NURI Extension to 2023 - DKK 26 M

Key results:

Results from the original NURI programme will be strengthened and expanded. Moreover, the following results will be achieved:

- *More than 15,000 farmer households (750 groups) actively participate in tree growing for climate adaptation and resilience.*
- *At least four new approaches have been piloted to increase self-sustainability of programme results and activities, involving at least 5,000 farmers.*

Justification for support:

The DKK 26 M appropriated by the Danish Parliament will be used to further green the NURI programme, ensure that its benefits streams will continue beyond the programme's duration, and inform the design of the planned follow-up programme. The proposed intervention will thus target refugees and host communities in Northern Uganda where the impact of climate change is exacerbated by the high level of poverty and the refugee influx. The proposed interventions will have the principal objective of adaptation to climate change and strengthening greening water management e.g., tree growing around water projects.

Major risks and challenges:

Impact of weather, drought and floods on tree growing activities

Mitigation is resilience design structures and individual, institutional or community ownership and maintenance plans

File No.	2022-5516			
Country	Uganda			
Responsible Unit	2730 - Kampala			
Sector	31120, Agricultural development			
Partner	NURI Coordination Function (NURI CF)			
DKK mill.	**2022**	**2023**	**2024**	**Tot.**
Commitment	26.0	0.0	0.0	**26.0**
Projected ann. disb.	0	26.0	0.0	**26.0**
Duration	2022 - 2024			
Previous grants	DKK 344 million			
Finance Act code	06.34.01.40			
Head of unit	Signe Skovbakke Winding			
Desk officer	Victor Azza Vuzzi			
Financial officer	Ager Graae			

Relevant SDGs *[Maximum 5 – highlight with grey]*

No Poverty	No Hunger	Good Health, Wellbeing	Quality Education	Gender Equality	Clean Water, Sanitation
Affordable Clean Energy	Decent Jobs, Econ. Growth	Industry, Innovation, Infrastructure	Reduced Inequalities	Sustainable Cities, Communities	Responsible Consumption & Production
Climate Action	Life below Water	Life on Land	Peace & Justice, strong Inst.	Partnerships for Goals	

Strategic objectives:

Enhanced resilience to current and expected impact of climate change and variability and more equitable economic development in supported areas of Northern Uganda, including for refugees and host communities

Environment and climate targeting - Principal objective (100%); Significant objective (50%)

	Climate adaptation	Climate mitigation	Biodiversity	Other green / environment
Indicate 0, 50% or 100%	**100**	**50**	**50**	**50**
Total green budget (DKK)	**DKK 26 millions***			

*See also green budget overview in section 8 of the project note.

Justification for choice of partner:

NURI CF has many years of experience from Northern Uganda. It is uniquely qualified to build on her achievements and share best practices and lessons. Implementing through NURI CF will reduce fiduciary risks and improve efficiency in project delivery building on the success of the current programme

Summary:

The DKK 26 million will be used to make NURI greener. The documentation of NURI will be aligned with ongoing green activities to consolidate and sustain climate change work. Activities to further green NURI, both ongoing pilots and new green activities will be implemented and documented. Activities to strengthen operational sustainability of NURI will be included. The programme will adjust and downsize existing implementation arrangements to the requirements of the extension. Lessons learnt will be documented to inform a likely future programme.

Budget:

Output 1: *Climate change adaptation measures adopted by participating farmers*	*21.0*
Output 2: *Climate resilient agriculturally-related rural infrastructure renovated and or constructed using labour intensive approach*	*1.0*
Output 3: *Agriculture-related physical & natural water infrastructure constructed and made more resilient to climate change*	*1.0*
Coordination incl. TA and M&E	*3.0*
Total	***26.0***

Note on Extension of NURI to 2023

1. Introduction

This note sets out the context, justification, possible activities and updated results framework for an additional budget of DKK 26 million to the Northern Uganda Resilience Initiative. The budget will fund a green extension of NURI up to December 2023. The note proposes adjustments to the documentation of NURI to reflect its climate change adaptation intent, which was not specifically stated in the original programme document. The addition of DKK 26 million added to the reallocated and committed DKK 19 million from within the current Country Programme, will raise the total budget of NURI from DKK 325 million to DKK 370 million.

This note is based on a formulation workshop with NURI staff and partners, as well as a rapid assessment of climate risks and vulnerability in the NURI implementation areas in line with the OECD Rio Marker Handbook's requirements for best practice within climate adaptation. A summary of the workshop report and the climate assessment are included as annexes.

The Aid Management Guidelines do not contain detailed information on the documentation needed for adding additional funds to existing budgets. After agreement with ELK the rules for "costed extensions" are followed. This note serves as documentation of the changes to NURI, including the updated results matrix and budget.

In addition to DKK 26m appropriation, the NURI budget is also adjusted upwards with reallocations from the country programme. In the below description, DKK 19 million are allocated in addition to the DKK 26 million. Following Aid Management Guideline, this has been done with approval from the head of mission.

2. Context

History of NURI

Denmark has supported Northern Uganda for several decades, first through the self-reliance strategy (1999-2003) and later through successive phases of the DAR/RALNUC programmes (2004-2014). Most recently (2014-2018), Denmark supported the Recovery and Development in Northern Uganda (RDNUC). Denmark's support to Northern Uganda has focussed on improving agricultural livelihoods for small-scale farmers through a range of interventions. The Northern Uganda Resilience Initiative (NURI), which is one of the eight engagements in the Denmark-Uganda Country Programme 2018-2022 builds on these achievements. The objective is to improve the livelihood of farming households (including refugees and host communities) by increasing their resilience to climate change through increasing agricultural production, and marketing, and ensuring that farming households have the means and infrastructure (such as access roads) to sustain production and sell their produce. NURI is implementing three interventions to respond to this objective i.e. climate smart agriculture, agriculture-related rural infrastructure and water resources management. NURI aims to increase agricultural production and annual agricultural cash income of 135,000 households (including refugees) by 20%, and significantly reduce the number of households that report periods of food insecurity. The ultimate goal is to enhance resilience and equitable economic development in supported areas of Northern Uganda, including for refugees and host communities. The engagement is implemented in 13 administrative districts in Northern Uganda, five of which host more than half of Uganda's refugee population. NURI falls under the UPSIDE thematic area of the DK-UG Country Programme 2018-2022.

Why adjust now?

In May 2021, the Mid-Term Review (MTR) of the Uganda Country Programme concluded that NURI was highly relevant, clearly correlating with the expressed needs of the target community. The review proposed that the programme be extended to at least up to mid-2023 and the extension period be used to strengthen the greening of NURI, and piloting of new interventions for a follow-up programme. The MTR further

recommended that the target for rural infrastructure be adjusted from 1800 to 1504 to allow for integration of resilience designs for enhanced climate adaptation. The appropriation of additional DKK 26 million provided further impetus to improve climate change adaptation in NURI. Arising from the recommendation of the MTR and availability of funds, the Embassy of Denmark (EoD) in Uganda in consultation with the NURI project team have seen the need to adjust the NURI programme and underpinning documents, and extend the implementation period of NURI until December 2023.

3. Justification

Background on climate change in NURI
The proportion of NURI's budget for climate change adaptation relative to its overall budget has grown over the years, from 10% (DKK 35M) in 2017 to 15% (DKK 50M) in 2020. The funds were appropriated from the Danish climate envelope to assist developing countries implement the Paris Climate Agreement. In the case of NURI, the intent was to increase climate change resilience in the marginalised and vulnerable populations of Northern Uganda through improved water resources management, including for refugees and host communities.

Interventions funded through the Danish climate envelope must have a principal objective to either reduce greenhouse gas emissions or increase climate resilience, specifically for vulnerable groups. These requirements match those of the OECD Rio Markers, which is why this is the definition used in the below.

As climate interventions in NURI shall focus on increased climate resilience for vulnerable groups, activities will follow the three-step approach for adaptation, as suggested in the OECD Rio Markers for Climate Handbook.

Assessment of context of risk, vulnerabilities and impacts related to climate variability and climate change.
Since the start of NURI in 2018, the fundamentals underpinning the justification for continued Danish support to Northern Uganda have not changed. The region remains one of the poorest and most vulnerable in Uganda, including to climate risks.

Although climate change considerations were included in original programme design and activities were, to a large extent, designed to strengthen resilience, no comprehensive assessment of risk, vulnerabilities and impacts related to climate variability and climate change were made. To consolidate and better document the impact of NURI on climate resilience, such an analysis was carried out and is included in Annex 1. A summary is provided in the following.

Climate change is having significant negative effects, not least for those two-thirds of the population who, as smallholder farmers, are dependent on rain-fed agriculture and the natural resource base at large. Rising temperatures and extreme weather events are two climate change phenomena that affect agricultural livelihoods in rural areas. The impact of prolonged periods of drought and decreasing and more erratic rainfall is exacerbated by the high level of poverty and the refugee influx. The region scores moderate to low as compared to most other regions of the country on the indicators used for determining adaption capacity to droughts and floods.

Studies show that that Uganda's entire northern half, faces a significant drought risk in the future. The region will experience general rise in temperature and the number of hot and very hot days will increase. A shift in seasons is predicted as well, with the long rains (March-April-May) starting later, and the short rains prolonging into December and January. Overall, climate change is predicted to cause greater seasonal variation in rainfall patterns, and frequency of drought. Rain fed smallholder farms will be increasingly exposed to shifting seasons and less predictable weather, which is likely to increase the frequency of low yields or failing crops, and low crop production quality. Higher temperatures and droughts will exacerbate

already on-going soil degradation, create suitable conditions for, and alter the occurrence and distribution of crop pest and diseases. Climate change induced flooding and droughts will have significant impact on infrastructure. Roads and bridges are vulnerable to flooding and deteriorate quicker under high and fluctuating temperatures, yet they are essential for poverty reduction i.e., accessing socio-economic services, household goods and trading of agricultural produce.

While it will be important to develop activities concerning the increased use and communication of weather and climate information products and services to DLGs, farmers and communities, for the NURI Extension it will only be possible to share the Uganda Meteorological Authority (UMA) quarterly seasonal rainfall outlook and advisory, building on the practice of NURI in the past. Any opportunities identified in this area will be shared for consideration in NURI 2.0.

According to IFAD, Northern Uganda ranks by far the lowest of the four regions in adaptive capacity as measured by education level, access to agricultural information and adoption of improved agricultural practices. No other livelihood occupation is more exposed to climate change in Uganda than smallholder farmers in Northern Uganda are.

Response to the risk, vulnerabilities and impacts related to climate variability and climate change
NURI will use the DKK 26 million from the climate fund to strengthen the current response to the foregoing risks, vulnerabilities and impacts associated with climate change and climate variability.

NURI integrated climate change adaptation in its design, through the focus on Climate Smart Agriculture (CSA), and broadly, in the inclusion of Water Resources Management (WRM). At farm level, NURI has been promoting crops ("Strategic Crops") according to agro-ecological suitability and marketability, and has been encouraging the diversification of farm enterprises and off-farm income, as well as soil and water conservation measures. At institutional level, the programme has been strengthening CSA knowledge of extension staff and local governments, through training and exposure to local and international research and developments. Under Rural Infrastructure (RI), although climate considerations were not explicitly mentioned in the project document, a resilient design approach to construction of RI was adopted in 2020 to cater for, climate impacts such as persistence and heavy downpours, and to provide linkages with CSA.

NURI will use the additional climate funds to strengthen climate change adaptation and ensure that its benefits streams continue beyond the programme's duration, and that the lessons learnt inform the design of the planned follow-up programme as well as be available more widely. Specifically, the programme will expand ongoing pilot activities and introduce new climate adaptation activities to enhance the greening of NURI.

Strategies to address the identified risks, vulnerabilities and impacts
Given the context of the risk and vulnerability, and ongoing activities, the most feasible support that NURI will provide to the smallholder farmers during the short extension period will be short to medium term interventions that are low-cost, low-regret adaptations that reduce vulnerability to current climate variability. It will include interventions that have multiple benefits, and reduce vulnerability to longer-term climate change as well. These will include diversifying farm family incomes through entrepreneurship training, marketing, value addition and tree growing. Focus will further be directed at improving post-harvest handling and local storage systems as well as marketing and complimentary financial literacy as these are instrumental to farmers during the lean period and extended rains.

Because rural infrastructure is vulnerable to extreme weather events, such as flooding, and high and fluctuating temperatures, NURI will during the extension, undertake interventions that improve the resilience and operational sustainability of the rural infrastructure projects particularly food forests and water projects, including resilience design, involving planting of trees and establishment of permagardens.

The above climate adaptation measures will be complemented with a more holistic approach to resilience, such as greening ongoing activities, piloting new green activities and strengthening operational sustainability of extension services, village savings and loan associations (VSLAs) and rural infrastructure projects. Communities and local governments will be sensitized and guided to sustain infrastructure projects and protect, restore and manage common resources and landscapes. In this wider context, the Nature-based solutions standard and criteria may provide a framework for action, in conjunction with watershed management. NURI activities will also inform local policymaking through sharing lessons and experiences from the programme.

Not all smallholder farmers are able to properly deal with climate change and adaptation. Households that are more vulnerable will, naturally be more risk averse, have a smaller social network to fall back on when things get difficult, and have less money to invest in adaptation. In Northern Uganda, this group are particularly prevalent amongst female-headed households and refugees, who have limited access to agricultural land. Because rural women are often heavily reliant on natural resources, they have both the knowledge and the desire to act as stewards of the environment. Therefore, they will be included in decision making for effective climate action, and adaptation, including at group and household level. On and off farm agriculture related activities that build resilience of vulnerable groups will be promoted.

Activities to consolidate and sustain climate change work

Given that funds for greening activities were derived from both the country programme budget and an appropriation by the Danish Parliament, the proposed extension and additional funding will serve four purposes, thus:

- Assessing and documenting climate adaptation measures in existing activities.
- Completing and consolidating ongoing activities to withstand future climatic changes and ensure prolonged longevity of projects
- Piloting new climate-smart interventions to green NURI and a likely follow-up programme
- Piloting new activities and mechanisms related to operational sustainability, to ensure perpetual and scalable impact.
- Explore potential synergy and cooperation with activities of other development partners within the project area.

As a precursor to tailor the green interventions or activities, the extended programme will assess and document climate adaptation measures in existing activities. NURI will then re-examine the overall implementation plan, and draw up a realistic plan, in consultation with its implementing partners and participating communities, for consolidating climate change adaptation in existing projects, implementing new green projects, completing and enhancing all on-going activities as well as piloting new activities and mechanisms related to operational sustainability, to ensure perpetual and scalable impact. At the same time NURI will be in close communication with other development partners and look for areas of synergy, and be open to cooperation as a path to sustainability, learning and sharing lessons.

Assessing, and documenting climate adaptation measures in existing projects

Climate adaptation has been an integral part of the NURI CSA and WRM interventions, which NURI also incorporated in RI from 2020 onwards. However, NURI did not systematically assess and document all these for relevance and effectiveness. Consequently, it has been hard to classify NURI's eligibility as a climate programme against the OECD-DAC Rio Markers for Climate adaptation and mitigation. To comply with the Rio Markers for Climate criteria, this note proposes in Section 6.0, an amended Results Framework that incorporates climate adaptation and mitigation. The amendment will allow for systematic assessment of existing interventions against international climate adaptation criteria, and the documentation and sharing of lessons with partners and DLGs for wider application and possible incorporation in guidelines, policies and practices.

Consolidating climate change adaptation measures in existing green projects
The focus will be on quality enhancement, broadening and strengthening ongoing climate adaptation to green NURI and a likely follow-up programme. The ongoing interventions that will be enhanced or expanded and lessons documented for a future NURI will include:

- expanding permaculture food systems for households including refugees;
- expanding and follow-up tree growing by individuals, groups, institutions and communities, including refugees; and
- follow up and assess sustainability of tree growing in resilient designs, such as structures around community access roads, protected springs and water ponds

Piloting new climate-smart interventions to further green NURI and a likely follow-up programme
The additional climate funds will be used to test interventions with potentially strong greening footprints, and expansion or piloting these through existing farmer groups, partners and contractors. The IUCN NbS standard criteria as adapted to local conditions will be explored as a guide to the selection, monitoring and evaluation of interventions. If found useful, implementing partners will be trained to use the criteria during implementation and reporting. Following the recommendations of the MTR and based on earlier analyses, experiences and needs, the NURI team has selected tree growing as one of the greening interventions. A limited pilot tree-growing project, targeting individual households based on a subsidy/cost-sharing model, is ongoing. Based on these experiences, NURI will use the extension period to expand tree growing to other areas and partners. Relatedly, NURI will strengthen the sustainability of food forests and tree growing around water projects. For the remainder of 2022 and through 2023 these efforts will be further developed and expanded and additional ideas will be piloted through existing CSA units and in collaboration with other partners. Generally, the extension period will be used to identify new climate smart interventions that comply with the needs and aspirations of the target beneficiaries and that can be piloted in the remaining project period, for inclusion and up-scaling in the successor programme. Possible candidate interventions are:

- identifying and assess existing community initiatives in indigenous tree growing, tree nursery management, fuel saving technologies and biodiversity protection for possible support, directly or through partners;
- Incorporating resilience design in household tree growing
- Conducting community awareness campaigns, through radio, local governments and other means, around the importance of watershed management, maintaining ground cover, tree growing, and farmer managed natural regeneration.

Piloting new activities and mechanisms related to operational sustainability
In addition to making NURI greener, operational sustainability has been selected as a key principle to guide the project design and implementation throughout the extension *to ensure perpetual and scalable impact*. Operational sustainability refers to the idea that interventions should aim to deliver impact for the beneficiaries – even after implementation has ended. Preferably, operationally sustainable mechanisms should be established to ensure deepened and resilient impact for current beneficiaries, whilst also enabling an environment where activities are replicable and self-scalable to include additional beneficiaries. The following principles have been developed, to guide project design and implementation throughout the extension period:

- Activities should consider the future changes (e.g., changes in climate) during the design phase to increase resilience.
- Activities should be implemented with built-in, maintained self-sustainability, wherever possible
- Private sector and other stakeholders should be engaged to ensure continued delivery of key services / interventions.
- Mechanisms should be explored to expand interventions after project-end. This might include private sector engagement and collaboration with other, similar projects.

Examples of activities include increasing increase in farmer groups marketing skills, farmer-to-farmer extension, cost sharing in tree planting programmes, digital solutions to increase sustainability of savings and loan associations, agents generating income from extension or bulking agricultural commodities and innovative solutions to promote small income-generating activities.

Assessing completed pilot activities' ability to withstand future climatic changes and engage with DLGs and communities for prolonged longevity of implemented projects

This activity area will build on the current implementation model of NURI. Emphasis will be on addressing issues that hamper quality, speed and local ownership as well as structures and capacity for infrastructure maintenance, and documenting and anchoring insights and lessons into local policies and practical guidelines. The focus will be on lessons learning through targeted evaluations, and ultimately, capacity enhancement of opinion leaders and decision makers in communities and local governments. Likely activities are:

- Gathering and sharing relevant lessons from successful interventions;
- Assessing maintenance challenges at all levels and collating lessons for future programmes and policy input;
- Sharing the lessons for relevant policy, sector norms and guidelines;
- Strengthening sustainability through follow-up activities with DLGs and communities.

4. Key Changes in NURI to 2023

From the foregoing, the key changes to NURI in 2023 will be in making NURI more green and more operationally sustainable both in terms of activities and documentation.

Greening NURI. Climate adaptation measures in the current interventions will be assessed, consolidated and documented, and new climate adaptation interventions will be piloted and documented to inform the design of a possible follow up programme.

Sustaining NURI. Ongoing and planned projects will be properly completed so that they are fit for purpose i.e., meet quality requirements and continue to provide the benefit stream beyond the project. Additionally, new interventions and mechanism will be piloted to ensure perpetual benefits, even after the programme has ended.

The specific measures to make NURI greener and more operationally sustainable are described in section 5.

5. Activity plan / areas of future interventions / ways of doing It

NURI coordination function will continue to operate in the extension period, but roles, structure and staffing will be reviewed and adapted to the needs of the extension, through shorter and/or longer-term contracts and consultancy as need arises. A few positions, including advisers, will be extended into 2024 to ensure closing, final audits and completion reports are finalized. It is likely, for example, that there will be need to increase capacity in the area of communications as sharing of lessons and awareness campaigns will be substantial activities, as well as in the area of contracting, as a number of new partnerships are being explored.

Where needed consultants will be brought in to carry out assessments of completed, on-going and pilot activities, including, potentially gathering information needed for the development of the follow-on programme.

In the last half of 2022 there will be focus on completing activities as per original NURI workplans across all outputs. During this process, in areas where opportunities relating to the extension pilots and activities are identified, planning and early implementation will start as soon as possible, including during 2022, to give sufficient time for results to emerge and adaptions to be tried and tested. A number of these activities have already started, including Farmer Marketing Schools related to training-of-trainers and development of training manual, as well as negotiations with various potential partners on commercial extension, business training and digitalization of VSLAs.

For infrastructure and water projects under outputs 2 and 3, projects where unforeseen challenges have emerged, for example need for increased gravelling due to unstable soil types, assessments are being carried out to ensure that projects are handed over to Districts in a satisfactory state. Additional funding will be considered where this is seen as giving value-for-money, particularly in light of the investments already made. While every effort is being made to complete all projects, including the possible additional works, by the end of 2022, there are a number of the larger projects that are experiencing challenges because of procurements and issues with contractors which may be carried forward into the first quarter of 2023. It is likely that projects completed at the very end of 2022 may require payments in 2023. Delayed completion may require an addendum to the current contract with DRC. For finalization and handover of all projects and activities under Outputs 2 and 3 an extension to the contract of the implementing partner, DRC will be considered as relevant.

Collaboration with the Danida funded, UNFPA implemented WAY programme will be continued during the extension period. This will not have any direct cost implementation for NURI, but will involve linking NURI groups, including graduated groups, to the WAY programme, and engaging in coordination activities with the implementors, including UNFPA and CARE.

Assets such as laptops, vehicles and motorcycles belonging to the NURI programme, will be made use of as necessary, and disposed of where no longer needed. In areas such as commercial extension and support to local environmental / climate initiatives, these assets may be made available to participants and/or partners through MoUs.

5.1 Assessing and documenting NURI activities

The amendment will allow for systematic assessment of existing interventions against international climate adaptation criteria, and the documentation and sharing of lessons with partners and DLGs for wider application and possible incorporation in guidelines, policies and practices.

Gathering and sharing relevant lessons from successful interventions, including pilot activities. This activity will focus on gathering lessons, challenges and emerging opportunities from completed, on-going and pilot activities. Information will be analysed and shared with relevant stakeholders, including local governments, communities, implementing partners, development actors and Government of Uganda. NURI CF will work with professional communications consultants and/or partners and identify and implement best practices in sharing lessons, including for policy briefings. There are expected to be lessons in the areas of CSA technologies and extension methodologies as well as on specific areas such as the concept of resilience design in rural infrastructure and water resource management. New technical concepts such as resilience design in CSA, Green Roads for Water and Food Forests for institutions and individuals will be assessed and lessons, positive and negative fed into the emerging knowledge in these areas. A study of expected and unplanned impacts in cross-cutting areas such as gender and youth will also be considered.

5.2 Greening NURI

Climate adaptation has been an integral part of the NURI climate smart agriculture (CSA) and water resources management (WRM) interventions, and was incorporated from 2020 onwards in the rural infrastructure (RI) projects. To comply with the Rio Markers for Climate criteria, this note has updated the Results Framework for NURI in line with the climate mitigation and adaptation criteria. During the extension NURI will carry out an assessment of the climate smartness of all its interventions, and where possible, incorporate additional activities assessed to strengthen the climate-change adaptation and/or greening objective.

Assessment of NURI activities against Nature Based Solutions criteria. This is relevant completed, on-going and pilot activities to feed into lesson learnt and to give ideas for future programmes. Important areas requiring assessment and the focus of lesson learning include the resilience design incorporated during the implementation of Rural Infrastructure and WRM activities in the programme. Resilience Design was a new concept and much learning took place during implementation and adaptation is still ongoing, thus, an external evaluation against recognised criteria adds value and provides lessons. The CSA programme has also introduced aspects of resilience design, and has widened the view of 'climate-smartness' based on lessons learnt during implementation. The widening of the concept has seen VSLA and CSA increasingly integrated, and again, an external assessment of progress against recognised criteria will be valuable. An assessment against NbS criteria was carried out in November 2022 and gave some insights. Ten interventions were assessed and scored against the eight NbS criteria. Spring protection scored particularly high across all criteria, followed, rather surprisingly, by rural roads and institutional food forests. There was a striking difference between institutional food forests and individual food forests. With food forests being on the list for future interventions, a further analysis is needed as to where this difference is coming from. Likewise, also the difference between rural roads and green roads is rather dramatic, with green roads scoring inadequate across the entire set of criteria. Possibly, this is caused by the recent start of the green roads interventions with as yet few tangible results and the fact that different groups interpreted certain criteria quite differently. The full report is available on www.NURI.ag. Based on the assessment, NURI Extension will focus on avoiding and minimizing harmful impact on bio-diversity, while at the same time exploring opportunities within the scope of NURI 2.0, taking into account the focus on agriculture.

