GCCA+

THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE

Funded by the European Union

Case Study Nr. 20 – Uganda

IMPACT AND SUSTAINABILITY STUDY

UGANDA

GLOBAL CLIMATE CHANGE ALLIANCE: AGRICULTURE ADAPTATION TO CLIMATE CHANGE IN UGANDA

CRIS CODE: DCI-ENV/2011/023-189

AUGUST 2021

www.gcca.eu

List of Acronyms

AEZ	Agro-ecological zone
CA	Contribution Agreement
CBA	Cost Benefit Analysis
CBO	Community-based Organisation
CC	Climate Change
CCA	Climate Change Adaptation
CCAP	Climate Change Adaptation Plans
C-Care	Community Care for Development
CCD	Climate Change Department (MWE)
CCPC	Climate Change Policy Committee
CCU	Climate Change Unit
CK	Caritas Kasanaensis
CRIS	Common Relex Information System
DCI	Development Cooperation Instrument
DRR	Disaster Risk Reduction
DSIP	Development Strategy and Investment Plan
ENV	Environment
EU	European Union
EUD	European Union Delegation
EUR	Euro
FAO	Food and Agriculture Organisation
FFS	Farmer Field School
FGF	Farmer Group Facilitator
FSSD	Forest Sector Support Department (MWE)
GCCA	Global Climate Change Alliance
GIS	Geographic Information System
GPS	Global Positioning System
HDDS	Household Dietary Diversity Score
HH	Household
HRNS	Hanns R. Neumann Stiftung
ICT	Information, Communication and Technology
INDC	Intended Nationally Determined Contribution
I&S	Impact and Sustainability
IT	Information Technology
JBI TRC	JB International Training and Resources Centre
JEEP	Joint Energy and Environment Project
JFA	Joint Financing Arrangement
JPF	Joint Partnership Fund
LWF	Lutheran World Federation
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MC	Management Component
M&E	Monitoring and Evaluation
MWE	Ministry of Water and Environment
NACORI	National Coffee Research Institute
NADIFA	Nakasongola District Farmers Association
NaLIRRI	National Livestock Resources Research Institute
NDC	Nationally Determined Contribution
NDP	National Development Plan
NGO	Non-Governmental Organisation
NPA	National Planning Authority
NRC	National Office and Resource Centre (of the CCD)
OO	Overall Objective
ROM	Result Oriented Monitoring

SEDIFA	Sembabule District Farmers Association
SO	Specific Objective
SPGS	Sawlog Production Grant Scheme
THP	The Hunger Project
UGX	Uganda Dollar
UK	United Kingdom
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Cooperation
USD	United States Dollar
WfPD	Water for Production Department (MWE)
WSSWG	Water and Sanitation Sub-Working Group
WUA	Water User Association
WUC	Water User Committee
ZARDI	Zonal Agricultural Research and Development Institute

I. Project Details and Outputs Delivered

PROJECT TITLE: Global Climate Change Alliance – Uganda: Agriculture Adaptation to Climate Change in Uganda CRIS Code: DCI-ENV/2011/023-189		
AAP YEAR: 2011	DURATION: 54 months[1] starting with the signature of the Contribution Agreement (CA) between the EU and FAO.[2]	DATE OF COMPLETION: 01/2017
TOTAL PROJECT COST: 14,000,000 EUR The Belgian Government contributed 3,000,000 EUR[3]	GCCA ALLOCATION: 11,000,000[4] EUR	
AID MODALITY: Project approach	MANAGEMENT ARRANGEMENTS: Joint management with FAO through a Contribution Agreement (CA) (2011/280-961) for the value of 10,795,000 EUR[5].	
GEOGRAPHICAL COVERAGE: Project interventions were implemented at national and sub-national levels. At the sub-national level, the project covered the following six districts of the Central Cattle Corridor: Nakasongola, Luwero, Nakaseke, Kiboga, Mubende and Sembabule. [6]		
MAIN STAKEHOLDERS: ▪ The Food and Agriculture Organisation (FAO) – Uganda was the main implementing agency. ▪ Key government partners were the Ministry of Water and Environment (MWE), in particular the MWE's Departments for Climate Change (CCD), Water for Production (WfPD) and Forest Sector Support (FSSD), and the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). ▪ Other partners included the Local Governments in the 6 key Districts, various NGOs (The Hunger Project (THP) Uganda; the Lutheran World Federation (LWF); Caritas Kasanaensis (CK); the Joint Energy and Environment Project (JEEP); the Sawlog Production Grant Scheme (SPGS); and the Hanns R. Neumann Stiftung (HRNS) Africa), various Community-based Organisations (CBOs) (Sembabule District Farmers Association (SEDIFA); Nakasongola District Farmers Association (NADIFA); Community Care for Development (C-Care) Uganda), private companies (JB International Training and Resources Centre [JBI TRC] – mushroom production and marketing; Baata Engineering Company Ltd; SEKA Associates – Consulting Engineers Ltd; Le Groupe-Conseil		

[1] The initial implementation period of 48 months was later extended with 6 months.
[2] The Contribution Agreement was signed on 10 July 2012.
[3] Details on the focus and use of these complementary funds are provided in box 2.2.
[4] Initially, the Contribution Agreement was concluded for an amount of 10,795,000 EUR. In December 2012, through the signature of an Addendum to the CA, the CA budget was increased to 11,000,000 EUR.
[5] The Contribution Agreement envisaged 2 management components. Management Component 1 (MC1) with a budget of 6,795,000 EUR for all activities related to institutional support for CC adaptation and to CC adaptation of the agricultural sector was fully managed and implemented by FAO. Management Component 2 (MC2) with a budget of 4,000,000 EUR was a "pass-through component", meaning that the funds were directly channelled through FAO into the Joint Partnership Fund (JPF) implemented by the Water for Production Department (WfPD) of the Ministry of Water and Environment (MWE) under a Joint Financing Arrangement (JFA). Activities carried out under the JPF/JFA were supervised by the Water and Sanitation Sub-Working Group (WSSWG).
[6] Awareness raising was supported in 20 Districts, hence beyond the 6 key Districts of the Central Cattle Corridor. This had been made possible by the complementary funds that were provided by the Belgian Government.

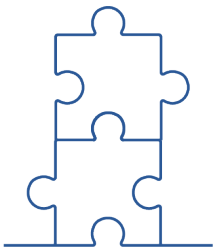
Baastel Sprl; Balton; Excel Construction Ltd), the Makerere University Kampala, and the National Livestock Resources Research Institute (NaLIRRI).

MAIN BENEFICIAIRIES:

- MWE's Climate Change Department and Water for Production Department
- Water User Associations and Committees, livestock keepers, smallholder coffee producers, farmers

GCCA PRIORITY AREA(S):

Adaptation, Mainstreaming



MAIN SECTOR(S):

Agriculture and Livestock production, Coffee production, Water and Sanitation, Forestry and Energy

OVERALL OBJECTIVE:

Livelihoods and food security of the rural populations in Uganda sustainably improved. [7]

SPECIFIC OBJECTIVE(S):

Resilience of rural populations and agricultural production systems in the central part of the cattle corridor strengthened through improved capacities of communities, commercial farmers and the Government of Uganda to cope with climate change. [8]

EXPECTED RESULTS:

1. Knowledge and capacities for climate change adaptation strengthened
2. Better access for livestock and crops to water through Water for Production investments
3. Resilience of agricultural production systems in the cattle corridor improved

OUTPUTS DELIVERED:

RESULT 1, OUTPUT 1.1: INSTITUTIONAL CAPACITY OF CCD AND OTHER NATIONAL INSTITUTIONS STRENGTHENED

- A 5-year costed Strategic Plan (2013-2018) for the CCD
- CCD capacity development plan based on a capacity needs assessment
- Five CCD staff members trained at Master level (in Climate Change and International Development - UK and in Climate Change and Disaster Risk Management – Uganda)
- Two MWE staff members trained in financial management and auditing
- Two WfPD staff members trained in climate change adaptation practices, in water harvesting and in efficient use of water resources (study tour in Israel)
- Four regional research and development institutes (Zonal Agricultural Research and Development Institutes (ZARDIs) in resp. Nabuin, Buginyanya, Ngetta and Mbarara) revamped and equipped to undertake climate change related research
- CC National Resource Centre (NRC), including the CCD offices, constructed and equipped

[7] No substantial changes in the OO from the initial Project Document to the Completion Report / Final Evaluation Report.
[8] No substantial changes in the SO from the initial Project Document to the Completion Report / Final Evaluation Report.

Result 1, Output 1.2: Climate-proofed national development by improving adaptive capacities of national and district level agencies

- Staff of three national agencies and nine national committees trained in climate change
- National Development Plan II (2015/16–2019/20) CC mainstreamed
- Intended Nationally Determined Contributions (INDC) developed, validated and submitted
- Awareness raising campaign on CC designed and conducted at district level
- Modular training toolkit (with Makerere University)
- Awareness raising material developed (with Makere University)
- 23,852 technicians of district and national agencies, NGOs and policymakers trained in CC (8 modules)
- Spatial climate data for Uganda created (1 km × 1 km resolution)
- Summaries of climate variables for each agro-ecological zone (AEZ) in Uganda
- Climate scenarios for the different agro-ecological climate zones developed for 3 future moments (2030s, 2050s, 2080s) and visualised in ArcGIS
- A CC vulnerability assessment report produced
- Fact Sheets for twenty-one (21) climate change adaptation technologies and practices in three sectors (agriculture, water, and environment) developed
- Report on Cost-Benefit Analysis of CC adaptation measures in the agriculture, water and environment sectors
- DRR technologies in agriculture (good practices) assessed for eight agricultural enterprises
- Eight sector policies CC mainstreamed (MAAIF and MWE-related policies)
- 6 District Climate Change Task Forces established and functional, with action plans developed for each
- 60 progressive farmers trained in mushroom production
- 6 mushroom spawn production centres established
- Starter packs for 60 mushroom production units supplied
- 6 district mushroom production and marketing associations established/strengthened
- Existing private coffee nursery (Luwero district) equipped with a solar-powered groundwater pumped irrigation system and a greenhouse (allowing a production increase from 50,000 seedlings in 2014 to 240,000 seedlings in 2017)
- Water-source development schemes for supplementary irrigation and livestock water supply for 3 farms developed
- Technical report on rainwater harvesting and storage
- Study report on local demand for fuelwood and feasibility of supplying fuelwood from dedicated bioenergy plantations
- Review of existing improved kiln technologies and other alternative charcoal production systems in Uganda
- Feasibility study of commercial charcoal production systems in Uganda

Result 2, Output 2.1: Investment in water infrastructure development (hardware)

- 15 new valley tanks with a capacity of 10,000 m^3 each constructed (in 15 subcounties)
- 5 existing watertanks with a capacity of 10,000 m^3 each rehabilitated
- 3 small-scale irrigation systems installed in Luwero, Nakaseke and Nakasongola Districts

