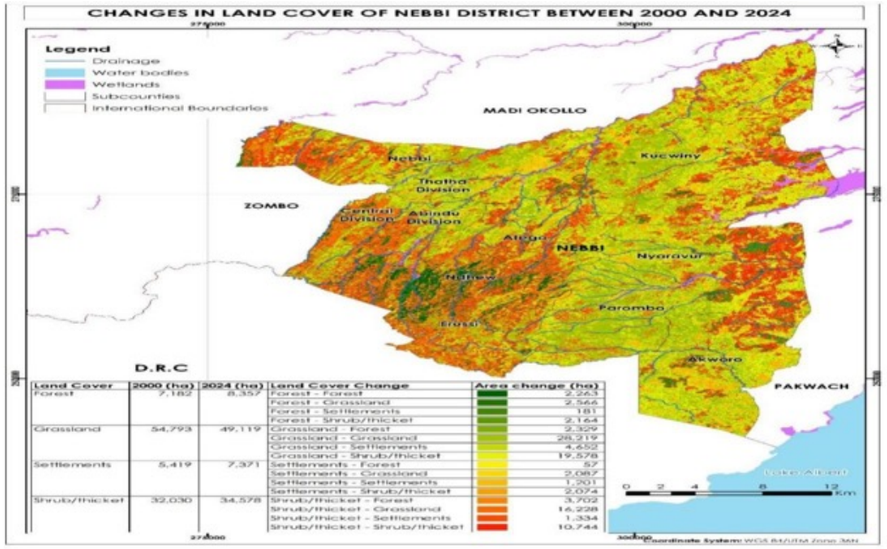
In addition, land cover and land use change (LCLUC) maps produced by the National Environment Management Authority (NEMA) show that over the last 24 years, forest cover in Nebbi district has increased while grassland has reduced. Probably this is due to the growing of trees by individuals, groups and institutions, and conversion of land to agriculture and settlement coupled with the frequent droughts could have contributed to the reduction in grassland. The communities in Ngali and Jafurnga are practicing fallow system of cultivation and traditional practice of leaving indigenous tree species in the garden continue to encourage the development of forests and enhance the biodiversity conservation that is more useful for climate change adaptation. The indigenous tree species provide a good environment for micro climate modification and are sources of livelihoods assets like fruits, household energy as a source of fuelwood, housing and traditional medicines.

The maps below show the varying LCLUC in both Nebbi District and in particular in the greater Kucwiny.