The following ongoing **pilot activities** will be expanded to enhance the greening of NURI:

Tree growing at individual household level on cost sharing basis. In NURI tree growing has been concentrated under RI activities, with food forests at institutions, and trees planted in resilience design structures around infrastructure projects, including water projects. There is demand for tree growing at household level, and plans for a pilot, involving linkages with DLG structures, local nurseries and cost-sharing by farmer participants started late in 2021, with implementation in 2022. The extension will offer an opportunity to evaluate, expand and share lessons from this pilot, as well as potentially strengthening the agro-forestry and Farmer Managed Natural Regeneration (FMNR) aspects.

Permaculture food systems at household level including refugees. NURI CSA activities have included household gardens for refugee women groups. The Climate aspects of this activity have gradually evolved over the period of NURI implementation with adoption of perma-culture and resilience design for CSA being tested and included. The extension offers an opportunity to finalize and expand this work on a strongly climate-focused household gardening model suitable for households with limited access to land. NURI CF will also carry out a scan of current permagarden / household gardening activities in urban and semi-urban areas, and if relevant implement a small pilot to identify opportunities building on learning from work with permagardens in refugee settlements as well as experience from other programmes.

Fruit tree growing by refugee communities around homesteads. Part of the household gardening model under NURI CSA has been the planting of fruit trees around the homestead. The extension will allow an assessment and continuation of this aspect, including strengthening the resilience design aspects of fruit tree growing as part of the permaculture food systems mentioned above.

The following **new** activities will be implemented in additional green initiatives:

Assess and where relevant support to community initiatives in indigenous tree growing, tree nursery management, fuel-saving technologies and biodiversity protection. Based on assessment of ongoing activities in Northern Uganda, relevant initiatives will be supported directly or through partners. This may include a targeted call for proposals, or deliberate selection of promising initiatives, where NURI support, during the pilot period can play a facilitation or catalytic role.

Community awareness campaign on the importance of tree growing and conservation. Campaigns will be designed to address current or emerging issues including around the importance of watershed management i.e., maintaining ground cover, tree growing, and farmer managed natural regeneration as it relates to NURI WRM activities, as well as the loss of tree cover in densely populated, including refugee hosting, areas. NURI has much experience and some success in reach communities through radio, and also in building capacity of District Local Governments to support community initiatives. Building the capacity of DLGs through training and information on climate related issues will also be part of this initiative if suitable training opportunities can be identified.

Follow-up community ownership and management of tree growing in food forests and water projects. NURI Output 2 and 3 activities have included substantial tree planting activities around the many infrastructure and water projects, as part of resilience design structures and in the form of food forests, linked to institutions under RI and individuals in WRM. Experience shows that community ownership and technical support, follow-up and mentoring of these activities is crucial for tree planting to become tree-growing. The NURI extension gives an opportunity to address a gap which was aggravated by the COVID pandemic restrictions, which limited community involvement and therefore ownership of trees planted during the NURI programme, particularly, the many food forests handed over to schools. During the extension, CSA extension officers will be given refresher training in tree growing, agro-forestry and other related issues, after which they will provide back-stopping and mentoring to farmers and institutions involved in tree growing through all outputs of the NURI programme. Relevant DLG staff will be engaged in the efforts, and this effort will be linked to general community awareness raising on tree growing and other environmental issues related to climate change. NURI CF will also do a scan of tree planting initiatives in previous programmes, and based on their status, assess if additional advice, training or linkage activities regarding management and utilization of these woodlots can add value.

5.3 Sustaining NURI

The following activities will be implemented to enhance operational sustainability of NURI, and by extension the resilience and adaptive capacity of farmers and implementing institutions to climate change and climate variability.

Improving O&M of rural infrastructure, including natural infrastructure. Despite setting-up and handholding of organisation structures, by-laws and contribution agreements, the sustainability of rural infrastructure, including water infrastructure is often disappointing after project hand over. Yet, there are many examples of indigenous structures such as rotating labour groups that have functioned for many generations. During the extension period, NURI will build on successful models for maintenance of infrastructure; for example:

- Use indigenous community ownership, and community engagement and mobilization models as a basis for infrastructure management and maintenance, as well as strengthening Project Users Committees (PUCs)
- Strengthen the role of the DLGs in technical knowledge, fundraising and community mobilisation for infrastructure management and maintenance through lesson and information sharing.

- Improve the sustainability of food forests and trees planted around water projects through training, mentoring and awareness raising of benefits, for enhanced ownership

*Piloting commercial agriculture extension***.** Traditionally, crop extension and information services are a public good, provided by the Ministry of Agriculture through the District Extension Service. However, the public extension structure stops at sub county level, and the extension officer to farmer ratio is 1:1800, far below the internationally recommended standard of 1:500. As a result, less than 10% of smallholder farmers receive advice from the public extension services. NURI employed a large number of agriculture extension officers and community trainers, who are now being phased out from the programme as the CSA farmer groups graduate. During the extension period, NURI will test models for commercial extension services in Northern Uganda. Different modalities of interventions will be piloted, whereby the role of the extension officer may include; becoming agents for input suppliers, taking the role of aggregator/bulk-reseller, offering extension and complementary services on a fee-basis. Similarly, different modes of service delivery may be tested, including the adoption of tech-based solutions. Interventions will aim to create self-sustainable models for commercial extension services, whereby farmers will benefit from the interventions long after the end of the programme. An assessment of the income streams of extension officers, after they leave employment will be carried out, and options for expanding these explored. NURI will reach out to potential and/or part-time commercial extension officers and in collaboration with these explore ways to expand and strengthen income streams.

Promoting market / business orientation of farmers. Farmers' capacity in group marketing and business skills around the value-chain will be strengthened through Farmer Marketing School training and activities, including building capacity of in-group facilitators. Access to, and business opportunities concerning agricultural seeds, including production of quality declared seeds (QDS), will also be explored. Integrating Production and Marketing Plans with VSLA activities will be continued building on earlier experience.

Training in business skills and entrepreneurship. During the extension, new efforts in this area, including off-farm agriculturally related activities, will be piloted. This will include supporting farmers to identify and capitalise on potential business opportunities. Focus will be on income diversification, ultimately reducing farmers' vulnerability to shocks and variability in their primary income streams. This component will also benefit the greening of NURI, as secondary income-streams may support farmers' adaptive capacity against climate change and variability. Planned interventions include training in financial/business skills, subsidising small start-ups at farmer and/or group level, providing advice/business support to farmer entrepreneurs, as well as collaborating with other organisations to promote off-farm income generating activities.

Deepening the impact of VSLAs. The VSLA model has proven to be a strong driver for development with robust indications of self-sustainability and climate adaptation. All indications are that many VSLAs will continue to operate long after the training has ended. A strong level of operational sustainability can be claimed, as beneficiaries will continue to benefit from the intervention for years to come. During the extension, NURI will explore interventions to further deepen the positive impacts of VSLAs. Different avenues of complementary interventions will be explored. As a starting point, the following thematic interventions will be considered for potential implementation: a) linking VSLAs to financial institutions, b) digitisation of VSLAs, c) building on financial literacy training with the addition of basic business skills training, and, d) combining VSLA planning with agricultural production and marketing planning of the group and household. NURI will work with partners as well as with staff of CSA implementing units on these activities, and capacity building of CSA extension officers in offering training in basic business skills alongside agronomic skills is planned.

Although the foregoing adjustments will enhance the climate change adaptation and sustainability of NURI operations, they will largely be within the original scope of the programme. However, the adjustments will

necessitate adjusting NURI's objective, and amend some indictors at outcome and output levels. Accordingly, Section 6 of this note includes an amended results framework for NURI

6. Updated Results Matrix

The text in **red** font is the adjustment made to the objectives in the original results framework, and the additional indicators introduced in light of the adjustments to the objectives.

The NURI M&E manual will be updated as appropriate to ensure monitoring of lower-level indicators, including at activity level and additional output indicators, as are assessed to be useful in the monitoring and learning needs of the extension objectives. The extension will focus on lessons learning, and therefore particular attentional will be given to Learning and Reflection Activities.
Data for results matrix will be segregated by gender and refugee status where relevant.

Engagement		**Northern Uganda Resilience Initiative (NURI)**	
Outcome		**Enhanced resilience to current and expected impact of climate change and variability and equitable economic development in supported areas of Northern Uganda, including for refugees and host communities**	
Outcome indicator		1. Increase in average annual agricultural cash income of participating households (segregated by age, gender of household head and, refugee status) 2. Reduction in number of participating households reporting periods of food insecurity (segregated by age, gender of household head and, refugee status) 3. Total number of people benefitting from supported WRM interventions (segregated by age, gender of household head and, refugee status) 4. Greening – numbers of farmers contributing to greening (through e.g., tree growing / resilience design, maintaining food forests, tree growing around water projects, soil and water management) ~~5.~~ Sustaining – number of farmers included in new approaches to increase self-sustainability of programme results	
Baseline	Year	2018	1. UGX 1,685,419 new nationals, UGX 872,410 mixed groups, UGX 294,241 refugee women (baseline survey in targeted areas) 2. 45% 3. N/A 4. N/A 5. N/A
Target	Year	2022	1. 20% increase in average 2. 23% (50% reduction) 3. 122,350 persons 4. N/A 5. N/A
Target	Year	2023	1. N/A 2. N/A 3. N/A 4. 42,000 5. 14,000

Output 1		**Climate change adaptation measures are taken up by participating farmers**	
Output indicators		1.1 Cumulative percentage of participating households adopting additional CSA practices 1.2 Cumulative percentage increase in average yields per acre for strategic crops 1.3 Cumulative percentage of the quantity of strategic crops harvest that is sold 1.4 Number of farmer groups trained in CSA and permaculture 1.5 Number of participating farmers that have either planted trees in their compounds or farms.	
Baseline	Year	2018	1.1 NA 1.2 TBD (based on baseline) 1.3 TBD (based on baseline) 1.4 0 1.5 N/A

Annual target	Year 4	2022	1.1. 60% 1.2. 15% 1.3. 70% 1.4. 4,375 1.5. N/A
Annual target	Year 5	2023	1.1. 60% 1.2. 15% 1.3. 70% 1.4. 4,388 + 870 1.5. 11,000

Output 2		**Climate resilient agriculturally-related rural infrastructure renovated and/or constructed using labour intensive approach**	
Output indicator		2.1 Average cumulative percentage of projects in district investment plans completed (segregated by refugee settlement area or not). 2.2 Cumulative number of beneficiaries that report a reduction in time and/or cost in transporting goods to a market place (segregated by refugee/host status). 2.3 Cumulative number of agricultural related rural infrastructure projects implemented 2.4 Number of farmers / participants involved in maintaining trees planted in food forests and in greening of water projects under RI	
Baseline	Year	2018	2.1 0% 2.2 0 2.3 0 2.4 N/A
Annual target	Year 4	2022	2.1 100% 2.2 20,000 2.3 1,500 2.4 N/A
Annual target	Year 5	2023	2.1 100% 2.2 20,000 2.3 1,500 2.4 7,500

Output 3		**Agriculturally-related physical and natural water infrastructure projects constructed and made more resilient to climate change**	
Output indicator		3.1. Cumulative number of micro-catchment management plans implemented 3.2. Number of agriculturally-related physical & natural water infrastructure constructed or rehabilitated (adjusted CCE supporting indicator) 3.3. Community/user management agreements developed and implemented 3.4. Number of farmers/ participants involved in maintaining trees planted in food forests and in greening of water projects under WRM	
Baseline	Year	2018	3.1 0 3.2 N/A 3.3 0 3.4 N/A
Annual target	Year 4	2022	3.1 8 3.2 435 3.3 16 3.4 N/A
Annual target	Year 5	2023	3.1 8 3.2 435 3.3 16 3.4 2,500

7. Budget

With this extension, the total budget of NURI is increased from DKK 325 million to DKK 370 million. Of the increase of DKK 45 million, for the extension period 2023-2024, DKK 26 million derives from an additional appropriation by the Danish Parliament and DKK 19 million derives from re-allocation of funds from the DK-UG Country Programme 2018-2022.

7.1 Updated Budget 2018 – 2024 (DKK millions)

Output	2018	2019	2020	2021	2022	2023	2024	Total
Climate Smart Agriculture	-	16.0	36.0	36.0	46.4	27.0	-	161.4
Rural Infrastructure	-	16.0	36.0	36.0	28.6	9.8	-	126.4
Water Resources Management	3.0	8.5	8.5	15.5	14.5	1.0	-	51.0
Coordination incl. TA and M&E	-	6.0	6.0	6.0	6.0	5.9	1.9	28.8
Contingency	-	-	-	-	14.0	1.7	-	15.7
Total	**3.0**	**46.5**	**86.5**	**93.5**	**95.5**	**43.5**	**1.9**	**370.0**

NB: TA is included in 2024 to assist the auditors during post completion audit and handover to new management arrangement

7.2 Green budget overview - Rio Marker alignment

Following the justifications above, the following budget will be used in terms of Rio Marker Classification

2018-2022 - Until this adjustment of objectives

Output	Total 2018-2022	Principal (100%) Significant (50%)	Green total	Rio marker accounting comment
Climate Smart Agriculture	134.4	50%	67.2	"Sustainable climate-resilient farming methods" is mentioned as an example of a score of 2 (principal) under agriculture (code 311) and this is what NURI has been doing. However, the intent was not clearly stated and risks not analysed.
Rural Infrastructure	116.6	50%	58.3	Although Green roads for water was piloted in 2021, a conservative approach is taken and infrastructure is only scored green from 2023.
Water Resources Management	50	100%	50.0	Rio markers mention water resource conservation as particularly important for climate-resilience (code 140). Since this component was designed using climate envelope procedures it is labelled as 100%
Weigthed percentage		**58%**		
Coordination incl. TA and M&E	24	58%	14.0	
Contingency	0	58%	0.0	
Total	**325**	**58%**	**189.5**	

2023 – With this adjustment of objectives

Output	Total 2023-2024	Principal (100%) Significant (50%)	Green total	Rio marker accounting comment
Climate Smart Agriculture	27.0	100%	27.0	"Sustainable climate-resilient farming methods" is mentioned as an example of a score of 2 (principal) under agriculture (code 311) and this is what NURI is doing. The intent is clearly stated and risks are analysed.

Output	Total 2023-2024	Principal (100%) Significant (50%)	Green total	Rio marker accounting comment
Rural Infrastructure	9.8	50%	4.9	Infrastructures are implemented to "improve the resilience of transportation routes", which is equal to a score of 1 (code 21020).
Water Resources Management	0.0	100%	0.0	Rio markers mention water resource conservation as particularly important for climate-resilience (code 140). Since this component was designed using climate envelope procedures it is labelled as 100%
Weighted percentage	**36.8**	**87%**	**31.9**	
Coordination incl. TA and M&E	7.8	87%	6.8	
Contingency	0.4	87%	0.3	
Total	**45.0**	**87%**	**39.0**	

This note once approved with its analysis and proposed adjustments will serve as an addendum to the NURI Programme Document and Development Engagement Document.

MINISTRY OF FOREIGN AFFAIRS
OF DENMARK
Danida

NURI
Danida

Climate Risks and Vulnerability in Northern Uganda

*

A Rapid Desk Assessment

Consultancy report
(contract DC F2 2022-7576)
Reint J Bakema
March 2022

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* Front page photograph: A village savings and loans association in session in Northern Uganda in 2015

This document was prepared by Reint Bakema under a contract with the Embassy of Denmark in Uganda. The contents is the sole responsibility of the author and does not necessarily reflect the views of the Government of Denmark or Danida.

ABBREVIATIONS

AR	Assessment Report (of the IPCC)
CC	Climate Change
CE	Climate Envelope
CRVA	Climate Risk and Vulnerability Assessment
CF	Coordination Function (of NURI)
CSA	Climate Smart Agriculture
DKK	Danish Kroner
DRA	Disaster Risk Assessment
DRM	Disaster Risk Management
EoD	Embassy of Denmark
GHG	Greenhouse Gasses
HH	Household
IFAD	International Fund for Agriculture Development
IPCC	Intergovernmental Panel on Climate Change
IOD	Indian Ocean Dipole
MAM	March- April - May rainy season
NbS	Nature-based Solutions
NURI	Northern Uganda Resilience Initiative
OECD-DAC	Organisation for Economic Co-operation and Development- Development Assistance Committee
OND	October-November-December rainy season
RAU	Resilience Agriculture Units
RCP	Representative Concentration Pathway
RI	Rural Infrastructure
SSP	Shared Socioeconomic Pathway
UNCDF	United Nations Capital Development Fund
VSLA	Village Savings and Loans Association
WRM	Water Resources Management

INTRODUCTION

The assignment

The report is made under contract DC F2 2022-7576 with the Embassy of Denmark (EoD) in Uganda, running from 1 February to 31 December 2022. As per the Terms of Reference for this specific task, it contains a rapid desk assessment that sets out the context, climate risks, vulnerabilities and impacts related to climate variability and climate change in the operational area of the Northern Uganda Resilience Initiative (NURI). The broader objective of the contract is to incorporate climate adaption and sustainability interventions in the NURI results framework and interventions for the remaining implementation period, up to December 2023. The combined outcome of the contract would qualify NURI for a principal score under the OECD-DAC Rio climate change adaptation marker[1] scoring system.

The contract deliverables are: 1) facilitate a brainstorming workshop on the extension of NURI; 2) execute a rapid assessment of climate change risks in Northern Uganda; 3) incorporate corresponding adaptation strategies and actions in the NURI results framework; 4) support the drafting of the NURI extension note for the Ministry of Foreign Affairs of Denmark. Optionally, the consultant may be involved in further support to NURI in terms of the implementation of climate adaptation and sustainability interventions.

This report is the second deliverable under the contract. It was submitted to the Embassy of Denmark on 10 March 2022.

Background to NURI

NURI is a five-year (2018-22) rural development project funded by the Danish Government. Its current budget is DKK 325 million. It is part of the larger Danish Upside programme in Uganda, consuming 50.4% of its budget. NURI is managed by a Coordination Function (CF), headed by a Danida Programme Management Adviser and Financial Management Adviser, supported by local programme officers, mostly placed in the beneficiary areas. NURI's activities are partly funded from the Danish Climate Envelope (CE), which contributions are fully integrated into the NURI work plan.

The Strategic Objective of NURI is '*resilience and equitable economic development in supported areas of Northern Uganda, including for refugees and refugee-hosting communities, enhanced*'.

NURI intends to achieve this objective through three Outputs[2]:

1. Climate-smart Agriculture (CSA): Increased agricultural output of small-scale farmers;
2. Rural Infrastructure (RI): Agriculture related rural infrastructure renovated / constructed using a labour-intensive approach;
3. Water Resource Management (WRM): Climate change resilience improved through agriculture related physical & natural water infrastructure.

The beneficiary districts are: Arua, Koboko, Moyo/Obongi, Adjumani, Nebbi, Pakwach, Terego and Zombo in the West-Nile region, and Kitgum, Lamwo and Agago in the Acholi region (Annex 1). The aim of NURI is to reach 120,000 farming households under Output 1 through 4,388 farmer groups. About 75% of these households are also benefiting from VSLA support. 28% are expected to be from the refugee community. Under Output 2, 1,800 groups (54,000 HHs) are intended to be reached, of which about 30% are expected to be refugees. Eight communities at micro-catchment level will participate in the programme under Output 3. Some of these will be in refugee hosting areas.[3]

[1] OECD DAC Markers for Climate Change: Handbook;

[2] There are some minor differences in the formulation of the Outputs between the Project Document and the latest NURI progress report. The formulation of the progress report is used

[3] NURI Project document, 2017. The exact targets were to be set during the base-line survey at the start of the programme.

NURI's Theory of Change (Annex 2) works as follows: Activities in support of agriculture focus on improving host and refugee farmers knowledge on climate-smart agriculture production methods, as well as their understanding of and ability to engage with markets and services. Support to rural infrastructure, in particular community access road and markets, leads to better market opportunities, linkages and access to services. NURI's support to water infrastructure and water resource management enhances the availability of water, and reduces the impact of extreme weather events and environmental degradation. Ultimately, the combined impact of the three components will increase HH income and food security for host and refugee farmers.

Adaptation to climate change (CC) and variability has been part of NURI from the outset, and was underpinned in the programme design, in particular by the focus on CSA, the establishment of Resilience Agriculture Units (RAU), and broadly in the inclusion of WRM in its own right as Output 3.

Under Output 1, CSA interventions include at crop level the promotion of intercropping, drought tolerant and early maturing crop varieties and exploring the viability of small-scale irrigation. At farm level, NURI promotes diversification of farm enterprises and off-farm income, and soil and water conservation measures. At institutional level, the programme focuses on further strengthening of CSA knowledge of extension staff, and active exposure to local and international research and new developments. In addition, NURI intends to forge strong links between the CSA and WRM interventions, for example by linking micro-catchment plans to agricultural production. While under Output 2, RI, climate considerations were not explicitly mentioned in the project document, a resilient design approach for RI was adopted in the course of 2020, to cater for, amongst others, persistence and heavy downpours as a result of climate change, and giving opportunities to make linkages with CSA.

Following the recommendations of the mid-term review of the Danish Country Programme in 2021, the EoD decided to extend the implementation period of NURI until December 2023, and add 26m DKK to its budget from the Danish CE. According to the rules of the CE as well as the Danish Ministry, climate focus should be in line with the OECD DAC Rio Marker Handbook. Moreover, the additional 26m DKK from the CE for NURI should be geared towards interventions that enhance adaptation to climate change and variability. This rapid desk assessment of climate change in Northern Uganda, is to inform the design of additional interventions and update the results framework of NURI.

Facts and Trends in Climate Change

Global facts and trends

The first statement (A1) in the 6th Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) is: 'It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred[4].' Since the assessment period for the previous IPCC report (2003-2012), global temperatures have increased by 0.19^{0}C, and since the period 1850-1900 by a best estimate of 1.07^{0}C. AR6 also mentions that the global average precipitation over land has *likely* increased since 1950, with a faster rate of increase since the 1980s. World-wide, CC has caused an increase in hot-extremes, heavy precipitation and agricultural and ecological droughts. The hot-extremes are well documented for East Africa, the changes in precipitation and agricultural droughts are as yet less clear for the region[5].

There is very broad scientific consensus that CC is primarily driven by human influence, and in particular by Greenhouse Gas (GHG) emissions. Since 2011, GHG concentrations in the atmosphere have continued to increase, reaching annual averages of 410 parts per million (ppm) for carbon dioxide (CO_2) alone, a

[4] Masson-Delmotte et al., (eds.) (2021), Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis.
[5] Ibid; see for example page 10

concentration higher than at any time in at least the last 2 million years[6]. There is a near linear relationship between GHG emissions and global warming. Therefore, future changes in the global temperature and climate depend to a large extent on the level of future GHG emissions.

To describe the impact of future GHG emissions, climate scientists developed four Representative Concentration Pathways (RCPs) with numeric codes (2.6, 4.5, 6.0 and 8.5) representing from low to high increasing radiation energy per square meter. More recently, models have been developed that capture how socioeconomic factors, such as technological development, population, economic growth, education and urbanisation may influence CC over the current century. These "Shared Socioeconomic Pathways" (SSPs) look at five different ways in which the world might evolve in the absence of climate policy and how different levels of climate change mitigation could be achieved when the mitigation targets of RCPs are combined with the SSPs. While the AR6 uses SSPs to describe possible future climatic developments, the current literature for Uganda is using the RCPs in their modelling of impacts.

Under all scenarios, global surface temperature will continue to rise until at least mid-century. Up to 2040, the best estimate of a global temperature increase is 1.5-1.6^{0}C for all SSPs, whereas the estimated range runs from 1.2 to 1.7^{0}C for SSP1 and 1.3 to 1.9^{0}C for SSP5. In the period 2040-2100, the SSP temperature scenarios start to divert considerably, stabilising to slightly dropping off under SSP1, and doubling to tripling under SSP5. With every additional increment of global warming, changes in extremes - for example the frequency and intensity of heat waves, heavy precipitation and agricultural droughts - continue to become larger and more variable [9].

Table 1: The 5 SSP scenarios [7]

- SSP1-1.9: a world of sustainability-focused growth and equality;
- SSP2-2.6: a "middle of the road" world where trends broadly follow their historical patterns;
- SSP3-4.5: a fragmented world of "resurgent nationalism";
- SSP4-7.0: a world of ever-increasing inequality;
- SSP5-8.5: a world of rapid and unconstrained growth in economic output and energy use.