Result 2, Output 2.2: Participatory water management systems established and functioning (software)

- 20 water user committees (WUCs) to oversee the operation and maintenance of the valley tanks established and functional
- 38 Farmer Field School (FFS) groups (924 households) established around the 20 valley tanks as learning platforms for sustainable water resource use and management

RESULT 3, OUTPUT 3.1: COMMUNITY-BASED ADAPTATION USING THE FFS APPROACH PROMOTED

- 48 trainers/extensionists trained in FFS methodologies
- 168 FFS groups (4,172 households) established, functional and formalised (legal recognition)
- Adaptation strategies addressing risks of low crop productivity, risks of low livestock productivity and drivers of vulnerabilities, introduced

RESULT 3, OUTPUT 3.2: BIOENERGY PLANTATIONS AND IMPROVED CHARCOAL PRODUCTION TECHNOLOGIES PROMOTED

- 87.7 ha of demonstration fuelwood woodlots established (14 woodlots)
- 534 ha of commercial fuelwood plantations established
- 152 farmers trained in plantation establishment and maintenance
- Two improved charcoal kilns constructed (each with a capacity of 4 $m^{3)}$ for demonstration purposes
- A kiln operating manual developed
- Guidelines for the establishment and maintenance of fuelwood plantations

RESULT 3, OUTPUT 3.3: CLIMATE CHANGE ADAPTATION PRACTICES FOR COFFEE PRODUCTION PROMOTED

- Technical report on the suitability of shade trees in coffee farming for different precipitation zones
- 12,240 coffee farmers from 420 farmer groups trained in climate-smart coffee farming
- 408 coffee producer groups (10,240 households) established with Climate Change Adaptation Plans (CCAP) developed
- 400 coffee demonstration plots established.
- 8 nurseries for coffee and shade trees established and supplied with improved genetic material (three of them run by women)
- 1,220,000 elite coffee seedlings and 320,256 clonal coffee seedlings produced in the eight nurseries
- 1,638,500 coffee seedlings distributed to coffee farmers
- 80 low-cost rainwater harvesting and storage structures built as demonstration (with an average capacity of 22,500 litres each) for supplementary irrigation of coffee during the critical dry season
- 55 Farmer Group Facilitators (FGFs) and 408 lead farmers trained as additional farmer extensionists
- A training guide on climate change adaptation in coffee production
- FGFs and lead farmers sensitised and trained in gender aspects

II. Analysis of impact

2.1. Impact expected as per logframe objectives and their indicators:

During its inception phase, the project developed an extensive M&E Framework, based on the initial indicative logframe that was presented as an annex to the Contribution Agreement between FAO and EU. The M&E Framework specified indicators with baseline and target values, including methodologies on how the indicators were to be measured.

Progress towards achievement of the Overall Objective (OO) "Livelihoods and food security of the rural populations in Uganda sustainably improved", would be measured through the following 3 indicators:

1. **Value of livelihood capital assets increased by 5%**, with the capital assets comprising human capital, social capital, physical capital, natural capital and financial capital.
   - Human capital was to be assessed through the following parameters: (1) % of farmers with skills in conservation agriculture – baseline 34%; (2) total labourers/season – baseline 3; (3) total cost of hired labour/season (UGX) – baseline 900,000 UGX.
   - Social capital was to be assessed through the parameters: (1) membership to farmer organisations – baseline 43%; (2) membership to savings/credit groups – baseline 30%.
   - Physical capital was to be assessed through the parameters: (1) average rating (scale of 1-5) of access to free seeds of local varieties – baseline 3.2; to sold seeds of local varieties – baseline 2.3; and to sold seeds of improved varieties – baseline 1.8; and (2) % of households with post-harvest storage through cribs – baseline 1, granaries – baseline 2, and stores – baseline 20.
   - Natural capital was to be assessed through the average rating (scale of 1-5) of "fertility" of farmland – baseline 3.2; access to communal pasture – baseline2.2; access to natural forest resources – baseline 2.4; and access to fishery resources – baseline 1.2.
   - Financial capital was to be assessed through the parameters: (1) cash income (in % of households) from crop sales – baseline 76% and from livestock sales – baseline 57%; (2) average income/year (UGX) from crop sales – baseline 2,200,553 UGX and from livestock sales – baseline 5,646,719 UGX.
2. **Food access by rural populations increased by 5%,** to be assessed through:
   - Food access by available food stocks (measured in average weighted quantities) of beans (baseline 33.1 kg), cassava (baseline 9.5 bags), maize (baseline 90.2 kg) and sweet potatoes (baseline 3 bags)
   - Food access in terms of dietary diversity measured in average Household Dietary Diversity Score (HDDS) (baseline 7.1)
   - Food access in terms of expenditure on food purchase/HH/year (UGX) (baseline 717,271 UGX).
3. **Food availability for rural population increased by 5%,** to be assessed through the parameter "food production levels"
   - Food production levels measured by crop acreages available (in % of HHs in the different categories) (<2 acres – baseline 20%; >=2<4 acres – baseline 34%; >=4<6acres – baseline 16%; >=6<10acres – baseline 13%; >=10 acres – baseline 17%)
   - Food production levels measured by harvest volumes of 5 key crops (maize – baseline 1,037kg; beans – baseline 204kg; cassava – baseline 120 bags; sweet potatoes – baseline 11 bags; groundnuts – baseline 208kg).

Progress towards achievement of the Specific Objective (SO) "Resilience of rural populations and agricultural production systems in the central part of the cattle corridor strengthened through improved capacities of communities, commercial farmers and the Government of Uganda to cope with climate change", would be measured through the following 3 indicators:

1. **Proportion of households practicing sustainable CC adaptive strategies increased by 20%**, to be assessed through the parameter "resilience of production systems to climate shocks" and measured in terms of:
   - % of households practicing sustainable strategies related to crop production: use of disease resistant varieties (baseline 62%); use of soil/water conservation measures (baseline 35%); use of agroforestry (baseline 25%); and use of small-scale irrigation (baseline 11%)
   - % of households practicing sustainable strategies related to livestock production: by the construction of water reservoirs (baseline 31%); by applying optimum stocking rates (baseline 19%); by practicing pasture improvement (baseline 18%)
2. **Number of "insurance" coping strategy options available to households increased by 20%,** to be assessed through the parameter "adaptive coping strategy options available to the community (coping strategies practiced by >=10% of farmers)" and measured in terms of:
   - % of farmers keeping drought-tolerant livestock breeds (baseline 36%)
   - % of farmers growing early maturing / drought tolerant crops (baseline 26%)
   - % of farmers adjusting planting/harvesting dates (baseline 17%)
   - % of farmers practicing agroforestry and/or planting trees (baseline 18%)
   - % of farmers practicing fodder preservation (baseline10%)
   - % of farmers using agrochemicals/drugs (baseline 10%)
   - % of farmers applying crop diversification (baseline10%)
3. **CC adaptive strategies available to rural populations made sustainable**, a qualitative aggregate parameter to be qualitatively described and assessed by disaggregating and relating the adaptation options by geographic location with the livelihood options and constraints in each location.

2.2. Direct and indirect impact as reported in the available documents (desk phase):

FROM THE PROJECT'S FINAL REPORT, 2017:

In its Appendix 1, the report presents the logframe matrix with data on progress measured at the end of the project for most of the factors and parameters that were selected for monitoring achievement of the indicator targets. The outcomes are as follows:

- **OO level, indicator 1**: 17 out of 19 factors that were to be monitored were measured. The two factors that were not measured are: (1) access to communal pasture and (2) average income/year from livestock sales. For 13 out of the 17 factors measured, the target of 5% increase was achieved, and for most of them by far exceeded. The factors for which the target of 5% increase was not achieved were: (1) access to free seeds of local varieties; (2) perception of farmland fertility; (3) the % of households earning cash income from crop sales and (4) the % of households earning cash income from livestock sales.
- **OO level, indicator 2:** All 6 factors that were to be monitored were measured. For 5 factors, the target was achieved and mostly by far exceeded. 1 factor (the average household dietary diversity score) had decreased (from a score of 7.1 to 6.61).
- **OO level, indicator 3:** 4 out of 6 factors that were to be monitored were measured. The two factors that were not measured are the harvested volumes of (1) cassava and (2) sweet potatoes. For 2 out of the 4 factors measured, the target of 5% increase was achieved; it concerns the harvested volumes of maize and beans. The volume of harvested groundnuts had decreased and also the acreage of land available for crop production had decreased.
- **SO level, indicator 1**: 3 out of 7 factors that were to be monitored were measured. For 2 out of the 3 factors measured, the target of 20% increase was achieved; it concerned the use of disease resistant varieties and the application of soil/water conservation measures.
- **SO level, indicator 2:** 3 out of 7 factors that were to be monitored were measured. All 3 factors measured showed a decrease in % of farmers practicing the concerned coping strategy. So, at the overall indicator level, the target of 20% increase was not achieved.
- **SO level, indicator 3 (the qualitative aggregate parameter)**: Regarding achievement of this indicator, the report mentions that:

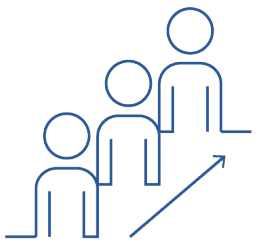
(1) 21 adaptation fact sheets had been produced, covering a wide range of technologies and practices. (2) Cost-benefit studies had been conducted for 9 agricultural enterprises and technologies, and all studies showed a benefit/cost ratio higher than 1. As a consequence, 9 agricultural enterprises and technologies had been proven fit for scaling up to the benefit of the farmers. (3) 7 climate change adaptive coping strategy options had been made available to coffee farmers.

Other references in the report regarding the *generation of impact through adoption of the promoted climate-smart technologies and practices*, include:

- 70% of the interviewed farmers reported that they had started applying in their fields and in other production processes the climate-resilient practices and techniques promoted through the FFS; 60% of the interviewed farmers reported that they had adopted improved cattle and goat management practices; only 30% of the interviewed farmers had managed to implement water conservation techniques. In 2015, about 118 FFS groups were actively participating in village savings and loan schemes, with accumulative savings of UGX 277,261,615 (or USD 82,765), of which 41% was reinvested in support of climate change adaptation practices.
- A survey on 11 out of 24 Coffee Depot Committees, comprising 55 farms, reported a rise in coffee yields of at least 50%, following the implementation of the various adaptation practices that had been promoted.
- 168 FFS (4,172 households) were established, with the successful FFS groups encouraged and supported by the project to acquire legal recognition. This status has helped them to improve the income and livelihood conditions through market-oriented agriculture and livestock development, through diversification of livelihood systems, and access to microcredit.
- A major achievement in terms of generating long-term impact for CC action in the country has been the upgrade of the supported Climate Change Unit to a full-fledged Climate Change Department within the MWE.