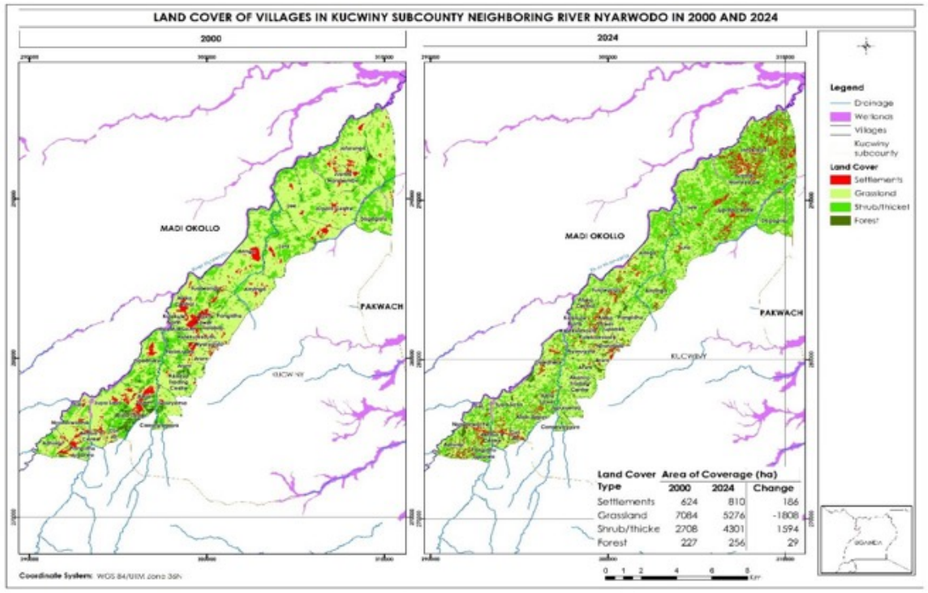
Source: *NEMA, April 2024*

The above map shows that from 2000 to 2024, settlements have increased by 1,951 ha, which could have contributed to the loss of grassland worth 5,675 ha, while forest cover has increased by 1,176 ha.



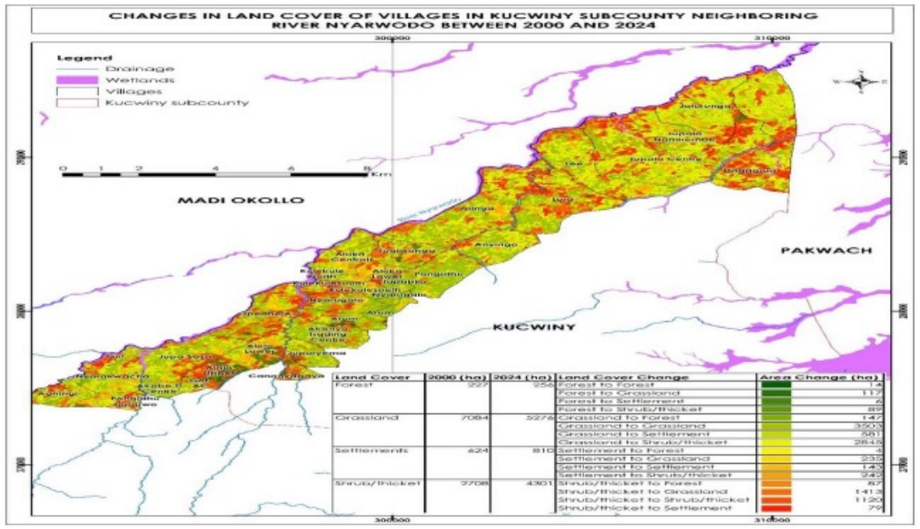
Source: NEMA, April 2024

The above map shows land cover changes that have been caused by a combination of factors that include agriculture, settlements and climate change. Notably, the changes in grassland and shrub/ thicket. Likewise, the maps below show a replication of the same LCLUC in the greater Kucwiny.



Source: NEMA, April 2024

The above map shows that most settlements are around rivers and streams where wetlands are also found. This corresponds to the map below that shows changes from forest cover and grassland to wetlands within the same locations. This scenario has a probable negative effects on the river ecosystems as they get converted to agricultural land and settlement and thus contributing to climate change and its impacts on both the environment and human community.



Source: NEMA, April 2024

3.7.2 Climate Change Impacts On Human Livelihoods In Alala And Kucwiny Sub-Counties

From the discussions with the community in Alala and Kucwiny sub-counties, the impacts of climate change are a reality that is characterized by crop loss or low yields and loss of livestock due to droughts and floods as well as increase in livestock parasites and diseases and thus contributing to food shortage and nutrition inadequacy. In the FGDs, the community members mentioned this has led to children dropping out of schools, increased cases of domestic violence, reduction in working energy of the community as they have become weak, young women involvement in high risk livelihood options like prostitution thus increasing cases of teenage pregnancies, high cases of abortion, child labor, child and family neglect by men. Consequently, most families have only one meal in a day in order to cope up with the food scarcity. Besides, the low yields of crops and death of animals due to droughts and diseases have contributed to loss in household income and hence adding to poverty within the local community. This has manifested into inadequate access to household assets, failure to pay school fees, family conflict and destruction of houses, roads, bridges and schools. In addition, the drying of wells, and Azamba and Oleke streams has resulted into water scarcity and crisis that affects the two sub-counties where women suffer more as they travel long distance in search of water and therefore taking up their productive time.

