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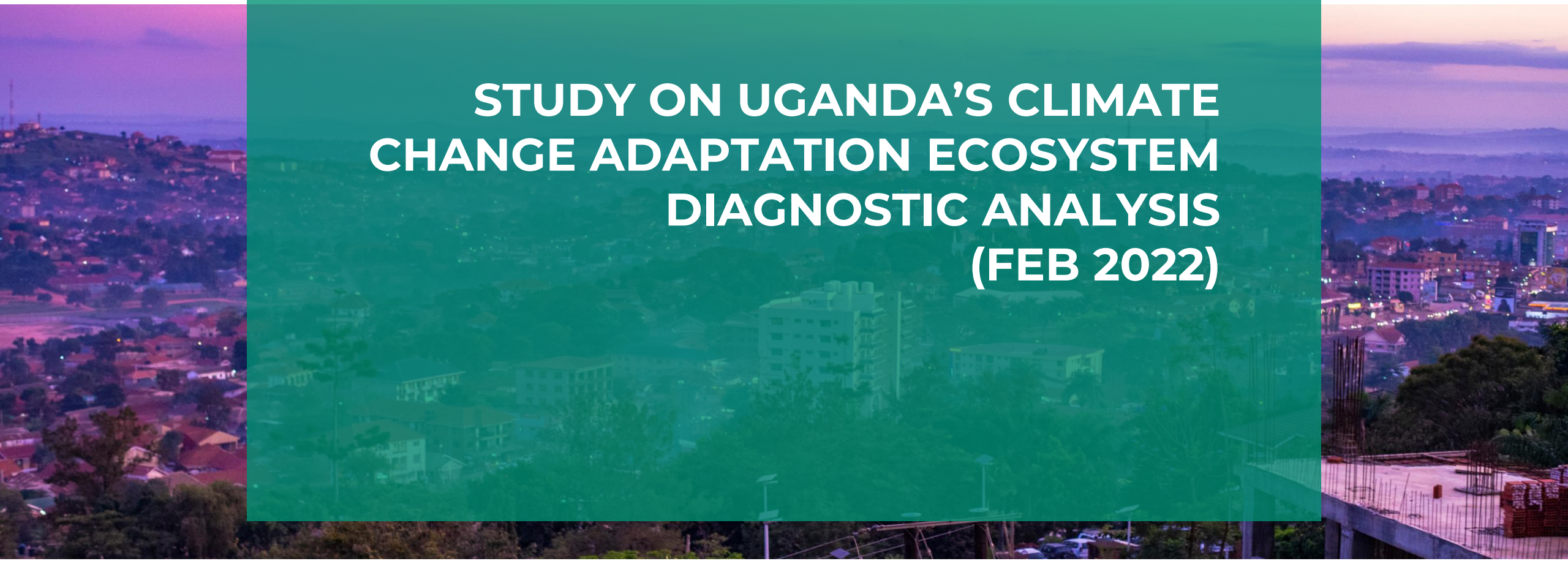

STUDY ON UGANDA'S CLIMATE CHANGE ADAPTATION ECOSYSTEM DIAGNOSTIC ANALYSIS (FEB 2022)

EXECUTIVE SUMMARY

- **The most pressing agricultural risks in Uganda are directly related to climate change (CC)**: droughts, floods, crop/ livestock pest & diseases, post-harvest loss, hailstorms and thunderstorms, and other natural risks such as landslides.
- The lack of ownership and control over land and resources, and their disproportionate burden of unpaid care work, restricts access to finance, extension services and technological innovation to Ugandan women. They predominantly prefer VSLAs to formal financial institutions for savings and credit. **Enhancing opportunities for women constitutes an efficient strategy for climate adaptation.**
- The bulk of the climate change adaptation funding to Uganda is funded via bilaterals (87%), with only 8% via multilaterals, and 4% via climate change funds. **This suggests an unmet opportunity for Uganda to access a larger proportion of international climate finance through climate funds.**
  - Lack of knowledge of the ecosystem across different actors and how to apply for funds were commonly cited as reasons that explain the gap.
- So far, **the commercial financial sector has had a limited scope in enhancing climate change adaptation**, due to persistent challenges that also explain the lack of financial inclusion:
  - **The majority of farmers depend on rainfed agriculture with minimal use of irrigation**. Most have **poor access to information, high risk, low bankability and** are located in areas that are not well-connected areas, **poor access to information, high risk, low bankability.**
  - Farmers rely heavily on local materials - with minimum use of external inputs (improved seed, inorganic fertilizers and agrochemicals) to improve crop production.
  - There is a lack of awareness and knowledge of CC risks and information both for farmers and commercial sector end.

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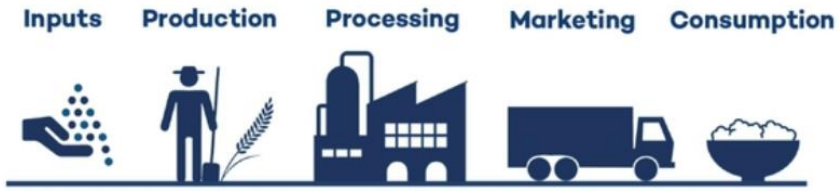
AIMS OF THE DIAGNOSTIC ANALYSIS OF UGANDAN AGRICULTURE AND LIVESTOCK, FORESTRY AND FISHERIES AND AQUACULTURE VALUE CHAINS

- Mapping of the **climate change adaptation funding ecosystem** in Uganda.
- Understand how **climate change is impacting key value-chains** in the agriculture and livestock, forestry and fisheries and aquaculture sectors - in what forms are men and women employed in these sectors impacted economically by climate effects.
- Understand the **financing needs of actors in these value chains** and **how are they being met** and where are the **main gaps.**
- **Map role of financial sector** in enhancing climate change adaptation strategies across these value chains.

Climate Change impact on value-chains



Desk-based analysis on **gender-disaggregated impacts of climate change** in these 3 sectors in Uganda + knock-on effects on potential employment levels and income. Specifically:

- **Number of jobs**– in agriculture and livestock, forestry, fisheries and aquaculture sectors
- **Collate data on impacts of climate change** in the 3 sectors
- Identify **priority areas for FSDU** to focus on – i.e. those with the most jobs at risk; those at high risk of climate change impacts
- Review the **adaptation products and solutions already on offer** in the market, in the 3 sectors, with a view of identifying potential **entry points** for FSDU

KEY DEFINITIONS

- **Accredited Entity (AE):** These can be private or public, non-governmental, sub-national, national, regional or international entities that meet the standards of certain climate funds such as the Green Climate Fund to deliver project implementation. AE, carry out activities such as the development of funding proposals and the management and monitoring of projects and programmes.
- **Adaptation Finance:** finance flows that aim at reducing vulnerability to climate shocks, maintaining and increasing the resilience of human and ecological systems to climate change impacts (EMLI).
- **Agricultural Value Chain Finance:** refers to the use of a value chain and the way in which it supports participants by tailoring services and products to one or more points in a value chain in order to reduce the risk and cost of financing and increase the efficiency of the value chain. (IFAD)
- **Agriculture & Livestock, Fisheries and aquaculture and Forestry:** sometimes in the presentation "AFF" sector.
- **Cash crops and Food Crops:** *cash crops* are cultivated for commercial purposes or earning money for the sake of living, whereas *food crops* are cultivated for domestic consumption purposes.
- **Climate Change:** long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. (NASA) Hereon, sometimes "CC".
- **Climate Finance:** refers to new and additional financial flows above official development assistance for supporting climate actions.
- **Climate Smart Agriculture (CSA):** an approach that helps guide actions to transform agri-food systems towards green and climate resilient practices. It aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible. (FAO)
- **CMIP Phase 5 (CMIP5):** The CMIP5 protocol defines a set of thirty-five climate model experiments designed to be useful in 1) assessing the mechanisms responsible for model differences in poorly understood feedbacks associated with the carbon cycle and with clouds, 2) examining climate "predictability", and, more generally, 3) determining why similarly forced models produce a range of responses.[1]
- **Contract farming:** Contract farming involves agricultural production being carried out based on an agreement between the buyer and farm producers. Sometimes it involves the buyer specifying the quality required and the price, with the farmer agreeing to deliver at a future date.
- **Operational Focal Point (OFP):** is an entity designated by each country to receive GEF funding and is responsible for operational aspects GEF activities such as, endorsing project proposals to affirm that they are consistent with national plans and priorities and facilitating GEF coordination, integration, and consultation at the country level.
- **Representative Concentration Pathways (RCPs):** Scientists use the RCPs to model climate change and build scenarios about the impacts. RCP2.6 (low emissions scenario in line with the Paris Agreement); RCP4.5 (low to medium emissions scenario); RCP6.0 (medium to high emissions scenario); and RCP8.5 (high-emissions scenario where grater adaptation is needed).[2]
- **Village Savings and Loan Associations (VSLAs):** The Village Savings and Loan Association (VSLA) model creates self-managed and self-capitalized savings groups that use members' savings to lend to each other.[3]
- **Warehouse receipts:** Warehouse receipts are issued by warehouse operators to producers who deposit commodities with them. As such, they provide evidence of creditworthiness and can be used as collateral.