FROM THE PROJECT'S PROGRESS REPORT, 2015:

In September 2013, the Royal Kingdom of Belgium and FAO signed a two-year Agreement for the implementation of a complementary set of activities in support of the GCCA project framework in the six target districts of the central cattle corridor. The Belgian contribution specifically aimed at strengthening the scope, outputs, activities and strategy of the GCCA project **for greater impact and sustainability.**

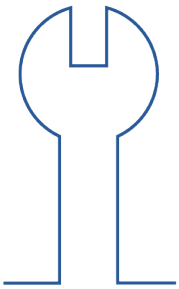


The interventions supported through the Belgian Government largely focused on the Local Government district and community levels. For example, under Result 1 - Knowledge and capacities for climate change adaptation strengthened, the Belgian funds were used to address the training needs of the district local governments, communities and NGOs as well as the development of District Adaptation Plans. The capacity building efforts were further enhanced through the establishment of a knowledge management system for CCA at the district level, and through the promotion of innovative information, communication and technology (ICT) practices to help foster CCA strategies and practices, and add value to traditional/local knowledge. In Result 2 – Better access of livestock and crops to water through Water for Production investment, the Belgian funds were used to pilot low-cost small scale water systems, benefitting individual families and/or small organized groups of families per water infrastructure. In Result 3 – Resilience of agriculture production systems improved, the Belgian funds were used to promote community-based integrated watershed management approaches for climate change adaptation and also to increase the number of direct beneficiaries utilising improved sustainable livelihood strategies through the Farmer Field Schools.

2.3. Findings from the desk phase and specific issues that were further explored during the field phase:

The project developed an elaborate M&E Framework which was used as a monitoring tool during implementation. At the impact level (OO + SO), 1 qualitative and 5 quantitative indicators had been selected with the 5 quantitative indicators further disaggregated in a number of factors that were to be measured.

- The findings at OO level: 27 of the 31 defined factors across the 3 indicators had been measured and for 20 of these factors, the target of 5% increase had been achieved.
- The findings at SO level: 6 of the 14 defined factors across the 2 quantitative indicators had been measured and for 2 of these factors, the target of 20% increase had been achieved. The qualitative indicator had no clear target, but very positive achievements were reported.



Apart from the impact as measured through the indicators (indicating a moderate result), the report highlighted several achievements pointing towards substantial and increasing impact, actually suggesting better results than what one would conclude from the measurement of the indicators.

During the field phase, the following aspects were explored:

- Continuation of the measurements - and in what form - and the current progress made in terms of increased food security, more profitable livelihoods, resilience of rural population and resilience of agricultural production systems.
- Existence of other evidence and/or statistics (e.g. in MAAIF or in CCD or District Offices) regarding impact in terms of increased resilience in the project's main target area, notably the 6 selected districts of the central cattle corridor.
- Levels of replication of climate-smart techniques and practices that were tested and promoted by the project.
- The role of the second phase of the GCCA project in the generation of impact.
- The role of other follow-up projects in the area.

2.4. Achievement of the logframe indicators at overall and specific objectives levels (direct impact)

The achievement of the respective indicators is calculated on basis of the measurements provided in the project's final report (2017). It was confirmed during the visit[9] that no follow-up measurements had been done after project completion. However, the monitoring system will be taken up again and refined/adjusted for the second phase whose implementation will start in 2020.

INDICATOR	LEVEL OF ACHIEVEMENT (%)	EXPLANATORY NOTES
OO level, indicator 1: Value of livelihood capital assets increased by 5%, with the capital assets comprising human capital, social capital, physical capital, natural capital and financial capital.	78%	For this indicator, 19 factors were selected for follow-up. 17 factors were effectively measured. For 13 factors, the target was achieved (100%), 3 factors were below the baseline (0%), and 1 factor was achieved for 19%. The 2 non-measured factors are excluded from the calculation. Average achievement: 78%

[9] The I&S visit took place in November 2019.

OO level, indicator 2: Food access by rural populations increased by 5%	83%	For this indicator, 6 factors were selected for follow-up and all were effectively measured. For 5 factors, the target was achieved (100%), 1 factor was below the baseline (0%). Average achievement: 83%
OO level, indicator 3: Food availability for rural population increased by 5%	50%	For this indicator, 6 factors were selected for follow-up. 4 factors were effectively measured. For 2 factors, the target was achieved (100%), 2 factors were below the baseline (0%). The 2 non-measured factors are excluded from the calculation. Average achievement: 50%
SO level, indicator 1: Proportion of households practicing sustainable CC adaptive strategies increased by 20%	67%	For this indicator, 7 factors were selected for follow-up. 3 factors were effectively measured. For 2 factors, the target was achieved (100%), 1 factor was below the baseline (0%). The 4 non-measured factors are excluded from the calculation. Average achievement: 67%
SO level, indicator 2: Number of "insurance" coping strategy options available to households increased by 20%	0%	For this indicator, 7 factors were selected for follow-up. 3 factors were effectively measured. All 3 factors were below the baseline (0%) by the end of the project. The 4 non-measured factors are excluded from the calculation. Average achievement: 0%
SO level, indicator 3: CC adaptive strategies available to rural populations made sustainable	100%	This indicator was assessed by disaggregating and relating the adaptation options by geographic location with the livelihood options and constraints in each location. Achievement: (1) 21 adaptation fact sheets had been produced, covering a wide range of technologies and practices. (2) Cost-benefit studies had been conducted for 9 agricultural enterprises and technologies, and all studies showed a benefit/cost ratio higher than 1. As a consequence, 9 agricultural enterprises and technologies had been proven fit for scaling up to the benefit of the farmers. (3) 7 climate change adaptive coping strategy options had been made available to coffee farmers

2.5. Achievement of the overall and specific objectives (direct impact, exceeding the scope of the indicators)

OVERALL OBJECTIVE (OO): Livelihoods and food security of the rural populations in Uganda sustainably improved

Achievement: "2" (between 50 and 75%)

EXPLANATORY NOTES:

Unlike in many other projects, the set of indicators that was selected at OO level is all-encompassing in the sense that it covers practically all the aspects that are embedded in the objective. No impact beyond these indicators and linked to the overall objective could be identified.

An arithmetic calculation based on the levels of achievement of the 3 OO-level indicators gives an achievement of the OO of 70%.

It is however important to highlight that the measurements leading to the 70% achievement are measurements that were taken by the end of the project. Though the project generally benefits from a very good reputation - as could be observed during the I&S visit - more recent data eventually allowing to upgrade the 70% are not available.

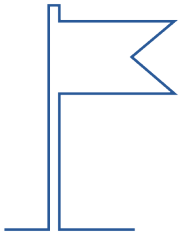
SPECIFIC OBJECTIVE (SO): Resilience of rural populations and agricultural production systems in the central part of the cattle corridor strengthened through improved capacities of communities, commercial farmers and the Government of Uganda to cope with climate change.

Achievement: "1" (>75%)

EXPLANATORY NOTES:

An arithmetic calculation based on the levels of achievement of the 3 SO-level indicators gives an achievement of the SO of 56%.

In this case, an important aspect of the objective was not explicitly covered by the selected logframe indicators. It concerns the aspect of capacity strengthening of the government at national, district and local levels in which area the project generated substantial improvements. Examples include the strengthening of the CCD who during project implementation upgraded from CC Unit to full-fledged CC Department; the development (or CC mainstreaming) of policy documents such as the CCD Strategic Plan, the (I)NDC, the NDP II; the support to governmental research institutions (4 ZARDI); the establishment of CC task forces or committees at district level; awareness raising campaigns and training. Based on the project's achievements in establishing a more conducive institutional environment, crucial for materialising the envisaged replications and further developments, the score for the SO is upgraded to "1".



In addition, ongoing replication of good CC adaptation practices in and outside the districts of Uganda's central cattle corridor was observed during the visit. FAO alone already developed 5 similar projects (one of which is a GCCA+ follow-on project) that together will cover 30 districts. While new districts will be unlocked, there will also be a continuation of activities in the 6 "old" districts, mainly to intensify coverage and to consolidate achievements from the first GCCA phase. The need for such consolidation is particularly present in the value chain development activities and in the establishment of farmer organisations and networks.

2.6. Signs of indirect impact

- The EUD focal person indicated that **a clear increase of interest in and concern for CC has taken place at national level**. Apart from generally enhanced climate action in the country, there is also an increased motivation to participate in international CC-related initiatives. It could be concluded that the GCCA project has been instrumental in putting CC on the national agenda and in enhancing national capacities and interest for climate action. Interviewees from Makerere University added that – motivated by the GCCA experience - climate change had become an important research topic. The National Planning Authority testified that they had noticed an immense change in attitude towards CC mainstreaming between the development processes of resp. NDP II and NDP III (2020-2025). While one had to push for the integration of CC aspects in NDP II, stakeholders spontaneously requested CC action when developing NDP III.
- There are signs of project **impact outside the targeted cattle corridor** thanks to the strengthened capacities of national CC-related government agencies and thanks to the various adaptation successes in the field. These successes have aroused the interest of other farmers and/or development partners who have started to disseminate the good adaptation practices to other districts and regions.
- As testified by the beneficiaries of the mushroom value chain activities, **mushrooms** not only provide food and income but their regular consumption **also generated substantial health improvements** (recovery from a stroke, reduced infections, reduced blood pressure).

- The FFS approach that was used for extension & learning purposes as well as for the creation of small enterprises (e.g. in vegetables and poultry) generated a number of positive side effects, all related to **enhanced collaboration amongst farmers, their better organisation and their general empowerment**. Several FFS groups testified that they had made joint or private investments, e.g. for facilities and equipment for setting up a mushroom production business, or for hiring machinery to carry out soil conservation works.
- The project brought together many development partners active in Uganda. It appears that they maintained – outside the GCCA project context – a certain level of **networking and collaboration**.

2.7. Conclusions on direct and indirect impact generated by the project and discussion on factors for success and failure

Generally speaking, the project has been quite successful in generating impact and in achieving its objectives which were – compared to most other projects – particularly well defined and monitored. Though there are clear signs of further replication and continuation since the closure of the project, no data have been collected and the assumed increase in impact can therefore not be quantified or objectively ascertained.

The conclusion that the project has generated significant impact can be further substantiated by the fact that the project is highly recognised and visible throughout the country. Government officials as well as staff of development partners in Uganda frequently refer to the project in CC events, initiatives, papers, etc. For example, the new NDP (NDP III) refers in its section on sustainable production to good practices developed under the project. Interest for replication of these good practices (technological as well as methodological) goes well beyond the directly involved line ministries (MEW and MAAIF) and is for instance also expressed by the Prime Minister's Office, UNDP and a number of bilateral cooperation agencies. Another example is provided by the post-project developed MEW strategic paper "Improving Livelihoods through Water for Production", which contains many of the lessons learned and builds on the positive experiences acquired under the GCCA project.