3.7.3 Climate Change Impacts On Gender And Human Rights

On the impacts of climate change on gender and human rights, the community members and lower local government officials were asked a key question that "what human rights are abused by the high negative effect of climate change in the community?" Anchoring on the Universal Declaration of Human Rights and the key huma rights in Uganda, the table below presents a summary of the community response. The responses (see Table 4 below) include drought and floods mainly affect the children, women, persons with disabilities and the elderly. For instance, with the drying of the wells and boreholes in the two communities, women and children must walk long distances to access water hence affecting children attendance of school. The inadequate food quantity and insufficient food nutrients has led to malnutrition in children and pregnant women. For example, the women in the FGDs mentioned pregnant women are having increased abortion due to little food. Besides, they also reported that there was high cases of malaria, cough, flea infestation and flies among pregnant women and children. The wildfires and drought also affected the growth of thatching grass and firewood. The women now must walk long distances to collect thatching grass and firewood. Lastly, there was increase in domestic violence.

Table 5: Analysis of human rights abuses due to climate change

Rights Being Abused	Whose Rights Are Mainly Affected	Responsible Duty Bearers	Support System
Right to adequate and nutritious food as many families live on one meal a day.	Women and children	Men (heads of family)	Government (food aid)
Right to proper health care due to the rampant water borne diseases e.g. malaria, dysentery, and worm infestation	Women children and men	government	Government (provision of health care systems)
Right to education since low income and inadequate food makes many children to drop out of school	Children	Parent	Government (provision of free education)
Right to stable family (parental availability, family decision making) since male parents migrate away from home looking for work and mothers too toil all day to secure food	Children and women	Men	Clan leaders and religious institutions (sources of counselling)
Right to decent work as families earn a living using low paying activities	Men and women	Government	Private sector/NGOs (promoting alternative work opportunities)
Rights to dignity as poverty leads to labelling people and loss of self esteem	Men and women	Clan leaders	Clan leaders and religious institutions (sources of counselling)

3.7.4 Climate Change Impacts On Social Infrastructures And Services

The respondents reported the extreme weather events including prolonged dry spell, and excessive rainfall leading to flooding and water logging mainly affected the operation of education, health, agriculture and transportation services through the destruction of roads and bridges, classrooms, health centres, latrines and food storage facilities (granaries). These resulted into loss of food in stores, the death of school children, high school dropout rates, high incidences of water-borne diseases and inadequate access to health care services for the communities in Ngali and Jafurnga.

3.8 Local Adaptation Measures To Reduce The Impacts Of Climate Change

The climate change adaptation practices were analyzed based on participants' knowledge and experience with the implementation of the activities they are acquainted with at the individual, community and lower local government levels. The adaptation measures discussed below have been categorized into social, agricultural, ecosystem, financial, food security and economic adaptation measures based on the nature of exposure. This is to (1) reduce the vulnerability of the two communities to climate change, (2) enhance the climate resilience of the agricultural sector by improving water and land management and increase the vegetation cover of the communities.

Table 6:Community copying mechanisms to climate change over the last 20 years

Categories of Adaptation	Level Of Exposure	Local Adaptation Measures
Agricultural adaptation	Crop and livestock production	▸ Crop diversification, especially into vegetable and horticultural crops including tomatoes, cowpea, amaranthus spp, brinjals, etc . ▸ Planting drought, pest and disease resistant crop varieties ▸ Using small irrigation facilities like watering cans during the dry season ▸ Increase use of agrochemicals (acaricides, deworming drugs, pesticides and fungicides)
Food security adaptation	Food production losses and crop failures	▸ Preservation and storage of foods like sweet potato and vegetables ▸ Rationing of food among household members. ▸ Skipping of meals ▸ Limiting choice of food to mainly beans, vegetables and cassava that are cheap.
Ecosystem adaptation	Vegetation cover	▸ Cutting of trees for charcoal burning, brick laying and fire wood. ▸ Sand mining at Namrwodo river bank
Socio-economic adaptation	Access to physical and non-physical resources	▸ Diversification of livelihoods including spreading of risk through taking loans from VSLAs, sale of labour, sale of land, hire of land, fishing, hunting and petty trade in vegetables, cassava flour, silver fish and fish mongering.