Source: 1. WCRP. wcrp-climate.org. 2. RCP Database. 3.VSL Associates. See: https://www.vsla.net/

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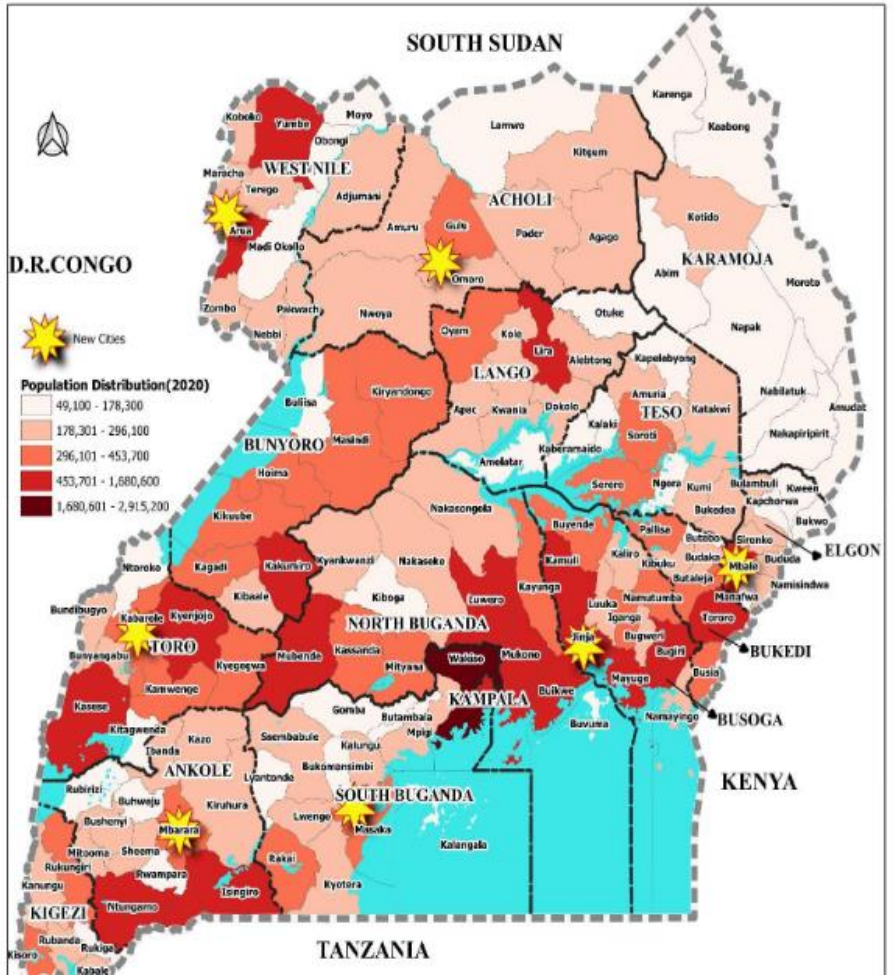
COUNTRY CONTEXT

Uganda occupies a total area of 241,555 km^2. In 2017, agricultural land increased from 105,308 sq. kms in 2015 to 106,662 sq. kms and the total forest cover declined by 25.4 percent between 2010 and 2015 (UBOS, 2020). Uganda's population was estimated at 40.3 million by mid-year 2019 with an annual population growth rate of 3.1%. Over 76% of households in the country live in rural areas. This population is projected to more than making it one of the fastest growing nations in the world.

A Map of Uganda Showing Population Distribution by District -2020 (UBOS, 2020)



Source:
Government of Uganda, Uganda Bureau of Statistics (UBOS) 2020. STATISTICAL ABSTRACT. available at http://library.health.go.ug/sites/default/files/resources/UBOS%20Statistical%20Abstract%202020.pdf

CURRENT SITUATION, DEVELOPMENTS AND AMBITIONS

Political and public agenda

The overarching medium to long term vision of Uganda is to transform its society from a peasant to a modern and prosperous country by 2040. This is operationalized by the Uganda 'Vision 2040' which is the long-term blueprint that provides development strategies and pathways to transform from a predominantly peasant and low-income country to a competitive upper middle-income country (Government of Uganda, 2010). The National Vision 2040 prioritizes among others appropriate adaptation and mitigation strategies, renewable energy, knowledge and information sharing on climate change, increased coordination and capacity, and improved monitoring/evaluation regarding climate change interventions. To operationalize this vision, Government of Uganda formulated the 'National Strategy and Action Plan 2013-2022 to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda. This learning strategy aims at reviewing and updating the skills and knowledge of key institutions and individuals.

The National Development Plans (NDP) give 5-year broader directions for the country and set key objectives and targets for the sustainable socio-economic transformation. The NDP II highlighted that climate change is one of the greatest challenges for Uganda to realize its Vision 2040 of a transformed modern and prosperous country. Thus, emphasized mainstreaming climate adaptation and mitigation into sector planning and implementation and promoted a low emission development (LED) pathway for the country and climate proof national development. Building onto the NDPII, the current NDP III (2020/2021 – 2024/2025) has identified fundamental programs that need to be strengthened for the country to achieve this transformational goal including infrastructure (energy, transport, water, oil and gas, ICT), climate change adaptation and mitigation, natural resources, environment and water management, energy development programme, agro-industrialization, mineral development, sustainable development of petroleum resources, human capital development, private sector development and transformation, among others (Government of Uganda, 2020).

The government is taking steps to ensure that this transformation is also cognizant of green growth tenets stipulated by all the sustainable development goals (SDG's), the 2015 Paris Agreement on Climate Change and the 2063 Agenda of the African Union. This implies that the envisaged economic growth must not only be socially inclusive but also uphold the integrity of the environment and the natural resources. Uganda has therefore reconsidered its growth model to deliver inclusive economic and social outcomes while protecting natural capital addressing climate change, creating jobs and accelerating economic growth (Uganda National Planning Authority, 2018).

Source:
Government of Uganda (2020). Third National Development Plan 2020/21 - 2024/25. National Planning Authority. Kampala Uganda.
Government of Uganda (2010). Uganda Vision 2040. National Planning Authority, Kampala Uganda
Uganda National Planning Authority (2018). The Uganda Green Growth Development Strategy 2017/18 – 2030/31.
Maikut, C. (2013): National Climate Change Policy – Overview. Ministry of Water and Environment -Climate Change Department.

Source:
Ministry of Foreign Affairs of the Netherlands (2018). Climate Change Profile: Uganda.
Government of Uganda (2007). Climate Change: Uganda National Adaptation Programmes of Action (NAPA) submitted to UNFCCC.
Government of Uganda (2019). Uganda's First Biennial Update Report (BUR). Ministry of Water and Environment

CURRENT SITUATION, DEVELOPMENTS AND AMBITIONS

Political and public agenda

Government of Uganda has also developed a Green Growth Strategy with support from UNDP, Global Green Growth Institute (GGGI) working with the Ministry of Finance, Planning and Economic Development (MOFPED), CCD and the National Planning Authority. The strategy guides implementation of NDPIII and supports implementation of Uganda's NDC. Uganda submitted its Intended Nationally Determined Contributions (INDC) to the UNFCCC in October 2015 and then its First Nationally Determined Contribution (NDC) in September 2016.

Achieving long-term sustainable economic growth in the face of climate change is a primary concern and the Government of Uganda (GoU) takes climate change and its impact on development seriously through its development planning framework. The NDP III recognizes that most of the key economic sectors (in particular agriculture, forestry and energy) will be affected by climate change and as a result climate change will negatively affect the national economy. GoU has developed the National Climate Change Policy (2015) as the underlying pathway to help meet Vision 2040's goals through strategies and actions that address both sustainable development and climate change (Government of Uganda, 2015).

Due consideration is given to climate change adaptation and resilience, greenhouse gas mitigation, strengthening prediction and monitoring of climate change and, these are integrated in sectoral policies and strategies to support decision-making and investments, and facilitate mobilization of financial resources to address climate change (Maikut, 2013). The climate change policy is accompanied by a costed implementation strategy which contains more detailed provisions entailing: a roadmap to early policy implementation, an elaboration of the institutional framework (including on the Focal Climate Change institution and the National Climate Change Commission), and an overview of resources/funding required for implementation of the policy (Ministry of Foreign Affairs of the Netherlands, 2018).

In line with the UNFCCC decisions related to Nationally Appropriate Mitigation Actions (NAMAs), Uganda has been keen to contribute to climate change adaptation and mitigation. Uganda's national adaptation and mitigation actions are at different stages of development and implementation. For adaptation to climate change, the prioritized intervention areas are; land and land-use, farm forests, water resources, health, weather and climate information, indigenous knowledge documentation and awareness creation, policy and legislation and infrastructure (Government of Uganda, 2007). The mitigation actions have been developed based on the Intergovernmental Panel on Climate Change (IPCC) categorized sectors, namely: energy, transport, AFOLU, IPPU and waste. Across the different sectors, the steps taken to develop mitigation actions differ based on the source and availability of resources. The distribution of adaptation and mitigation actions across sectors are often driven by the demand for implementation in each sector in an effort to ensure the sector contributes its fair share to national development priorities and subsequently mitigation of climate change (Government of Uganda, 2019).

Source:
Government of Uganda (2020). Third National Development Plan 2020/21 - 2024/25. National Planning Authority. Kampala Uganda.
Government of Uganda (2010). Uganda Vision 2040. National Planning Authority, Kampala Uganda
Uganda National Planning Authority (2018). The Uganda Green Growth Development Strategy 2017/18 – 2030/31.
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Source:
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Government of Uganda (2007). Climate Change: Uganda National Adaptation Programmes of Action (NAPA) submitted to UNFCCC.
Government of Uganda (2019). Uganda's First Biennial Update Report (BUR). Ministry of Water and Environment

DROUGHTS AND FLOODS ARE THE MAIN CAUSES OF CLIMATE VULNERABILITY

- Uganda is **among the countries most vulnerable and least adapted to CC**, scoring **166 out of 181 countries** on the ND-GAIN Vulnerability Index in 2018.[4] Its vulnerability has been attributed to the huge dependency on natural resources provided by primary sectors such as agriculture, water, energy and fisheries which are highly vulnerable to impacts of CC.[5] **Agriculture, biodiversity, health, infrastructure and water are especially vulnerable.[1] The mean annual temperatures have risen by 1.3 °C since 1960, annual and seasonal rainfall has decreased significantly and rainfall has also become more unpredictable and unevenly distributed over the year. In the 2007–2008 fiscal year, the costs of climate change damage were equivalent to 4.4% of the national budget, exceeding the budget allocation for the environment and natural resource sector (UNFCCC, 2021).**
- Historically, the country was mostly dominated by a tropical climate with a single rainy season in the north and two rainy seasons in the south. The **effects of CC are affecting the seasons** with the country experiencing **shorter or longer rains and harsher droughts** – especially in the eastern and north-eastern regions.[2]

Climate Change Projections [1]

- Depending on the scenario, **temperature is projected to rise by between 1.5 and 3.5 °C by 2080**, compared to pre-industrial levels, with higher temperatures and more temperature **extremes projected for the north and east of the country.**
- Precipitation trends are highly uncertain and project an increase of 67 mm in annual precipitation by 2080. **Future dry and wet periods are likely to become more extreme**.
- The models project a possibility of an **increase in crop land exposure to drought**. Yields of maize, millet and sorghum are projected to decline, while less sensitive crops such as groundnuts are projected to increase under higher concentration pathways.