ELEMENTS THAT ENHANCED THE GENERATION OF IMPACT:

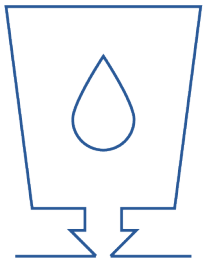
- Selection of the best possible implementing partners, guaranteeing a professional approach and dedication.
- Adoption of the FFS approach
- Limit field testing and promoting to practices and activities that have been pre-assessed and that have good potential for succes.
- Establishment of an institutional context (national and local levels) that is conducive for further replication and initiative.
- The focus on addressing gender issues at household level (which will be further emphasized in the second phase) facilitates the promotion and adoption of improved/diversified llivelihood options. It resulted in effective collaboration, in joint decision taking and in increased companionship and trust within the households. The technique used by the project consisted in promoting gender sensitivity through working with couples and discussing household economies. The experience of the project is that working with couples is more effective for livelihood improvement than the usual approach whereby men and women are addressed in separate groups and develop separate activities.
- Adoption of an integrated and multiple use approach for the water supply component. More specifically, the construction of valley tanks was accompanied by the installation of accessory equipment and facilities (water pumps, drinking troughs, irrigation systems, sanitary facilities) and FFS groups and Water User Committees were established and trained to ensure optimal use of the water and maintenance of the installations.
- Dissemination and replication of best practices to districts outside the project's intervention area was materialised by project implementing partners who learned from the project experiences. The Hunger Project, for example, integrated the kitchen gardens – one of the project's "best practices" - in other projects with different intervention areas.

FACTORS HAMPERING THE GENERATION OF IMPACT:

- The very short duration that was left for effective work with the farmer beneficiaries. JBI, for example, had only 9 months of effective operation.
- Free distribution of goods and inputs for income generating activities; it degrades sense of initiative, entrepreneurship, ownership.

III. Analysis of sustainability levels

3.1. List of services, systems and products that were established/delivered under the project and that should have been maintained (based on the outputs delivered)



- Extent to which the CCD's Strategic Plan was implemented
- 5 Master-degree CCD staff still active within the CCD, or in positions relevant to their studies
- CCD performing well and complying with their mandate
- Some CC related research ongoing in each of the 4 supported ZARDIs
- CC National Resource Centre still in use for CC purposes and properly maintained
- Extent to which CC-related components in the National Development Plan II (2015/16 – 2019/20) are implemented
- Extent to which Uganda's NDC is implemented / under implementation
- Modular training toolkit on CC developed by Makerere University still in use
- The CC task forces in the 6 districts still convening and active
- The 6 mushroom spawn production centres still operational
- The 6 district-based mushroom production and marketing associations still convening and active
- Supported private coffee nursery (Luwero district) still producing (quality) seedlings / Level of production / Irrigation system and greenhouse still present and functioning
- The 20 valley watertanks (15 newly constructed and 5 rehabilitated) still in use and properly maintained
- The 20 Water User Committees (linked to the above 20 watertanks) still existing and successfully complying with their mandate
- The small-scale irrigation systems installed in resp. Luwero, Nakaseke and Nakasongola Districts still functional
- The 620 ha fuelwood plantations (demonstration + commercial) still standing and well managed
- The 2 charcoal kilns still existing and in use / technological improvements made[10]
- Extent to which CC Adaptation Plans of the 408 coffee producer groups are implemented
- 80 low-cost rainwater harvesting and storage structures built still functional
- The 8 coffee nurseries still operational and producing quality seedlings

3.2. Information and comments on sustainability aspects from the available reports (desk phase)

♦ **From the ROM Report, 2015**

The project has a high potential for sustainability.

Human and institutional *capacity building* has been an essential and almost cross-cutting element in the project's strategy. Capacity has been built in climate change adaptation and mainstreaming at national and district levels. At farmers' level, significant capacity strengthening has been delivered in a very successful way through the Farmer Field Schools. Also the various implementing partners have had ample opportunities through the project to enhance their skills and knowledge.

Financial sustainability will be most critical for the further functioning (and hence due compliance with mandates) of the Climate Change Unit (CCU) within the MWE and of the District Offices. As for the CCU, a National Climate Change Policy was developed, skills were enhanced and operational means increased, but additional and significant budgets

[10] Having learned during the visit that the kilns were experimental and therefore not meant to be sustained if not sufficiently performant, this item was not further considered in the sustainability statistics.

will still be required e.g. to implement the CC policy. The project has addressed this issue by providing training in project proposal writing, thereby preparing the CCU staff for fundraising activities. Also important in respect of financial sustainability is the fact that the CCU has been upgraded to a full-fledged Department (CCD) within the MWE. This "upgrading" comes along with a higher budget and increase in staffing. As for the District Offices, the operational budget remains a critical issue. One can only hope that their budget allocated by the central government will be topped up by budgets of donor projects intervening in the concerned area.

At community level, some financial capacity has been generated in the FFS groups, mainly through setting up saving and lending groups and through initiating low investment income generating activities. These activities have been a real success with promising sustainability.

Once installed, maintenance and operation of the water valley tanks should not be very costly. Still, a "payment for service" system should be developed and run by the water user committees that will be established. This "payment for service" system must allow full coverage of the overall maintenance and operation costs, thereby guaranteeing the financial sustainability of the system.

With regards to the *involvement of the private sector* in view of enhancing potential sustainability, the project has established value chains of (agricultural) products with the private sector obviously being part of the chain. The project has also facilitated the establishment of networks, linking the FFS groups to the private sector. Broader private sector involvement (e.g. including technical advice and training) was most prominent in the coffee and mushroom sub-components.

- **From the Project's final report, 2017**

The project design was consistent with the government policies and priorities outlined in the NAPA (2007), the NDP (2010), the MAAIF-DSIP for the Agriculture Sector (2010) and the MAAIF Strategy on Water for Agricultural Production (2012); the project directly contributed to addressing the following NAPA priorities: i) adaptation to drought; ii) collaborative management of natural resources; iii) water for production; and iv) countering land degradation. The project strengthened the resilience of local rural communities to climate risks and other shocks, as well as the capacity of the District Local Government in planning for adaptation; while consolidating the available knowledge base to better inform future initiatives. The areas of sustainability that were addressed in the report are presented below.

Environmental sustainability

The project promoted community-based watershed management approaches, which seek to manage land, water and the wider watershed ecosystem in an integrated manner. The training courses on climate change and in particular on the adoption of climate smart agricultural practices (e.g. planting shade trees in coffee farms, composting, Integrated Pest Management, use of cover crops, digging trenches, mulching, rainwater harvesting and storage) promoted activities that are beneficial to the environment. In addition to this, the project's approach of promoting the integration of more trees into the production systems, and especially native species, will also contribute to improving biodiversity and increasing the health of ecosystems.

Technological sustainability

Throughout implementation, the project promoted stakeholder participation to create ownership and skills. Also, where relevant, specific sustainability-enhancing actions were integrated in the different project components. For example, Water User Committees were established in the Water for Production component to emphasize local ownership and responsibility for the management and maintenance of the installed water supply systems (irrigation for crops and drinking facilities for livestock).

Economic sustainability

The project focused on the creation of an enabling environment for commercial development of the farmers by supporting and strengthening the farmer organisations. Specifically, the project promoted the creation of partnerships and alliances through the formation of FFS networks, being federations of FFS groups with a common interest and

within well-defined geographical boundaries, such as sub-counties or districts. By organising themselves into a network, FFS groups can improve on information sharing, access to resources and production inputs, markets, participation in community projects, and have a stronger voice in presenting/representing their views/interests to local leadership (advocacy and lobbying). A total of 12 FFS networks were formed in the six GCCA target districts. In addition, about 408 coffee producer groups were organised and registered as members of the Uganda Coffee Farmers Alliance, through which they will be ensured of linkages to external service providers, such as financial institutions and input suppliers.

3.3. Findings from the desk phase and specific issues that were further explored during the field phase:

As can be gathered from 3.1, a good number of tools, constructions, systems and services were developed under the project. The available reports (box 3.2) point towards positive prospects for overall sustainability of the outputs that were delivered.

During the field phase, the general guidelines for assessing the levels of sustainability were applied; there were no additional issues to be explored.

3.4. Results of the sustainability analysis (as per table in Annex)

19 items were checked for their sustainability and information could be collected for 16 of these.

The scores of the 16 items are as follows:

- 2 items (13%) scored 1, meaning that they were fully sustained and expanded/improved
- 9 items (56%) scored 2, meaning that they were fully sustained in a “status quo” situation
- 4 items (25%) scored 3, meaning that they still exist but with quality and/or coverage issues
- 1 item (6%) scored 4, meaning that it disappeared or lost functionality

Evidence was found through direct observation for 4 items (25%); through reporting by reliable sources for 8 items (50%); and through a mixture of methods (D/R) for 4 items (25%).

3.5. Conclusions on the sustainability aspects and discussion on factors for success and failure

PRELIMINARY OBSERVATION:

The project reports (see box 3.2) discuss sustainability according to types of sustainability (e.g. environmental, financial/economic, technological) or through the degree of fulfilment of predefined sustainability criteria (e.g. involvement of private sector, adequate capacity building) and do not analyse the (potential) sustainability for each of the relevant products/systems/services that were delivered by the project, with the latter being the approach taken in the present GCCA Impact and Sustainability study. It is assumed that adopting this outputs-based approach also in project progress reports and M&E reports would encourage the project implementers to address future sustainability of their outputs in a more strategic and consistent manner.

GENERAL CONCLUSION:

With 11 (69%) out of 16 outputs fully sustained (scores 1 and 2), the positive prospects for sustainability as reported by the ROM report and the final project report are confirmed.

Outstanding continued performance and expansion (score 1) was recorded for the private coffee nurseries that had been supported and coached by the project partner HRNS.

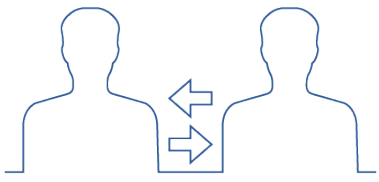
The use of the modular CC training toolkit that was developed by Makerere University is situated at the other end of the spectrum (score 4). The delivery of the toolkit was seriously delayed and only available just before project closure.