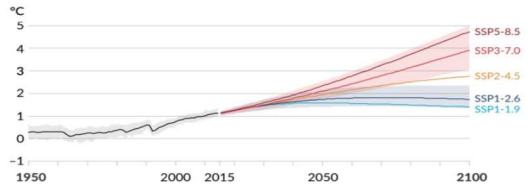


Figure 1: Global surface temperature change relative to 1850-1900[8]

Given the near certainty of the sustained global warming effect of historic GHG emissions for the next few decades, adaptation strategies, alongside GHG emission reduction and removal strategies, have become imperative to cater for its negative impacts.

Trends in Uganda

In Eastern Africa, CC is manifested so far primarily by the occurrence of higher temperatures and hot extremes, while there is limited data and agreement on changes in other CC phenomena, such as increased or more intense precipitation and agricultural and ecological drought.

Trends in temperature

The average temperature in Uganda has increased by 1.3^{0}C since the 1960s, or by 0.28^{0}C per decade. Notably, minimum temperatures have increased 0.5–1.2°C for this period, while maximum temperatures increased by 0.6–0.9^{0}C. Temperature observations since 1960 show significantly increasing trends in the frequency of the number of hot days, and much larger increased trends in the frequency of hot nights[10].

[6] Other important GHGs are CH_4 and N_2O, which atmospheric levels are higher than any time in the past 800,000 years
[7] https://www.carbonbrief.org/explainer-how-shared-socioeconomic-pathways-explore-future-climate-change (5/03/2022)
[8] Ibid, 2; page 22
[9] Ibid, 2; B.2.2, B.3.1 and B.3.2
[10] The World Bank Group (2020); Climate Risk Profile: Uganda

In the medium future, the mean annual temperature is projected to increase by between 1.0 (RCP2.6) and 3.1°C (RCP8.5) by the 2060s, and between 1.4 (RCP2.6) and 4.9°C (RCP8.5) by the 2090s[11]. Warming is likely to be greatest during the period June to August[12][13]. The temperature projections follow the global trend and are labelled 'near-certainty' for the next 2 decades under all RCPs.

Alongside the general rise in temperature, the number of very hot days (T_{max}>35^{0}C) is likely to increase, and the number of hot nights (T_{max}>26^{0}C) even more quickly. Under the medium/high emissions scenario RCP6.0, 13 more very hot days are projected per year in 2030 than in 2000, 26 more in 2050 and 39 more in 2080. In Northern Uganda, this amounts to about 150 very hot days per year by 2080[14]. This will have significant implications for human and animal health, agriculture and ecosystems.

On average, around 10% of the Ugandan population is expected to experience water scarcity in any given year, and that number can be substantially higher in a dry year[15]. Drought conditions in 2010 and 2011 caused an estimated loss and damage value of $1.2 billion, equivalent to 7.5% of Uganda's 2010 gross domestic product. Projected changing rainfall patterns and quantities, compounded by increasing heat conditions, are likely to exacerbate water scarcity situations.

Trends in rainfall

Precipitation in eastern Africa shows a high degree of temporal and spatial variability, caused by a diverse topography and a variety of interrelated climatic processes. In addition, different studies show different outcomes with respect to historic rainfall trends, with some claiming no robust and significant change during the last 60 years[16], while others mention a statistically significant reduction in annual as well as seasonal rainfall over the last decades.

Nevertheless, there seems to be consensus about a reduction in rainfall during the long rainy season (March-April-May - MAM), with some authors reporting decreases of 6.0 mm per month, per decade[17]. Decline in rainfall has been observed in some Northern districts: Gulu, Kitgum, and Kotido. While trends in extreme rainfall conditions are more difficult to define due to the lack of data and seasonal variability, droughts have increased in Uganda over the past 60 years. Specifically, over the past 20 years, western, northern and north-eastern regions have experienced more frequent and longer-lasting drought conditions[18].

For the medium-term future, the overall trend in rainfall emerging from different CC assessment reports varies from an 6% reduction[19] to a small increase in rainfall across the East African region[20]. Also, a shift is predicted in the rainy seasons due to a warming of the Indian Ocean and more frequent positive Indian Ocean Dipoles (IOD). Generally, positive IODs cause a decrease in rainfall during the MAM season[21], and more intense rainfall and an increased risk of flooding over central Kenya and Uganda during the October-November-December (OND) rains. The OND rains may be extended into January and February and the onset of the MAM season may be delayed[22]. This seasonal shift could have strong impacts on

[11] ACCRA (?); Climate trends in Uganda, the National Picture
[12] https://www.adaptation-undp.org/explore/africa (accessed 8 March 2022)
[13] The World Bank Group (2020); Climate Risk Profile: Uganda
[14] Tomalka J. et al. (2021?) Climate Risk Profile: Uganda; GIZ GmbH
[15] The World Bank Group (2019); Disaster Risk Profile Uganda Africa Disaster Risk Financing Initiative
[16] Caffrey P. et al., 2013: Uganda Climate Vulnerability Assessment Report; USAID (ARCC)
[17] Hunter, R. et al., 2020. Research Highlights – Climate Change and Future Crop Suitability in Uganda. University of Cape Town
[18] Ibid, Climate Risk Profile Uganda (2020)
[19] Ibid, Hunter et al.
[20] Ibid, Caffrey et al.
[21] Niang, I et al., 2014: Africa. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects.
[22] Ibid; Hunter et al.

agriculture, especially with respect to tree crops (e.g., coffee) and post-harvest activities such as drying and storage[23].

Some longer-term projections show that at the end of the 21st century there will be a wetter climate specifically along the northern coastline of Lake Victoria, with more intense wet seasons and less severe droughts during OND and MAM. This increase is likely to be accompanied by greater seasonal variation in rainfall patterns, a possible increase in the occurrence of intense precipitation events, and an increased frequency of drought. In addition, under a high-emission scenario (RCP8.5), annual precipitation is expected to decrease, notably in the northern and north-eastern areas[24].

The frequency of extreme events can increase as hydrological cycles intensify due to increased vapour holding capacity of a warmer atmosphere. Under RCP6.0, median climate model projections show an increase in the number of days with heavy precipitation from 8 in the year 2000 to 10 in the year 2080. Under RCP2.6, the number of days with heavy precipitation is projected not to change[25].

Climate Risks and Vulnerability in Uganda

Uganda has contributed minimally to the build up of human-derived GHG emissions, and yet out of 182 countries it ranks 10th in terms of vulnerability to CC.

In the past 4 decades, floods accounted for most natural disasters, with both flash floods and slow-onset floods very common in urban areas, low-lying areas and along riverbanks and swamplands (Figure 2).

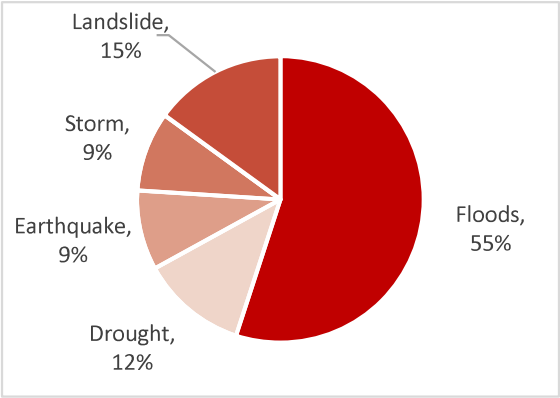


Figure 2: prevalence of disasters (1985-2021)[26]

According to the Ministry of Water and Environment, disasters such as floods and landslides are caused by more *intense* rainfall. Eight out of the 10 most severe floods and droughts in terms of numbers affected since 1900 have occurred during the last 20 years[27]. The impact of heavy rainfall has led to more deaths and damage due to expanded infrastructure, degradation of wetlands, and the gradual expansion of human settlements on steep slopes, especially in the Mount Elgon region. Each year, floods impact nearly 50,000 people and costs over $62 million. In urban areas flood damage buildings and cause loss of life because of rapid and unplanned developments and weak enforcement of zoning and building codes. Droughts, on the other hand have affected the largest number of people in the last few decades. The 2016/17 drought on its own impacted on more than 1 million persons, and caused a significant economic growth slowdown for several years.

Disaster risks, whether caused by CC or not, are estimated by the chance of a hazard occurring, the presence of people and assets that are potentially exposed to the hazard, and their vulnerability to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and the (lack of) capacity to cope and adapt[28].

In the context of CC, climate risks are primarily driven by change in temperatures (mean temperature and number of heat days), precipitation (amount and distribution) and extreme weather (heat waves, downpours and storms) events. The Climate Risk and Vulnerability Assessment of UNCDF[29], released in

[23] Ibid, Caffrey et al.
[24] Ibid, 4, Climate Risk Profile, Uganda (2020)
[25] Ibid, 4; Tomalka et al.
[26] International Monetary Fund (2022); Uganda: selected issues
[27] Ministry of Agriculture, Animal Industries and Fisheries (2018); Uganda National Adaptation Plan for the Agriculture Sector
[28] UNCDF (2021); Climate Risk and Vulnerability Assessment; Local Climate Adaptive Living Facility
[29] Ibid

November 2021, disaggregates drought and flood hazards to district level, and overlays it with a vulnerability assessment based on sensitivity and adaptation capacity.

The indicators used for determining adaption capacity are considered the same for droughts and floods, and include, for example, access to health infrastructure, and various poverty metrics. For many of these indicators Northern Uganda scores moderate to low as compared to most other regions, apart from Karamoja (Figure 3). IFAD[31] followed a slightly different definition of adaptive capacity for the four main regions in Uganda, based on education level, access to agricultural information and adoption of improved agricultural practices. Also in their analysis, Northern Uganda ranked by far the lowest of the four regions.

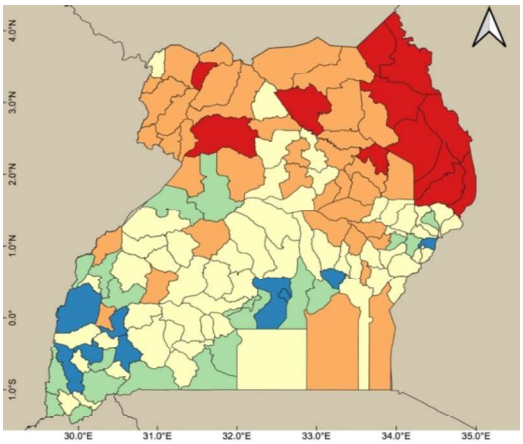


Figure 3: normalised adaptation capacity for drought and floods (very low (red) to very high (blue))[30]

Combining the analysis of hazards, sensitivity and adaptation capacity, IFAD produced a Risk Assessment for the medium (RCP4.5) and high (RCP8.5) CC scenarios. Medium-term projections of drought risks are shown in Figure 4. Under the RCP4.5 scenario, Uganda's entire northern half, but also parts of Central and South Uganda, face a significant drought risk in the future. For the longer term and more severe RCP scenarios (not shown), Northern Uganda's drought risk remains significant, apart from Zombo and Maracha districts, which remain classified as moderate. Climate change is also expected to increase the risk and intensity of flooding.

In the past four decades (1985-2021) floods accounted for most natural disasters, with both flash floods and slow-onset floods very common in urban areas. None of the district in Uganda falls in the severe flood risk category now and in the future (Figure 5), however, a number of districts increase their risk category to from moderate to significant by 2030. This is notably the case in some districts in West Nile, as well as in Central Uganda.

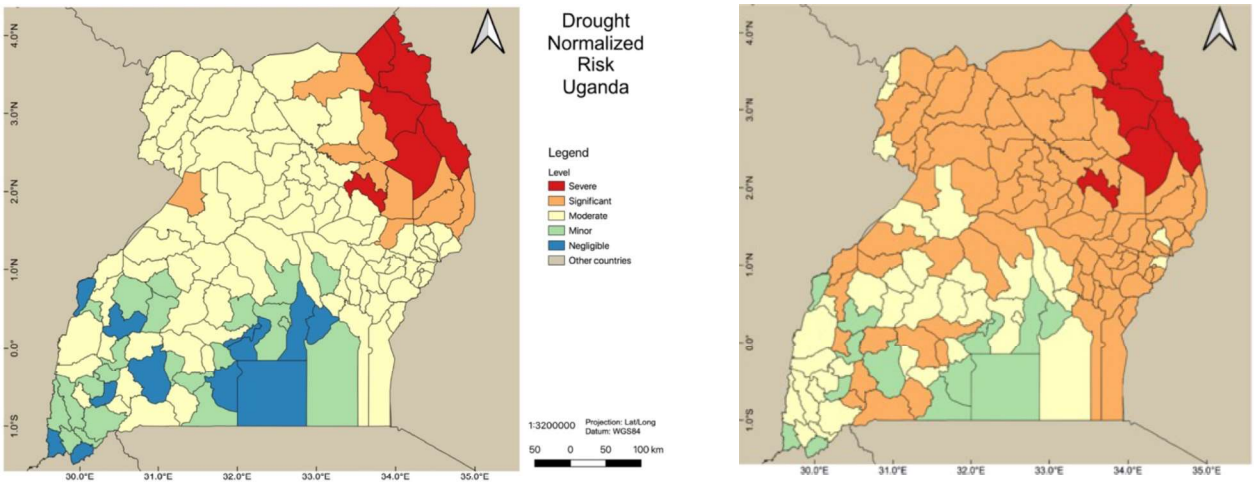


Figure 4: Current normalised drought risk (left) and the 2030-2039 drought risk under RCP4.5 (right)[32]

[30] Ibid
[31] Ibid, 4; Hunter et al.
[32] Ibid, 5; Climate Risk and Vulnerability Assessment (2021)

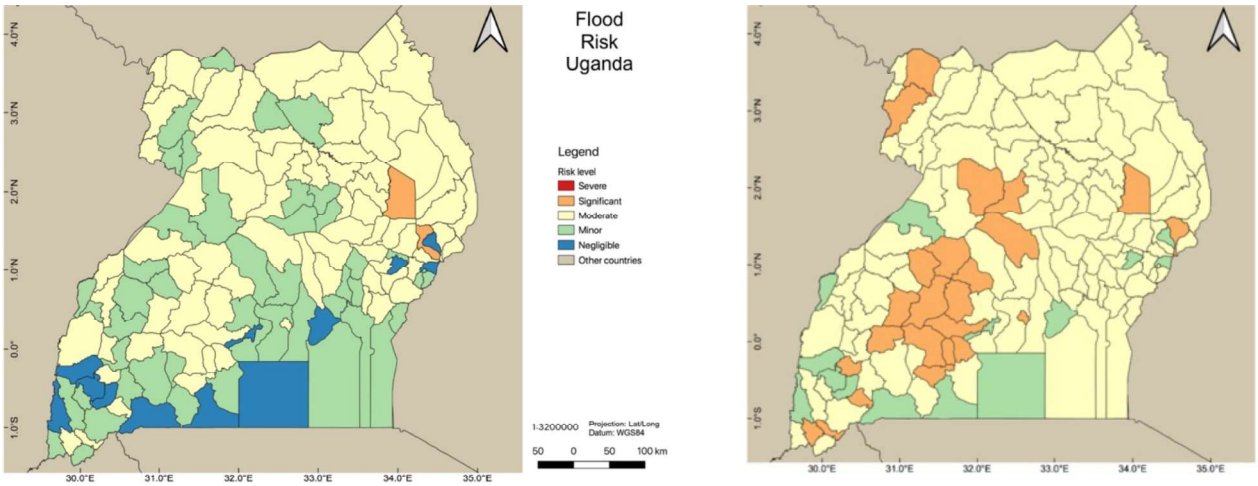


Figure 5: Current normalised flood risk (left) and 2030-2039 flood risk under RCP4.5 (right)[33]

Climate Change Impacts

Costs to the Economy

Droughts and floods often have persistent macroeconomic effects. The IMF estimates that across Africa droughts cause 0.3% GDP growth loss, and floods 0.4% in the year that they occur. But two years later, the impact is still seen, because of the wider economic and fiscal impacts the disaster has, such as lower tax revenue, disaster relief spending and rebuilding of damaged infrastructure[34].

Climate change is predicted to have a significant impact on Uganda. A study commissioned by the Climate and Development Knowledge Network (CDKN)[35] in 2015 shows that without any adaptive action, annual costs could be in the range of US$3.2 - 5.9 billion within a decade (that is by 2025), with the biggest impacts being on water, followed by energy, agriculture, and infrastructure. The economic impacts of climate change are closely interconnected with economic growth. Under a high-level growth path, the damages might reach 2-4% of GDP by 2050. Even if there were no further increases in climate impacts, the cost of inaction would rise over time because of an increase in population. Poor and vulnerable groups are mostly likely to be impacted through damages to their assets, livelihoods and their food security.

Table 2: The cost of inaction to CC to the agriculture and infrastructure sector 2010-2050 for two CC scenarios in million USD[36]

Year	2025		2050		Total	
Scenario	RCP4.5	RCP8.5	RCP4.5	RCP8.5	RCP4.5	RCP8.5
Agriculture						
Food Crops	157	313	750	1,500	12,000	23,000
Livestock	2	4	10	20	200	300
Export Crops	134	196	641	938	10,000	15,000
Total agriculture	293	513	1,401	2,458	22,200	38,300
Infrastructure						
Extreme event damage	34	429	234	3,236	3,610	48,369
Lost resilience	60	76	347	621	2,868	4,378
Total Infrastructure	94	505	581	3,857	6,478	52,747

Table 2 summarises the costs for agriculture and infrastructure in the face of inaction. For the agriculture sector, the largest impact is on food crops, which shows a wide range between the two CC scenarios, and

[33] Ibid, 5; Climate Risk and Vulnerability Assessment (2021)
[34] Ibid, 5; Uganda, selected issues.
[35] Ministry of Water and Environment (2015); Economic Assessment of the Impacts on Climate Change in Uganda
[36] Ibid, 6

a rapid increase after 2025. While losses as a percentage of GDP are not large, they are significant relative to the size of the sector. The impact on livestock is estimated to be rather small, but this may also reflect the lack of understanding on the response of livestock to CC. For the export crops, coffee, and in particular the arabica variety, will see the greatest losses. Given the vulnerability of the rural population, the implications of the losses for poverty and wellbeing are high[37]. For the infrastructure sector, the costs do not include the normal wear and tear on infrastructure because of CC, but only the cost of damage by extreme events and the costs of making infrastructure more resilient against climate impacts, and the additional maintenance costs to avoid future damage by the then prevailing climate.

Climate adaptation is not cheap. The CDKN report estimates the cost for Uganda over USD 100-150 million per year for the next 10 years, which is 3.2% of total government revenues. Of this, agriculture will consume around 12% and infrastructure 28%. While these are substantial amounts in relation to the Ugandan economy and revenues, the cost of inaction is estimated to be 26 to 46 times more[38]. Simulations show that investing in adaptation is cost-effective, if only because it reduces post-disaster relief and reconstruction funding. Financing in CC adaptation, also by the donor community, therefore makes perfect economic sense.

The remainder of this chapter focuses on the impact of climate change on NURI related interventions, i.e. agriculture and road and water infrastructure.

Agriculture

Risks

Africa's food production systems are among the world's most vulnerable because of extensive reliance on rainfed crop production, high intra- and inter-seasonal climate variability, recurrent droughts and floods that affect both crops and livestock, and persistent poverty that limits the capacity to adapt[39]. This general statement from the IPCC, applies directly to the operational area of NURI, and even more so than to most other areas in Uganda. It should, however, be realized that climate change in Africa will have an overall modest effect relative to other drivers of risks, such as population growth, urbanization, agricultural growth, and land use change[40]. For example, assuming a constant population, projections of future water availability show no change under RCP2.4 and an 18% reduction under RCP6.0. Yet, when accounting for Uganda's population growth, per capita water availability in Uganda will have reduced by 80% across all RCP scenarios by 2080[41]. CC adaptation measures need therefore be designed and executed together with measures to deal with non-climate related stressors.

Higher temperatures and droughts have multiple and compounding impacts on agricultural production systems. The manner in which a crop is affected by CC depends on its phenological characteristics. In rainfed smallholder agriculture, the optimal conditions for growth and production are rarely present throughout the crop's production cycle. Fortunately, most crops will still produce under suboptimal conditions. However, CC may aggravate these suboptimal conditions even further. Higher soil temperatures, for example, will cause higher soil moisture evaporation and aridity, and an accelerated breakdown of organic matter. This, in turn, will reduce the soil's water holding capacity, and make the topsoil vulnerable for erosion due to dust forming and water run-off during downpours. CC, therefore, potentially accelerates ongoing soil degradation, with a knock-on effect on crop yields.

Rising temperatures are also expected to increase suitable conditions for crop diseases and pest infestations such as blast and bacterial leaf blight in rice, aflatoxin in maize, fungal and viral diseases in

[37] Ibid, 6
[38] Ibid, 6
[39] Ibid, 4; Niang et al.
[40] Ibid, 4; Niang et al.
[41] Ibid, 4; Tomalka et al.

banana and beans, and coffee rust in coffee trees, which may offset the increased production potential because of increased rainfall. Also, changing growing seasons, and in particular shorter grower seasons may alter the occurrence and distribution of pests and diseases[42].

Heavy downpours and flooding may damage property and infrastructure, and may result in water logging of crops, decreasing yields and increasing food insecurity. Furthermore, land degradation and soil erosion, exacerbated by recurrent floods and droughts, adversely impact agricultural production, further affecting the livelihoods of the smallholder farmers[43]. Various analyses show that the impact on agriculture because of extreme events, such as floods and droughts, is likely to be bigger than the general reduction in yields[44].

Caffrey (2013) analysed the vulnerability of eight important crops in Uganda to the impact of CC (Figure 6). Cassava and sweet potatoes showed the least vulnerability to higher temperatures and erratic rainfall patterns. However, while cassava and sweet potatoes tolerate CC relatively well, both crops are also highly vulnerable to pests and diseases. Little is known about the possible interaction between crop diseases and CC, but the increasing unpredictability of precipitation and extreme events could be a significant challenge to the production and preservation of planting materials during the dry season. Without access to clean planting material, these crops can become highly vulnerable[45].

Other important crops for Northern Uganda, such as sorghum and beans fall somewhere in the middle of the vulnerability scale, while arabica coffee, grown in Nebbi and Zombo, is most vulnerable. For coffee and other perennial / tree crops, an additional complication in adapting to CC is the long lead time and relatively high investments before they get into commercial production. For example, coffee takes 3-4 years to reach full production capacity, while commercial production forests take 15-20 years. Over such a period of time the climate may have changed, or better suited varieties may have become available, making the initial investment unviable.

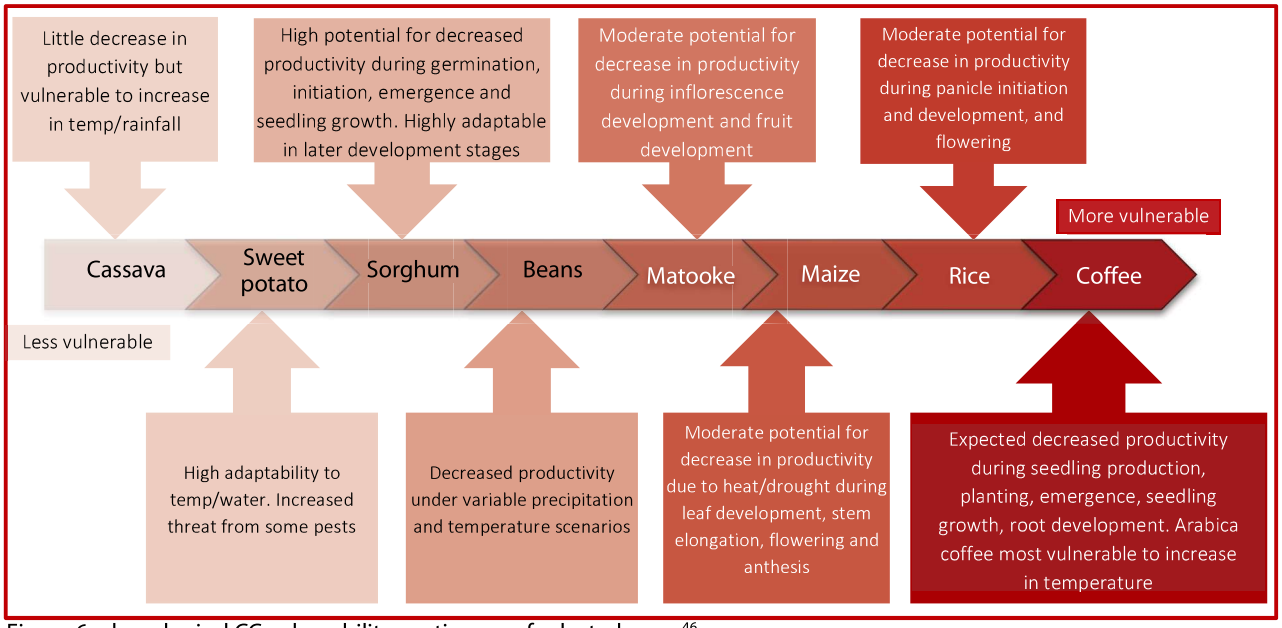


Figure 6: phenological CC vulnerability continuum of selected crops[46]

A quantitative approach in analysing the impact of CC on six selected crops was taken by IFAD (Table 3), using a crop suitability index generated by EcoCrop for the RCP8.5 scenario. The authors emphasized that

[42] Ibid, 4 Caffrey et al.
[43] Climate Risk Profile: Uganda (2020)
[44] Ibid, 6; Economic assessment of the impact of climate change in Uganda
[45] Ibid, 4; Caffrey et al.
[46] Ibid, 4; Caffrey et al.

the outcomes are indicative and are primarily meant to inform local decision making. Their findings show that beans, cassava and maize are predicted to experience moderate to severe decreases in production. For Northern Uganda, the predicted decrease in bean suitability is substantial and worrying, given the importance of beans in the local diet and its dietary value as a source of protein. The authors recommend to promote the adoption of a variety of bean cultivars and other legume species, such as cowpeas and groundnuts, which are expected to be relatively resilient to CC.