Trends in rainfall and temperature attributes in Uganda (1979 –2015)[6]

REGION	MEAN T [DEG C/DECADE]	TOTAL RAINFALL [MM/DECADE]	EXTREME RAINY DAYS [DAYS/DECADE]	RAINY DAYS [DAYS/DECADE]
Northern	+0.44	not evident	downward	+2.8
Southern	+0.48	upward	+1.2	not evident
Lake Victoria Basin	+0.43	+40.5	+1.9	not evident

- Long term trends across the regions show increasing. temperatures over the period 1979 –2015.[6]
- Air temperature is projected to be about 1.5°C –2.5°C warmer by 2050.[6]

Projections for essential climate variables under high emission scenario (RCP8.5) over 4 different time horizons.[3]

CMIP5 Ensemble Projection	2020–2039	2040–2059	2060–2079	2080–2099
Temperature Anomaly (°C)	**+0.6 to +1.5** (+1.0°C)	**+1.2 to +2.5** (+1.8°C)	**+1.9 to +3.9** (+2.8°C)	**+2.6 to +5.2** (+3.7°C)
Precipitation Anomaly (mm)	**–23.5 to +25.9** (+1.4 mm)	**–25.9 to +32.5** (+2.9 mm)	**–26.5 to +45.1** (+7.37 mm)	**–26.0 to +63.1** (+13.6 mm)

Note: The table shows CMIP5 ensemble projection under RCP8.5. Bold value is the range (10th-90th Percentile) and values in parentheses show the median (or 50th Percentile).

- Increased temperatures will increase aridity and the length and severity of the dry season (December to March).
- Greater occurrence of high heat days will have significant implications for human and animal health, agriculture, ecosystems as well as energy generation.[3]

Source: 1. GIZ Climate Risk Profile, Uganda. 2. The International Organization for Migration (IOM), 2021. 3. World Bank Climate Risk Country Profile Uganda. 4. The index summarizes a country vulnerability to climate change and other challenges in combination with its readiness to improve resilience. 5. CARE, 2020. 6. AfDB, 2018. UNFCCC, 2021. Needs-Based Climate Finance Project. Technical Assessment of Climate Finance in the East African Community

AGRO-ECOLOGICAL ZONES VS. FLOOD AND DROUGHT VULNERABILITY

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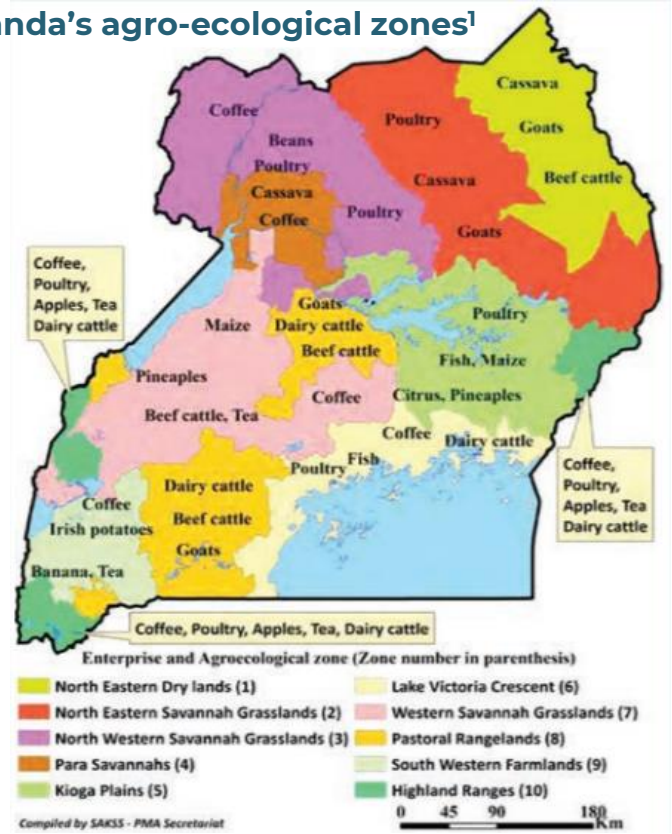
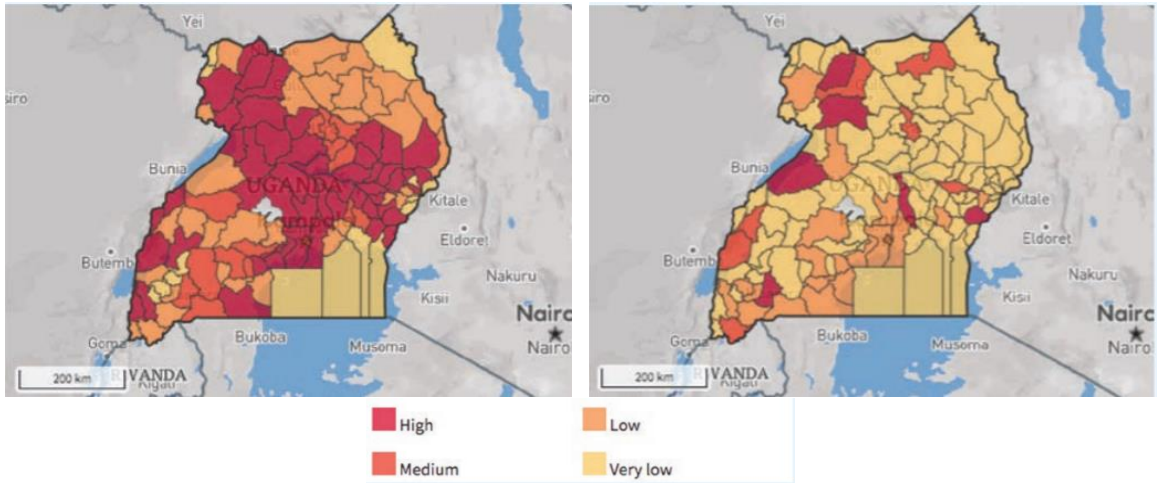
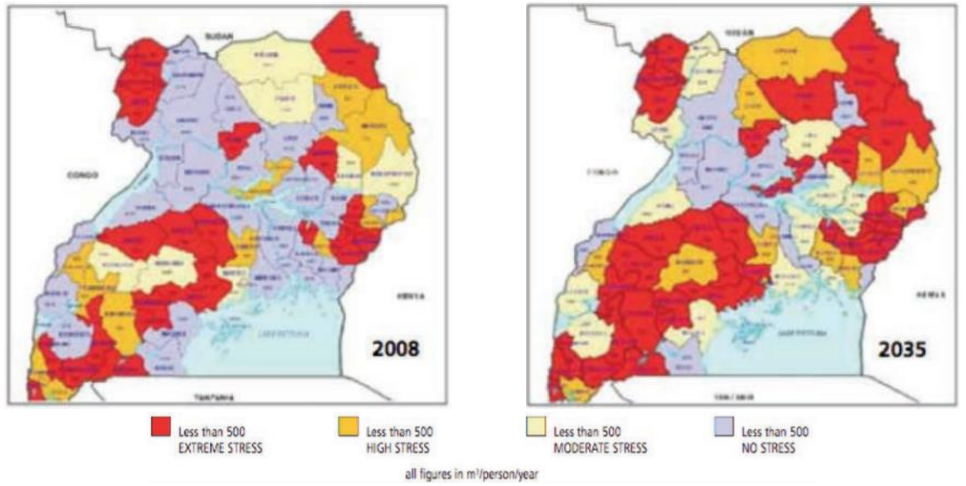
Uganda's agro-ecological zones[1]



Uganda river flood risk (left) and urban flood risk (right)[2]



Distribution of water stress in Uganda for 2008 and projected for 2035[2]



8 out of 12 most important agricultural risks mapped by the Platform for Agriculture Risk Management (PARM), are directly related to CC: **crop/ livestock pest & diseases, post-harvest loss, droughts, floods, hailstorms and thunderstorms, and other natural risks such as landslides**.[3]

Source: 1. MAAIF (2018). National Adaptation Plan for the Agricultural Sector. 2. World Bank Climate Risk Country Profile Uganda (cross reference ThinkHazard! (2020) and Department of Disaster Preparedness and Management (2012). 3. PARM.

CLIMATE CHANGE AGGRAVATES THE CAUSES OF GENDER INEQUALITY

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Climate Change Vulnerability

- Women are often in charge of collecting water, and fuelwood. CC leads to **water shortage and fuelwood scarcity.** More time spent to get resources means **less time for education / adequate rest**.
- Women often are in charge of feeding their family first and eat last, facing **greater food insecurity** when changing conditions in the environment lead to food scarcity.[1]
- In the case of climate emergencies and **disaster**, women are usually **disproportionately affected and often less flexible to migrate**, as they oversee watching children and valuables.
- Scarcity and unrest fuels **discrimination and sexual violence**. Attempting to cope with adverse impacts, families may increase harmful gender-based practices, such as child marriage.[3] Another example is the exchange of sexual services in order to obtain access to fish by female fish processers and mongers (‘**fish-for-sex**’)

Restricted Access to Finance

The **lack of ownership and control over land and resources, and their disproportionate burden of unpaid care work**, restricts access to finance, extension services and technological innovation to Ugandan women.[1]

- Of the 5.8 million **subsistence farmers** in Uganda, 3.7 million **(64%) are women** and 2 million (36%) are men. Although women cultivate crops more frequently and for longer hours, there is a **gender gap in tenure rights** (49% men vs 31% women are owners or right-holders over cultivated land).[6]
- When farming cash crops, women are often more involved in growing and production stages, while **men dominate the negotiation and marketing process**.
- Although fishing has been the preserve of males, females dominate fish insert processing and trading in most parts of the country. **57% of women earn an income purely from fish trade while 43% combine fish trading with other small businesses** such as food vending. [4]
- The **earnings gap increases women's vulnerability**. Median monthly cash earnings in paid employment are 240,000 shillings, for men and 150,000 shillings for women (USD 65 vs USD 41).[2]
- **Ugandan women predominantly prefer VSLAs to formal financial institutions for savings and credit**.[6] Their higher usage of informal services results in fewer consumer protections, fewer opportunities to build credit histories and fewer access to structured services such as seasonal loans and more secure options.[7]

- At the same time, **enhancing opportunities for women constitutes an efficient strategy for climate adaptation in developing countries.** Female owned MSMEs are increasingly recognized as key in promoting resilience at micro and macro scales. Studies indicate that, due to their strategic position in families, **women often more efficiently allocate returns from MSMEs to the most critical household assets**, including health, education and food security, which themselves shape and enable household and business adaptive capacity.[5]
- Promising practice exists that can inform strategies for environmental policymakers and practitioners, including **investment in women’s collective empowerment and agency**, engaging men and boys as champions, and the complex, long-term work of changing socio-cultural norms.[3]

Source: 1. The International Organization for Migration (IOM), 2021 2. UBOS, Annual labour force survey 2018/19. 3. IUCN – 2020. Gender-based violence and environment linkages. 4. FAO, 2018. 5, Cross reference of Nichter and Goldmark, 2009; Terry, 2009 by Atela et al, (2018). 6. UBOS, Annual labour force survey 2018/19. 6. VSL Associates. In fact, 78% of VSLA members worldwide are female.
7. Financial Protection Forum, 2019. VSLA: Village Savings and Loan Associations.