FACTORS THAT LEAD TO SUCCESS AND SUSTAINABILITY:

- The adoption of an integrated approach for the water supply component. In concrete terms, the construction of the valley tanks was combined with a set of accessory infrastructure and equipment (cattle troughs, fences, sanitary facilities, solar-powered pumps, irrigation system) making it user-friendly and allowing the use of the water for multiple purposes (livestock, poultry, horticulture, domestic). In addition the construction component was combined with organisational aspects and training (FFS) for efficient use of the water as well as for maintenance of the installations, including a payment for services system.
- The success of the mushroom component was explained (1) by the adoption of a value chain approach, from spawn production to marketing; (2) by the offering of practical training – in technical as well as entrepreneurial aspects - and close follow-up support by the partner in charge (JBI); (3) by the increasing demand for mushrooms and the profitability of the business; (4) by the accessibilty of the business line (low investment; home-based); (5) by the training of trainers approach; (6) and by the fact that mushroom production can be a year round income generating activity.
- The success of the coffee production activities, and in particular the coffee nurseries, was explained (1) by the involvement of a professional and experienced partner (HRNS); (2) by the focus on working with privately owned and managed nurseries under a cost-sharing agreement (based on HRNS' previous negative experiences with communal nurseries that mostly collapsed after a while); (3) by the current growth of the coffee sector (and market) in Uganda, partly due to the government promoting coffee production; (4) by the availability and promotion of genetically improved coffee varieties.
- Proper choice of implementing partners (as indicated above for the coffee and mushroom production; or Makerere University – as a negative example).
- Focus on beneficiaries with entrepreneurial spirit and potential for income generating activities.
- Training of national officers in fundraising in general, and in proposal development and submission to international sources of funding in particular.
- Development and adoption of well-considered strategies for sustainability.
- The adoption of the FFS approach which clearly increases ownership, sense of responsibility and confidence amongst the participating farmers.

FACTORS THAT NEGATIVELY AFFECT SUSTAINABILITY LEVELS:

- A too short implementation period, putting time pressure on the activities.
- The costs of promoted or demonstrated techniques. In this project, for example, drip irrigation systems with solar-powered pumps were promoted but the cost of such a system is not affordable for the average targeted farmer. As a consequence, adoption beyond the demonstration sites did not happen.
- Constraints in human and financial capacity, affecting the effective implementation of strategies and plans that are developed with project support.



IV. Additional elements

4.1. M&E Practice

M&E ACTIVITIES THAT HAVE TAKEN PLACE:

- **Internal:**

During the inception phase, the project developed an elaborate M&E Framework, with 6 indicators and 45 parameters for monitoring impact (object level). This M&E Framework was effectively used as a monitoring tool during project implementation and the results of the periodic measurements of the selected parameters[11] and indicators were presented in the project progress reports.

In addition, the project produced in January 2015 a detailed mid-term outcome monitoring report. Through the CA between FAO and the EU, FAO was given full responsibility for M&E, including for the organisation of external, independent project evaluations. It is due to add in this regard that the EUD to Uganda has been closely involved in the organisation as well as the implementation of these evaluation missions.

Future plans (second phase): During the first phase, 25 best practices for climate smart agriculture were identified. In the second phase (under formulation during the I&S visit), these will be disseminated, put into practice and their impact over time will be monitored. Also detailed monitoring/measuring of the project's contributions to the NDC targets is planned. Further, based on the M&E Framework that was elaborated for the first phase, a revised and fine-tuned, but equally detailed and comprehensive, M&E Framework will be developed for the second phase.

- **External:**

- A ROM mission was conducted in 2015; this mission had been commissioned by the EUD in Uganda.
- FAO-HQ conducted several monitoring missions in the course of the project's implementation period.
- The mid-term evaluation in 2015 was conducted by an external and independent evaluation team but commissioned by the FAO project management. As a consequence, this evaluation is to be considered as semi-external.
- A final evaluation was conducted in 2017 by the FAO-Headquarter Evaluation Office.

% OF BUDGET ALLOCATED TO M&E THAT HAS BEEN USED:

The entire GCCA allocation, hence including the budget for M&E, was transferred to FAO Uganda. Though the project has given exemplary attention to M&E, the exact budget that has been allocated to M&E-related activities is not known.

ADDITIONAL M&E REPORTS THAT HAVE BEEN COLLECTED:

None.

4.2. Contributions to GCCA+ knowledge management and communication

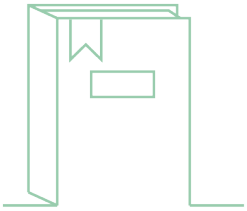
PROJECT-SUPPORTED RESEARCH AND RESEARCH FINDINGS:

LINKS WITH THE SCIENTIFIC COMMUNITY:

[11] Concretely, 33 of the 45 initially selected parameters were measured.

- The project established collaboration with Makerere University for the development of a knowledge management system for the CCD Resource Centre; for the development of a modular training toolkit on CC; for participation in a cost-benefit analysis of 8 selected adaptation options; for the assessment of local fuelwood demand and of the feasibility of supplying fuelwood from dedicated bioenergy plantations
- The project supported 4 Zonal Agricultural Research and Development Institutes in revamping their offices, in constructing a greenhouse and in supplying equipment.
- The project also supported research undertaken by the Centre for Integrated Research and Community Development-Uganda on improved kiln technologies.
- The Integrated Rural Development Initiative undertook a feasibility study under the project on commercial charcoal production systems in Uganda.

PUBLICATIONS AND RESEARCH FINDINGS:



- Applied multidisciplinary research for improving economic performance and livestock sustainability in the cattle corridor of Uganda, N. Kiggundi, Makerere University, April 2017.
- Review of existing improved kiln technologies and other alternative efficient charcoal production systems in Uganda, Centre for Integrated Research and Community Development-Uganda, December 2014.
- Assessing the feasibility of commercial charcoal production systems in Uganda, S. Bagabo, Integrated Rural Development Initiative, December 2014.
- Functional suitability of trees in coffee shade systems in different precipitation zones of central Uganda, HRNS, July 2015
- Several other study reports on coffee production (HRNS): cover crops, bottle irrigation, drip irrigation, mulching, rainwater harvesting and storage.

COMMUNICATION MATERIALS:

- Four project video documentaries were produced.
  https://www.youtube.com/watch?v=TKr3tLrgqLo&feature=youtu.be
  https://www.youtube.com/watch?v=6_nAj_ndmJQ&feature=youtu.be
  https://www.youtube.com/watch?v=34G2Zzq3_o0&feature=youtu.be

- A project leaflet, a project folder, a project poster, a project banner, 3 photoshoots, 3 project newspapers, an FAO bulletin on climate change, a poster on Climate Change Adaptation for coffee production (HRNS)

- Compilations of best practices and lessons learned:
  - Toolbox of climate change best practices for coffee (HRNS)
  - Shade tree advice tool: A response to climate change in coffee farming (HRNS)
  - Factsheets for 21 adaptation options for agriculture, water and environment sectors
  - GCCA Uganda project contributed to an FAO global study to capture, validate, and disseminate "good practice" technologies; from Uganda, 8 adaptation options were profiled and subject to a Cost Benefit Analysis.

- Testimonies and success stories
  - Various testimonies of mushroom farmers, prepared by JBI
  - Quote: "FFS should be the Bible for extension workers/services"
  - Human interest story by a livestock farmer:

    "I am Gerald Mudaherwana, a resident of Kakobyo village, Ngoma town council in Ngoma Subcounty. I am a cattle farmer in the area that depends on livestock production for household income. I joined Umubano

FFS in 2013, through the GCCA project implemented by Caritas Kasanaensis, with support from the EU and FAO. As a cattle keeper doing farming from a dry area like Ngoma, pasture shortage for my animals was one of the key challenges I faced, especially during the dry seasons of the year. So, as Caritas Kasanaensis extension officers started to mobilize the community to form farmer groups, i.e. FFS, I was among the first people to join the group, and I became a fully registered member of Umubano FFS. After the group formation and registration with the subcounty, the extension officers started training us in the different climate smart agricultural practices, i.e. in climate change resilient livestock production and management practices, e.g. pasture establishment, conservation, utilization, and fodder-based agroforestry. It was initially difficult to convince farmers that grass could be planted, however, through the continuous sensitization and demonstrations, many of the group members started to appreciate the value of growing grass for their animals.

Our group was supported by the project financially, technically and materially, by providing us with pasture seeds and other planting materials for the pasture demonstrations and multiplication. In my group, I volunteered to offer land, and have the pasture demonstration and multiplication site set up at my home. This was a demonstration of improved and drought-tolerant pasture grass, such as Bracharia, Elephant grass and Chrolis gayana; fodder trees, such as Calliandra and Glycidia; and water sources (dams), which gave us good results under our good care and management. My home is a model home to other group members, and I also managed to expand my pasture garden from one to one and a half acres; and twelve other members have replicated the same interventions on their farms. In addition to pasture establishment, we were trained in pasture conservation and utilization, where a demonstration for storing fodder as hay was set up, a hay baling box was provided, and a hay barn (storage facility for the bales) was constructed at my home, as a demonstration for the FFS.

As a result of the replication of these interventions, I have managed to reap the benefits through the increased quantity and quality of forage for my cows, which has boosted milk production from my milking cows. While I used to sell from ten to 20 litres of milk, I now sell from 40 to 50 litres. I also make and sell cow ghee. On top of the income we get from milk, we are able to sell the pasture seed to other members in the community of Ngoma. We have also received a tender to supply 400 kg of Chloris gayana seed to NaLIRRI, whereby each kilogram is sold at UGX50 000.

Our pasture gardens have expanded from the nuclei one acre to a total of 50 acres of pasture for Ngoma community members. Therefore, as we are growing, we are working together to improve our farms, as well as looking for a market for our products, such as ghee, milk, pasture seeds and our animals. This has been made possible with the coordination of our FFS network. My household income and general standards of living have improved, as is the case with other group members. Thanks to the project, I can comfortably pay school fees for my three children in good boarding schools in Luweero, costing UGX1 500 000 per term.

However, as a milk producer, milk production, especially in rural areas, is greatly affected by the lack of milk processing and storage facilities, and other poor infrastructures, such as electricity, and roads during the rainy season. This leads to the milk getting spoiled, and farmers incurring great losses. In conclusion, as members of Umubano FFS, through our savings practices we are looking forward to securing a milk cooler machine, as a way of addressing the above-mentioned challenges, so that we can realize great profits from our efforts. Great thanks goes to our development partners Caritas Kasanaensis, FAO and our donors, the EU and the Government of Ireland."

4.3. Opportunities for scaling up (future GCCA support activity)

- Rolling out the operations of the Water for Production Department (Ministry of Water and Environment) as described in the brochure "Improving Livelihoods through Water for Production" and as initiated with GCCA project supported (integrated systems of water supply and water use installations, managed and maintained by Water User Committees that operate a fee-based cost-recovery system).

- Rolling out the operations of JBI related to the successful mushroom production (several advantages associated to the product: little space needed, good market, can be done home-based which is ideal to have women participating, limited workload, low investment/high return, climate proof).
- Scaling up/Promoting the Farmer Field School (FFS) approach in agricultural development. The FFS approach has proven to be a very effective approach for improving the conditions of smallholder farmers. Participants in FFS not only increased knowledge and skills for agricultural production but were generally empowered. It is, for example, demonstrated that the fact of bringing farmers together for learning and exchanging often leads to increased networking and better organisation, also for issues beyond agricultural practice. Evidence is provided by the several successful loan and saving groups that emerged from the FFS, by increased lobbying and farmers' initiatives to demand support from local authorities, and by the enhanced marketing taking place. In addition, extensionists testified that technical messages are better understood and followed-up by FFS group members than by individual farmers. Also, as a results of the FFS activities, a two-way communication has emerged: farmers do ask questions and also contribute to discussions with their own knowledge and experiences. In general, the FFS approach has proven to be instrumental in creating independency, in enhancing farmers' initiative, in promoting good governance, and in taking up activities also in absence of development partners
- Funding NDC implementation.