The reduced suitability of cassava in Northern Uganda, albeit small, is also worth noting. The estimated drop in production in Northern Uganda is being offset by increased suitability in other regions, resulting in a net positive production potential. Being an important food security crop, efforts should be geared towards providing better disease resistant varieties, and farmer training.

Table 3: changes in agricultural production (% and kg) and value (USD) of 6 crops due to CC in Northern Uganda and nationally (MT and USD)

Change	Northern Uganda				National	
	% / person	Kg / HH	USD / person	USD / HH	MT	USD
Beans	-23	-112	12.9	67	116,400	69.8
Cassava	-5%	-86	4	19	44,200	9.5m
Groundnuts	0% or minor +				-3,611	3.5m
Maize					-89,000	31m
Sesame	0% or minor +				3	?
Soybean	0% or minor +					

The various crop-level analyses seem to suggest that in the short to medium term CC will not have a major impact on Uganda's national food-security. However, at HH level smallholder farmers will be increasingly exposed to shifting seasons and less predictable weather, which is likely to increase the frequency of low yields or failing crops, and low crop production quality. Extreme events, such as heat waves, may particularly affect the livestock sector, and in particular beef and dairy cattle.

Adaptation strategies

During the last decade there has been a shift away from promoting technological solutions towards building resilience by offering a diverse range of adaptation options to the multiple livelihood-vulnerability risks[47]. For example, while irrigation is often mentioned as an option for smallholder farmers to deal with CC, for many in Northern Uganda this is probably not an immediate or viable solution to deal with multiple CC stressors. Access to sufficient quantities of water is limited and the cost of installing and managing even a small-scale irrigation system is for the, mostly, semi-subsistence farmers in Northern Uganda prohibitive. In some cases, the construction of small reservoirs, for example in combination with road drainage works, can help to foster diversification towards irrigated high-value horticultural crops, or to provide for drinking troughs for cattle. Such investments are more beneficial if they go hand in hand with improved access to inputs and markets.

Both Caffrey (2013)[48] and Niang (2014)[49] found that in the absence of affordable technological solutions, farmers are already designing their own coping strategies: by shifting planting dates, changing their crop varieties and crop mix, planting additional crops, and investing in livestock and fruit trees. HHs also look for short-term other sources of income outside agriculture, and for the longer term invest in the education of their children, or migrate off the farm. The greater the income diversity of a HH, the higher the ability to adapt to CC by managing a more diverse agricultural portfolio, planting more crops and investing more in livestock.

The lesson is that the most feasible short to medium-term coping strategy for smallholder farmers is to diversify the farming system and cropping pattern, and to take basic agronomic actions to cater for rising

[47] Ibid, 4: Niang et al.
[48] Ibid, 4; Caffrey et al.
[49] Ibid, 4: Niang et al.

temperatures and agricultural droughts. Intercropping, agroforestry, measures to capture (ridging, micro-catchments, run-off harvesting) and retain (mulching, minimum tillage, cover crops) moisture, improve soil fertility and reduce water run-off, the inclusion of shade trees (in coffee) and woodlots on the farm, should become an integral part of farmer training. In addition, proper post-harvest handling techniques and improved local storage systems, such as plastic or metal silos and triple-sealed plastic bags, are instrumental in supporting families during the lean period, to prevent the sale of assets to buy food when market prices are higher. Many of these are low-cost and simple low-regrets adaptation measures that reduce people's vulnerability to current climate variability, have multiple developmental benefits, and are well-positioned to reduce vulnerability to longer-term climate change as well[50].

Many of the above far-based practices have been increasingly promoted in various forms and various terminologies during the last decades: conservation agriculture, sustainable agriculture and, more recently, regenerative agriculture are all agricultural production approaches that intend and claim to deal with the negative effects of 'modern' industrial agriculture on soils, ecosystems, biodiversity, climate, dietary diversity, food security and farm income. More recently, the term Nature-based Solutions (NbS) is used as an umbrella concept to cover a range of ecosystem related approaches to protect, sustainably manage, and restore natural or modified ecosystems, such as agriculture production systems. In the context of NURI interventions NbS across the three NURI Outputs would possibly fall primarily in the managed production systems and artificial landscapes.

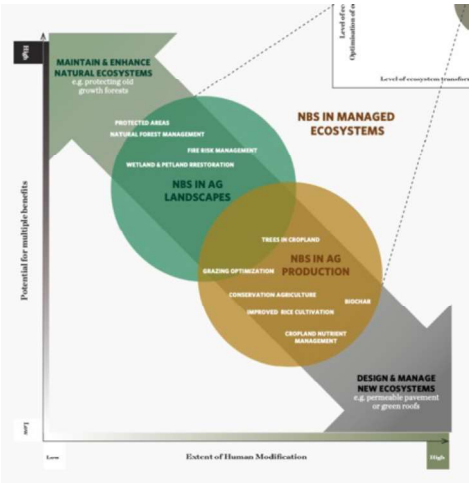


Figure 7: the spectrum of ecosystem conditions in which NbS can apply[51]

The NbS concept also shows that, in addition to farm-based solutions, climate actions often require a more holistic landscape approach, whereby communities are mobilised and trained to protect, restore and manage the commons, such as wetlands, forests and grazing lands for the benefit of all. In this wider context, NbS may provide a framework for action, in conjunction with other types of strategies, for example regional or watershed planning, policy making, or economic development, to achieve societal purposes[52]. Often this also requires stricter enforcement of environmental laws, especially for wetlands and water bodies, soil and water conservation measures, and investments in reforestation. Together, they will increase drought and floods resilience, enhance soil water holding properties, and contribute to emission reduction through carbon sequestering[53].

These measures require a reorientation of the extension service and farmers alike, with a greater emphasis on a farming systems and landscape approach rather than on individual crop production maximalisation. While such adaption strategies are location specific and implemented at farm or local level, the identification and dissemination of adaptation options, and promoting and enabling their adoption, requires a strong national effort[54]. In turn, this creates opportunities to enhance awareness amongst policy- and decision makers that maintaining ecosystem functions underpins human survival and development in a most fundamental way, and to motivate to think about new development paradigms and trajectories.

[50] Ibid. 4: Niang et al.
[51] Iseman, T. and Miralles-Wilhelm, F. (2021). Nature-based solution in agriculture – The case and pathways for adoption
[52] Ibid
[53] Ibid, 6; Uganda, selected issues
[54] Ibid, 4; Caffrey et al.

Rural Infrastructure

CC induced flooding and droughts may have a significant impact on Uganda's infrastructure. Transport infrastructure is essential for social and economic development. Roads serve communities to access health, education and financial services and household goods, and to trade their agricultural produce. At the same time, roads and bridges are vulnerable to flooding and deteriorate quicker under high and fluctuating temperatures. Road design, including the design of community access roads, will need to take these potential stressors into consideration. This may lead initially to more expensive designs, but when assessing the costs over the entire life cycle of the road, the higher upfront costs may be offset by the lower annual costs of maintenance and repairs. Also, the economic costs of a road shut down as a result of a weather /climate hazard, in terms of disrupted supply chains and access to services, must be taken into consideration when evaluating road design options[55].

Specifically, the road materials selected, and aspects of road design and improvement, will affect the sensitivity of the road and its users to climate variability and change. A thorough CC risk analysis helps to ensure the long-term viability of the road and its ability to provide services even during extreme weather events. Here, choices need to be made between 'soft path' and 'hard path' approaches, whereby softer, low-regret approaches, such as using wetlands for flood risk management vs dams and embankments, are often cheaper, easier to maintain with locally available resources, and more pro-poor[57].

Table 4: impacts of CC on roads and possible adaptation measures[56]

Impacts of CC on roads	Possible adaptation measures
• Higher intensity heat waves make pavement soften and expand. • Heavy storms and flooding increase erosion, make the road impassable, increase maintenance costs, and reduce the life expectancy of the road	• Choose sites for new roads that are at lower risk of flooding • Design roads with increased drainage capacity; or, leave more room on the shoulder to increase drainage capacity later as needed • Choose materials that are less likely to be damaged by heat, or permeable pavement to reduce water pooling and flooding

At the same time, road construction should be done in such a way to minimize greenhouse gas emissions, for example by the efficient operations of equipment, and minimizing the removal of trees and bushes by climate-smart road routing. Limiting road access to undisturbed forest land and protected areas also helps maintain the benefits of natural ecosystems, including atmospheric carbon sequestration by trees and other natural cover[58]. Rural road construction could also contribute to carbon sequestering directly through incorporating grasses, trees and woodlots in embankments and road reserves.

Markets, HHs and farm infrastructures are also exposed to CC hazards. They may become vulnerable to storm damage, uncomfortable, or even dangerously hot during heat waves and very hot days. Improved designs would include optimal ventilation, adequate stormwater drainage and storage facilities, and climate-smart compound design to maximise shade, natural ground cover and windbreaks. Also, the location of the infrastructure in relation to potential future flood hazards must be carefully evaluated. Climate resilient designs need not only be incorporated in specifications and bill of quantities for contractors, but should also be incorporated in agriculture and health training programmes offered to rural households, extension staff, village health teams and local leaders and politicians.

[55] Cervingni, R. et al., (2017); Enhancing the Climate Resilience of Africa's Infrastructure: The Roads and Bridges Sector
[56] Rural Roads (2003 -partial update 2018); Sector Environmental Guidelines; USAID
[57] Ibid, 4: Niang et al.
[58] Ibid, 9; Rural Roads (2003 -partial update 2018)

Equity and Gender

Not all smallholder farming HHs are equally well positioned to deal with CC and adaptation. More vulnerable HHs are those with many of the following characteristics[59]:

- More likely to be headed by females;
- Lower proportion of able-bodied (working) members;
- Less well educated;
- Less likely to sell a portion of their crops or livestock;
- Less access to loans;
- Participate less frequently in community groups such as producer associations, cultural or labour savings groups, and religious organizations; and
- Earn income less frequently from off-farm sources (and when they do, that income is less than the amount that more secure households earn).

These characteristics are directly related to economic and social poverty, and such HHs will, naturally, be more risk adverse, have a smaller social network to fall back on when things get difficult, and have less money to invest in adaptation. They may also be the last to be informed about upcoming hazards, and the least informed about adaptation options. In Northern Uganda, this group may be particularly prevalent amongst refugees. The consequence is that special efforts are needed to include such HHs in the design and decision-making around CC adaptation, and that adaptation options must be sufficient diverse and flexible to cater for the variety of HHs and their capabilities to implement them.

The above list also shows that, although CC affects all smallholder farmers, it is not gender neutral. Apart from the first bullet, which is 100% gender related, most of the other characteristics also apply disproportionally to women. In addition, research has shown that women have different priorities and use different methods and strategies to adapt to climate change[60]. Moreover, there is increasing evidence that because rural women are more reliant on natural resources, they have both the knowledge and the desire to act as stewards of them and the environment[61]. Therefore, their inclusion in decision making processes at all levels is critical for effective climate action, and adaptation.

Special attention needs to be given to vulnerable HHs, be it refugees, female headed HHs, or poverty-stricken families. Their priorities are different and their options to adapt to CC are limited. This is not to say that they should just get a special status or treatment, but more importantly that they should be encouraged to actively participate in policy development and decision making. A diverse mix of different interest groups, women and men, old and young, rich and poor, under appropriate leadership is likely to come up with the best mix of adaptive innovations[62] for a specific location.

Lastly, smallholder farmers are not just victims of CC. They have longstanding traditional mechanisms of managing variability through, for example, crop and livelihood diversification, migration, and small-scale enterprises, all of which are underpinned by well-developed social networks, and indigenous knowledge systems[63]. These mechanisms should be recognised for what they are, and effectively used and enhanced as a first line of defence against the CC challenge.

[59] Ibid, 4; Caffrey et al.
[60] https://gsdrc.org/topic-guides/gender/gender-and-climate-change/ (accessed on 9 March 2022)
[61] Bahous, S. S., and Adekemi Ndieli (2022); New Vision, 8 March 2022
[62] Ibid, 4; Caffrey et al.
[63] Ibid, 4: Niang et al.

Conclusions

Disaster Risks Assessments (DRA) and Climate Risk and Vulnerability Assessments (CRVA) are not in short supply for Uganda. Since the beginning of the previous decade, a wide range of ever more sophisticated assessments have been made, fed by ever more sophisticated climate models and comprehensive analyses. As a result, the level of certainty about the impact of CC on global and local temperatures, and to a lesser extent rainfall amounts and patters has increased substantially.

The Government of Uganda has been highly involved in and responsive to CC action as well. Uganda signed and ratified both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP) and signed and ratified the Paris Agreement thus committing itself to the adoption and implementation of policies and measures designed to mitigate climate change and adapt to its impacts.

A National Climate Change Policy was prepared in 2018 by the Climate Change Department of the Ministry of Water and Environment, and a comprehensive Risk and Vulnerability Atlas was produced under the responsibility of the Office of the Prime Minister. The Ministry of Agriculture, Animal Industries and Fisheries produced a National Adaptation Plan for the Agricultural Sector. This desk study intends to bring all these efforts these together, overlay them with global insights and lessons, and give them a Northern Uganda focus.

Not all CRVAs arrive at the same conclusions. There is a broad consensus about rising temperatures, up to or slightly over 1.5^{0}C in around 20 years from now, and up to 5^{0}C by the end of the century in the worst-case scenario. Also, the expected increase in hot and very hot days, and nights is very likely to happen. The trend in rainfall is less clear, with some documents reporting a drop of 6% and others a small increase in the next 3 decades. Two things, however, seems to be rather likely: a shift in seasons, with more and longer rains in the OND season stretching to December and January, and a shorter MAM season; and secondly more extreme rainfall events. In all the scenarios, Northern Uganda will become hotter, and less wet than the south of the country.

The impact of CC on smallholder agriculture in Northern Uganda is also not entirely clear. For some crops, such as coffee, beans and maize, the growing conditions will become less suitable, but the impact on the local oil crops, sorghum, millet and cassava is, according to most of the models, manageable. However, the uncertainty around some of these projections require that smallholder farmers are taking actions now to make their farms climate smart. Many of them are already doing so, but they need broad support in terms of information and advice to diversify their enterprises, and build more resilient farming and cropping systems. They also need access to climate proof varieties, suitable agroforestry and tree species, farm inputs, and finance.

To improve their adaptive capacity and resilience, smallholder farmers need to be encouraged to strengthen their asset base. Financial assets can be improved by encouraging saving and loans schemes, crop insurance and asset purchase programmes, for example for cattle or oxen. Their human capital is built through training programmes and access to information and knowledge. With modern ICT technology, this can be done more efficiently and permanently than ever before. This is in particular relevant for privatised agricultural advisory service provision, input supply and marketing. Social assets consist of social and business networks, such as family and community ties, market linkages and linkages with local and national policy makers and researchers, and through farmer groups, or local cooperatives. Such linkages are crucial to spread risks, move information up and down the decision-making chains, and to build resilience beyond the HH and farm.

Ecosystem and landscape-based approaches, as promoted by the Nature-based Solutions standard, and pro-poor integrated adaptation-mitigation initiatives hold promise for a more sustainable and system-

oriented approach to adaptation, as does promoting equity goals, key for future resilience, through emphasizing gender aspects and highly vulnerable groups.

Implementing adaptation as a participatory learning process enables people to adopt a proactive or anticipatory stance to avoid "learning by shock". This is a time-consuming and costly process for development managers, and has its own challenges and set-backs. Information and communication technologies, including mobile phones, radio, and the internet, can play a role in facilitating participatory learning processes and helping to overcome some of these challenges.

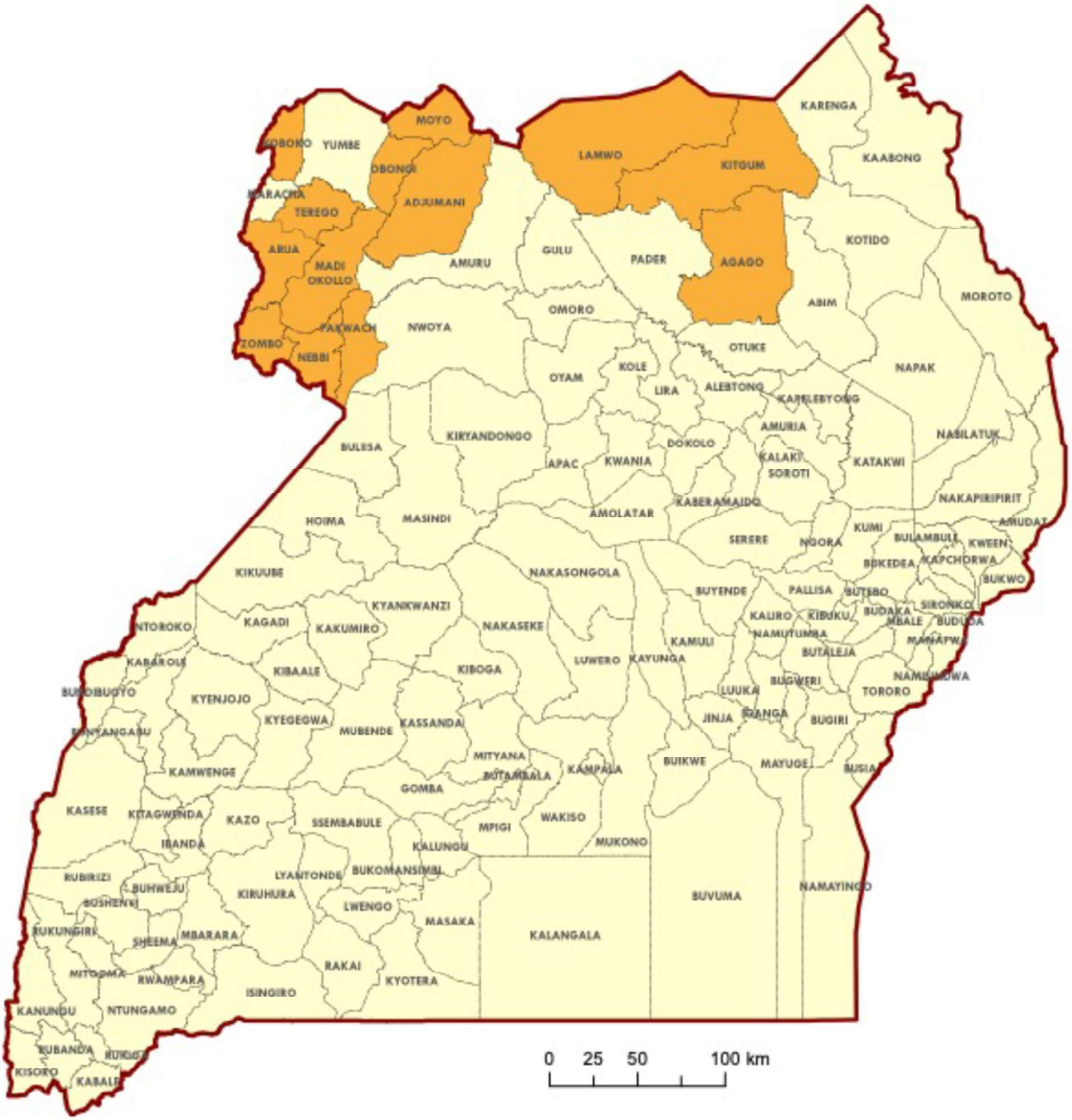
Niang et al. (2014) [64] identifies five common principles for adaptation and building adaptive capacity:

1. supporting autonomous adaptation through a policy that recognizes the multiple-stressor nature of vulnerable livelihoods;
2. increasing attention to the cultural, ethical, and rights considerations of adaptation by increasing the participation of women, youth, and poor and vulnerable people in adaptation policy and implementation;
3. combining "soft path" options and flexible and iterative learning approaches with technological and infrastructural approaches and blending scientific, local, and indigenous knowledge when developing adaptation strategies;
4. focusing on building resilience and implementing low-regrets adaptation with development synergies, in the face of future climate and socioeconomic uncertainties; and
5. building adaptive management and social and institutional learning into adaptation processes at all levels.

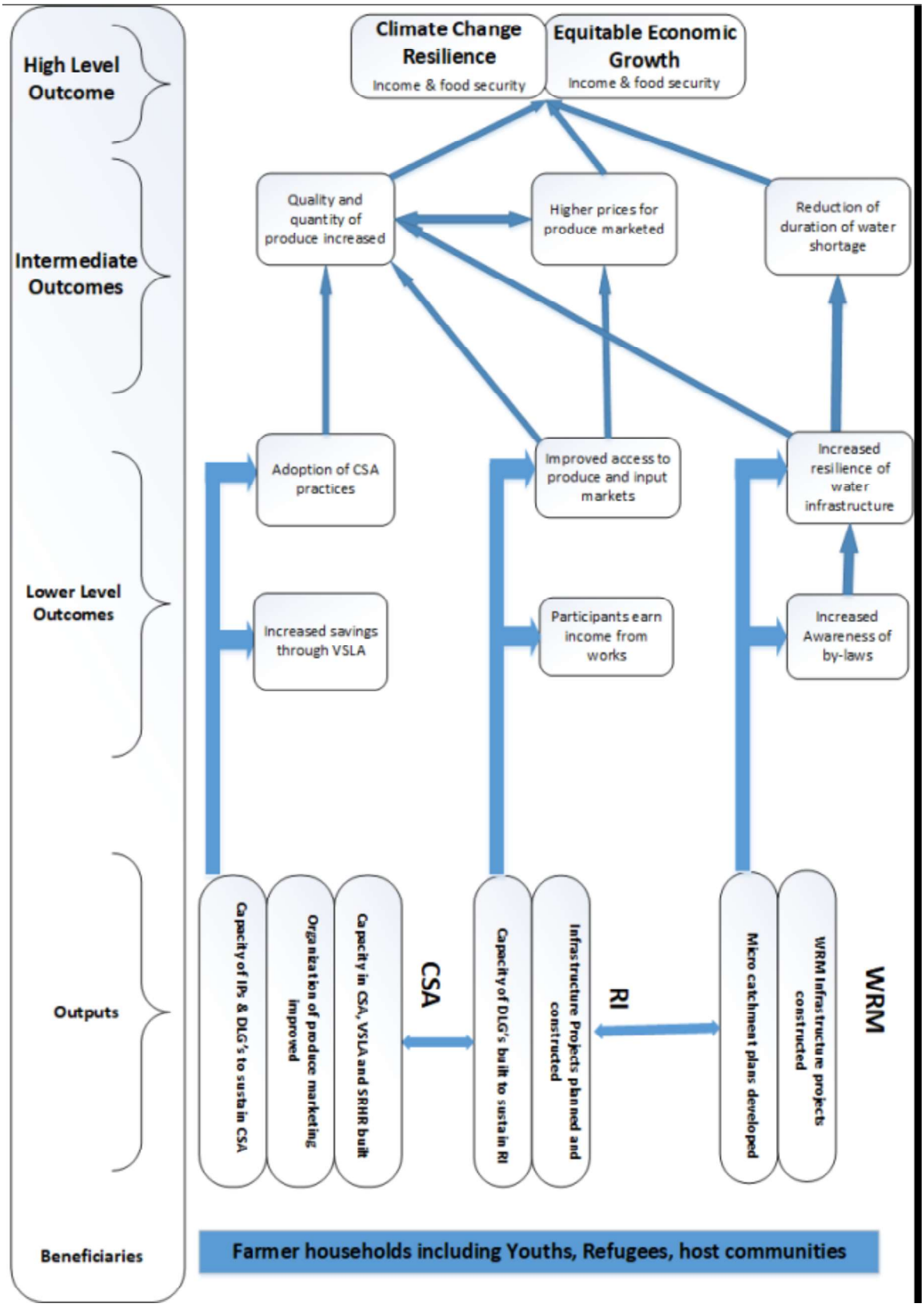
NURI is largely operating according to the principles and practices outlined above. For the remaining implementation period, mainstreaming these into the local policy- and decision-making organs, and within the beneficiary communities is critical to ensure that current benefit streams derived from the programme continue to flow beyond 2023.