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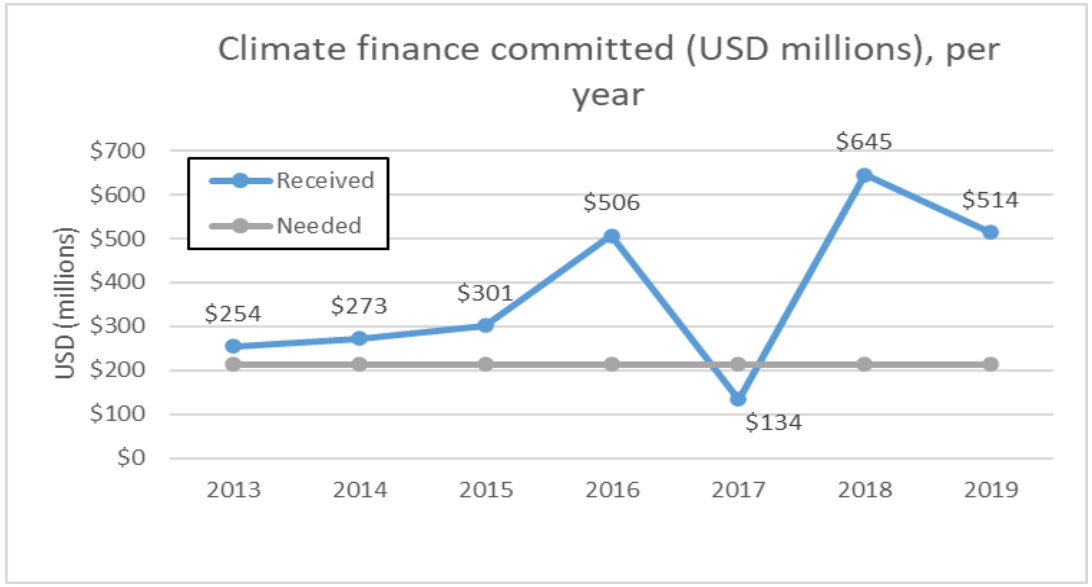
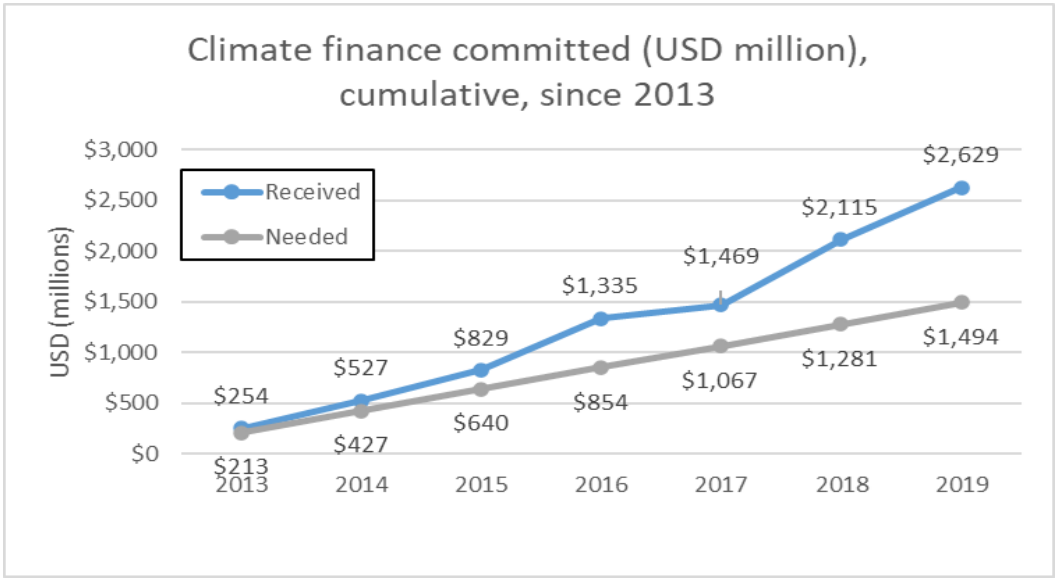
SUMMARY OF COMMITTED FINANCING (2013 – 2019)

- At the Conference of the Parties to the UNFCCC, developed countries committed to mobilise climate financing to developing countries of $**100 billion per year by 2020.** As of 2020, annual commitments are still below target.
- The adaptation needs of Uganda (set out as adaptation actions in the National Climate Change Policy) have been estimated at **$213.5* million per year over the next 15 years (2013-2028),** with around 70% of this expected to be mobilized from external sources and 30% from domestic sources (NDC 2020). Positively, committed funds **have exceeded** the required funds by 76%, cumulatively, leaving no **adaptation gap** (see graphs below). However, committed funds do not always translate into disbursed funds.

Year on year, the committed climate finance* was below or above the required amount

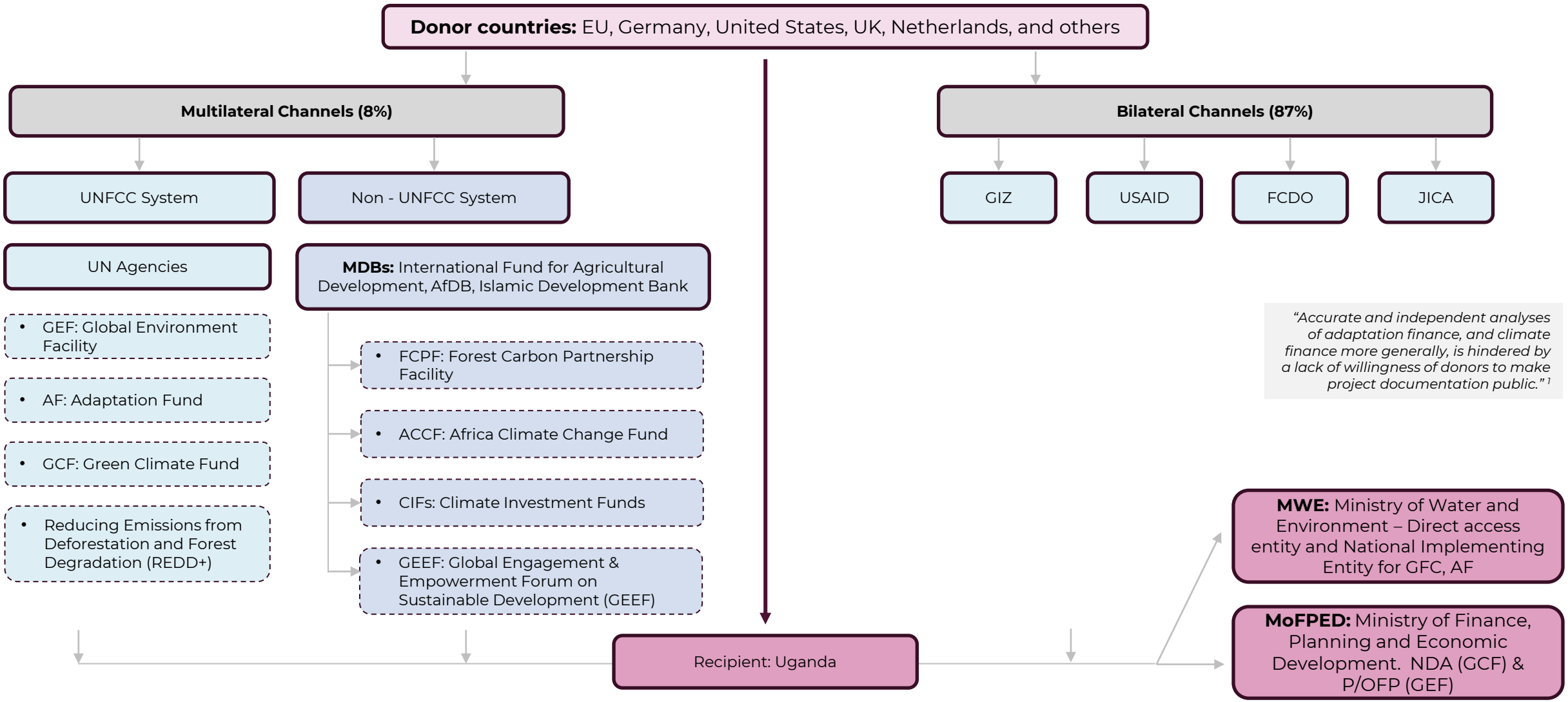


Cumulatively, the committed climate finance* received 2013-2019 was 76% above the required amount



Source: OECD 2019.
(*) USD values are expressed with currency rates of 2019.