4.4. Climate Finance – evidence of funding mobilised from public and/or private local sources

- The government has allocated more staff and a higher operational budget to the Climate Change Department.
- The project's support to the ZARDI (Zonal Agricultural Research and Development Institute) at Nabuin, enabled the institute to showcase its research activities which resulted in additional support from government agencies such as the Office of the Prime Minister and the Ministry of Agriculture Animal Industries and Fisheries.
- Allocation of public funds for CC-related action had significantly increased in Uganda over the last five years (though still insufficient to allow a full implementation of the CC-related interventions that were envisaged under the second National Development Plan (2015/16 – 2019/20).

V. Sources of Information

DOCUMENTS COLLECTED AND CONSULTED FOR THE DESK PHASE ANALYSIS:

- **Programming documents**
  - Action Fiche, 2011.
  - Contribution Agreement FAO-EU (2012) + Annexes (Description of the Action, Budget and Logframe), + 3 Addenda (mostly budget-related).
- **Progress reports**
  - Bi-annual progress report for the period July 2014-January 2015, 2015.
  - Status report on progress of Result 2 (water infrastructure component), 2015.
  - Final project report, 2017.
- **Monitoring and Evaluation reports**
  - Mid-term outcome monitoring report, January 2015.
  - ROM Report + Monitoring questions, 2015.
  - Slide presentation by FAO team in relation to the ROM visit, 2015.
  - Mid-term (2015) and final (2017) evaluation reports.
- **Others**
  - Project M&E framework, 2013.

ADDITIONAL DOCUMENTS COLLECTED AND CONSULTED DURING THE FIELD PHASE:

- **Documents:**
  - Second National Development Plan (NDP II) for 2015/16 – 2019/20, Government of Uganda. June 2015.
  - INDC/NDC Uganda, Ministry of Environment and Water. October 2015.
  - Addressing Agriculture, Forestry and Fisheries in National Adaptation Plans – supplementary guidelines. FAO. April 2017.
  - National Adaptation Plan for the Agricultural Sector. Ministry of Agriculture, Animal Industry and Fisheries. November 2018.
  - Success stories of mushroom farmers, JBI TRC.
  - Improving Livelihoods through Water for Production, Ministry of Environment and Water. September 2019.
- **Slidepresentations:**
  - Guidance on Monitoring, Evaluation and Learning (MEL) in FFS programmes, FAO.
  - Activities and Strategy of HRNS in Uganda, HRNS. November, 2019.
  - GCCA+: Scaling up Agriculture Adaptation in Uganda, FAO. November 2019.

RELEVANT WEBSITES:

- Climate Change Department (CCD/MWE): http://ccd.go.ug/ and http://ccd.go.ug/gcca/
- FAO – Uganda: http://www.fao.org/uganda/programmes-and-projects/en/
- HRNS: https://www.hrnstiftung.org/uganda/
- JB International Training and Resources Centre: www.JbInternationaltrc.org
- Ministry of Agriculture, Animal Industry and Fisheries (MAAIF): https://www.agriculture.go.ug
- Ministry of Water and Environment (MWE): https://www.mwe.go.ug
- National Planning Authority: http://www.npa.go.ug/;
- NDC Partnership: http://ndcpartnership.org/news/uganda-releases-first-ndc-partnership-plan-climate-action-africa

CONTACTS OF STAKEHOLDERS COLLECTED DURING THE DESK PHASE:

- **EUD to Uganda**:
  - Nadia Cannata, Head of Rural Development Section, nadia.cannata@eeas.europa.eu
  - Jalia Kobusinge, Programme Manager, Jalia.KOBUSINGE@eeas.europa.eu

- **Implementing partners and institutional beneficiaries:**

FAO National Office Uganda:
- Kennedy Igbokwe, GCCA Project Manager, Kennedy.Igbokwe@fao.org
- Joseph Oneka, GCCA Project Agronomist, Joseph.Oneka@fao.org
- Emelda Berejena, GCCA Project Technical Assistant – Water, Emelda.Berejena@fao.org
- Winfred Nalyongo, Livelihood Officer, winfred.nalyongo@fao.org
- Bernard Mwesigwa, M&E Officer, Bernard.Mwesigwa@fao.org
- Emmanuel Zziwa, Climate Change Adaptation Officer, Emmanuel.Zziwa@fao.org

FAO Field Office Mubende
- Paul Emuria, Head Field Office Mubende, paul.emuria@fao.org
- Annabella Najjemba, Farmer Field School (FFS) Assistant Office Mubende, annabella.najjemba@fao.org

FAO Field Office Nakasongola
- Andrew Atingi, Head Field Office Nakasongola, andrew.atingi@fao.org

MWE – Climate Change Department
- Chebet Maikut, Acting Commissioner, chmaikut@gmail.com
- Michael Mugarura, Senior Climate Change Officer - Mitigation, mugarura.michael@gmail.com
- Flavia Byekwaso, Climate Change Officer – Adaptation, fbyekwaso@yahoo.co.uk
- Josephine Aujo, Climate Change Officer - Outreach, josephineaujo@gmail.com
- Anadansia Nomululi, Senior M&E Officer, annmmusana@yahoo.com

MWE – Water for Production Department
- Gilbert Kimanzi, Assistant Commissioner, gjkimanzi@yahoo.com
- Wilson Tabaaro, Water Engineer, wilsonnino@yahoo.com
- Paul Nuwagora, Sociologist, nuwapaul@yahoo.co.uk
- Priscilla Mirembe, Site Engineer, mirembe@yahoo.com

Ssembabule District Office
- Angello Ssali, GCCA Focal Point, ssali.angello@gmail.com
- Hellen Najjingo, District Agriculture Officer, najihellenakas@yahoo.com
- Ramadhan Sseruyange, District Planner, sseruyangerama@gmail.com
- Francis Byarugaba, District Environment Officer, byarugaba.francis@yahoo.com
- Emmanuel Icqwooya, District Water Officer, eicqwooya2005@yahoo.com

Kiboga District Office
- J. Atikoro, GCCA Focal Point, ratikoro.Jra21@yahoo.com
- Patrick Akudo, District Agriculture Officer, akudop@yahoo.com
- Moses Walakira, District Water Officer, walakiramoses@hotmail.com

PERSONS CONTACTED DURING THE FIELD PHASE:

- **EUD to Uganda:**
  - Jalia Kobusinge, Programme Manager, Jalia.KOBUSINGE@eeas.europa.eu

- **FAO Office Uganda:**
  - Kennedy Igbokwe, GCCA Project Manager, Kennedy.Igbokwe@fao.org
  - Phuong Thu Dang, International Capacity Development Specialist, Phuong.Dang@fao.org; hanoiphuong@gmail.com
  - Abdul Saboor Jawad, Watershed Management Specialist, Abdul.Jawad@fao.org
  - Emmanuel Zziwa, Climate Change Adaptation Officer, Emmanuel.Zziwa@fao.org
  - Stella Tereka, Gender Officer, Stella.Tereka@fao.org
  - Dennis Besigye, Water Management Officer, Dennis.Besigye@fao.org
  - David Kintu, Field Office Coordinator Masaka, David.Kintu@fao.org
  - Brenda Piloya, Field Office Coordinator Luwero, Brenda.Piloya@fao.org
  - Paul Emuria, ex-Field Office Coordinator Mubende, Coordinator of the new CC project upscaling the GCCA phase 1 experience, Paul.Emuria@fao.org
  - Andrew Atingi, ex-Field Office Coordinator Nakasongola, Coordinator of new CC project upscaling the GCCA phase 1 experience, Andrew.Atingi@fao.org

- **Climate Change Department (CCD) of the Ministry of Water and Environment (MWE):**
  - Mohammad Semambo Kassagazi, Senior Climate Change Officer - Adaptation, medi.ssema35@gmail.com
  - Flavia Byekwaso, Senior Climate Change Officer – Outreach, Labyek@gmail.com

- **Water for Production Department (WfPD) of the Ministry of Water and Environment (MWE):**
  - Ibrahim John Migadde, Water Engineer, imigadde18@gmail.com
  - Lydia Kaboyo, senior sociologist, lyd_kaboyo@yahoo.com

- **Hanns R. Neumann Stiftung (HRNS), Uganda:**
  - Stefan Cognigni, General Manager, Stefan.cognigni@hrnstiftung.org
  - Malisa Mukanga, Deputy Country Manager, Malisa.Mukanga@hrnstiftung.org

- **National Planning Authority (NPA):**
  - Aaron Werikhe, Principal Officer, Focal Point Climate Change and Environment, Aaron.Werikhe@npa.go.ug

- **JB International Training and Resources Centre (JBI TRC):**
  - Jessica Bitwire, Executive Director, Jessicabitwire@gmail.com
  - Kenneth Muhwezi, Production Officer, Kmuhwezi@yahoo.com
  - Martin Akampurira, IT Director, akampmart@gmail.com

- **Caritas Kasanaensis, Luwero Diocese:**
  - Betty Namagala, Programme Officer, bettynamagala@yahoo.co.uk

- **Community Care for Development (C-Care):**
  - Manoah Turyahikayo, FFS coordinator, mturyahikayolb@gmail.com

- **The Hunger Project (THP) – Uganda:**
  - Daisy Owomugasho, Country Director, Uganda@thp.org

- **Local Government:**
  - Teopista Gateese, District Natural Resource Officer, Luwero District, tgateese@yahoo.com
  - Sarah Nakamya, District Agricultural Officer, Nakasongola District, xnakamya@gmail.com
  - Angello Ssali, District Veterinary Officer, Sembabule District, ssali.angello@gmail.com
  - John Atikoro, District Production Officer, GCCA focal point, Kiboga District, ratikoro.jra21@yahoo.com
  - Edrisa Ssebaale, Senior Agricultural Officer, GCCA Focal point, Nakaseke District, ssebaaledrisa@gmail.com
  - Vincent Kinene, District Natural Resources Officer, GCCA Focal Point, Mubende District, kinenevincent@yahoo.com

- **Sembabule District Farmers Association (SEDIFA):**
  - Godfrey Bitakaramire, Chief Executive Officer, bitakagod@gmail.com

- **Nakasongola District Farmers Association (NADIFA):**
  - Ronald Magado, Project Coordinator, rmagado@yahoo.com

- **Makerere University:**
  - Revocatus Twinomuhangi, rtwinomuhangi@gmail.com
  - Michael Mbogga