3.9 Local Knowledge And Practices, Lessons For Building A Climate Resilient Model Village

This section answers the question what can SECAP replicate from the local knowledge and practices to ensure that it builds a climate resilient model village?. To provide adequate response to implementation of SECAP, the study examined local-based initiatives and knowledge of climate resilient communities in Ngali and Jafurnga communities. For the communities of Ngali and Jafurnga, local traditions and knowledge play a key role in the management of environment and sustainable agriculture in the lower local governments. The communities here, despite their ongoing increasing livelihood vulnerabilities under conditions of climate change negative impacts from increasing rise in temperatures, floods and prolonged dry spells, have rich local knowledge and social ties to achieve sustainable land use management practices, which in turn, strengthen their adaptive capacity in the face of negative effects of climate change. The lower local governments, cultural and religious leaders, and Civil Society Organizations (CSOs) emphasis to strengthen the use of local knowledge and social structures within the communities and resilience to other climate-related negative impacts such as floods, prolonged dry spells, and rise in temperatures has encouraged Ngali and Jafurnga communities to continue practicing climate smart agricultural practices.

The smallholder farmers in Ngali and Jafurnga communities used local knowledge to identify key local Climate Smart Agriculture (CSA) practices, including use of crop residues, cover cropping, crop rotation

and mixed cropping. However, some of their farming practices including slash and burn, cultivating in the wetlands and vallies and over grazing are not consistent with sustainable agricultural practices. Key issues that need immediate attention include (i) cutting trees for charcoal burning preventing the smallholder farmers from adopting CSA, (ii) draining of wetlands adversely affects access to arable land for farming, (iii) use of small irrigation facility like watering cans is labor intensive and limits land size cultivated, (iv) limited access to agricultural inputs limits the use of CSA options, and (v) high labour-intensive activities for some CSA practices.

The findings show that while certain adaptation actions including diversification of livelihood options might not be taken with climate change adaptation specifically in mind, these development activities also contribute to broader resilience to climate change, by reducing exposure to risk and addressing other drivers of vulnerability. The findings also show that partnerships between the low income communities of Ngali and Jafurnga and other stakeholders, including local government, CSOs and VSLAs can lead to scaled-up action to address development and adaptation deficits. This can lead the way for the development of a climate resilient model village.

The other lessons learnt during the stakeholders' consultations are that:

i. The local community understands adaptation to climate change more than mitigation as the former is a response to climate change impacts, while the latter refers to reduction of emissions like methane from agriculture and carbon dioxide due to deforestation and bush fires, among others. Adaptation relates to the effects of climate change risks and hazards where the community responds through local coping mechanisms or practices. Mitigation deals with the cause of climate change that includes reduction of emissions caused by human activities like deforestation and over utilization of the biomass, industrial pollution, encroachment and degradation of wetlands, conversion of land to agriculture and soil degradation. However, it is important to note that, adaptation practices like tree farming, afforestation/re-afforestation, restoration of wetlands, soil, water and energy conservation have both adaptation and mitigation co-benefits.

ii. Loss of tree cover due to over-cutting, deforestation and land use like conversion of forests to agriculture and settlements, have adverse effects on the livelihoods of the community in regard to loss of values like food and nutrition (fruits and oil seeds), materials for housing, traditional/local medicines, timber for income, shades, windbreaks and modification of micro-climate. Notably, the situation has been worsened by the invasion of the exotic trees like pines and eucalyptus and low value species like acacia which do not provide ecological values in comparison to the indigenous tree species.

iii. The current land system (communal) and the settlement patterns (clustered) are ideal for the establishment of woodlots as the communities through their cultural leadership could be engaged to give land in blocks for more impactful tree growing or establishment of woodlots and group fruit farms.