OVERVIEW OF CLIMATE FINANCE FLOW STRUCTURE IN UGANDA[1]

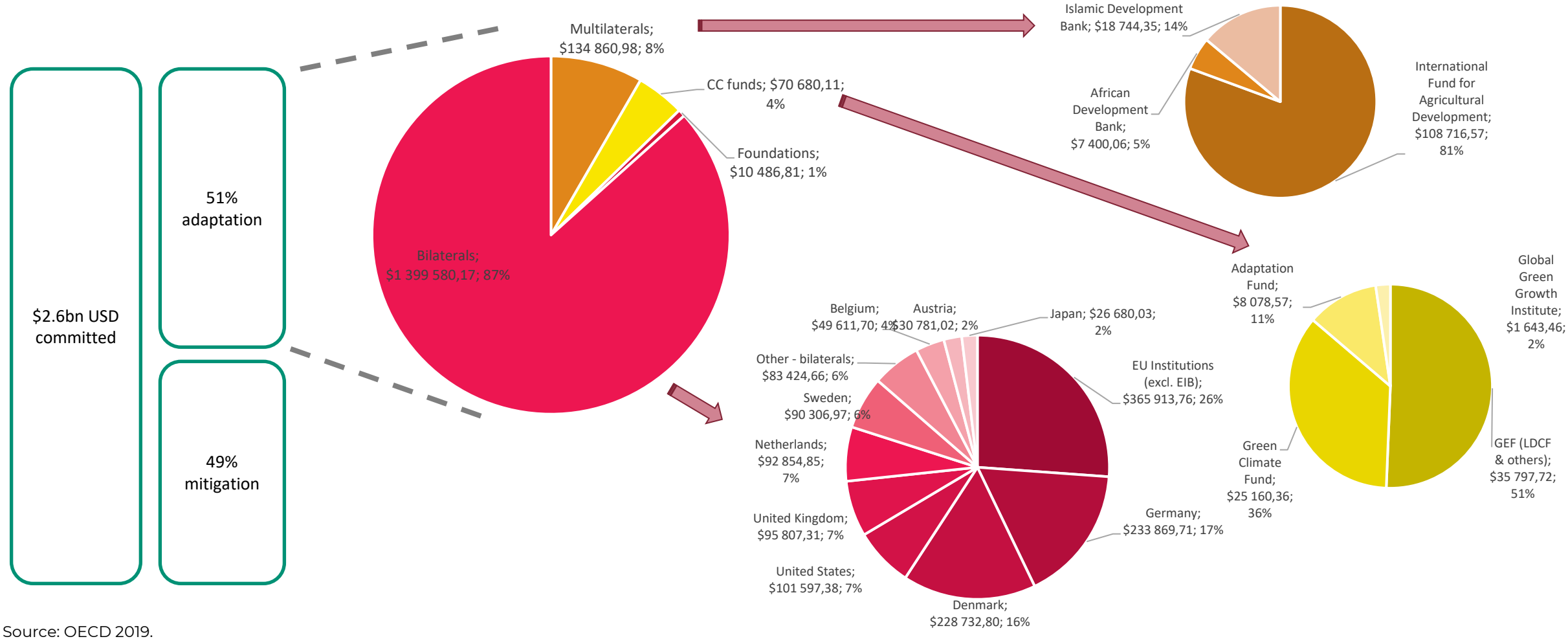


"Accurate and independent analyses of adaptation finance, and climate finance more generally, is hindered by a lack of willingness of donors to make project documentation public." [1]

Source: 1. Adapted from CARE, 2020. Overview of climate finance flow structure in Uganda by EMLI. In percentage, Climate Finance committed over 2013-2019 in USD (OECD database as in following slides). NDA: National Designated Authority. P/OFP: Partner and Operational Focal Point.

CLIMATE FINANCE FUNDERS (2013 – 2019)

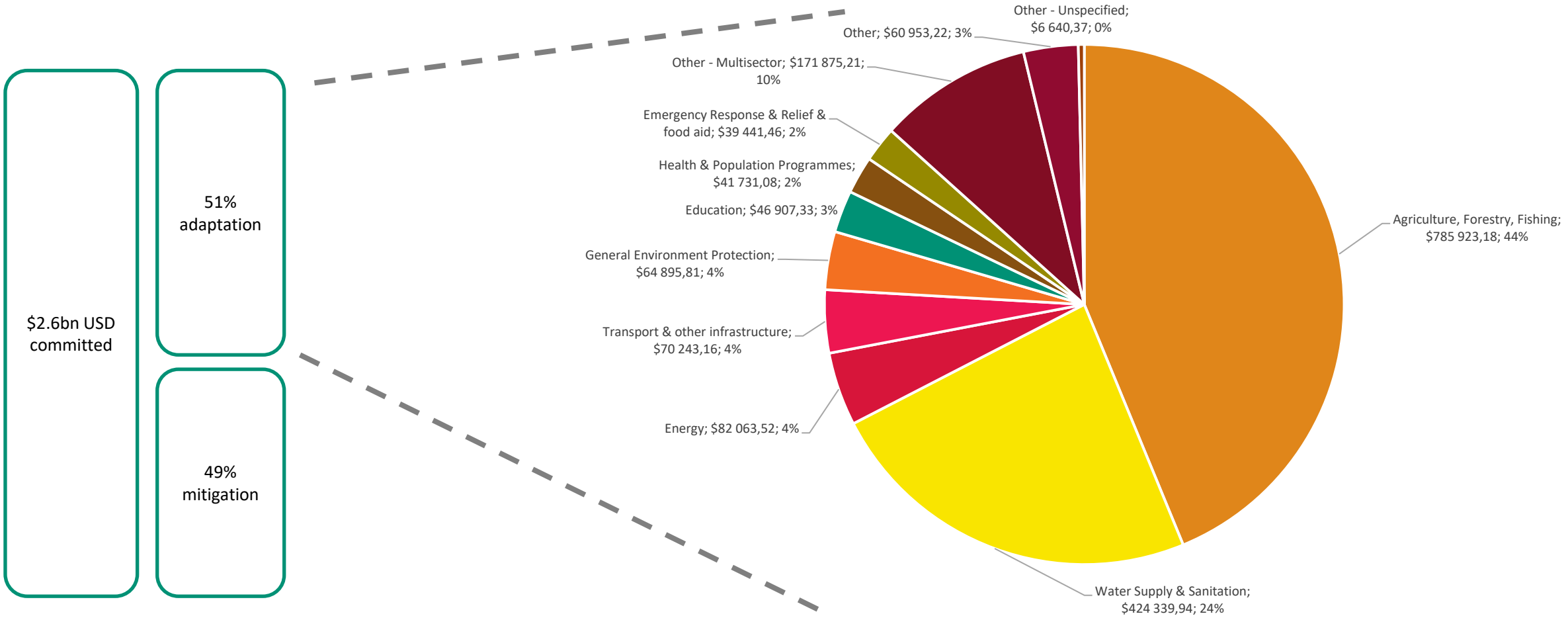
- Overall, of the $2.6bn USD committed over 2013-2019, 51% has been tagged to adaptation and 49% to mitigation (including cross-cutting funding). There are however known issues with mis-tagging (CARE 2020).
- Given these caveats, most of the adaptation funding is funded via **bilaterals (87%)**, with only 8% via multilaterals and 4% via climate change funds (see graphs).



Source: OECD 2019.

SECTORAL FOCUS (2013 – 2019)

The committed adaptation funding ($1.8bn over 2013-2019) is mostly aimed at **agri/forestry/fishery (44%),** followed by WASH (24%), energy (4%), infrastructure (4%) and others (see graph)



Source: OECD 2019.

RECIPIENTS OF THE AGRI/FORESTRY/FISHERY FUNDING

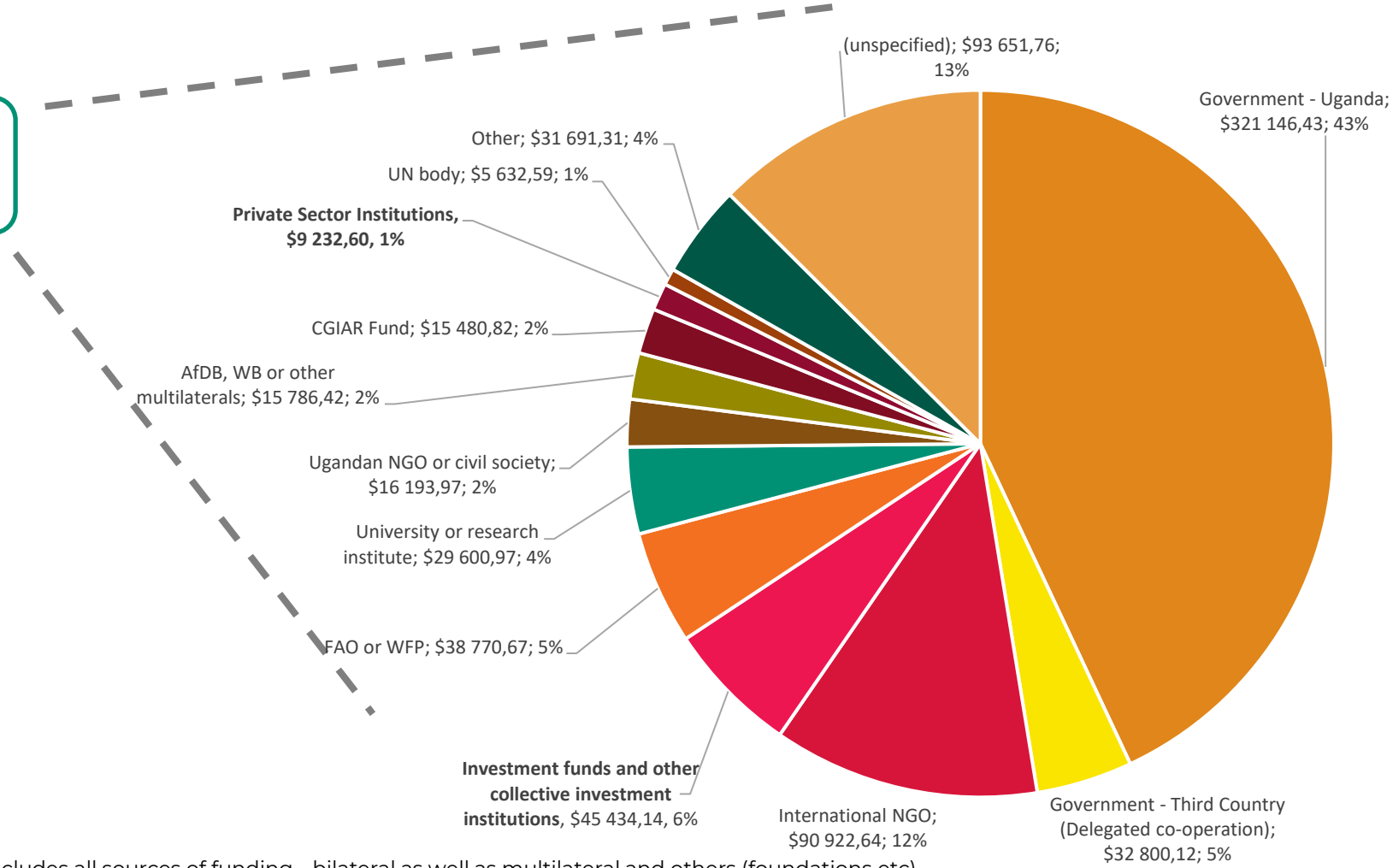
The recipients of the agri/forestry/fishery adaptation funding ($786mn over 2013-2019) are mostly governments[1] (47%), international or national NGOs (12%) or other international bodies (10%), with **only 7% aimed at the private sector or investment funds** (see graph)