- **Others**
  - Richard Bakoja, Host bioenergy demonstration plantation and alternative kilns, Mubende

Annex to the report: Sustainability Analysis

NR	DESCRIPTION OF SYSTEM/SERVICE/PRODUCT TO BE SUSTAINED	SCORE	EVIDENCE	EXPLANATORY NOTES
1	Extent to which the CCD's Strategic Plan was implemented	2	D	The CCD's 5-year Strategic Plan (2013-2018) was developed under the GCCA project and envisaged three Result Areas: **(1)** Strengthening coordination of CC action in Uganda **(2)** Creating an enabling institutional environment for CC action (legislation and policy) **(3)** Increasing overall awareness on CC PROGRESS AND ACHIEVEMENTS RELATED TO RESULT AREA 1: ▪ Establishment of the Climate Change Policy Committee (CCPC) consisting of 14 members from various public and private institutions. (still convening) ▪ Establishment of an Inter-Institutional Climate Change Technical Committee constituted by the CC Desk Officers from various public and private institutions. (still convening) ▪ Institutional strengthening of the CCD (infrastructure, equipment, human capacity). The CCD is currently staffed with 4 technical persons and 1 financial assistant; the government is taking charge of the salaries. A further expansion of staff is expected. PROGRESS AND ACHIEVEMENTS RELATED TO RESULT AREA 2: ▪ A national Climate Change Policy (2014) was developed ▪ Uganda's NDC was developed with the project giving substantial support for the associated consultation processes ▪ NDPII has been CC mainstreamed ▪ The agricultural sector has been CC mainstreamed (flagship in Uganda). Concrete measures include the establishment of a CC Task Force with FAO and the development of the National Adaptation Plan for the Agricultural Sector (2018).

				▪ A National Climate Change Bill (2018) was developed and approved by Cabinet in 2019. ▪ Sectoral CC mainstreaming has been made mandatory with each line Ministry having a dedicated CC officer, trained by the CCD ▪ With USAID support, a checklist for CC mainstreaming of district development plans was developed for the District Planning Offices PROGRESS AND ACHIEVEMENTS RELATED TO RESULT AREA 3: ▪ National guidelines for training and awareness were developed ▪ Training and awareness campaigns have been conducted at national and subnational levels and for various target groups, e.g. for parliamentarians. ▪ While the GCCA project (Belgian-funded component) supported awareness raising in 20 Districts, more Districts were covered by the CCD with the support of other development partners. The awareness raising is based on previous vulnerability assessments. CONCLUSION: The CCD Strategic Plan has definitely not been one of these planning documents that ended on a shelf without implementation. While not all planned activities were covered, the document has effectively provided guidance to the CCD in improving Uganda's response to CC and good progress has been made. Bottleneck: disproportion between on the one hand CCD's tasks and increasing demands for their services/support and on the other hand the available human and financial resources.
2	5 Master-degree CCD staff still active within the CCD, or in positions relevant to their studies	2	R	Three of the five persons supported with a Master degree scholarship completed their degree; the other two persons are in the final stages of completion.

				Four persons are still with the CCD; the person who left the CCD is now working in the Policy Department of the MWE in a position where the acquired CC knowledge is still relevant.
3	CCD performing well and complying with their mandate	2	D	The CCD is an active Department, organised in 4 sections (Adaptation, Mitigation, Outreach and International Relations) and currently staffed with 4 professionals in CC and 1 financial assistant. The CCD maintains a website (www.ccd.go.ug/) with information on completed and ongoing CC projects, publications and events. The website - as well as the interview during the field visit - signals a substantial activity level. For example, the following working documents were produced by the CCD – or under their coordination - after the completion of the GCCA project: ▪ First Biennial Update Report (FBUR) to the UNFCCC, September 2019; ▪ NDC Partnership Plan for Uganda, 2018; ▪ Standard National Climate Change Indicators and Indicator Reference Sheets, September 2018; ▪ Uganda National Climate Change Policy, September 2018; ▪ National Climate Change Communication Strategy (2017-2021), September 2018; ▪ Strategic Programme for Climate Resilience, May 2017. The CCD also established a Joint Partnership Fund to mobilise donor support for the implementation of their annual plans. To date, support has been received from USAID, WB, AfDB, OXFAM, and World Vision. The project supplied the CCD with two vehicles, these are still functional and in use by the Department. See also nr 1 “Extent to which the CCD’s Strategic Plan was implemented”
4	Some CC related research ongoing in each of the 4 supported ZARDIs	3	R	ZARDI NGETTA: ▪ Support received:

				IT equipment (2 laptops, 1 printer, 1 digital camera, 2 GPS devices); 1 greenhouse; a solar-powered rainwater harvesting and drip irrigation system (partially installed) ▪ Present status and continued use of the support: The IT equipment is in good condition and very useful to the institute. The solar-powered rainwater harvesting and drip irrigation system was never completed and therefore never used. The institute is now making an effort to raise the funds required for the completion of the installation and to make it functional. ▪ ZARDI Ngetta is conducting climate change relevant research in areas such as conservation agriculture, climate smart agriculture, sustainable land/fertility management research, etc. ▪ Additional observations: The communication between the project and the institute was not optimal. The institute had no insight in the agreements between the contractors (greenhouse construction, solar-powered pump, drip irrigation system) and the project and was therefore not in a position to adequately supervise the work of the contractors. According to the institute (e-mail exchanges), the rationale for project support to ZARDI Ngetta was to facilitate the institute to collect and analyse climate data and to use these data for further research and technology development. The project was supposed to support ZARDI Ngetta with an automated mobile weather station and the required hard and software to collect and analyse data, and relay the data to FAO and other relevant offices. The weather station and the software were however never provided. ZARDI MBARARA: ▪ Support received: IT equipment (2 laptops, 2 GPS devices and 2 external disks), with one set given to the institute's focal person for climate change and the second set given to the Director who used it for his PhD research (not linked to CC). A greenhouse with a solar-powered rainwater harvesting and drip irrigation system. ▪ Present status and continued use of the support: The ex-Director/PhD researcher has not yet handed over the IT equipment to ZARDI Mbarara; he claims though that the equipment – apart from the laptop battery – is still

in good condition. The institute's CC focal person still uses the equipment for all categories of research work for NARO and other partners.

The greenhouse and irrigation facility are currently being used (1) for testing the effects of prolonged drought on 32 new high yielding grain and maize varieties; (2) for demonstrating that irrigation provides an appropriate coping strategy against prolonged drought; and (3) for demonstrating alternative methods for growing horticultural crops under increased climate variability. The demonstrations are intended for students, extension staff, school children and farmers.
ZARDI Mbarara undertakes CC-relevant research in 6 different thematic areas.

ZARDI BUGINYANYA:

- Support received:
  IT equipment (2 laptops and 2 GPS devices); 1 greenhouse; a solar-powered rainwater harvesting and drip irrigation system.
- Present status and continued use of the support:
  All items/units are reported to be in very good working condition. The laptops and GPS devices enabled ZARDI staff to improve data analysis and to report on research results. The greenhouse is currently used for potato multiplication trials. The rainwater harvesting system is functional and provides water for irrigation though the capacity of the water tank is considered too small.

ZARDI NABUIN:

- Support received:
  IT equipment (1 camera, 2 GPS devices, 2 laptops, 1 printer); 1 greenhouse with a solar-powered rainwater harvesting and drip irrigation system.
- Present status and continued use of the support:
  All IT equipment is functional and being used for ZARDI Nabuin's operations; the rainwater harvesting system is functional, with the solar-powered pumps pumping the water from a small dam to the tank and feeding a small-scale drip irrigation system. The system is mainly used as demonstration to farmers and students.
- Impact:

				The support enabled ZARDI Nabuin to demonstrate year round adequate crop technologies to farmers and students. The demonstrations and trainings created a demand for small-scale irrigation among farmers. The support also enabled the institute to showcase its research activities which resulted in additional support from government agencies like the Office of the Prime Minister and the Ministry of Agriculture Animal Industries and Fisheries.
5	The CC National Resource Centre still in use for CC purposes and properly maintained	3	D	The project supported the construction of a CC National Resource Centre in the vicinity of the HQ of the Ministry of Water and Environment. The building provides office space for the CCD and houses a Resource Centre that is open to the public. Apart from the construction, the project also supplied furniture and IT equipment (7 computers with key software). The visit to the centre and the interview with CCD staff revealed that the building is still in use for the intended purpose and that it is properly maintained. Regarding the IT equipment, some of the received computers had broken down but the others were still being used. While the CCD office function is well fulfilled, the public Resource Centre is not yet fully operational. It needs more furniture (e.g. shelves) and the library management system for which a prototype had been developed in collaboration with Makerere University still needs to be installed. To further enhance the functionality of the Resource Centre, the CCD plans to use it for the digitalisation of information and for providing on-line courses on CC. Conclusion: The Resource Centre is functional but still subject to upgrading and further development.
6	Extent to which CC-related components in the National Development Plan II (2015/16 – 2019/20) are implemented	3	R	NDP II has been commended by UNDP for its level of CC mainstreaming. Reviewing NDP II in more detail, CC-related interventions were planned for the following sectors: Agriculture, Tourism, Environment and Natural Resources, Industrial Development, Infrastructure (Works & Transport; Energy; Water for Production), Water and Sanitation, Physical Planning and Urban Development, and Social Development.

				All these sectors have now a designated CC focal person. In terms of effective implementation of the CC-related sectoral interventions that were envisaged under the NDP II, they are far behind schedule, with exception of the agricultural sector. Agriculture (MAAIF) is Uganda's flagship when it comes to CC action and response. (see also nr 1 above) As already indicated in this report, it is important to highlight that Uganda achieved commendable progress in institutionalising the issue of CC and in developing a conducive institutional environment for CC action. Though there is substantial overlap between the NDP II and the CCD Strategic Plan (see nr 1 above) in this respect, it is good to recall here the main achievements that are relevant to the NDP II: ▪ CC policy, NDC, CC Bill (currently in Parliament and expected to become soon enacted) developed ▪ CCD established and staffed with trained officers ▪ 80 Districts trained in CC mainstreaming, CC vulnerability and CC response Improvements were also booked in the areas of climate information and the development of early warning systems. To this end, the national meteorological service had been supported by the project with automated wheather stations for extra data collection. This allowed an increase of coverage from 20% in 2015 to 48% in 2019. NDP II implementation was closely monitored by the National Planning Authority (NPA), who produced annual progress reports and a mid-term review. The annual progress reports were compiled by the NPA from the respective sector reports. The final sector reports were not yet available at the time of the I&S visit. The CC-section of the NDP II midterm review had been conducted by an external consultancy team that was financed by the EU. The quality of this CC-section was considered inferior; the work had been very superficial with a lack of analysis and without meaningful conclusions and recommendations. Still, one of the lessons learned from NDP II implementation and monitoring was that the set of indicators and targets had been inadequate. More precisely, they had been too limited in scope to reveal changes and effects of the actions.