[64] Ibid, 4; Niang et al.

Annex 1: Operational area of NURI



Annex 2: Theory of Change of NURI



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NURI Extension Brainstorming Workshop

Workshop Report

Date and time	17th February 2022 –8:45 am to 5:30 pm
Venue	Arua, Muni University conference center, and virtual participation
Participants	**RDE**: Ole Dahl Rasmussen, Victor Vuzzi Azza, Mikkel Bagger
	NURI CF: Rilla Kirk (PMA), Joseph Ebinu (NPC), Otim Francis (RC Acholi), Jimmy Arubaku (SE)
	NURI CSA: Coordinators: Charles Ochang (Kitgum/Lamwo), Simon Peter Ocitti (Agago), Assistant Coordinator: Jerry Nyeko (Lamwo), CSA Coordinators: Joel Bayo (Moyo), Dan Evans (AFARD), Tahiri Musema (Koboko), Dorothy Atimango
	NURI RI/WRM: DRC – Martin Malinga (Team Leader), Andrew Ebic (Water Engineer), Hilda Dribareo (Coordinator NWNile), Habert Atatyo (Resilience Coordinator)
Additional Presenters	Daisy Hessenberger (IUCN), Henning Nohr, AUXFIN
Facilitator	Reint Bakema, Consultant
Purpose of the workshop	Provide input into the amendment of the NURI implementation plan for the extension period with a special focus on • Strengthening climate change adaption and specifically Nature-based solutions • Strengthening the sustainability of interventions
Use of the workshop outcomes	The workshop contributes to the documentation required to justify and prepare for the extension of NURI up to December 2023. This documentation includes • a rapid assessment of climate change and associated risks and vulnerabilities in the NURI implementation area • an updated results framework • a note with a description and justification explaining how the existing and new activities address the context- and location- specific climate change vulnerabilities, as set out in the rapid assessment
Workshop approach	The morning session was dedicated to identify opportunities for strengthening Climate Adaptation Interventions of NURI, and assess the role of Nature-based Solutions in this. For the latter, IUCN presented the concepts, standards and examples of NBS worldwide through a zoom connection. For each of the three intervention areas of NURI, groups of 4 – 5 participants developed and presented options, which were discussed and commented upon in plenary. The afternoon was dedicated to identify or adapt NURI interventions so as to ensure that benefits streams will continue, and preferably expand, beyond the project. This included a primer on sustainability concepts (Ole Rasmussen), presentations on sustainability pilots, AuxFin, and a brainstorming session by sub-groups to identify specific actions, which were discussed and commented upon in plenary.

Greening NURI

Session 1: poll findings from IMC workshops (Mikkel Bagger, EoD)

Mikkel presented the outcome from two Implementation Monitoring Committee (IMC) workshops held in November 2021 (Annex 1). The workshops' focus was on strengthening climate adaption interventions in NURI. The following key points were made:

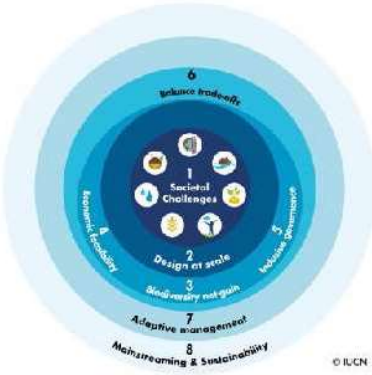
- All participants agreed that signs of climate change are prevalent in Northern Uganda;
- The participants scored 3.7 on a scale of 5 at NURI's overall climate adaptation efforts;

The table below shows the climate adaptation ideas that were generated during the workshops.

HHs and groups level	Public and private institutional	NURI operational level
mindset change	mindset change	electric motorbikes and cars
energy saving technology	weather information	
farm diversification, including perennials	early warning	
small-scale irrigation (solar pumps)	commercial extension services	
tree planting and agroforestry	commercial agroforestry	
animal traction	agro-financing through SACCOs	
bee-keeping	environmental legislation by LGs	
VSLA-PMP	tree planting along roads	

Session 2: presentation on Nature-based solutions (Daisy Hessenberger, IUCN)

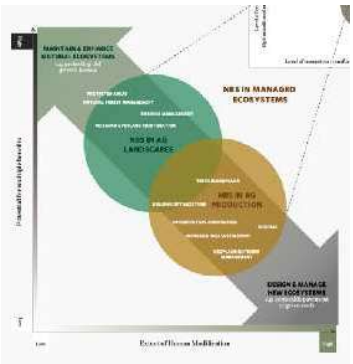
The presenter made the following core points relevant to NURI (Annex 2):



- Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits. IUCN developed a NBS standard, consisting of 8 criteria (see image>). For a project to be labelled an NBS project, each of the 8 criteria are being scored and none of the 8 is allowed to score 'insufficient'.
- Many NBS concepts and language is developed from existing practices, such as sustainable agriculture and fisheries, and risk reduction and re-engineering principles. The criteria and scoring make it a new and transparent standard to use.
- The size and scale of NBS interventions can vary from very small to very large, but scaling, policy changes and multiple benefits are core elements underpinning successful NBS projects.
- The presenter gave examples of NBS: a mixture of grey and green interventions in water purification and coastal protection; substantial modifications in landscape restoration projects, such as the Loess Plateau in China; and fully modified urban ecosystems, all falling with the definition of Nature-based Solutions.
- For the NURI extension, NBS projects will operate in the modified agro-ecosystem sphere. For it to be classified as an NBS, there must be a threat to humans being addressed by the intervention, the implementation must balance benefits for humans *and* biodiversity, and must be cost effective. She emphasized the importance of adapting interventions to the local context and to ensure that smallholder farmers benefit.
- For a future NURI, lessons from the NBS interventions during the extension, need to be incorporated in the project design.

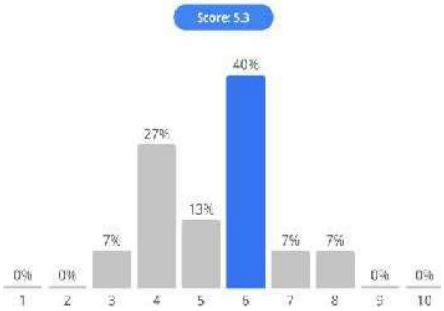
Session 3: Nature-based solutions in the NURI context (Rilla Kirk)

The presentation made a connection between the NBS theory and the NURI, and formulated the questions for the brainstorming session (Annex 3).



- In principle, NBSs operate along the entire continuum of natural to modified or new ecosystems. Most of NURI interventions will fall in modified agricultural landscapes and production systems (see figure> - source: FAO).
- How can NURI beneficiaries benefit from NBS conservation principles, for example beekeeping?
- How can we incorporate NBS in our technological and engineering activities in the WRM and RI components?
- How can we incorporate traditional, local and scientific knowledge, for site specific solutions for maintaining biological and cultural diversity, and the ability for ecosystems to evolve over time?
- How do we handle fair and equitable distribution of positive and negative consequences of NBS?
- How do we handle tradeoffs between immediate economic benefits and future options?
- How do we make NBS an integral part of policies, so as to scale up distribution and impact?

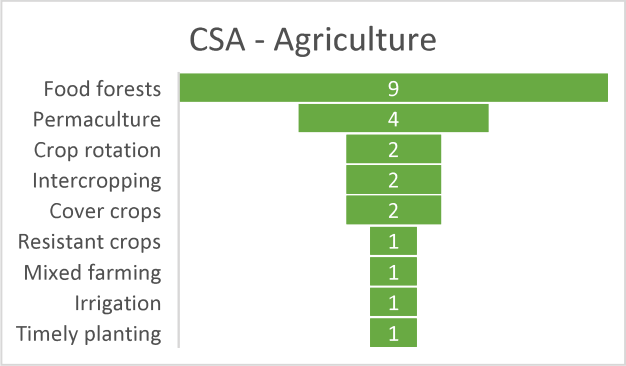
Session 4: polls

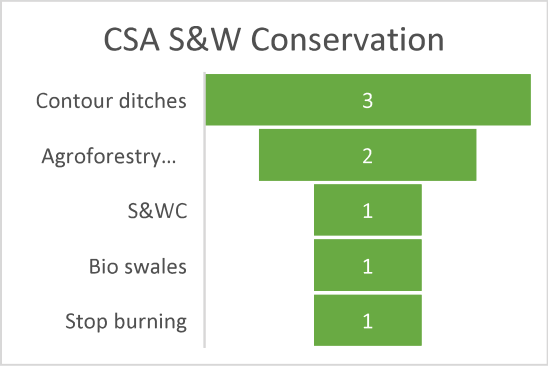


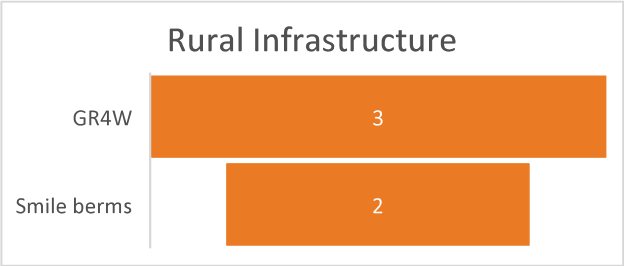
Two polls were held, using the Slido application. The polls were to get a quick overview of the participants' views, and as a primer to the group discussions. The scores have no statistical basis, nor should they be used to interpret the NBS performance of NURI

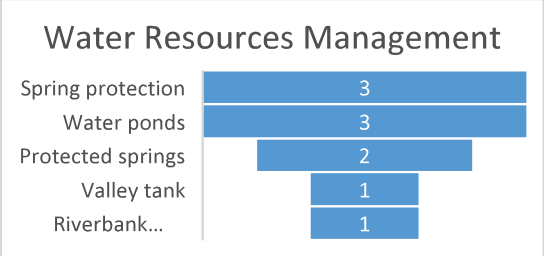
Fifteen participants scored on average 5.3 out of 10 on the question: 'how much of the current NURI activities would you categorize as NBS', with a concentration towards a score between 4 and 6. The interpretation is that according to the participants, elements of NBS may be found in around half of the NURI interventions.

In the second poll, participants listed which of the interventions followed to some considerable extent the NBS principles. Sixteen participants scored 46 items out of a maximum of 48 (3 items per person). The graphs below show the scoring per item. Most of the interventions, and the highest scores, were in the CSA component, which, by definition, focuses on climate smart interventions. It is also important to note that CSA staff made up 50% of the scoring participants.









Session 5: brainstorming on greening NURI

For this session, the participants were split in 4 groups (CSA crops, CSA households, RI, WRM), and asked to propose interventions that NURI can implement in the next two years, *and* that incorporate NBS principles. The call-out boxes contain remarks made by other participants.

CSA- crops
Use/promote open pollinated varieties (preserve biodiversity, cheaper, and more easy accessible to farmers
Promote agroforestry for soil conservation and biodiversity
Promote water retention practices: cover crops, mulching, contours
Promote intercropping for soil health, soil cover and diversity
Improve nutrient management of soils: reduce crop residue burning, locate cattle kraals uphill from crops, thrash crop on site
Promote mixed (crop/livestock) farming for soil health (manure), production (manure), diversity, resilience
Promote poultry, ducks, guinea fowl production
Promote conservation agriculture minimum tillage)
Preserve hilltops for grazing, trees for firewood (wind and erosion control)
People need security, food, nutrition, income, trees

Do we have the capacity to implement all this?

Need to be further specified for categories of farmers

Include apiary

Why currently such a low adoption rate?

Are we addressing peoples' needs?

CSA- households
Improve what we are already doing: i.e. fruit trees at HH level, crops that improve soil health, strengthen CSA practices (mulching, contouring, rotation, intercropping)
Plant more fruit trees through district ordinances
Establish tree nurseries at group level
Promote seed business at group level
Encourage [1]off-season production with simple irrigation equipment
Up-scale tree growing through co-funding
Up-scale (crop) production through co-funding (for example financing improved seeds)
Expand kitchen gardening model
Promote renewable energy: stoves, biogas, briquettes
Diversify enterprises, for example coffee, banana
Develop incentive models for environmental protection
Strengthen community dialogues at start of projects, for example on decision making
Strengthen co-existence between refugees and hosts
Upscale RD at HH and group level
Introduce crop (credit) insurance?
Collaborate with other programmes and institutions: UNHCR, NFA, companies, projects

Do ordinances really work?

Is this practically possible? How about nurseries for designated persons

For which specific category of people would this apply?

Do we have successful models at scale?

All suggestions starting with strengthening need to be further developed?

[1] The consultant discourages the use of terminology such as 'encourage', 'ensure' and 'strengthen' in planning because they are not actionable before making a further analysis on how this would have to be done

Water Infrastructure
Ponds and dams
Integrate small scale irrigation and fish farming
Build capacity of communities to derive more benefits from ponds and dams
Improve management plans
Improve commissioning, hand over and role of DLG/communities in maintenance
Springs
Channel excess water for other uses: animal drinking throughs, vegetable gardening
Improve management of the environment around the springs
Improve recharge systems
Integrate WRM projects with RI infrastructure projects
Share successful models internally and with DLG and other projects

Can we construct valley dams, or other larger infrastructure?

Do we have successful models at scale?

Green Roads for Water (GR4W)
Harmonise designs at district level
Improve dams to dampen erosion energy of water
Strengthen community involvement
Upscale area under trees along the roads
Plant grass along the side drains
Advocate for GR4W designs
Growing a billion trees on farms
Identify tree nursery operators to raise the seedlings
HHs to apply to NURI for receiving x number of seedlings
Extension officer follows up the application
Seedlings are delivered
Benefits: soil and water conservation; income; nutrition; feed for livestock; fire wood.
NBS criteria: 1-6 are all positive, 7 and 8 require more research and action.

Build capacity of communities to derive more benefits from dams?
Encourage communities to utilize water from the road for agriculture

Why are people not planting trees? Who takes care of the trees, who owns the trees, who gets the benefits?

Only pay for surviving trees?

SUSTAINABILITY

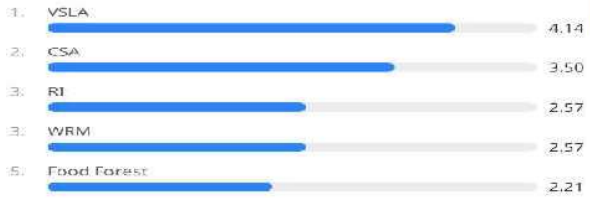
Session 1: presentation sustainability concepts (Ole Rasmussen)

Sustainability was defined as a situation in which benefit streams from the project continue to be derived, enhanced or scaled beyond the project duration and without project support. If the benefits require continuous investments, such investments are sustainable when paid from the government budget or from internally generated income.

Ole presented 5 levels of sustainability: 1) no sustainability (white elephant); 2) fading sustainability; 3) persistent sustainability; 4) deep sustainability and 5) scaling sustainability. The most desirable sustainability is, obviously, level 5, by which the benefits are spreading to new persons, groups and areas, without project interference (Annex 4).

Session 2: quick poll ranking NURI interventions in terms of their sustainability

Fourteen participants responded to the poll. The results are shown in the graph>. VSLAs and CSA interventions are considered most sustainable, and RI, WRM and food forests the least sustainable.



Session 3: presentations on pilots to strengthen sustainability in NURI Interventions

The following presentations were made and are attached in Annex 5, 6, 7 and 8:

- Production and Marketing Plans (PMPs) for HHs, linked to VSLAs (Joseph Ebinu). The concept requires HHs to make a realistic PMP, based on a HH vision, SWOT and budget. The PMP can be financed from the VSLA, and paid back after the proceeds come in. In that way the PMP and VSLA are building on each other. The idea is being piloted by Picot and in Adjumani.
- Local seed business (LSB) (Francis Otim) allows farmers to produce certified seeds (Quality Declared Seed) for local and regional markets. Seeds are produced under supervision of the Government, and marketed through seed companies. There is a comprehensive training package for LSB groups, and selection criteria for groups that intend to venture into the LSB.
- Farmer Market Schools (FMS) (Dorothy Atimango) evolved from the Farmer Field Schools (FFS) to put more emphasis on market analysis and marketing prior to embarking on production for markets. Farmers research the value chain, and create linkages with other value chain actors. FMSs exist in two models: a single group model whereby the FFS evolves into an FMS, and the cluster model, whereby several FFSs operate under one single FMS. FMSs are trained in 14 sessions over 2-3 months by master trainers.
- AccessAgriculture (Rilla Kirk) is an organization that sets up private extension workers with and audio-visio toolbox to carry out video-based trainings for farmers and farmer groups. The toolbox contains a projector, battery, charger and tablet with access to over 600 agricultural training videos. The system can operate off-grid and off-line. It is currently rolled out in Uganda, and is intended to operate on a commercial basis by private extension officer for farmer groups at a fee.
- AUXFin is a Dutch company that financial inclusion and agricultural training service platform for VSLAs and farmer groups. With the application, VSLAs can carry out all normal VSLA operations digitally, and can be linked to banks. Other modules in the application related to purchases and agronomic advice.

Session 4: brainstorming on strengthening the sustainability of NURI interventions

Participants were split in 4 groups to identify suitable options for improving NURI's sustainability. Their proposals were presented and commented upon in plenary. The results of the group work and discussions are presented in the tables on the next page.

CSA- extension and advisory services
Introduce co-funding for inputs
Stimulate groups to enter in the Local Seed Business
Stimulate mind-set change in communities and stakeholders, for example by exchange visits, and visits to markets
Adopt lead-farmer approach to serve as a role models and future trainers
Assist staff to establish as private extension service providers by use of a challenge fund
Make linkages between farmers and other actors along the value chain

How to make it attractive for input dealers to invest in extension?

Form multi-purpose cooperatives

Let us think of other viable crop varieties to be promoted

How can lead farmers be sustained?
Public-private partnerships?
Is this feasible?
Issue them with NURI certificates of

VSLAs
PMP-VSLA integration
Link VSLAs to microfinance institutions
Link VSLAs to digital extension, such as AUXFIN or others (bundle services)
Form multipurpose cooperatives for farmer financial services
Ensure that the Community Based Trainers earn from their services to the VSLAs, for example a commission or training fee
Digitise VSLA information and management
Make sure that CSA and VSLA start at the time same

How to support PMP without VSLA?

How to link remote VSLA groups?

This may scare VSLAs. Who pays the commission?

I don't think it is time to digitize the VSLAs?

WRM
Develop by-laws (with DLGs) for maintenance of ponds and protected springs
Build capacity of user committees by local leaders
Complete institutional support by LC1, S/C for user committees
Maintenance of recharge design by community
Include designs for use in crop and livestock production around the ponds
Levy user fees
Strengthen operations and maintenance plans

Completed projects must be properly handed over.

How do we motivate communities?

Privatise the maintenance!

Maintenance plans exist!

RI and WRM
Allow flexible budgets to fully meet bottleneck needs
Improve designs, for example full graveling of entire road
Borrow a leaf from NuDEAL way of doing roads
Introduce water troughs to limit livestock to access ponds directly
Build capacity for local maintenance systems
Improve Food Forest trainings

What about lessons from Atego S/C?

This will be very costly!

Durable CARs: fully murram.
Start maintenance immediately

Already in place.

CONCLUSIONS AND WAY FORWARD FORMULATED DURING AND AFTER THE WORKSHOP

A number of specific areas should be followed up by NURI and the consultant prior to, and after, writing the note on the extension.

General

- Strengthen and build on what NURI is already doing;
- Address capacity gaps at all relevant levels;
- Focus on the decision makers (community, local governments);
- Centre on the needs of the target groups;
- Anchor the interventions in relevant policy, sector norms and guidelines (i.e. for policy support);
- Explore and leverage relevant collaborations;
- Research on areas where NURI does not have experience (i.e. apiary);
- Adapt and apply relevant lessons from successful interventions;
- Combine technical solutions with mind-set change.

Greening NURI

Asses NURI's green credentials:

- NURI to carry out a structured self-assessment of existing interventions as Nature-based Solutions, making use of an estimate based on the NbS criteria

Identify and pilot interventions for further / future Greening of NURI

- Build on the outcomes of the self-assessment, possibly with input from IUCN;
- Present options for Nature-based Solutions that are being or could be piloted and assess these against the 8 NBS criteria. Consider those that can be implemented in the existing time frame and pilot for inclusion / up-scaling in next phase of NURI.
- Tree growing:
    - Scoping of tree growing activities in Northern Uganda to identify successful models and implementing agents including review of NURI individual household tree growing model in Pakwach implemented by AFARD;
    - Explore models to build sustainability of Food Forests concept, assess success, compile lessons;
- Scoping of household fuel-saving technologies, stoves, green charcoal, solar etc. that can be integrated in NURI CSA activities.

Sustainability of NURI interventions

General

- Develop an assessment framework for sustainability ideas. Potential indicators: outreach and scalability, quality of services and cost benefit analysis.
- NURI and RDE to agree on potential ways forward, and the required technical input for assessing the pilots, including consultancies, capacity building of NURI CF and/or additional staffing.

Sustainability of Infrastructure and water activities infrastructure

- Explore models for maintenance of infrastructure;
    - Community models, community ownership, and traditional community mobilization models;
    - DLG / sub-county models, including leveraging funds for community motivation.

NURI Sustainability of Farmer groups - organization and benefit streams

- VSLA linkages to finance and other services through IT, e.g. Ensibuuko, Auxfin;
- Build farmer groups' capacity in group marketing and business;
    - Including business training along with financial literacy in VSLAs;
    - Farmer Marketing School training and activities;
    - Build access and business opportunities for agricultural seeds including local seed businesses;
- Build capacity for household production of refugees through permaculture;
- Build farmer/ VSLA groups linkages to private sector service providers and other programmes.

NURI sustainability of extension and other services

- Explore how weather data could be supplied to farmers (AUXFIN pays 30,000 EUR annually to get local info, other options are probably available).
- Explore, through pilots and learning from other organisations, business models for (under/un-employed, retired) extension officers and community-based trainers to use their skills and networks and earn a living income. Include cost-benefit assessments of various ideas.
- Extension activities as part of other income streams
    - Bundle services, including extension, to create a model that can provide a livable income
    - IT options for extension, e.g. Access Agriculture
    - Consider competitive grants to encourage ideas

Next steps timetable

- 1 March - Workshop report (Reint)
- 14 March – Assessment document of climate and environmental risks (Reint)
- 31 March – Note for extension of NURI (Reint)
    - Context
    - Justification
    - Updated intervention framework
    - Additional interventions
    - KPIs
- Budget
- Implementation plan (CF)

Additions and comments made after the workshop, in response to the workshop report

Comment	Response consultant
RB: Typos and grammatical errors have been rectified	
RK: under the morning session 5, the second group was labelled wrongly as CSA trees/refugees; it should be CSA-Households.	The heading and text have been rectified
VAV, on the NBS IUCN presentation: According to IUCN, for an intervention to rate as a NbS, it must pass all the eight (8) criteria for NbS. In the context of NURI, the scores are useful to the extent that they can be used to guide programme interventions. It was mentioned, more practical to NURI is to use the remaining programme period to introduce only those elements of NbS that can be implemented, learn from these in order to improve the application of NbS in the future NURI	The relevant text has been adjusted to capture these points; one bullet point was added.
VAV, on PMP-VSLA pilots: is this only piloted on Koboko and Adjumani?	This is mentioned in slide 8 of the presentation
VAV, on the use of the word 'ensure': this terminology was discouraged during the workshop	This is how it was recorded on the flipcharts. I have added a footnote to capture the point.
RK, OR, VAV on the next steps and follow up: the team submitted some additional text containing follow up steps	Not all the ideas text were discussed during the workshop. It is added as the chapter Conclusions and way forward.. in the report.