4. Conclussion and Reccomendations

Climate change as manifested by rising temperatures, heat intensity and irregular rainfall patterns and intensity which impacts droughts, floods, hail and windstorms that have adverse effects on both human community and ecosystems. Climate change and its impacts need to be addressed through adaptation and mitigation measures based on local practices and strategic actions designed by the Government and its partners like the CSOs. Adaptation practices and measures are more common among the local communities as they respond to the effects of climate change though most of the practices and actions that have adaptation (response actions) benefits. Besides, the local community is always aware of climate change and its impacts through local knowledge system, historical events and trends. These values have enhanced local adaption practices or coping mechanisms and therefore, they should be considered as an asset in community-based climate action planning.

Based on the objectives and the findings of the study, AFARD should consider and review the following recommendations for implementation:

i. Use of the local knowledge system to enhance community awareness on climate change; its causes, manifestations, impacts and measures (adaptation and mitigation) to combat it.
ii. Preference should be given to the restoration of the indigenous tree species in form of woodlots along the streams and rivers and food forests to revitalize the multitude of the ecological and livelihood benefits (co-benefits) of the indigenous tree species. Besides, fruit farming should be promoted within the grassland to suffice environmental, economic/financial and nutrition benefits.
iii. Improving access to weather forecast information relevant to farming and promoting rotational grazing, reseeding grazing lands, crop residues treatment with urea, and forage development.
iv. Provision of training on dietary needs, food preservation, preparation and storage for the community
v. Planting of fast maturing crops, fruit and shade tree species like mango, oranges, neem, etc.
vi. Use of energy saving stoves
vii. Strengthening alternative livelihoods activities e.g., skilling young people in marketable trades, training families on how to identify, plan, start and manage microenterprises so as to reduce pressure on the natural resources.

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Annex 1: Study Tools

Key informant Interview and Focus Group Discussion tools
KIIs for local government and project staff

Hello, my name is _____, Am working with a team of consultants who are hired by AFARD, to conduct local climate change adaptation and mitigation study of Smallholders Environmental and Climate Awareness Project" (SECAP) implemented by AFARD. The aim of the project is to improve community awareness and identify actions of rural poor smallholder farmers in the two villages Jafurnga and Ngali in Nebbi district, Uganda to address climate change risks. Your participation in this study will help provide AFARD with relevant information on the relevant local mitigation and adaptation practices that will inform the implementation of the project. We shall not use your name in the report unless you give us permission to do so. Your participation in this interview is voluntary and feel free to stop this anytime. (Name, designation, email address, contact)

Consent given?

1) Yes *2) No*

Name of Key Informant: .....

Designation of Key Informant: .....

Location of the Interview: .....