				The main constraint for a full implementation of the CC-related interventions envisaged under NDP II is clearly related to the insufficient availability of financial resources. Interviewees reported that climate finance in Uganda has significantly raised over the last 5 years but is still inadequate. A further big improvement in this respect can be expected from the enacting of the CC Bill through which it will be mandatory to make CC mainstreaming and CC action explicit in the budget call circular. NPA also highlighted that the in-country capacity for writing bankable proposals e.g. to get access to the Green Climate Fund, is still weak and must be further strengthened.
7	Extent to which Uganda's NDC is implemented / under implementation	2	R	The GCCA project supported the development and validation process of Uganda's iNDC. The iNDC was transformed into the NDC without modifications. The NDC focuses on promoting a low carbon development pathway while at the same time reducing the vulnerability of its population, environment, and economy by implementing measures and policies that build resilience. Efforts are to be deployed in five sectors: energy, wetlands, forestry, agriculture and health. The Government of Uganda committed to finance 30% of the total cost; the remaining 70% would need to be financed through external sources. *No detailed information is available on the (extent of) implementation of the NDC as the related reporting is only due in 2024.* However, important and relevant initiatives are ongoing, mainly driven by UNDP's NDC Partnership Programme. With the support of this programme, Uganda has prepared a National NDC Partnership Plan (validated in June 2018), including a costed NDC action plan for the period 2018-2030. The plan is structured along five results-based outcomes, with 49 specific outputs, under the themes of policy, budget and investment, data and monitoring, capacity building, and project financing. The plan was developed through a participatory process by the government, the private sector, development partners and non-state actors. The Ministries of Energy, Environment and Agriculture have started to implement some of the planned actions, including increased production of renewable energy with the private sector; awareness raising with the civil society as main actor; and 11 actions focusing on Climate Smart Agriculture with a total budget of 102,869 M€. Also MRV systems for finance and support are under development.

				NDC sectoral committees and an overall coordination working group have been established. *It is fair to say that the current NDC process in Uganda is largely built on the outputs and achievements of the GCCA project.*
8	Modular training toolkit on CC developed by Makerere University still in use	4	R	As reported by the interviewees of Makerere University, the modular training kit developed to provide "Training of Trainers" in CC was delivered close to the end of the project. The training kit would be offered online with open access modality, targeting an audience of technical staff of central and local government agencies, civil society staff and students. At the time of the I&S visit, the kit had not yet been made available on the CCD's website and had not been used so far. No specific reason or explanation for this could be given.
9	The CC task forces in the 6 districts still convening and active	2	R	CC task force representatives of 5 districts were interviewed. 4 of them reported that they are still very active; 1 reported that the frequency of meetings and level of activity had dropped considerably after project closure but that they still met once in a while (Kiboga). In 2 districts, the CC task forces were converted in a District (Sub) Committee (Nakasongola and Luwero) and hence fully absorbed in the local governance system.
10	The 6 mushroom spawn production centres still operational	3	D/R	The JBI Director reported that 3 of the 6 mushroom spawn production centres were very active; 1 of these was visited. The owner testified that the activity had changed her and her family's lives as it generates good income. Other benefits that she mentioned were: the fact that it concerns a home-based economic activity, that there is a good and growing market and that positive health effects are experienced from the consumption of mushrooms. Factors leading to success: ▪ adequate follow-up by the promotor JBI, with frequent visits ▪ technical as well as entrepreneurial training and advise ▪ low investment and high return ▪ home-based activity (time efficiency and protected from thieves and vandalism)

11	The 6 district-based mushroom production and marketing associations still convening and active	2	R	All 6 associations still exist with 2 of them “very active and successful”; 3 “active” and 1 “not very active”. The 2 very active ones are close to official registration as a commercial association; they are currently looking for funds to cover the required registration fees.
12	Supported private coffee nursery (Luwero District) still producing (quality) seedlings / Level of production / Irrigation system and greenhouse still present and functioning	1	D	It concerns a nursery set up by the project’s implementing partner HRNS and situated in Luwero District. Because of good performance of the nursery keeper, the GCCA project/FAO equipped the nursery with a solar-powered pump and a connected drip irrigation system for demonstration purposes. The project also provided sunshades for the greenhouse to protect the seedlings. The nursery was visited and it can be confirmed that the production of coffee seedlings and shade trees is not only sustained but gradually expanding. The irrigation system is still functional and actually allowed the ongoing expansion. The greenhouse is well maintained. Currently, the nursery only produces seedlings of improved coffee varieties. A proof of their good quality is the fact that the nursery supplies the presidential coffee farm; at the moment of the visit, the manager of the presidential farm was there to buy seedlings. Impact on the life and wellbeing of the nursery keeper is huge: she feels strongly empowered and is particularly pleased with the reputation and recognition she has built in society, with her financial independence (as a widow, she has been able to send her 5 children to university), with her ability to support others in the community (she created jobs in the nursery, she provided school fees for 5 more children, she trained 4 people in coffee seedling production and the trainees are all doing well, she allows people from the community to fetch water pumped to the surface by the solar-powered groundwater pump, she provided 70 people with advise and with improved seedlings free of charge). The demonstration drip irrigation system considerably increased the nursery’s efficiency, mainly in terms of saved labour. There are however no signs of wider interest/replication. HRNS links this lack of wider interest to the cost of the installation, not affordable for most people.

13	The 20 valley water tanks (15 newly constructed and 5 rehabilitated) still in use and properly maintained	2	D/R	Yes, confirmed during an interview with the WfP Department and 1 valley tank visited in the field. The project had introduced a system for maintenance of the valley tanks and this system has been picked up, replicated and expanded by the government (WfP Department). The WfP Department recently established regional offices in charge of monitoring the maintenance of valley tanks. The offices carry out routine maintenance control based on operational maintenance schemes as well as actual repairs if needed. So far, 1 major repair had to be carried out. Small repairs are taken care off by the Water User Association. It must be noted that 2 tanks, relying on rainwater, had dried during the latest periods of drought and therefore temporarily lost their functionality. The valley tanks, initially intended to support livestock activities, were constructed with an integrated set of accessory infrastructure and equipment (cattle troughs, fences, sanitary facilities, solar-powered pumps, etc.). During project implementation, it became clear that a more diversified use of the water from the valley tanks could enhance local livelihoods and resilience. Some of the valley tanks were therefore combined with small irrigation systems and the promotion of horticultural activities and rural enterprises (e.g. poultry) through the FFS approach. While this approach proved to be successful in improving livelihoods and income, the demand for water now exceeds the supply capacity of the installed valley tanks. On the other hand, thanks to the successful income generating activities, the system for maintenance functions well in the sense that user fees can easily be collected and that funds are available for maintenance. In selling their products and generating income, the farmers recognise the added value in keeping the valley tanks, the associated infrastructure and equipment, and the irrigation systems operational and are therefore prepared to contribute and to pay the agreed fees. This is an important element for sustainability. The WfP Department testified that they now apply the FFS approach – introduced by the GCCA project – when constructing water supply systems throughout the country. Previously, the

				social component of their work was limited to a mobilisation of workers, a participatory identification of the site, and an information campaign for the targeted farmers; an approach that resulted in frequent operational problems of the systems after delivery. Based on their practical experience in the field, the WfP Department concluded that the FFS approach is much more conducive for sustainability.
14	The 20 Water User Committees (linked to the above 20 watertanks) still existing and successfully complying with their mandate	2	D/R	Yes, confirmed through an interview with the WfP Department and a field visit to 1 WUC. The Water User Committees (WUC) are still active and complying with their mandate. They consist of representatives from the FFS producer groups. At a higher level, a Water User Association (WUA) was established, made up of one or two members of each WUC. The WUA has a proper management team and operates with by-laws, incorporating gender aspects. In general, the implementation of the by-laws, and in particular the payment of the fees, goes well. Currently, more people apply to join the system of FFS/WUC/WUA.
15	The small-scale irrigation systems installed in resp. Luwero, Nakaseke and Nakasongola Districts still functional	2	D/R	It concerns small-scale irrigation systems associated to the valley tanks discussed under nr 13. The irrigation systems are still functional and are well appreciated by the beneficiaries.
16	The 620 ha fuelwood plantations (demonstration + commercial) still standing and well managed	5		The plantations in Mubende were visited and proved to be well managed. No information was available on the other plantations.
17	The 2 charcoal kilns still existing and in use / technological improvements made	5		The 2 charcoal kilns are located in resp. Mubende and Kitenga. The kiln that was installed in Mubende – together with the plantations referred to in nr 16 - was visited. With the explanation of the plantation owner, it became clear that the kiln provided by the project was only 1 out of 3 kilns present at the site and that these kilns are part of a research activity carried out by the Center for Integrated Research and Community Development-Uganda.

				According to the plantation owner, none of the experimental kilns had performed better than the commonly used Casamance type kilns. Having learned during the visit that the kilns were experimental and therefore not meant to be sustained if not sufficiently performant, this item nr 17 will not be further considered in the sustainability analysis.
18	Extent to which CC Adaptation Plans of the 408 coffee producer groups are implemented	5		No information available.
19	80 low-cost rainwater harvesting and storage structures built still functional	5		No information available.
20	The 8 coffee nurseries still operational and producing quality seedlings	1	R	It was reported that the nurseries had been established under a previous project and that the GCCA project provided continued support to enhance the potential sustainability. The 8 nurseries are all private nurseries – owned by farmers - and project support was provided under a cost sharing agreement. The nurseries are still producing and benefiting from a favourable political context as the Office of the Prime Minister proclaimed a national Coffee Roadmap aiming to increase coffee production from the current 4 mio bags to 20 mio bags and promoting the use of improved coffee seedlings.

This **Impact and Sustainability Assessment of the project Global Climate Change Alliance: Agriculture Adaptation to climate change in Uganda** (2011/023-189) is one of the 22 case studies that were conducted to feed into the overall **EU GCCA/EU GCCA+ Impact and Sustainability Study**.

This case study report provides a summary list of outputs delivered, a detailed analysis of ex-post impact and sustainability levels as well as additional information on the project's M&E practices, on the available knowledge and communication products, on scaling-up opportunities and on ex-post climate finance mobilised from local public and private sources.

All reports are available on www.gcca.eu/resources

THE ALLIANCE FOR A CHANGING WORLD

The Global Climate Change Alliance Plus (EU GCCA+) is a European Union flagship initiative helping most vulnerable countries respond to climate change. It started in 2007 and has become a major climate initiative with over 80 programmes in Africa, Asia, the Caribbean and Pacific region.

Join our community

https://europa.eu/capacity4dev/gcca-community

www.gcca.eu

#EUGCCAPlus #EUClimateAction #EUGreenDeal

GCCA+
THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE

Funded by
the European Union