ANNEXES

1. Presentation results IMC workshops
2. Presentation Nature-Based Solutions (not included)
3. Presentation Nature-Based Solutions and NURI
4. Handout Sustainability levels
5. Presentation PMP-VSLA integration
6. Presentation LSBs
7. Presentation FMS
8. Presentation AUXFin

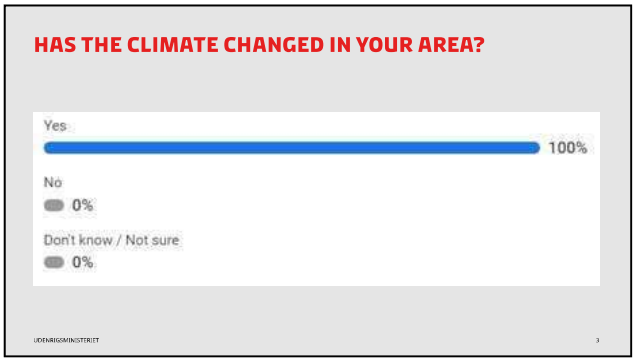
Annex 1

MINISTRY OF FOREIGN AFFAIRS
OF DENMARK
NURI IMC WORKSHOP
- RECAP
Mikkel Bagger (mikbag@um.dk)
Feb. 2022

1

IMC = IMPLEMENTATION MONITORING COMMITTEE
When: November 2021
Where: Kitgum and Arua
Participants: Diverse group including:
Implementing partners
Government
Development partner
NURI CF
Green is a central part of the new Danish Development Strategy
UDENRIGSMINISTERIET

2


HAS THE CLIMATE CHANGED IN YOUR AREA?
Yes
100%
No
0%
Don't know / Not sure
0%
UDENRIGSMINISTERIET
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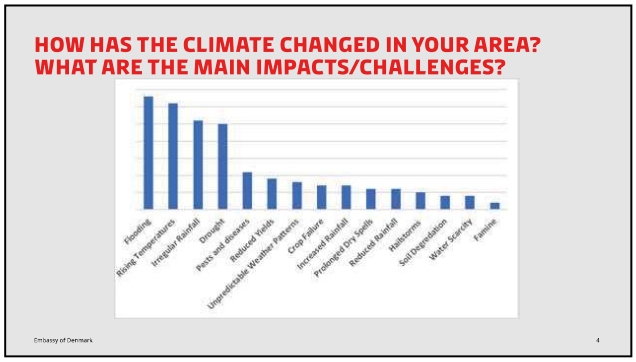
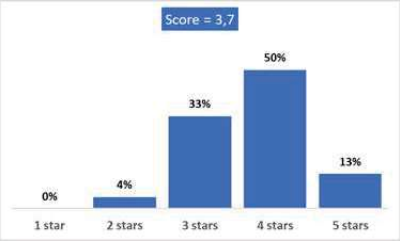
3


HOW HAS THE CLIMATE CHANGED IN YOUR AREA?
WHAT ARE THE MAIN IMPACTS/CHALLENGES?
Flooding
Rising Temperatures
Irregular Rainfall
Drought
Pests and diseases
Reduced Yields
Unpredictable Weather Patterns
Crop Failure
Increased Rainfall
Prolonged Dry Spells
Reduced Rainfall
Hailstorms
Soil Degradation
Water Scarcity
Famine
Embassy of Denmark
4

4

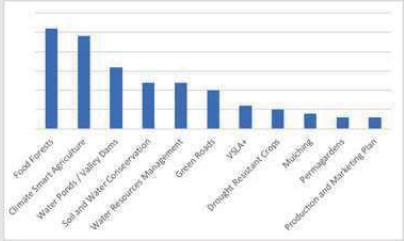
ON A SCALE FROM 1 TO 5, HOW GOOD IS NURI AT ADAPTING TO CLIMATE CHANGE?



Embassy of Denmark 5

5

WHAT ACTIVITIES IMPLEMENTED BY NURI BEST HELP TARGETED COMMUNITIES ADAPT TO CLIMATE CHANGE?



Embassy of Denmark 6

6

WHAT OTHER ACTIVITIES COULD NURI DO IN THE FUTURE, TO BEST HELP COMMUNITIES ADAPT TO CLIMATE CHANGE?

- Share monthly weather information
- Early warning systems for floods
- Behavioural and Mindset change
- Promote energy saving technology, e.g., solar panels or efficient cook-stoves to minimise usage of firewood
- Ensure increased diversification of farm enterprises
- Promotion of perennials like bananas, coffee, cocoa, macadamia
- Increased integration of sexual reproductive health and rights
- Commercial extension services
- Commercial agroforestry
- Expand on the VSLA - PMP integration with focus on upgrading old VSLA groups further into SACCOS to support agro-financing

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7

... CONTINUED

- Small scale irrigation
- Promote commercial plant clinics
- Support LGs to enforce environment related legislation
- Solar pumps for irrigation
- Planting trees along every opened community access road
- Tree planting at the individual household level
- Bee keeping / Apiary
- Exchange visits for farmers
- Explore ways to increase private sector engagement
- Promote animal traction
- Establish woodlots for firewood
- NURI to use electric cars + motorbikes

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8

Annex 3

Greening NURI

NURI Activities and Nature-based Solutions
Brainstorming Workshop
17 February 2022, Arua

5

Do NURI activities follow NbS principles Questions to think about…

- NURI aims to implement Climate-Smart agriculture through
  - training and extension activities
  - Resilience design in Rural infrastructure and
  - Resilience in water resource management activities
- To what extent do these activities already fall within NbS principles?

6

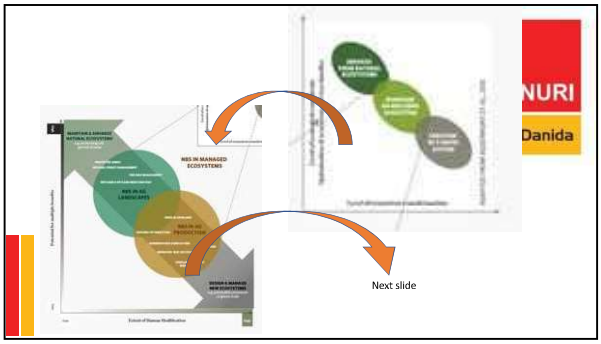
- What exactly does it mean, in the context of Northern Uganda, to
  - take care of our planet,
  - deal with climate-change and
  - meet the needs of people?
- How do we balance trade-offs?
- Does poverty-level and historic contribution to environmental destruction or GHGs influence those decisions?

7

NbS and specific NURI activities

- As we run through the 8 NbS principles – think about NURI activities, and examples of where they do and don't follow these principles…
- We will discuss the examples after running through the principles.

8



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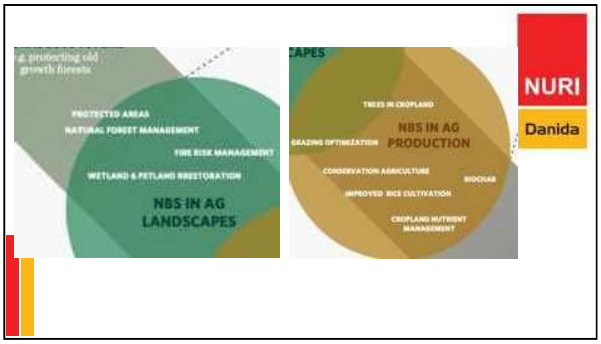

10

Principles of nature-based solutions

- NbS embrace nature conservation norms, they can be complimentary to, and benefit from, nature conservation efforts

  Bee-keeping for income in areas already under conservation

- NbS can be implemented alone or in an integrated manner with other solutions to societal challenges, including technological and engineering solutions.

  resilience design with natural and concrete structures to protect wetlands, while providing benefits to communities

NURI
Danida

11

Principles of nature-based solutions

- NbS are determined by site-specific natural and cultural contexts that include traditional, local and scientific knowledge

  making use of scientific and local traditional knowledge and norms in planting and preserving Shea trees.

- NbS produce societal benefits in a fair and equitable way, in a manner that promotes transparency and broad participation

  when preserving a watershed means loss of opportunities for farmers growing rice, the loss of opportunities needs to be acknowledged and compensated.

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12

Principles of nature-based solutions

- NbS maintain biological and cultural diversity and the ability of ecosystems to evolve over time
  - sustainable, but also resilient to future change, including population growth and climate change
- NbS are applied at landscape scale
  - if on a smaller-scale consider the wider context and aim at up-scaling where appropriate. Piloting can be useful, but there should be opportunities for up-scaling

13

Principles of nature-based solutions

- NbS recognise and address the trade-offs between the immediate economic benefits and future options for enjoying ecosystems services
  - replacing forest with mono-culture tree plantation, or finding alternatives to charcoal prodution. Consider the interests of different groups of stakeholders
- NbS are an integral part of policies and measures or actions, to address specific challenges.
  - Integration in policy allows large scale implementation and integration of lessons in future interventions

14

ANNEX 4

OPERATIONAL SUSTAINABILITY AND SCALABILITY IN DEVELOPMENT COOPERATION APPLIED TO NURI

The purpose of this note is to offer a conceptual framework for understanding and improving operational sustainability in development cooperation. Operational sustainability is when results or activities are maintained or expanded after the closure of a programme or project. Sustainability often describes environmental aspects of a programme, but the current note only deals with operational sustainability.

Level	How long do results last?	Explanation	Example 1	Example 2
0 No sustainability	Results disappear when the project ends.	The project deliver benefits, but there are no structure in place to maintain them.	The project sets up a local market, but fails to establish a system for operating it. When the project ends, it is no longer used.	A project distributes food or cash, but does not ensure that parts of it are saved. Funds are used.
1 Low sustainability	Results are maintained in the short term, but fade away in the medium term (less than five years)	The project deliver benefits, but there are not strong structures in place to maintain the results.	Feeder roads are built, but no strong structures and financing for maintenance are included. The roads fall into disrepair after a few years.	Farmer groups are provided with improved seeds, but there are no mechanisms in place to enable farmers to buy new improved seed once the benefits fade.
2 Medium sustainability	Results are maintained in the medium term (at least five years)	The maintenance and structures set up by the project are strong. Results are maintained locally.	All water ponds have operational user committees and a well-funded public agency has taken over support to existing committees.	Feeder roads are built by committees. A user committee is set up including ways for the committee to mobilize funding for maintenance.
3 Strong sustainability. Project activities continue. Results deepen.	Results are sustained in the long term and structures are in place to safeguard and expand them.	The field level project staff can cover its own costs and continue to carry out activities.	A VSLA will continue to operate after project closure, providing benefits to members that are similar to better than under the project.	A strong business model enables farmer extension workers to earn a living continuing helping farmer groups.
4 Very strong sustainability: Scalability and structural change	Results are expanded and benefits provided to the wider population "The next 100,000-problem" is solved.	The project can be scaled up without additional costs.	The government or specific public entities takes up the project methodology as a public policy and mobilises and commits the necessary funds to expand.	Business models surrounding farmer extension are profitable and situated in an independent structure or company that ensures expansion of activities.

APPLICATION TO NURI – DRAFT

Programme element	Current level of sustainability	What can be done to improve sustainability
Agricultural extension / climate smart agriculture.	Low or medium sustainability Sustainability depends on the ability of the farmer groups to apply and maintain agricultural practices in the long term.	Medium: Access to input providers and finance ensured. Refresher training should be carried out by government extension officers. Strong: Cost of extension is brought down and a mechanism is in place for farmers to pay for it, directly or indirectly, e.g. through commission of sales.
VSLAs	Strong sustainability VSLAs are known to exist very many years after project ends. Locally based community trainers may informally keep supporting the groups.	Structural change at scale A viable business models ensures that the implementing organization and field officers earns money off of VSLAs.'
Resilient infrastructure	Low to medium sustainability User groups are set up, but they may not be strong and they are likely to lacking funding for maintenance.	Medium to strong: Local authorities takes on the financing of maintenance of the road. Very strong: National authorities see the benefits of feeder road and decides to set aside funds to expand the programme nation-wide.
Water resource management	Low to medium Several of the infrastructures may lack maintenance plans and setups for funding it may be weak.	

Annex 5

PMP-VSLA INTEGRATION

NURI
Danida

Northern Uganda Resilience Initiative 2019 - 2022

The Northern Uganda Resilience Initiative

1

Introduction

- Small scale farmers have a challenge in financing their production.
- This directly affect their production and productivity.
- PMP-VSLA integration is a better cushion for farmers.

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2

Introduction

Why VSLA-PMP Integration?

- It enables them understand, plan their production, marketing and utilization of revenues generated.
- VSLA-PMP Integration is Climate Smart *''Timing is a Climate Smart Practice''*.
- Famers Gain resilience and Economic empowerment.

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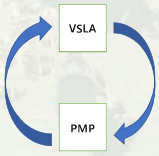
3

Introduction

How?

- The two concepts inter-relate and both focus on development at HH level.



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4

Steps in integration

Household Visioning:

- Planning done jointly at HH level.
- Identifying what stage/level the HH is? (Economic/Social status).
- Starts with envisioning the HH desire and at what time? 2years?, 3years?.....

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5

Steps in integration

Goal Setting:

- Set realistic and attainable goals
- Goals broken down into short/Medium/Long term.
- Goals ranked in order of prority

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6

Steps in integration

SWOT Analysis:

- HH explores their SWOT

Budgeting:

- Key and helps HH to identify their resources.

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7

Steps in integration

PMP Development:

- Production is the biggest contributor.

Follow up and Monitoring:

- HH ensure they commit themselves

Pilot: PICOT & RAU Adjumani

The Northern Uganda Resilience Initiative

8

Other existing/Planned Pilots

LSB: Francis

FMS: Dorothy

AT Loan scheme: Simon

Tree Growing: Evans

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9

Discussion, Q&A

- Participants share experiences.
- Q&A

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10

Thank You

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Annex 6

Northern Uganda Resilience Initiative 2019 - 2022

NURI Danida

LOCAL SEED BUSINESS

NURI extension brainstorming in Arua, February 2022

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1

Introduction

GoU prioritizes agricultural dev't key for poverty reduction, food security and economic dev't thru enhancing agricultural production and productivity, access to markets, creating an enabling environment and institutional dev't.

One key element is the quality seeds for farmers

Local seed businesses (LSBs) fill a gap in quality seed production.

LSBs may start in informal sector as farmer groups or entrepreneurial farmers who see business opportunities in the production and marketing of quality seeds.

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2

Introduction cont'

These farmer groups produce and sell quality seed of locally preferred crops and varieties to local markets and operate as local businesses.

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3

Why LSB is unique

1. Selection of entrepreneurial farmer groups and building their capacities without using free hand-outs.
2. Promoting the concept "producing what you can sell". First analyse the market before producing the seed
3. Strategically link the groups with service providers. The linkages with the breeders are important.
4. Formalising the seed class "quality declared seed" and recognition of LSB seed. Quality assurance by providing Government recognised seed labels for the use of LSB seed through the National Seed Certification Service under MAAIF

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4

Modules covered in LSB training

Five modules are covered in LSB training:

1. Selecting, monitoring and sustaining LSBs and this targets program staff who will be supporting implementation of LSB
2. LSBs are technically well equipped
3. LSBs are professionally organised
4. LSBs are market oriented
5. LSBs are strategically linked

The target groups of modules 2 to 5 are members of LSBs

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5

Module 1: Selecting, monitoring and sustaining LSBs

1. Using LSBs is one of the ways to increase the availability and access of affordable quality seed to farmers and to contribute to a vibrant, pluralistic and market oriented seed sector.
2. No seed system is better than the other. All systems contribute to the seed sector.
3. The seed sector itself has a value chain as opposed to the produce value chain.
4. It is making a business out of seed production and distribution. 87% of the total seed used by farmers is informal.

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6

Module 1: Selecting, monitoring and sustaining LSBs cont'

Most seed companies in Uganda that form the formal seed sector, are only interested in crops with high profit margins (higher multiplication ratios). Self-pollinated crops, which are the major food crops, are not normally considered by the formal sector.

LSBs can engage in multiplication of self-pollinated crops (simsim, groundnut, beans, rice etc.) with linkages to research to provide early generation materials (Foundation seed), a basic input for any quality seed production. With linkages to MAAIF, the LSBs can guarantee the quality of seed they produce and market through proper inspection and quality assurance procedure.

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Module 1: Selecting, monitoring and sustaining LSBs cont'

1. A LSB is a farmer organisation producing and marketing affordable quality seed of varieties that farmers prefer.
2. A LSB has a niche market within seed systems in producing quality seed.
3. A LSB has an entrepreneurial spirit when it is motivated to succeed, has a business mind, is able to sell seed and is not afraid to try out new things and take risks.
4. Sustainability of LSB approach depends on access to required inputs, being able to understand and act upon the market demand. Fake and counterfeit seeds plays to their favour.

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Module 2: LSBs are technically well equipped

1. Includes having the capacity for (a) the production of quality seed products; and (b) processing/adding value to those products.
2. Capacity to produce includes LSB members having the knowledge and skills for site selection, field clustering, land preparation, sowing, weeding, roughing, demarcating isolation distances, fertiliser application, crop protection and harvesting.

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9

Module 3: LSBs are professionally organised

1. Describes how well the business is organised in terms of general organisational (including governance) and financial management, and infrastructure.
2. The principles of general organisation management include decision making, participation, communication, transparency, task division, coordination and specialisation in the form of truly cross-functional teams (e.g. quality control committee, marketing committee, block farm management, monitoring and self-assessment).

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Module 4: LSBs are market oriented

1. Market-orientation means that LSB has the marketing capacity, including assessing markets and developing products which are in demand and satisfying customer needs.
2. Marketing involves finding out what the customers want and supplying it to them at a profit. In order to do so the LSB needs the capacity to collect and evaluate market information, and develop a marketing strategy as part of a business plan.

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Module 5: LSBs are strategically linked

1. They benefit from the availability, accessibility, efficiency, affordability and reliability of input and service provision. Therefore, being well linked to inputs and services is more strategic than it is essential.
2. Essential links include access to seeds, agronomic inputs (inc. fertiliser and pesticides), seed certification, finance, information, technologies, guidance/supervision, materials and machines, administrative documentation, stationary and furniture, water and electricity, transport, licencing, legal rights, security, lobbying and other important institutional links.

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Selecting LSBs

1. It is about finding farmer groups with the potential to become commercially sustainable LSBs and identifying strong points and areas of improvement.
2. Ending up with the right farmer groups for a local seed business is a good thing to start with (**remember old groups projects!!!**).
3. Invite applications from groups interested and subjecting them to selection criteria
4. Make the process transparent
5. Define areas of operation

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13

Selecting LSBs cont'

The key selection criteria for potential LSBs:

- Willingness and self-motivation to take up seed production as a commercial activity.
- Groups with business thinking, are looking for business opportunities.
- Availability of land for seed production (Individual or clustered land).
- The group must have been in existence for more than 2 years.
- The group must have functioning structures of leadership.
- They must have the ability to keep records
- They should be experienced in the production of the envisaged seed crop, preferably in producing seed.
- They should have the ability to raise the required co-funding resources
- Linkages with other organisations

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14

Selecting LSBs cont'

- Diagnostic survey: carry out diagnostic survey to set the baseline for LSBs and identify areas of strengthening within the LSB.
- Probe for these success factors; governance, land, quality assurance, access to inputs, market, unique product, marketing strategy, customer feedback information mechanisms and access to finance.
- Diagnostic surveys are meant to analyse the current status of the pre-selected LSBs. The surveys provide largely qualitative data and are the basis for the development of LSB specific action plans.

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15

Discussion, Q&A

- Participants share experiences on LSBs
- Q&A
- Do we have ripe groups for LSB?

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16

Annex 7

Farmer Market School (FMS)

NURI Danida

Presenter: Dorothy Atimango
+256 773 170 789

1

The FMS approach

What comes first ?

Need to understand the transition

Market? **Production?**

FFS ⟷ FMS

2

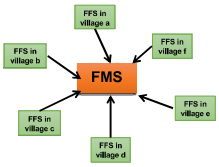
FMS is a **farmer-led research** on agricultural value chains where farmers become market researchers on their own, by initiating, conducting meetings and creating linkages with other value chain players.

3

Two FMS models

Complimentarity Model

Or 'one group approach'



Cluster Model

4

FMS theory of change

- Smallholder farmers are locked in a negative attitude to the market. They need to be motivated through discovery learning.
- Once a value chain is known with all its links and actors, specifications and peculiarities hence proper decision making
- They will thus more easily be included in the value chain and benefit more than if they only knew the first link in the chain.

5

BACKGROUND OF FMS

- Farmers not perceived as part of value chain actors but more as raw material producers
- Market are bigger than middlemen and market cannot do without farmers
- Many farmers do not know where to sell
- FMS enables them to explore the market and learn how it functions and where it offer new opportunities (market literate)

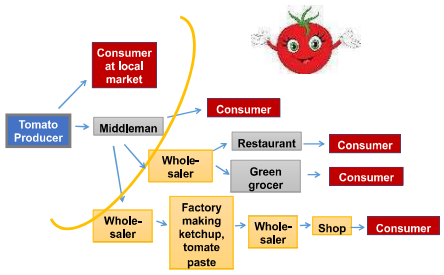
6

FMS modules

1: Group Formation, Introduction to the Learning Process
2: Farmer experiences
3: Monitoring
4: Facilitation
5: Household Economy and the Family Farm
6: Seasonal Income and Expenditure, Cash Flow and Savings
7: Gender
8: Market, Price, Payment Terms and Numeracy
9: Value Chain Map
10: Value Addition and Value Reduction
11: Communication Skills
12: Market Trip (local Market)
13: Negotiation and Contracting
14: Collective Marketing and Organization

7

Value chain map



8

FMS cascading

- Train master training (Done in Mubende)
- Master Trainers trains FMS facilitators (TOTS)
- TOTS train 02 Lead Farmers from each FGs
- Lead Farmers train their group members

9

SUMMARY OF FMS

- Conduct first meeting with the farmers.
- 14 training sessions conducted within 2-3month and 3hrs session done once per week
- Farmer group representative moves out to the market to do research.
- Graduation ceremony is organized by the group.
- Allow the group leaders to facilitate.
- Monitoring adoption and impact starts after 2years (self perception tool)

10

Learning from the FMS in Zimbabwe

- WATCH THE VIDEO

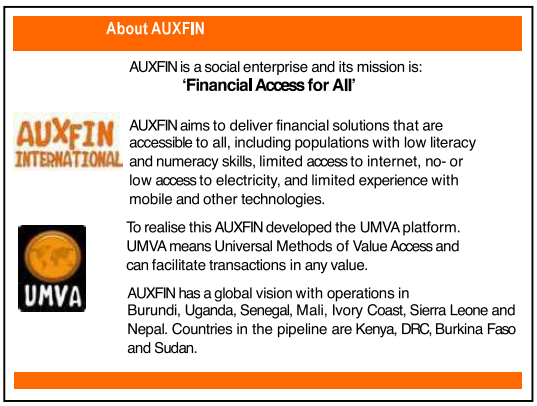
THANK YOU FOR LISTENING!

11

Annex 8

AUXFIN
NURI
An introduction to our approaches and solutions

1


About AUXFIN
AUXFIN is a social enterprise and its mission is:
'Financial Access for All'
AUXFIN INTERNATIONAL
AUXFIN aims to deliver financial solutions that are accessible to all, including populations with low literacy and numeracy skills, limited access to internet, no- or low access to electricity, and limited experience with mobile and other technologies.
UMVA
To realise this AUXFIN developed the UMVA platform. UMVA means Universal Methods of Value Access and can facilitate transactions in any value.
AUXFIN has a global vision with operations in Burundi, Uganda, Senegal, Mali, Ivory Coast, Sierra Leone and Nepal. Countries in the pipeline are Kenya, DRC, Burkina Faso and Sudan.