$2.6bn USD committed

51% adaptation

49% mitigation

44% Agriculture, Forestry, Fishing



Source: OECD 2019. 1. Government of Uganda and others. Graph includes all sources of funding - bilateral as well as multilateral and others (foundations etc)

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (1/7)

- According to the Ministry of Finance, Planning and Economic Development, Climate financing in Uganda is currently estimated at USD 942 million distributed in implementation of 38 Adaptation and Mitigation projects. It is estimated that Uganda requires US$ 2.5 billion annually for 15 years from 2015 to address the impacts of climate change which continue to have negative effects on development efforts.
- Although the government lists the projects that are currently being executed in the country, http://climatefinance.go.ug/projects the information is not updated or granular enough. Not many entities in Uganda are qualified/certified to receive funds from large climate funds.
- Some projects of interest are: Reducing the Climate Change Vulnerability of Local Communities in Uganda through EbA in Forest and Wetland Ecosystems, Integrated Landscape Management for Improved Livelihoods and Ecosystem Resilience in Mount Elgon, Reducing Vulnerability of Banana Producing Communities to Climate Change Through Banana Value Added Activities - Enhancing Food Security And Employment Generation, Conservation and Sustainable Use of the Threatened Savanna Woodland in the Kidepo Critical Landscape in North Eastern Uganda.

List of main international Climate Funds*

Climate Fund	Fund short name	# Projects	Relevant Projects	Geography reach	Type	Project Value USD MM	Theme
Green Climate Fund	GCF	9					
			Arbaro Fund – Sustainable Forestry Fund	7 countries	Mitigation	200.0	Forestry
			Building Resilient Communities, Wetland Eco	Uganda	Adaptation	44.3	Wetlands
			Acumen Resilient Agriculture Fund (ARAF)	4 Countries	Adaptation	56.0	Agriculture
Climate Investment Funds	CIF	1					
			DPSP III: Electricity Access Scale up Project (E	Uganda		30.0	Electricity access
Global Environment Facility (GEF)	GEF						
Least Developed Countries Fund (LDCF)	LDCF						
Special Climate Change Fund (SCCF)	SCCF						
Adaptation Fund (AF)	AF						
Reducing Emissions from Deforestation and Forest Degradation (REDD+).	REDD+						
Climate Finance Readiness Programme							

Sources: Ministry of Finance Planning and Economic Development. Climate Finance at a glance: http://climatefinance.go.ug/climate-finance-glance / http://climatefinance.go.ug/projects
Green Climate Fund https://www.greenclimate.fund/countries/uganda.
Climate Investment Funds https://www.climateinvestmentfunds.org/country/uganda
Global Environment Facility: https://www.thegef.org/projects-operations/country-profiles/uganda#collapse-star4_alloc
*The ones where there is no information is because there is no info as per their presence in Uganda

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (2/7)

Past, Current and Planned Bilateral Climate Change adaptation initiatives in Uganda

Donor	Years	Amount (USD thousands)	Title	Description
USAID	Feed the Future Project, a few of the activities funded are highlighted below:			Feed the Future Project is a regional programme funding various activities in agriculture, biodiversity and the private sector and integrates climate change as a cross cutting issue eg. The USAID/Uganda Education and Research to Improve Climate Change Adaptation Activity whose implementation concluded in April 2018 and supported the establishment of the Makerere University (MAK) Centre for Climate Change Research and Innovations (MUCCRI)within the College of Agricultural and Environmental Sciences (CAES). This activity conducted various capacity building activities for various stakeholders including the private sector across Uganda. Other projects funded include the National Vulnerability Assessment (completed in 2013), the research activity implemented by IITA whose work has direct element in climate smart agriculture and technology. Through NARO, IITA is promoting climate smart technologies such as improved varieties of maize, coffee and beans that are resistant to disease and drought among smallholder farmers. This is the only climate focused project being funded by USAID
	2016 – 2019	$10,501	ENABLING ENVIRONMENT FOR AGRICULTURE	
	2016 – 2019	$11,365	FEED THE FUTURE (FTF) AGRICULTURAL INPUTS & MARKETS	
	2018	$4,320	INTEGRATED COMMUNITY AGRICULTURE AND NUTRITION (ICAN) - COMMUNITY CONNECTOR FOLLOW-ON	
	2016 – 2017	$1,447	MONITORING, EVALUATION AND LEARNING PROGRAM - PROGRAM DESIGN AND LEARNING	
	2017 - 2019	$253	FOOD SECURITY SERVICE CENTER I & II	
	2017	$28	GLOBAL ENVIRONMENTAL MANAGEMENT SUPPORT II (GEMS II)	
EU Institutions (excl. EIB)	2017	$9,232	GLOBAL CLIMATE CHANGE ALLIANCE (GCCA): SCALING UP AGRICULTURE ADAPTATION TO CLIMATE CHANGE IN UGANDA	**Overall objective:** Contribute to the sustainable improvement of livelihoods and food security of the rural populations in Uganda. **Specific objective:** • Strengthen the resilience of rural populations and agricultural production systems in the central part of the cattle corridor (more specifically, the districts of Nakasongola, Nakaseke, Luweero, Kiboga, Mubende and Sembabule, which are particularly vulnerable to drought and climate variability). • Build the capacities of communities, commercial farmers and the Government of Uganda to cope with climate change. **Outputs:** • Knowledge and capacities for climate change adaptation are strengthened • Livestock has better access to water through 'water for production' investments • Agricultural production systems in the cattle corridor are more climate-resilient

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (3/7)

Past, Current and Planned Bilateral Climate Change adaptation initiatives in Uganda

Numerous international and multilateral climate change adaptation initiatives have been and are currently being implemented in Uganda, through international climate funds. Mitigation projects with adaptation co-benefits are and have also been funded. While majority of these are not specifically designed for the private sector according to feedback from stakeholders consulted, SMEs do participate for example as service or climate technology suppliers through the regular tendering process in government and or civil society institutions. The following list of projects is meant to be illustrative and not exhaustive.

Donor	Years	Amount (USD thousands)	Title	Description
Least Developed Countries Fund (LDCF)	2014 – 2021	2.916	Reducing Vulnerability of Banana Producing Communities to Climate Change Through Banana Value Added Activities - Enhancing Food Security and Employment Generation	Banana is by far the most important crop in Uganda grown by over 70% of the farming population and supplying about 30% of the food consumed. Bananas are marketed and consumed mostly in fresh form, with a short shelf life and with little value addition activities involved. However, there is a huge potential for further value addition and by-product utilization. Different parts of the plant can be processed into foods, textiles, accessories and craft, and biogas. The lack of industrial activities is due to a number of issues including inadequate production capacities resulting in decline in the supply of fresh banana, inadequate infrastructure for value addition and inadequate opportunities for marketing. This project adopted a value chain approach to improve the overall performance of the banana sector, incorporating appropriate low carbon production technologies ensuring sustainable natural resource management, as well as identifying and promoting investment opportunities. Phase I aimed to identify the value chain(s) to address and to assist the government to set a policy in place to ensure the sustainability of the banana sector, then Phase II focused on the actual interventions to develop the sector based on the value chain(s) identified in the Phase I.
	2012 – 2015	4.1 Amount Funding Approved and Disbursed (USD Million)	Uganda - Strengthening Climate Information and Early Warning Systems in Africa to Support Climate Resilient Development and Adaptation to Climate Change	This project, "Strengthening Climate Information and Early Warning Systems in Uganda to support climate resilient development", responds to priorities and actions identified in the NAPA of Uganda which articulate the need for securing, transferring and installing critical technologies, as well as developing the necessary systems for climate change-related information to permeate into decision-making processes. Further information available: online and online

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (4/7)

Donor	Years	Amount (USD thousands)	Title	Description
World Bank/Climate Investment Funds	2016 – current	1,500	Pilot Program for Climate Resilience (PPCR). Uganda is a pilot country	The Pilot Program for Climate Resilience is designed to demonstrate ways that developing countries can make climate risk and resilience part of their core development planning. It helps countries build on their National Adaptation Programs of Action and helps fund public and private sector investments identified in climate resilient development plans. Uganda received approval in 2016 of a US $1.5-million preparation grant from the Climate Investment Funds' Pilot Program for Climate Resilience (CIF PPCR) to develop a national Strategic Program for Climate Resilience (SPCR). Once developed, the policy-based SPCR will pave the way for climate-resilient transformation in the country through a broad set of resilience projects to be implemented through a unique multi-stakeholder approach. The African Development Bank (AfDB) will support Uganda as the lead implementation agency for the SPCR. The country's Ministry of Water and Environment (MWE) will lead the SPCR's development through a multi-disciplinary and multi-stakeholder PPCR Planning Team, building on the country's existing climate-related policy and institutional frameworks.
	2017	234,000	Forest Investment Program for Uganda	The Forest Investment Program For Uganda aimed to promote the sustainable use of forest resources, protection of gazetted forests and creation of incentives for maintaining natural forests on private land and improve forestry policy performance. The programme has synergies with the Strategic Program for Climate Resilience (under the Pilot Program for Climate Resilience, PPCR). Both have the objective of mainstreaming climate change into Uganda's vulnerable catchments, urban areas and institutions through increased resilience of communities most exposed to climate variability and change. More information available online

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (5/7)

Donor	Years	Amount (USD thousands)	Title	Description
Forest Carbon Partnership Facility of the World Bank and Austrian Cooperation	2015		UN REDD national program for Uganda, including grant for Readiness Preparation Programme	This programme was launched in November 2015. It will include the set-up of a National Forest Monitoring System (NFSM) with appropriate monitoring reporting and verification functions (MRV)
GIZ with co-funding from EU for the "Promotion of Climate Smart Agriculture" (ProCSA) Project	2019 – 2014	23,000	The GIZ Promoting Rural Development (PRUDEV) Programme	The GIZ Promoting Rural Development (PRUDEV) Programme is a German-Ugandan bilateral programme implemented by GIZ on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ). The aim of the programme is to improve the agriculture-based development of the rural economy in selected regions of Northern Uganda. Part of the PRUDEV programme is the EU co-funded "Promotion of Climate Smart Agriculture" (ProCSA) Project, with the overall objective to strengthen the rural population in seven districts against the effects of climate change through climate-smart agriculture (CSA).The overall PRUDEV programme supports the following key areas.Enhanced capacity for local agriculture-based economic development. Improved market integration; applied CSA practices">Access to financial services. Enhanced awareness and capacities on Monitoring, Reporting and Verification (MRV) of Greenhouse Gas Emissions in the agricultural sector.
UK/FCDO	2014	40,000	Northern Uganda: Transforming the economy through climate smart agribusiness	The project aims at increasing the resilience of poor farmers to climate change and increase their incomes
	2021 – 2026	53,000	Climate Smart Jobs Programme	To strengthen the climate smart agribusinesses, creating jobs, support climate smart land management & services and to remove barriers that stop businesses getting deals.