1.	***[Question & Answer]*** Are the communities in Ngali and Jafurnga experiencing climate change? Yes/No, If yes, which types of climate change?
2.	***[Question & Answer]*** How did you become aware of the climate change in your community? Mention the sources of the information
3.	***[Question & Answer]*** In your own view, do you think that the communities in Nagli and jafurnga villages have any knowledge about climate change in their community? Yes/No, If yes, which aspects of climate change do they understand well?
4.	***[Question & Answer]***How is the climate change manifesting in their community?
5.	***[Historical analysis & seasonal calendar]*** Based on your knowledge, experience and occurrence of climate change list the major climate change events that occurred in the last 20-5 years by year location,season, frequency, intensity and level of damage (destruction of livestock, crops, housing , human life, property, other assets).
6.	***[Question & Answer]*** In your view as far as the destruction was concerned, in a scale of 0 to 5 were they low ,medium, and high ?
7.	***[Question & Answer]*** What impacts did the climate change have on the community? Probe for the types and level of damage on agriculture and food security (food crop production, crop area reduction, food choice, nutrition, household income and food prices), alternative livelihoods and income security (Livelihood assets), environment and biodiversity (Nature-forest and tree cover, wetlands, rivers and streams, soil health-soil erosion, pollinators, built environment-community infrastructure(health and education, housing, other community service infrastructure), social services, and gender relations (Access to and control of resources by gender).
8.	***[Question & Answer]*** Who experiences the impacts and at what magnitude? Probe to find out; communities, smallholder farmers, vulnerable people, businesses, sectors, among others
9.	***[Question & Answer]*** In your views, what are the main causes of this climate change?
10.	***[Question & Answer]*** What coping mechanisms have the community adopted to mitigate and adapt to the climate change risks? Probe for the local practices, norms, beliefs, and traditions in the community regarding climate change coping mechanisms based on the rise in temperature, unreliable rainfall, drought, floods, hail and windstorm
11.	***[Question & Answer]*** Are the coping mechanisms mentioned above available and accessible by all the categories of the victims of the climate change risks and their impacts? Probe for access, hindrances, and opportunities available outside the communities.

Focus Group Discussion tool

Hello, my name is _____, Am working with a team of consultants who are hired by AFARD, to conduct local climate change adaptation and mitigation study of Smallholders Environmental and Climate Awareness Project" (SECAP) implemented by AFARD. The aim of the project is to improve community awareness and identify actions of rural poor smallholder farmers in the two villages Jafurnga and Ngali in Nebbi district, Uganda to address climate change risks. Your participation in this study will help provide AFARD with relevant information on the relevant local mitigation and adaptation practices that will inform the implementation of the project. We shall not use your name in the report unless you give us permission to do so.

Date: .....

Name of Facilitator: .....

Name of the Climate Resilient Action Groups (CRAGS): .....

CRAGS membership:

Female: ..... *Male:* .....

Location of Interview:.....

No.	*Question*
1	***[Brainstorm]*** Is your community experiencing climate change? Yes/No, If yes, which types of climate change?
2	***[Brainstorm]***] How did you become aware of the climate change in your community? Mention the sources of the information
3	***[Brainstorm]*** Do you knowledge about the climate change in your community? Yes/No, If yes, which aspects of climate change do you understand well?
4	***[Brainstorm]*** How is the climate change manifesting in your community?
5	***[Historical analysis & seasonal calendar]*** Based on your knowledge, experience and occurrence of climate change list the major climate change events that occurred in the last 20-5 years by year location, season, frequency, intensity and level of damage (destruction of livestock, crops, housing , human life, property, other assets).
6	For the first and second season rains, mention the climate change risks that had adverse impacts on the yields of common food and cash crops in the community in the last 20 years. Estimate the number of times such events occurred, type and level of damage caused on the crops in the last 20 years.
7	***[Brainstorm]*** In your view as far as the destruction was concerned, rate the level of destruction as low ,medium, and high ?
8	What impacts did the climate change have on the community? Probe for the types and level of damage on: ▸ ***[Brainstorm, seasonal calendar & transect walk]*** agriculture and food security (food crop production, crop area reduction, food choice, nutrition, household income and food prices), ▸ ***[Brainstorm]*** alternative livelihoods and income security (Livelihood assets), ▸ ***[Brainstorm & transect walk]*** environment and biodiversity (Nature-forest and tree cover, wetlands, rivers and streams, soil health-soil erosion, pollinators, built environment-community infrastructure(health and education, housing, other community service infrastructure), social services, ▸ ***[Brainstorm]*** gender relations (Access to and control of resources by gender, time use). ▸ ***[Brainstorm]*** Human rights abuses
9	***[Brainstorm]*** Who experiences the impacts and at what magnitude? Probe to find out; communities, smallholder farmers, vulnerable people, businesses, other sectors, among others
10	***[Brainstorm]*** In your views, what are the main causes of this climate change?
11	***[Brainstorm]*** What coping mechanisms have the community adopted to mitigate and adapt to the climate change risks? Probe for the local practices, norms, beliefs, and traditions in the community regarding climate change coping mechanisms based on the rise in temperature, unreliable rainfall, drought, floods, hail and windstorm
12	***[Brainstorm]*** Are the coping mechanisms mentioned above available and accessible by all the categories of the victims of the climate change risks and their impacts? Probe for access, hindrances, and opportunities available outside the communities.