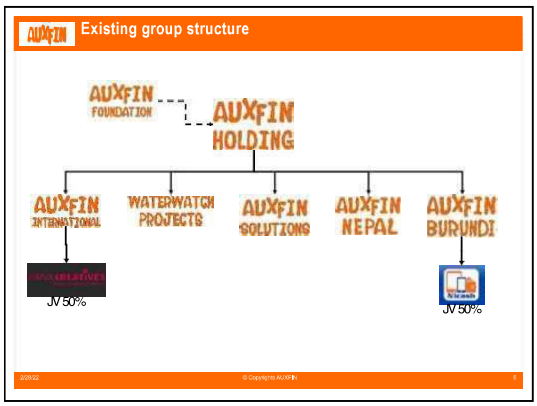
2

A selection of Partners
IFDC
TRADE MARK
SNV
giz
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
CGAP
WFP
CASC
Fund for Rural Prosperity
INTERNATIONAL ORGANIZATION FOR MIGRATION
Rabobank
IFAD
Enabling poor rural people to overcome poverty
SAP
Netherlands Space Office

3

AUXFIN

4


Existing group structure
AUXFIN FOUNDATION
AUXFIN HOLDING
AUXFIN INTERNATIONAL
WATERWATCH PROJECTS
AUXFIN SOLUTIONS
AUXFIN NEPAL
AUXFIN BURUNDI
JV 50%
JV 50%
2/28/22
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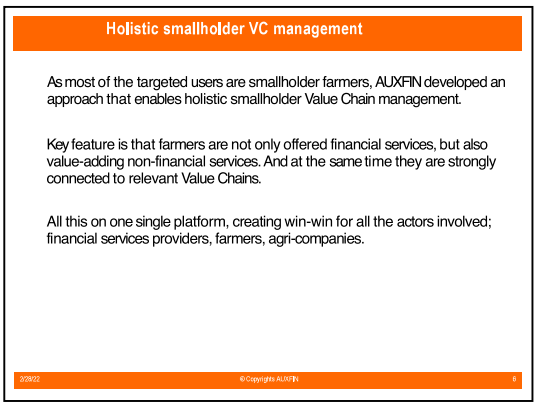
5

5


Holistic smallholder VC management
As most of the targeted users are smallholder farmers, AUXFIN developed an approach that enables holistic smallholder Value Chain management.
Key feature is that farmers are not only offered financial services, but also value-adding non-financial services. And at the same time they are strongly connected to relevant Value Chains.
All this on one single platform, creating win-win for all the actors involved; financial services providers, farmers, agri-companies.
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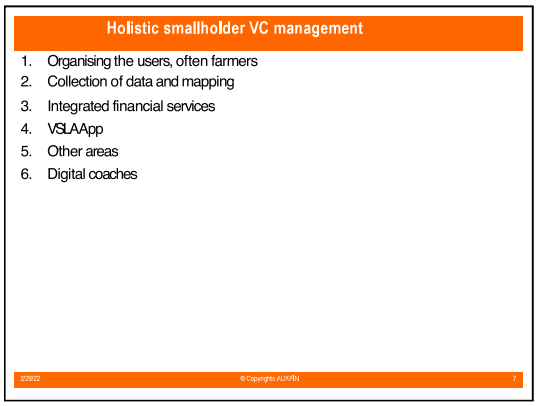
6


Holistic smallholder VC management
1. Organising the users, often farmers
2. Collection of data and mapping
3. Integrated financial services
4. VSLAApp
5. Other areas
6. Digital coaches
2/28/22
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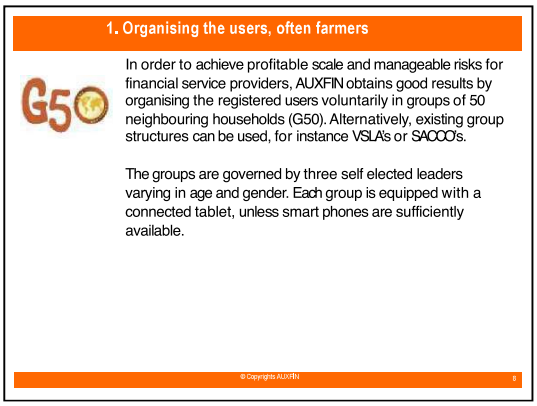
7

7


1. Organising the users, often farmers
G50
In order to achieve profitable scale and manageable risks for financial service providers, AUXFIN obtains good results by organising the registered users voluntarily in groups of 50 neighbouring households (G50). Alternatively, existing group structures can be used, for instance VSLA's or SACCO's.
The groups are governed by three self elected leaders varying in age and gender. Each group is equipped with a connected tablet, unless smart phones are sufficiently available.
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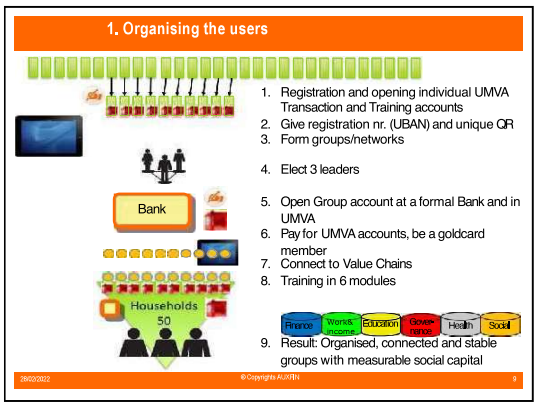
1. Organising the users
Bank
Households
50
1. Registration and opening individual UMVA Transaction and Training accounts
2. Give registration nr. (UBAN) and unique QR
3. Form groups/networks
4. Elect 3 leaders
5. Open Group account at a formal Bank and in UMVA
6. Pay for UMVA accounts, be a goldcard member
7. Connect to Value Chains
8. Training in 6 modules
Finance
Works income
Education
Governance
Health
Social
9. Result: Organised, connected and stable groups with measurable social capital
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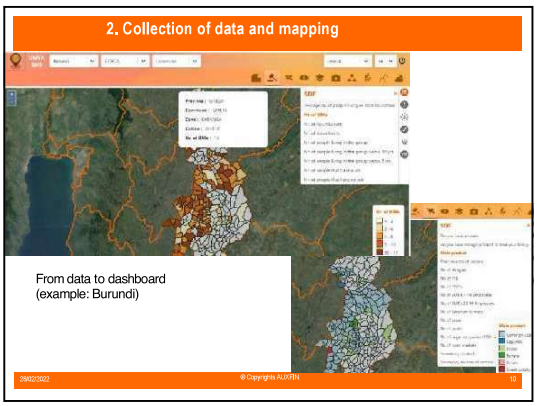
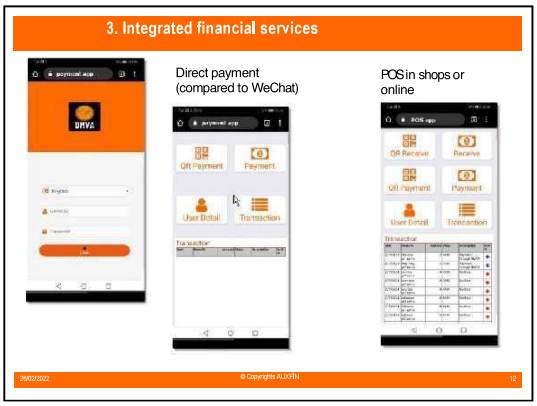
9


2. Collection of data and mapping
From data to dashboard
(example: Burundi)
© Copyrights AUXFIN

10

3. Integrated financial services
In one and the same account, the farmer has access to his Crop account(s) and her/his Bank account. This allows for an efficient payment gateway.
UMVA
Bienvenu(e) sur UMVA
© Copyrights AUXFIN

11


3. Integrated financial services
Direct payment
(compared to WeChat)
POS in shops or
online
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3. Integrated financial services

To improve last mile financial services, AUXFIN together with local financial institutions introduces basic digitally-boosted financial services such as savings, loans, payments and insurance.

Powered by UMVA

13

3. Integrated financial services

Attractive opportunities arise when connecting VSLA to financial institutions, to unlock the huge amounts of funds captured in metallic boxes.
For this AUXFIN developed VSLA App, based on the predominant VSLA methodology of CARE.

Fi. Uganda has an estimated 35,000 VSLA's, with each 350,000 UGX cash on hand in average. By digitalizing the VSLA's, these funds can be unlocked and the members can become included in the formal banking system.

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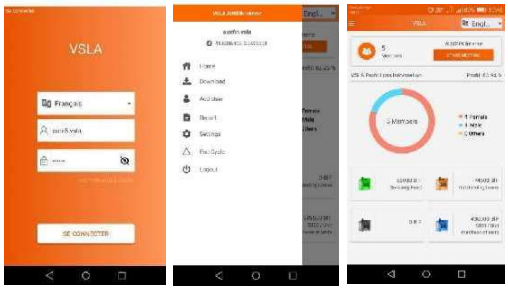
4. VSLA App



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4. VSLA App

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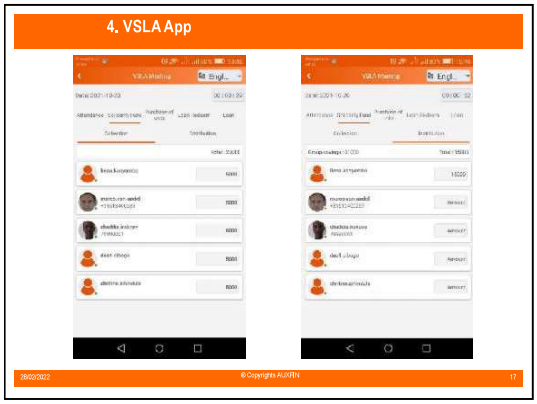
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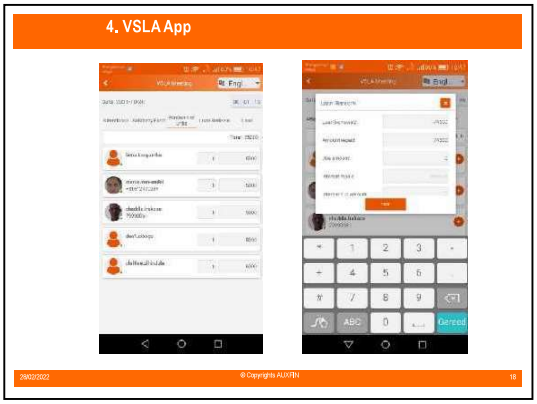
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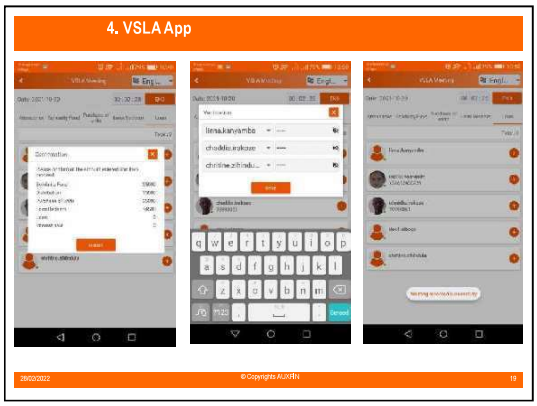
4. VSLA App
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4. VSLA App
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5. Other areas
Healthy Entrepreneurs
Entrepreneur
Customer
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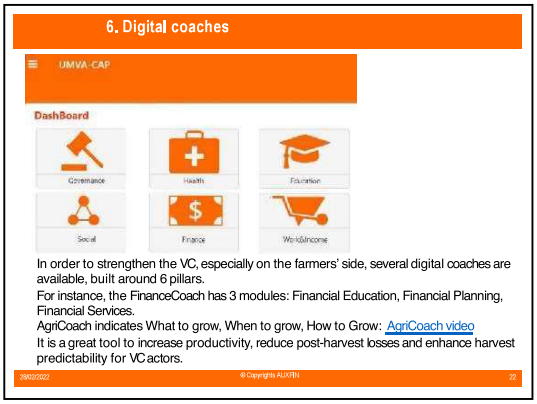
6. Digital coaches
UMVA-CAP
DashBoard
Governance
Health
Education
Social
Finance
Work&Income
In order to strengthen the VC, especially on the farmers' side, several digital coaches are available, built around 6 pillars.
For instance, the FinanceCoach has 3 modules: Financial Education, Financial Planning, Financial Services.
AgriCoach indicates What to grow, When to grow, How to Grow: AgriCoach video
It is a great tool to increase productivity, reduce post-harvest losses and enhance harvest predictability for VC actors.
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6. Digital coaches
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6. Digital coaches
FinanceCoach has 3 modules:
✓ Financial Education
✓ Financial Planning
✓ Financial Services
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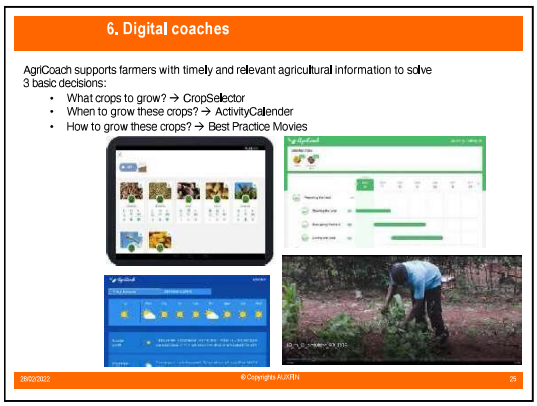
6. Digital coaches
AgriCoach supports farmers with timely and relevant agricultural information to solve 3 basic decisions:
• What crops to grow? → CropSelector
• When to grow these crops? → ActivityCalender
• How to grow these crops? → Best Practice Movies
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6. Digital coaches
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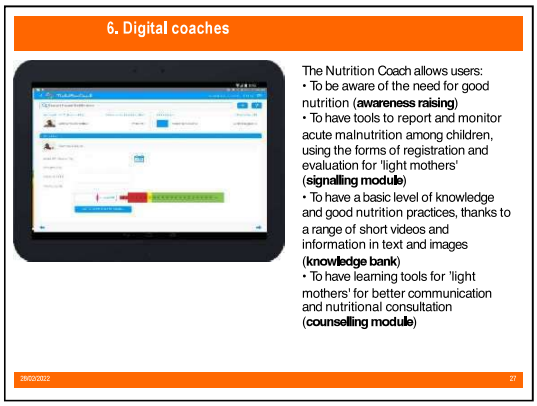
6. Digital coaches
The Nutrition Coach allows users:
• To be aware of the need for good nutrition (**awareness raising**)
• To have tools to report and monitor acute malnutrition among children, using the forms of registration and evaluation for 'light mothers' (**signalling module**)
• To have a basic level of knowledge and good nutrition practices, thanks to a range of short videos and information in text and images (**knowledge bank**)
• To have learning tools for 'light mothers' for better communication and nutritional consultation (**counselling module**)
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AUXFIN
6. Digital coaches
UCC
Hi I am Jeanne
I would like to be your personal coach
AUXFIN
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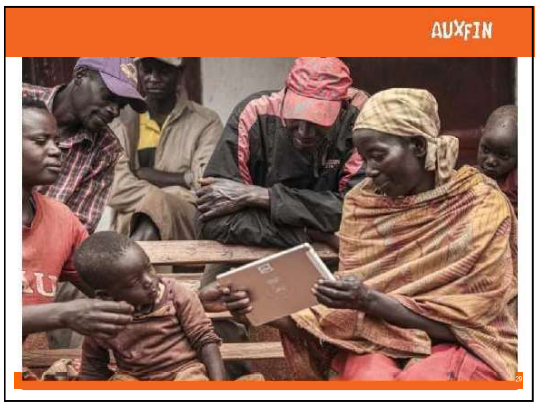
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AUXFIN
The system is there. It's ready to scale and be shared !
Currently scaling to Uganda.Thank You!
AUXFIN
Presentor:

30

Annexes to the Uganda Country Programme 2018-2022

Pre-Grant assessments of Development Engagement Partners

Client: Danish Embassy in Uganda

Copenhagen 24.04.2017

Christian Gregart and Formulation Team

Tana Copenhagen ApS Klosterstræde 23, 1st DK1157 Copenhagen Denmark info@tanacph.com

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- RDE should consider to hire a financial management consultant (short-term) to assist aBi on updating the Financial Manual, utilizing Navision and developing SOP and template to be implemented at aBi with the overall goal of improving the financial management, accountability and transparency by having an updated accounting system upon which strategic and management decisions should be made.
- It should be noted by RDE that during the two-day assessment visit at aBi it was noted that the knowledge sharing between the different departments is extremely limited and staff only have minimum knowledge about workflow and procedure outside their own departments – clearly aBi should improve this as this would result in much better quality overall and across the departments in aBi.
- It should be noted by RDE that aBi was the only partner of all seven partners being assessed that did not manage to complete the self-assessment prior to the two-day visit at aBi. In addition, and due to the size of aBi meeting with staff was held separately with each department rather than in a joined meeting where knowledge could have been shared better both externally and internally.
- aBi must ensure that the anti-corruption policy is clearly communicated to all IPs and suppliers through sections in the IP agreements and contracts with suppliers.
- aBi should do more to ensure awareness of whistle blower policy and functions on where and how to do any reporting of suspicious actions by including phone number and/or email for reporting.

7 Annex 7: Partner assessment of Coordination Function (CF) DAR/RALNUC or Coordination Function Northern Uganda Resilience Initiative (CF NURI)

This annex is a detailed assessment of NURI as a partner in the upcoming Uganda Country Programme 2018-2022, under the thematic area: Uganda Programme on Sustainable and Inclusive Development of the Economy (UPSIDE). The assessment is based on a Pre-Grant Self-Assessment done by the CFI. This was followed by meetings with NURI staff, where the assessment was discussed, verified and validated. This annex summarizes the recommendations for improvement, milestone to be checked and follow-ups to be made

The areas covered include financial management, project management, administration and anti-corruption. Each of these areas has a specific section, which is based on identified needs, gaps and findings.

Financial Management:

Audit reports

Currently, the Coordination Function (CF) ensures that the CF accounts are subject to an external audit by an independent audit firm. The CF prepares the ToR for the CF audit and the RDE approves the ToR. The RDE selects the auditor for the CF and signs the contract with the selected audit firm. The CF Finance Officer follows up on the audit, reviews the draft audit report and signs the final audit report together with the Senior Adviser in CF before submitting the audit report to RDE. The Senior Adviser of the CF reviews the recommendations for improvement outlined by the external auditor and takes necessary actions. With regard to the audit at NURI, the assessment team recommends as follows:

- In the upcoming new phase (i.e. NURI), the RDE should change the current setup for sub-grants and partners. Agreements with and disbursements to partners should be done directly by CF NURI rather than by RDE. CF NURI should handle all the disbursements to partners. The CF should also handle the audit of partners and consolidate the partner audit reports into a NURI Annual Accounts.

Budgeting

NURI has a well-developed planning cycle for preparing annual work plans and budgets with a very clear procedure that ensures that CF, partners and districts are all contributing to planning of the annual work plan. The RDE always approves the annual work plan and budgets. The work plans and budgets are linked to the overall strategic plan of NURI.

Accounting

CF has fully functional QuickBooks that is operated with entered budget, project coding and use of dimensions. The financial management includes budget performance (budget vs actual expenditure) reports generated by QuickBooks. The CF also prepares quarterly and annual financial reports and disbursement overview. The CF submits the financial reports to RDE quarterly as well as annually. CF operates payments mostly based on check and some on petty cash and online banking. The following are the observations on internal controls and overall accountability and transparency at the CF.

- The use of QuickBooks is very comprehensive including dimensions for budgets and entries. QuickBooks generates sufficient reports based on real-time access and overall control of absorption of approved funds for each activity and disbursements to partners. The system ensures full accountability and transparency.
- Fiducial risks are low because of the comprehensive use of QuickBooks and the fact that RDE co-signs and approve all payments made by the CF. CF has a threshold and a reasonable limit for petty cash with a maximum amount for a single payment of UGX 500,000. The RDE approves the petty cash float at CF.
- Advances are in accordance with detailed procedures outlined in both the CF Accounts Manual and Management Manual. CF manages the advances in QuickBooks with quarterly follow-up on outstanding and overdue advances. The CF policy on retirement of advances stipulates that all previous advances must be retired before a new advance can be applied for. It is recommended that the

CF conduct monthly follow-up rather than quarterly follow-up on the advance ledger.

- Bank reconciliations are done every month for the dedicated RDE projects accounts held in UGX. The reconciliation is fully prepared and approved by the 5th of the following month. – Approximately 45 transactions are performed on the project account monthly.
- NURI is currently considering more payment through internet banking to ensure a structure and payment system based on an online banking solution rather than check payment. CF should share decision on this and update the RDE.

Reporting

The CF bases all its financial reporting on information generated in QuickBooks. The report includes reports on financial expenditure posted on outputs and activities against the approved budgets. The CF shares the generated financial reports quarterly and annually with RDE as a contribution to and an integrated part of the overall Annual Report.

Project Management:

The CF prepares biannual and annual progress reports based on monitoring field visits and executed field activities. The reports include assumptions, risks and brief financial overview of disbursement and absorption of funds. Any potential risks identified are discussed at the monthly CF meetings and documented in the progress reports. The CF compiles a very comprehensive Annual Report from the financial reports and the progress reports within the given year. The Annual Report includes specific sections on 1) activities carried out, output results, outcome results, challenges; 2) assumptions and risks; 3) annexes on disbursements, budgets and actual expenditures.

- In the Annual Report format, the CF should consider including a section on lessons learnt. The lessons learnt should be documented and integrated in subsequent programming. To the extent possible, the Annual Report should also reflect and have more focus on impact and long-term gains as the programme has been running for several years already.

Administration:

The CF is a decentralized unit under RDE and based in Kampala with ongoing projects in Northern Uganda involving regional offices and implementing partners. The CF has 3 staff (Finance Officer, Senior Adviser & M&E Officer) who are employed to manage coordination, finance and admin overall. This staffing level is adequate to cater for the financial and administrative tasks and responsibilities within the CF. This is attributable to the fact that both the Finance Officer and the Senior Adviser have both been working at CF for several years and therefore have in depth institutional and historical memory and knowledge. The staff seem highly adequate in terms of skills and capacities for overall financial and project management. Combined with regional offices and implementing partners, the CF seems able to implement and execute activities according to work plans without much delay or complications. CF operates dedicated

RDE project bank accounts in UGX. The bank account has 4 signatories with back-ups for both category A and B. RDE is a signatory to the bank account and therefore approves all bank payments.
Overall, the running of CF also includes procurement, management of inventory and assets, and IT infrastructure. Based on discussions with the CF and the observations made, the pre-grant assessment recommends as follows:

- The CF should develop a one-page 'Value for Money Guideline' (VfM) stating approaches and principles applied at the CF to ensure VfM in procurement, contracting, etc.
- Although the CF has pre-qualified suppliers, there is no documented criteria for selection of suppliers – It is recommended that the CF develops a list of criteria for selection of suppliers. The CF should also keep a register with information on the suppliers, their track record with regard to timeliness of delivery, correctness of delivery and availability of affordable quotations.
- The CF has a back-up procedure that stipulates that each staff member copies his/her documents / data in QuickBooks and on an external drive. The Senior Adviser has two external hard disks with copies of important documents. The current procedure should emphasize that all staff should regularly and monthly back up all relevant data.
- Overall, IT security is fairly in place; however, supporting documentation for payments is only available in the original hard copies. The CF does not archive scanned softcopy. CF should consider online archiving of all payment vouchers and supporting documentation, thereby get a better overview, accessibility, and documentation of all previous financial data.
- The CF manages and maintains registry for fixed assets and inventory in Excel – however it would be of value to include information on the condition of the item and ensure annual updating in connection with the annual external audit.
- Both the FO and Senior Adviser have a lot of historical memory and institutional knowledge. Consequently, many of the tasks and duties are based on knowing what to do rather than following a SOP. It is important that the CF develop Standard Operating Procedures (SOP) for daily project management to ensure a proper hand-over in case the current Finance Officer and/or Senior Adviser do not continue in the next phase of the programme. The CF should share progress on the documentation of the SOPs with the RDE for comments/approval
- In the next phase, the CF should take over responsibility for all activities and outputs with regard to disbursement of funds to implementing partners, supervision of the implementing partners, and compiling implementing partners' audit reports. With reference to the guideline for financial management of decentralized units it is stated that "in case the decentralized unit enters into a project agreement with an external organization for the implementation of activities, then it is the responsibility of the decentralized unit to ensure that accounts are received timely and they are appropriately audited" – this should be

applied fully for NURI. This would result in additional work and task compared to the current set-up and therefore RDE should consider increasing the number of staff in the CF with a Finance Assistant or similar to accommodate this.

Anti-corruption:

As a decentralized unit under the RDE, the CF follows Danida's policies on both anti-corruption and whistle blower. The CF immediately reports any suspicion about misuse of funds to RDE. The CF Management Manual has a copy of the anti-corruption Code of Conduct. The CF mentions the whistle blower policy during regular financial management visits to both regional offices and implementing partners. The CF confirmed reporting and documenting two corruption cases since October 2014. One of these was a corruption open case in Kitgum with documented fraud of about DKK 6,000. The overall recommendations are as follows.

- NURI should do more to ensure awareness of whistle blower policy, how it functions, where and how to do any reporting of suspicious actions, and the phone number and/or email address to report to.