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (6/7)

Donor	Years	Amount (USD thousands)	Title	Description
UNCDF	2017 – 2022	29,000	Development Initiative for Northern Uganda (DINU)	The programme's objective is to reduce the development gap between northern Uganda and the rest of the country while focusing on nutrition and food security; road infrastructure and good governance. Various SME financing instruments are implemented with climate adaptation handled as a cross cutting theme. These include; I. **START Facility** START Facility provides support to agricultural revitalization and transformation. START facility financing mechanism is implemented with Uganda Development Bank and Private Sector Foundation Uganda (PSFU) as a concessional loan facility with zero to 12% interest rate of the loan. However, investment with clear impacts and direction on climate adaptation or mitigation, the loan interest rate comes to as low as 8% in some cases. Within the START facility, UNCDF created a window for reimbursable grants worth a maximum of fifteen thousand Euros (Euros 15,000.00) which apply when an investment is hit by a natural disaster/calamity or COVID – 19 pandemic. It is meant for recovering from such a disaster or COVID. 1. UNCDF is currently designing a Local adaptation living facility dubbed LoCAl. It is a climate change adaptation specific programme focused on channeling resources to local district governments for small infrastructure for required capex at that level. The financing will be used for medium to large size infrastructure public private partnerships (PPPs) working with the private sector SMEs. It is a performance-based climate resilient grant where grant financing will be channeled through the government or fiscal transfer system from Ministry of Finance directly to local governments through Results Based Financing. Testing is currently underway in three local governments and then the next year to hit about 12 local governments in Uganda 2. UNCDF is also in discussion with equity bank regarding climate adaptation finance for SMEs and, 3. is also pursuing some work with the Minister of Finance though, not necessarily on climate adaptation but, on capital markets as one of the very key sources for patient capital not only for the private sector but also for public sector. They are looking at state owned enterprises and the source of some revenue bonds for the cities through Bonds for cities e.g. green bonds specifically green bonds for KCCA is being looked into. Capital markets would support not only adaptation but also mitigation. The programme looks to building capacity for government and the private sector as an untapped potential. More information available online
DFID and the Netherlands	2014 – 2015		CDKN's Uganda programme which undertook an economic assessment of the costs of climate change in Uganda and assisted in the preparation of the Ugandan INDC	CDKN's Uganda programme which undertook an economic assessment of the costs of climate change in Uganda and assisted in the preparation of the Ugandan INDC

MAIN ACTORS IN THE CLIMATE FUNDING LANDSCAPE (7/7)

Donor	Years	Amount (USD thousands)	Title	Description
European Union	2012 – 2016	12,600	Global Climate Change Alliance GCCA+	The project looked at strengthening inclusive gender responsiveness and climate smart resilience of rural populations depending on agricultural production systems in the cattle corridor. More information available online
GEF	2018	1,719	Strengthening the capacity of institutions in Uganda to comply with the transparency requirements of the Paris Agreement	The project aims at establishing institutional arrangements for a robust national system for GHG emissions and MRV systems as well as building capacity of key stakeholders
IFAD	2014 – 2022	71,000	Project for restoration of livelihoods in the northern region (PRELNOR)	The project focuses on increasing sustainable production and climate resilience of smallholder farmers and provide increased and profitable access to domestic and export markets
The Netherlands	2018 – 2023	-	Climate resilient agribusiness for tomorrow (CRAFT)	The project aims at improving food security by working towards climate resilient farming systems
COMESA (through EU-supported GCCA+ programme)	2019 – 2021	1,000	Enhancing resilience of agricultural landscapes and value chains in eastern Uganda – scaling up Climate Smart Agriculture (CSA) practices	The project focuses on mainstreaming climate change in national policies, strategies and development plans of member states and promoting, supporting and piloting appropriate adaptation and mitigation projects
Adaptation Fund	2016 - 2020	7.75 - Amount Funding Approved (USD Million) but 1.5 - Disbursed (USD Millions)	Enhancing resilience of communities to climate change though catchment based integrated water management.	The specific objectives of the project are to: • Increase the resilience of ecosystems by supporting sustainable management of forests, wetlands and riverbanks • Increase the resilience of agricultural landscapes by supporting communities to develop and implement sustainable water harvesting, soil bio-physical and flood control structures • Increase resilience of other community livelihood systems by supporting income generating activities with credit and market access • Build the capacity of extension services and institutions at local, catchment, water management zone and national level to better support local stakeholders. More information available online

CSA INITIATIVES WILL RECEIVE INTEREST FROM INTERNATIONAL CLIMATE FLOWS

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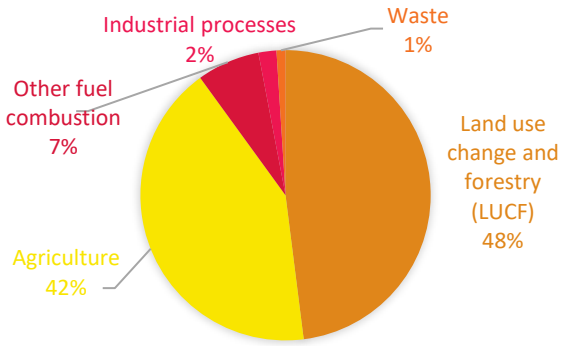
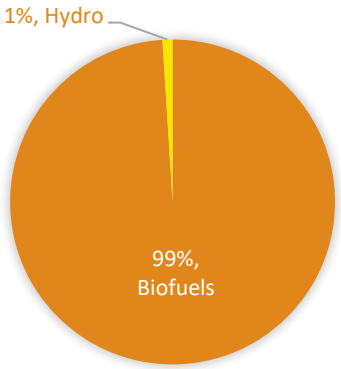
Distribution of Uganda's GHG emissions by major sectors



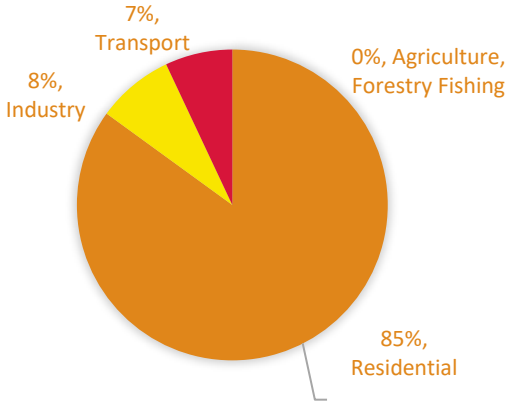
- **~90% of total green house gas (GHG) emissions (56.8 MT CO_{2e}) come from agriculture, forestry and other land use. This means that initiatives toward climate-smart agriculture (CSA) will receive greater interest from international climate flows** to tackle GHG emissions in Uganda.
- Livestock production (~20.2 MT CO_{2e}) and land-use change from forest area (~ 17.6 MT CO_{2e}) are the largest contributors to emissions.
- Implementation of NDC is conditional on access to climate finance and international market mechanisms.
- Adaptation priorities in Uganda's Nationally Determined Contribution (NDC):
  - Encouraging efficient biomass energy production and utilization technologies and agro-forestry
  - Promoting biodiversity & watershed conservation (including re-establishment of wildlife corridors)
  - Promoting intensified and sustained forest restoration efforts (afforestation and reforestation programmes, including in urban areas)
  - Expanding extension services, Climate Smart Agriculture (CSA), diversification of crops and livestock, rangeland management
  - Expanding climate information and early warning systems

National energy production between major energy carriers (2014-2016)

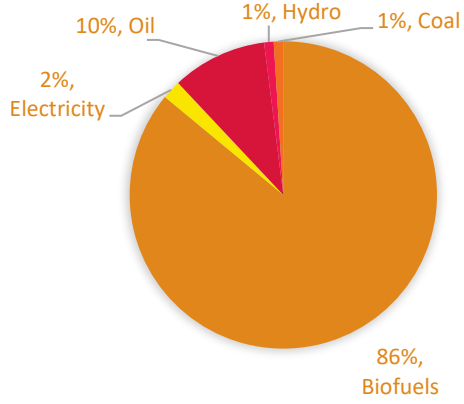


Total national energy production 9.8 MTOE (113,974 KWh)

National energy consumption by sector (2014-2016)



National energy consumption by major energy carriers



Total national energy consumption 10.2 MTOE (118,626 KWh)

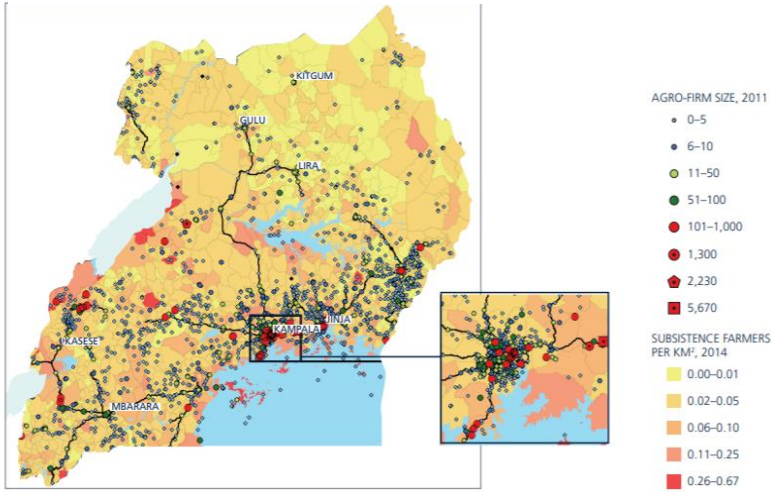
Source: AFDB,2018.. Historic emissions. Energy is expressed in 'Megatonnes of Oil Equivalent', where 1 Tonne Oil Equivalent = 11,630 KiloWatt hours (KWh).