Annex 2: List Of Persons Interviewed

Name		Organization	Designation	Contact
1.	Nikum Peace Onen	Alala Sub county	Senior Assistant Chief Administrative Officer	0784219998
2.	Jawiambe Rogers	Alala Sub county	Assistant Agricultural Officer	0786961530
3.	Ahayerach Devote	Alala Sub county	Community Development Officer	0771634940
4.	Wokorach Stephen Wamala	Kucwiny Sub county	Agricultural Officer	076664526
5.	Adegitho Anthony	Kucwiny Sub county	Agricultural Officer	0788579214
6.	Odaga Wilfred Onega	Kucwiny Sub county	Parish Chief	0778141508
7.	Mugisa Immaculate	Kucwiny Sub county	Parish Chief	0772707250
8.	Okwir Tom	Kucwiny Sub county	Parish Chief	0782205537
9.	Oyubukitwu Lucy	Mungungeyo Group	Chairperson-Ngali village	0707078559
10.	Ofungi Regina	Mungungeyo Group	Member	
11.	Fuambe Santina	Mungungeyo Group	Member	
12.	Acibu Alipotina	Mungungeyo Group	Member	
13.	Ayenyo Agnes	Mungungeyo Group	Member	
14.	Nyatho Mary	Mungungeyo Group	Member	
15.	Giramiya Agnes	Mungungeyo Group	Member	
16.	Atyerunimungu Rose	Mungungeyo Group	Member	
13 participants		Mungungeyo Group	Members in morning FGD	*Not Registered*
12 participants		Mungungeyo Group	For transect walk in Ngali	*Not Registered*
17.	Aliga Moses	Nenkutic Group	Chairperson-Jafurnga	0774938064
18.	Ongiera Bosco	Nenkutic Group	General Secretary	
19.	Oyat Collins	Nenkutic Group	Elder/member	
20.	Okecha Nereo	Nenkutic Group	Elder/member	
21.	Okwaimungu Wilfred	Nenkutic Group	Elder/member	
22.	Okende Samson	Nenkutic Group	Elder/member	
23.	Odaga Adam	Nenkutic Group	Member	
24.	Avuni Emmanuel	Nenkutic Group	Member	
25.	Okumu Ronald	Nenkutic Group	Member	078441083
26.	Otengirwot Elia	Nenkutic Group	Elder	
27.	Okethwengu Gilbert	Nenkutic Group	Secretary	
28.	Nyolonga Wilfred	Nenkutic Group	Member	
29.	Ocokdogwu Tembo	Nenkutic Group	Elder/member	
30.	Ovona Charles	Nenkutic Group	Member	
31.	Oryek Ronald	Nenkutic Group	Member	
32.	Ongom Elario Wathum	Nenkutic Group	Member	
33.	Lok Kofi Yunes Akumu	Nenkutic Group	Chairman LC 1/member	
34.	Oyirwot Peter	Nenkutic Group	Member	
12 participants		Nenkutic Group	Women FGD	*Not Registered*
12 participants		Nenkutic Group	Transect walk	*Not Registered*

CONTACT US

The Agency for Accelerated Regional Development (AFARD) is a local, not-for-profit, non-denominational, non-governmental organization (NGO) formed in July 2000

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