Summary of recommendations and/or follow-up:

- In the upcoming new phase (NURI), the RDE should change the setup for sub-grants and partners so that it is CF NURI and not the RDE that directly t enters into agreements with implementing partners and disburses funds to the implementing partners. Similarly, CF NURI must also handle the audit of implementing partners.
- NURI is currently considering effecting more payment through internet banking to ensure a structure and payment system based on an online banking solution rather than check payment. The CF must share with RDE the decision on and updates on this new system.
- Both the FO and Snr Adviser have a lot of historical memory and institutional knowledge. Consequently, many of the tasks and duties are based on knowing what to do rather than following a SOP. It is important that the CF develops Standard Operating Procedures (SOP) for daily project management to ensure a proper hand-over in case the current Finance Officer and/or Senior Adviser do not continue in the next phase of the programme. The CF should share progress on the documentation of the SOPs with the RDE for comments/approval
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ANNEX 4: RISK MANAGEMENT

The COVID pandemic emerged as a major and unforeseen threat to NURI implementation in early 2020 and continued to impact on implementation throughout 2021. Though not in the project area, the Ebola outbreak in 2022 is considered to be a potentially major risk to project implementation. In general, assumptions about the programme made at the time of programme design, held, and risks were successfully mitigated, although residual risks remain. The results of the Mid Term Review, related studies and the adoption studies carried out in 2020 and 2021, and the climate risk and vulnerability study carried out in 2022 allow for some confidence in updating the status on risks and assumptions. Details on risks and assumption identified in the original programme document, as well as those emerging, are updated in the below tables:

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
Programmatic risks					
Creation of aid dependency by supporting small-scale farmers to access subsidized low-cost inputs.	Likely	Major	NURI's strategy is to provide inputs only to those farmer groups that fulfil certain conditions, like co-financing and preparation of a business plan. Also, subsidized inputs constitute a small proportion of the total intervention.	Refugees with limited access to agricultural land may need continued support as they may not be able to afford improved inputs nor produce enough to keep farm saved seeds	This risk has not materialized. The importance of levelling expectations from the start, is a lesson from earlier programmes. Production and Marketing plans, supported by VSLA Saving with a Purpose activities encourages farmers to have a plan which includes planning how to finance inputs.
Land conflicts due to unclear land ownership and increasing pressure on land and/or land-grabbing by powerful entities or individuals.	Likely	Major	Land conflicts may be exacerbated by the NURI success. Mitigation through ensuring land ownership is clearly defined and recorded and through inclusive planning processes, locally driven	Some land conflicts can arise after project closure if disputes arise over sharing of project assets / outcomes	Land conflicts are managed on a case-by-case basis, for example by relocating demonstration plots or compromising on the width of CARs. Land disputes are more common in Acholi but reducing over time. All cases are

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
			implementation and strengthening of local communities.		solved through engagement of LLG authorities.
Poor sustainability of constructed or renovated infrastructure due to insufficient maintenance.	Likely	Major	NURI will strengthen learning from cases where mobilization of local communities for maintenance has been successful, and continuously explore and share information on best practice.	Maintenance of infrastructure projects by communities may be affected by extreme weather events (e.g. floods), that cause significant damage to infrastructure and increase maintenance costs	DRC has built in mitigation based on earlier experience. Implementation of Resilience Design potentially reduces the need for road maintenance and creates incentives for farmers to maintain drainage structures as agriculture benefits from water soaking into the soil. Despite these efforts to reduce the problem of insufficient maintenance, the issue continues to be a challenge.
Adverse climatic events, such as floods or droughts	Likely	Major	Adaptation to the risk is a key rationale for NURI's interventions concerning climate smart agriculture and water resources management, and climate considerations are also integrated in infrastructure renovation and construction.	Mitigation of extreme weather events is somewhat outside the scope of NURI	CSA practices are implemented and resilience design is implemented for RI. These mitigating measures will somewhat lessen the risk. There have been cases of flooding where drainage trenches have been introduced with advice from NURI extensionists. Flooding and waterlogging are significant challenge and more effort in resilience design and

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
					capacity development are needed.
Women will not actually get empowered due to deep-rooted cultural practices and norms.	Likely	Major	NURI will strengthen focus on female empowerment. Training in financial literacy and family planning are seen as key opportunities.	Changing some deep rooted cultural norms and practices during the short span of the project period might not be possible	In collaboration with the WAY programme a guide for strengthening SRHR and gender in CSA training has been developed for use of extension staff. In CSA the high numbers and enthusiastic engagement of women, ensures women's participation in leadership
Local communities become disgruntled due to disagreement with the selection of beneficiaries and projects.	Likely	Minor	NURI will emphasize transparency and inclusion in decision-making processes. Stakeholders are sensitized before project selection and distribution of resources is done in a transparent way.	Leaving out some community members during project and beneficiary selection undermines project ownership at scale	This has not materialized perhaps because of the strong efforts on clarifying selection procedures and involvement of local governments
Interventions by other DPs offer more lucrative support for beneficiaries and better salaries for staff	Likely	Minor	NURI will coordinate with other DPs to avoid geographical overlap and "competition" for beneficiaries, and to coordinate general remuneration levels for both community	The existence of different implementation modalities and remuneration levels can result in low participation in NURI activities, which will slow down the realization of planned project results	There have been groups dropping out and staff leaving for other posts, but not to a level where it impacts on outcomes. NURIs focus on capacity building vs inputs is widely understood and respected. In Acholi some staff lost to DINU. Some VSLA

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
			participation and project staff.		groups have moved to other programmes that offer financial incentives.
Institutional risks					
Corruption or misuse of funds among NURI implementing partners (also programmatic risk)	Likely	Major	Mitigation through implementation modalities based on experience. Lessons learned on safeguards under RDNUC are incorporated in the Management and Accounts Manuals.	Safeguards put in place to curtail corruption can lead to bureaucratic bottlenecks that slow down the pace of project implementation	Financial and procurement guidelines and monitoring are implemented. Whistle blower reports are thoroughly investigated. Quarterly financial reports are submitted to NURI CF combined with quarterly finance and procurement visits by NURI CF.
Self-implementation by NURI CF leads to lack of sustainability and excessive management burdens.	Unlikely	Major	This risk will be mitigated by building on previous positive effects of self-implementation: Many local staff have been trained and equipped with skills they can apply in different contexts, and efficiency has been high due to decreased fiduciary risks and no politicisation of activities.	Well-trained and competent are attractive to other employers. NURI staff end up leaving for better paying jobs outside the programme area	In NURI CSA sustainability is achieved through building human capacity within the IPs, DLGs and the community. NURI CSA staff, including VSLA staff are recognised for their capacity and, from past experience, go on to jobs in public, NGO and private sector, taking with them the technical and management skills imparted by NURI. Excessive management burdens have been addressed from the start with additional staffing, and during

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
					2021 a Supervising Engineer joined the team.
Limited engagement of local governments, as they do not implement.	Unlikely	Minor	As NURI will rely on the active engagement of DLGs, it is designed to ensure full alignment to their structures and procedures. Furthermore, capacity building is integrated in all NURI interventions.	Local governments demand adherence to sector norms, guidelines and standards of the government, which may be costly or outside the NURI scope of works. Adherence may lead to fewer projects implemented	DLGs and LLG are enthusiastically engaged in NURI as is clearly seen in quarterly monitoring and at the IMC. Being involved in selection of beneficiaries, strategic crops, infrastructure projects, as well as in monitoring, and in attending and occasionally facilitating trainings, DLGs and LLGs are generally highly involved in implementation.
Emerging Risks					
Conflict between Districts where new districts have been split off from NURI districts	Likely	Medium	Managed by a transparent splitting of resources between the sub-divided districts and by engaging with the new districts. NURI will follow the lead of GoU and not engage in any political debate.	Splitting resources between sub divided districts increases administrative / operational costs and reduces funds for activities	The initial conflict between Obongi and Moyo districts has receded, and no other conflicts identified that have impacted on NURI implementation.
Lock-downs and restrictions due to epidemics hinder work and raise fear	Likely	Medium	Working with District epidemic task forces, developing and following SOPs and taking sensible	Lockdowns reduce community participation in programme activities. Working with District	Emergence of epidemics has major impact on the economy and the cost of development

Risk factor	Likelihood	Impact	Risk response	Residual risk	Background to assessment
of outsiders in the communities			precautions has allowed NURI to continue work.	epidemic task forces, increases programme implementation costs	due to increased costs of inputs, transport and other cost centres.
Access to quality inputs in remote sub-counties and settlements	Likely	Mediu m	Group members knowledge on own propagation of seeds is being strengthened, and local seed business is being promoted through guiding and supporting some farmer groups to produce and market quality declared seeds. Refugee women groups and mixed refugee-host community groups are provided with free inputs	Providing free inputs can create and perpetuate a dependency syndrome and undermine efforts aimed at promoting self-reliance	Access to quality inputs remains a problem despite some improvement for farmers closer to urban settlements. Although access to inputs is increasing as the market responds to demand, there are considerable gaps, including access to improved varieties. Kitgum reports increased number of agro-input businesses, but with limited outreach.

Status on Assumptions

No.	Assumption / Risk	Status
KA CSA	Farmer groups will be open to learning climate smart agricultural methods and will adopt and apply the techniques on their farms	Farmer groups have been selected based on interest and commitment.
KA CSA	Farmer groups will be willing to participate and cost-share some types of support such as produce stores	Old National Groups contributed significantly through cost-sharing for projects focused on marketing, although their ability to do so reduced due to COVID-19. A tree growing pilot, which includes cost-sharing on seedlings is ongoing.
KA CSA	Refugees will have access to sufficient land for production activities	Access to land for refugees varies considerably across the settlements. In general access to land has not hindered group activities.
KA RI	Participating communities will be willing and able to contribute to physical investments through labour and maintenance of infrastructure	Groups are actively participating in activity implementation. Participation in maintenance activities for RI still has challenges.
KA RI	Climatic conditions are favourable for construction works	Heavy and persistent rains are problematic in terms of flooding and erosion of road works. Resilience design is being introduced as mitigation. RI activities are on schedule.
KA RI	Local contractors are available and able to meet quality standards	Availability of qualified local contracts have caused delays in some RI activities, and procurement process have had to be adopted to address this.
KA WRM	UNWMZ is able to establish collaboration and agreements	Lower-level collaboration still needs to be strengthened but is successful at district level.
KA WRM	Stakeholders are able to identify suitable micro-catchments	All eight micro-catchments under the programme have been identified and micro catchment management plans developed.
KA WRM	Participating communities are willing and able to contribute to physical investments	Based on experience from RI and WRM there are challenges in willingness to contribute land for NURI investments and intense community dialogue and the signing of land-donation agreements prior to starting is essential as well as involvement of local government.

KA CSA= Key Assumption for Climate Smart Agriculture, KA RI = Key Assumption for Rural Infrastructure, KA WRM= Key Assumption Water Resource Management

ANNEX 6 – LIST OF SUPPLEMENTARY MATERIALS

#	Document / Material	Source
1	NURI Extension Brainstorming Workshop Report, February 2022	Consultancy Report
2	NURI Climate Risk Vulnerability in Northern Uganda Assessment Report, March 2022	Consultancy Report
3	OECD DAC Markers for Climate Change: Handbook	OECD
4	Uganda Country Programme Mid Term Review Report, May 2021	MFA
5	Guidelines for Country Strategic Frameworks, Programme & Projects, November 2020	MFA
6	NURI 2021 Annual Progress Report, March 2022	NURI Coordination Function
7	NURI Programme Document 2019-2022, March 2019	NURI Coordination Function
8	Green Extension of NURI Final Appraisal Report, November 2022	GDK
9	Bilateral Agreement with Implementing Partners	Royal Danish Embassy
10	MoU with District Local Governments	Royal Danish Embassy
11	Increasing Operational Sustainability of Rural Livelihood Programmes Policy Brief: July 2022, July 2022	Royal Danish Embassy
12	A Rapid Assessment of NURI Interventions against the Nature-based Solutions Standard - Final Report, September 2022	NURI Coordination Function

ANNEX 7: PLAN FOR COMMUNICATION OF RESULTS

What? (the message)	**When?** (the timing)	**How?** (the mechanism)	**Audience(s)**	**Responsible**
What is/are the key messages that we would like to communicate?	When do we want to communicate these messages?	How will we make sure that the key messages are clearly communicated and understood as we want them to be understood?	Who is the primary (and secondary) audience targeted by through these communication activities?	Who will be responsible for making sure that identified activities are carried out?
Successes and lessons of NURI programme.	Throughout 2023, the results, achievements and lessons of the NURI programme will be shared.	Making the information available at a variety of fora and in various formats, including, social media and where relevant and feasible, through policy briefs	Danish audience, via the RDE, Government of Uganda, District local Governments and communities in Northern Uganda	NURI CF, working with Embassy colleagues
Outcomes of a number of pilot activities	In the first or second quarter for pilots ongoing from 2022. Towards the end of 2023, preliminary results of pilots implemented in 2023	NURI plans a number of Learning and Reflection Workshops with local stakeholders.	The primary audience for results of the pilots are District Local Governments, as well as the RDE, in the preparation of NURI 2.0	NURI CF will be responsible for the implementation and adjustment of these activities
General information on Greening – encouraging uptake of greening activities in the communities of Northern Uganda, including refugees. The importance of greening the environment through tree growing and soil and water management.	Throughout the NURI extension.	Through the specific programmes training, implementing, identifying and supporting local initiatives reflecting on lessons and sharing those lessons via radio, social media, and where relevant national press and policy briefs.	To participating groups and communities, the wider communities District and local governments. Actors in the sector including development agencies. Government of Uganda for policy briefs	NURI CF, NURI CSA Implementing partners and units
Lessons on sustaining programme achievements.	Throughout the NURI extension	Exploring through pilot activities and learning and reflection workshops, ways to strengthen and build sustainability of NURI supported farmer groups / VSLAs, through activities of linkage, digitalization, marketing and business support. Also, alternative extension methodologies. Reflecting on and	Participating groups, implementing partners, District and local governments. Actors in the sector including development agencies. Government of Uganda for policy briefs	NURI CF, NURI CSA Implementing partners and units

What? (the message)	**When?** (the timing)	**How?** (the mechanism)	**Audience(s)**	**Responsible**
		sharing lessons, communicating via local radio, social media, the press and possibly including policy briefs, if found relevant.		
The importance of maintaining the infrastructure assets created under NURI	The first two quarters of 2023, as part of the extension of DRC contract,	Activities to mobilize local governments and communities, by strengthening User Committees, Peer-to-Peer maintenance workshops, learning-visits to resilience design sites, strengthening traditional maintenance methods.	Local governments and users of assets, as well as communities in general. If relevant a policy paper may be developed.	DRC will implement, with monitoring by NURI CF
Lessons learned on integrating Resilience Design in Rural infrastructure	Second quarter of 2023	Consultancy report, possibly leading to a policy brief.	District Local Governments, Development actors, Government of Uganda	NURI CF

ANNEX 8: PROCESS ACTION PLAN (PAP)

Action/product	Deadlines	Responsible/involved Person and unit	Comment/status
Documentation for green extension of NURI presented to Under-Secretary for Development Policy and the Minister for Development Cooperation for approval	16 December 2022	Head of Cooperation, Royal Danish Embassy, Kampala	
Documentation for green extension of NURI approved by the Minister	21 December 2022	Head of Cooperation, Royal Danish Embassy, Kampala	
The DKK 26 million is committed	21 December 2022	Chief Finance Officer, Royal Danish Embassy, kampala	
An amendment to the Engagement Documents signed with NURI Coordination Function	23 December 2022	Desk Officer Northern Uganda Resilience Initiative (NURI)	Signed with caveat i.e. subject to Minister's approval
An amendment to the Engagement Documents signed with Danish Refugee Council	23 December2022	Desk Officer Northern Uganda Resilience Initiative (NURI)	
An addendum to the MoU with District Local Governments signed	10 January 2023	Desk Officer Northern Uganda Resilience Initiative (NURI)	Done (No cost involved)
An addendum to the Development Engagement Document with Ministry of Water & Environment signed	10 January 2023	Desk Officer Northern Uganda Resilience Initiative (NURI)	

ANNEX 9: QUALITY ASSURANCE CHECKLIST

File number/F2 reference:	*2022-5516*
Programme/Project name:	*Northern Uganda Resilience Initiative (NURI)*
Programme/Project period:	*2018-2023*
Budget:	*DKK 45 million, of which DKK 26 is yet to be committed*

Presentation of quality assurance process:

The budget of the project is DKK 26 million. The project was internally appraised by a team of development specialists from MFA-GDK, not involved in preparing/designing the project documents. In addition to assessing the documentation prepared, the quality assurance included a field visit and consultations with key stakeholders in Northern Uganda, including the project implementers i.e. field appraisal.

As the original programme was thoroughly documented and appraised, the following documentation were prepared for approval by the Minister as an alternative to developing a separate project or project component: a) an appropriation note, b) a note describing the changes and their justification c) a revised budget and d) a revised results framework

- ☐ The design of the programme/project has been appraised by someone independent who has not been involved in the development of the programme/project.

  Comments: Yes, the project was appraised by development Specialists from MFA-GDK

- ☐ The recommendations of the appraisal has been reflected upon in the final design of the programme/project.

  Comments: Yes, the Note for Extension of NURI to 2023 was adjusted following the appraisal

- ☐ The programme/project complies with Danida policies and Aid Management Guidelines, including the fundamental principles of Doing Development Differently.

  Comments: Yes, The appraisal was also done in accordance with the DANIDA Aid Management Guidelines, in particular Guidelines for Country Strategic Frameworks, Programmes and Projects

- ☐ The programme/project addresses relevant challenges and provides adequate responses.

  Comments: Comments: Yes. The project addresses climate change adaptation and operational sustainability, which are identified as key challenges in the project area of Northern Uganda. The responses to the challenges are a mix of building on methods developed and tested over many years, and pilots of additional concepts addressing old and emerging challenges.

- ☐ Issues related to HRBA, LNOB, Gender, Youth, Climate Change, Green Growth and

Environment have been addressed sufficiently in relation to content of the project / programme.

Comments: Yes, the project's principal focus is on climate change adaptation and operational sustainability, while mainstreaming the involvement of women and youth

- ☐ Comments from the Danida Programme Committee have been addressed (if applicable).

  Comments: Not applicable

- ☐ The project outcome(s) are found to be sustainable and is in line with the partner's development policies and strategies. Implementation modalities are well described and justified.

  Comments: One of the objectives of the extension is to address the sustainability of project outcomes i.e. enhance operational sustainability and by extension the resilience and adaptive capacity of farmers and implementing institutions to climate change and climate variability. The project outcomes are line with those in Uganda's Third National Development Plan (NDP 3). The implementation modalities are the same as those for the initial project period 2018-2022, thoroughly tested and well described and justified in the NURI Programme Document 2018-2022

- ☐ The results framework, indicators, documentation- and audit requirements for the project provide an adequate basis for monitoring results and outcome.

  Comments: Yes, a revised results framework has been included in the documentation. The Appraisal Team found that the documentation, revised results framework and indicators have been sufficiently adjusted to reflect the increased focus on climate change adaptation and the monitoring of results. Sufficient audit arrangements are in place until June 2024

- ☐ The programme/project is found sound budget-wise.

  Comments: Yes, the budget has been revised with the adjustment of objectives and in terms of Rio Marker classification to make them green. The extension note / document has also been revised to reflect allocation of the DKK 19 M from the Country Programme to the green extension and to enhance operational sustainability.

- ☐ The programme/project is found realistic in its time-schedule.

  Comments: Yes, and the project management unit (NURI CF) has been requested to come up with an exit plan i.e. prepare a roadmap to completion and closure

- ☐ Other donors involved in the same programme/project have been consulted, and possible harmonised common procedures for funding and monitoring have been explored.

Comments: Not applicable. It is only Danida that will fund the green extension of NURI. Still relevant Development Partners and implementing partners have been consulted in the process

- ☐ Key programme/project stakeholders have been identified, the choice of partner has been justified and criteria for selection have been documented.

  Comments: Yes. The green extension of NURI will be implemented using the existing implementation arrangements i.e. partners, structures and processes. The partners had been selected after a pre-grant assessment prior to commencement of the current programme period 2018-2022. The Embassy has signed Addendums with the existing partners for the extension to December 2023.

- ☐ The implementing partner(s) is/are found to have the capacity to properly manage, implement and report on the funds for the programme/project and lines of management responsibility are clear.

  Comments: Comments: Yes. The green extension will be implemented using the existing partners whose capacity have not only been assessed but tested over time. The Embassy has prepared Addendums for signatures with the partners for the extension to December 2023, clearly stating the roles and duties of the Parties and the lines of management responsibilities

- ☐ Implementing partner(s) has/have been informed about Denmark's zero-tolerance policies towards (i) Anti-corruption; (ii) Child labour; (iii) Sexual exploitation, abuse and harassment (SEAH); and, (iv) Anti-terrorism.

  Comments: Yes, the decentralized unit of the Embassy organized on boarding workshops for staff where these issues were highlighted and emphasized by resource persons from the Embassy

- ☐ Risks involved have been considered and risk management integrated in the programme / project document.

  Comments: Yes, a summary of risk management specific to the extension period is included on the Cover page. The original programme document includes a comprehensive risk management plan (i.e. Risk Assessment and Response, pages 75-76), which is still relevant to the extension period. This has been updated

- ☐ In conclusion, the programme/project can be recommended for approval: yes / no.

  Comment: Yes, the project can be recommended for approval

Date and signature of Desk Officer: 16/12/2022

Date and signature of Management: 16/12/2022

ANNEX 4: SUMMARY OF RECOMMENDATIONS

Title of Project	**Green Extension of the Northern Uganda Resilience Initiative**
File number/F2 reference	**2022-5516**
Appraisal report date	**20 November 2022**
Council for Development Policy meeting date	-

Summary of possible recommendations not followed
(to be filled in by the responsible unit)

The Embassy appreciates the constructive approach taken by the appraisal team and is in agreement with its recommendations, except the one on prolonging the green extension of NURI until mid-2024 ("Recommendation 3"). This recommendation has not been followed because, the successor will be markedly different due to fact that the implementation modality will change. Therefore, although the recommendation is good, it is practically not feasible.

Overall conclusions of the appraisal

The overall conclusion of the appraisal is that ***the proposed project is recommended for approval with some minor adjustments taking the recommendations of this report into consideration.***

Recommendations by the appraisal team	**Follow up by the responsible unit**
Recommendation 1: Revise the extension note to: i) remove reference to the climate change envelope; ii) describe and clarify how the budget allocation of DKK 19 million from the country programme to NURI will complement the green extension of NURI; iii) briefly explain relevant projects/activities of other development partners within the project area and potential synergy and cooperation; and iv) include main findings from the rapid assessment of NURI interventions against the NbS standard.	**Agreed.** The reference to the CCE will be removed (instead reference will be made to adaptation to climate change and strengthening water management). The extension note will further be revised: (i) to reflect allocation of the DKK 19 M to the green extension, (ii) to include description of similar activities by other development partners showing synergies and, (iii) to include the main findings from the rapid assessment of NbS
Recommendation 2: As part of the NURI extension, continue the activities on water resource management around existing infrastructure, particularly on ponds and spring protection to ensure the greening and community ownership of the ponds and springs. Revise the extension note including the budget and results framework accordingly.	**Agreed**. Efforts will be made to improve the functionality and community ownership of the ongoing and completed water projects. NURI CF has already adjusted the activity descriptions to include follow up on the greening of ponds and spring protection during the extension period. The revisions will be reflected in the budget and results framework

Recommendation 3: Consider the feasibility in prolonging the green extension of NURI until mid-2024 to avoid a gap between the current phase and NURI 2.0.	**Rejected.** Due to the nature of NURI planning, we do not think it would be feasible to extend NURI further. Also, although we take efforts to use good experiences from NURI, the successor will be markedly different simply regardless of a gap due to fact that the implementation modality will change.
Recommendation 4: Revise the key results/result framework to better capture expected impacts/results regarding improving the climate resilience of project beneficiaries.	**Agreed.** The results framework will be adjusted to better capture the anticipated number of beneficiaries with increased climate resilience derived from NURI activities.
Recommendation 5: Include activities concerning the increased use and communication of weather and climate information products and services into the design of NURI 2.0.	**Agreed.** However, it should be noted that at the moment this is possible only to the extent of the weather forecast and advisory issued by the Uganda Meteorological Authority (UMA). Every quarter, UMA issues quarterly seasonal rainfall outlook and advisory per sector and per region
Recommendation 6: Enhance community ownership and involvement in maintenance of project outputs e.g. RI and WRM through increased community engagement activities.	**Agreed**. A plan has been approved to address this issue during the first six months of the extension, through: (1) strengthening the resilience and sustainability of selected projects, (2) facilitating learning and enhanced technical support to districts; (3) strengthening project user committees coupled with training and community engagement activities. Community ownership and husbandry of food-forests and vegetation around ponds and protected springs has been separately planned for.
Recommendation 7: As part of the extension phase, where several activities will provide important learning on opportunities for greening interventions within the objective of NURI, an in-depth biodiversity net-gain outcome assessment should be completed targeted relevant NURI activities. This assessment will be used to inform the design of NURI 2.0, and to the extent possible, position NURI 2.0 as adhering to the NbS Standard.	**Accepted with reservations.** Due to the change in modality from NURI to NURI 2.0, it is assessed to be more feasible to integrate the issue into the call for proposal used to select the implementing NGOs for NURI 2.0. Focus will be on avoiding and minimizing activities with harmful impact on bio-diversity while at the same time explore opportunities within the scope of NURI 2.0 and its focus on agriculture.

Recommendation 8: Continue efforts to improve the overall sustainability of the NURI programme based on ongoing, evidence-based assessments of livelihood opportunities in the programme target areas. Meeting the NbS Standard through an appropriate design for NURI 2.0, including improved consideration for criterion 3 through a biodiversity net-gain outcome assessment, will be a valuable contribution to this process.	**Agreed.** The recommendation has two parts: First, improving overall operational sustainability. This will be a core part of NURI 2.0. Second, improve biodiversity. This will reflected in NURI 2.0. Due to the change in implementation modality, where a call for proposals will select implementing NGOs, and the low number of NGOs already using the standard, it is not deemed feasible to require meeting the NbS global standard. The number of qualifying NGOs is deemed to be very low.

I hereby confirm that the appraisal team has identified the above-mentioned issues and provided the corresponding recommendations as stated above to be addressed properly in the follow-up to the appraisal.

Signed in…Copenhagen…….. on the …November 20, 2022……

Tobias von Platen-Hallermund, Appraisal Team leader/ELK representative

I hereby confirm that the responsible unit has undertaken the follow-up activities as stated above. In cases where appraisal recommendations have not been accepted, reasons for this are given either in the table or in the notes enclosed.

Signed in…Kampala…….. on the…12th December 2022

Head of Unit/Mission

Signe Winding Albjerg