CONTENTS

AGRICULTURE AND LIVESTOCK | STYLISED FACTS

- **Agriculture and livestock subsector accounts for 18.2% of GDP** (of which 12% corresponds to food crops, 2.5% cash cops and 3.4% livestock).[6]
- The AFF sector as a whole accounts for about **50% of total exports**, and it **employs 63%** of working population, and **72% of young** Ugandans.[1] Of the 16.3 million workers, 10.3 million were employed in AFF sector (5.7 million women / 4.6 million men), of which 5.8 million (57%) were involved in subsistent agriculture.
- The **poorest households are significantly more likely to report farming as their primary occupation**: 53% of the bottom 40% depend mainly on agriculture.[1]
- **Predominantly small-scale farmers**: Only 4% of total farms are 5ha or more, limiting access to credit, extension services, information and technology. They comprise ~2.5 million households (90% of the farming community), the majority of who own less than 2 acres of land each. [2]
- A significant majority of the **population** (~72%) **remains dependent on rain-fed subsistence agriculture**, where underemployment is persistent (mean hours of work in agriculture is below 30 hours per week) and **earnings are low** (below USD 35 per month). Opportunities in **commercial farming are concentrated close to urban areas** and in the Central and Western regions.[1]

Market-oriented farmers (2014) and food-processing firms (2011)



Source: Blankespoor, Norman and Merotto (2019) using UBOS Population Census data and COBE (2011).[1]

Factors that increase Agriculture vulnerability to Climate Change[4,7]

- Rain-fed agriculture and **small-scale/subsistence farming**, which severely limits access to finance due to smaller size, limited experience, and undocumented performance
- Lack or **inadequate social protection** for farmers and **near-absence of disaster preparedness**
- **Lack of insurance protection** for farmers and insecure land tenure
- **Inadequate input quality-verification** (fake hybrid seed is widespread)
- **Poor access to climate change information** (scientific meteorological information and technologies), and low awareness of the agriculture-based sources of greenhouse gases (GHG) among the farmers
- **Gendered** division of labor and **access to resources** such as land and finance
- **Limited modern effective adaptive and mitigation capability**, such as irrigation systems

"The production and productivity of most crops has remained low due to climate change effects, erratic weather patterns, poor infrastructure, limited use of improved seeds, low use of fertilisers and poor agronomic practices" [5]

Source: Source: 1. World Bank, 2018. 2. PARM, 2015. 3. Uganda Economic Update, 2018. 4. Adapted from Olanike, 2020. 5. MAIFF Annual performance report 2020. 6. UBOS. GDP at constant prices in 2020/2021. Total agriculture, fishing and forestry (AFF) accounted for 23.3% of GDP. 7. World Bank Climate Risk Country Profile Uganda. 8. UBOS, Annual labour force survey 2018/19.

AGRICULTURE AND LIVESTOCK | VALUE CHAIN ANALYSIS

*In blue, exclusively for livestock

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	Inputs	Production / harvest[1]	Processing	Marketing / Distribution	Consumption
Value chain elements	• Land • Seeds / Cattle, & other • Water– irrigation & storage • Tools, machines • Fertilisers • Labour • Finance	• Labour • Fertilisers • Water– irrigation & storage • Vaccines and veterinary services • Rule of law, taxes and tariffs • Finance	• Drying and Storage • Cooling • Technology • Assets and infrastructure • Skills • Value addition • Finance	• Transport infrastructure • Logistics: storage, load consolidation • Branding & product standards • Commercialisation and payment systems	• Market infrastructure • Export policies and opportunities • Inventory management
Climate change effect / risks	• Temperature increase will cause **desertification** in dryer zones. Shrinking plots of land farm too intensively further **degrading poor soils** • Variable and unpredictable rainfall affects land and seed **productivity** • Flooding, and windstorms **damaging inputs and assets** • Potential **loss of biodiversity**	• **Crop loss, reduced yields** • Desertification, **loss of topsoil** and increased rate of **weed growths** • Increase incidence of crops and animal **pests / diseases** (e.g. locust) • Unpredictable planting / harvesting timings. **Low seed viability and germination rate** • Incidences of wildfires and flooding • Lower milk production • Cattle raids (north-east)[2]	• **Reduction in shelf life** of farm produce • Increased **fire incidence** • Extreme rainfall can **reduce quality /quantity of produce in post-harvest** activities • Increase in **pest and disease infestation**, and higher usage of pesticides / preservatives	• Increase in weather events potentially **affecting roads and infrastructure** • Increase in **transportation and storage costs** • Increase in **price fluctuation** and/ or reduction in market value • Poor access to markets	• Shorter shelf life • **Decrease in nutrient and produce market value** • Increase in cost of food preparation and readiness • CC can **increase inequalities and fuel social conflict** • **Decreased revenues** from declines in produce
Potential solutions	• Hybrid / smart seeds • Information services, quality control (seeds and fertilisers) • Innovative irrigating techniques (e.g. solar pumps) • Cluster insurance schemes • Appropriate grazing techniques	• Tools that enhance access to finance: Insurance, credit guarantee schemes. • Mobile / digital services increase access to information, data collection, and transparency • Integrate CC and CSA in agro-strategies, plans, budgets and development programmes • Better practices to reduce losses	• Mobile / digital services increase access to information, data collection, and transparency • Value addition (Agro-industry) • Technical assistance, capacity building, capital formation • Better infrastructure and practices to reduce losses	• Better infrastructure (road, storage facilities, etc) • Mobile / digital services increase access to information, data collection, and transparency • Income diversification (farming + non-farming)	• Better logistics and distribution practices to reduce losses • Mobile / digital services increase access to information, data collection, and transparency

1. Includes planting, cultivation and harvesting / cattle , poultry raising. 2. Indirect effect of CC. See: http://www.fess-global.org/Publications/Other/Climate_Change_and_Conflic_%20in_Uganda.pdf
CSA: Climate Smart Agriculture

AGRICULTURE AND LIVESTOCK | FINANCING

Current Financing

Formal Financing – almost exclusively for the minority large-scale farmers

- **Commercial banks provided 95% of all agricultural finance in Uganda**, but generally not to smallholders or subsistence farmers.[1]
- However, **MSME funding can potentially trickle down to the lowest income quintiles**. Some successful recent examples implemented during the recent pandemic include[11]:
    - 1) DFCU Bank introduced **Baraka loans** (loans provided with flexible collateral conditions targeted to women);
      2) **Letshego Microfinance** invests in digital platforms and systems and provides training in agricultural practices;
      3) **FAO and Ministry of Development and Ministry of Agriculture partnered** to recognize a group of entrepreneurs (contest to provide funding);
      4) **Stanbic Bank** Uganda launched the **Youth4Business Innovation and Entrepreneurial Facility**, a five-year initiative comprising two interventions: an Innovation Challenge Fund, and a growth accelerator that provides competitive matching grants for youth and MSMEs in the agricultural sector;
      5) UNCDF partnered with local telecommunications providers MTN and Airtel to reduce e-business transaction charges and costs of doing business;
      6) Feed the Future Growing Women's Entrepreneurship (GroWE).
- **Agricultural Credit Facility (ACF)** created in 2009 provides interest-free loans to financial institutions (FIs) for on-lending to farmers and agri-processors at favourable terms. It finances working capital and long-term finance for capital expenditure items such as equipment and storage facilities.[5] It has had very limited reach beyond financing large scale farmers, processors, and guaranteeing grain trading and marketing.[6]
- GoU established the **Uganda Agriculture Insurance Scheme (UAIS)** in 2018 to cushion farmers from risks associated with losses arising from natural disasters (Multi-peril Crops, Livestock, Drought Index, Poultry, and Aquaculture Insurance).[5] The scheme is supported by a premium subsidy ranging between 30-80%, but most is reaching medium and large producers.[8]

Informal Financing – the only (prohibitively expensive) alternative for subsistence farmers

Only 6.3% of Ugandan small-scale agribusinesses have access to a loan/line of credit as opposed to 44.1% in Kenya.[8] Smallholders rarely hold collateralisable property rights to land, their small size and geographical dispersion raises transaction costs, and they entail high covariant risk[4].[1]

- **Pyramidal schemes of middle-men**: Small-holder farmers sell to local leaders and members of the community with entrepreneurial skills who provide funding. These sell to further middlemen who in turn sell to bigger ones, some of which reach exporters. Each charges a profit seeking funding-fee making the financing prohibitively expensive for small farmers.
- **Informal aggregation schemes** to overcome diseconomies of scale, in the past have had governance problems (lack of transparency). The MAAIF and WB launched in 2017, the Agriculture Cluster Development Project (ACDP) with initial challenges but latest improvements.[9]
- **Informal hedging** (selling the future harvest- especially in perennial crops): Farmers are paid the harvest in advance creating problems of incentives, and moral hazard concerns.

CLIMATE FINANCE MOBILISATION[10]

- Although Uganda has put in place policies, plans and strategies to address CC and its impacts, **no explicit strategy has been put in place to guide the mobilization of the required sources** as enshrined in the policy to implement climate actions with 30% of national resources and 70% from international sources.
- **Stand-alone funds** in Uganda **have** to a large extent served the purpose and **provided multiplier effects**. (e.g. Bwindi and Mgahinga Conservation Trust; Agricultural Business Initiative (aBi) Trust; the Road Fund; Uganda Energy Credit Capitalisation Company; the National Environment Fund; the Tree Fund; Uganda Wildlife Fund; the Agricultural Credit Facility administered on behalf of government through Bank of Uganda; the Yield Uganda Fund managed by Capital Partners Ltd; the Agricultural Insurance Scheme; Uganda Biodiversity Fund and ECOTRUST)
- The **National Climate Green Fund** under the oversight of the Permanent Secretaries of the Ministry of Finance, Planning and Economic Development and the Ministry of Water and Environment **can serve as an ideal climate finance mechanism charged with mobilization, management and unification of public and private climate finance from domestic and external sources.**

Source: 1. World Bank, 2018. 2. Katunze et al. 2017. 3.Targeted to medium to large companies. 4. When many farms/households in one area are adversely affected by a single phenomenon, such as weather, biological, infrastructure, price, and market risks. 5. MAAIF Annual performance report 2020. 6. Agricultural finance yearbook, 2020 . 7. CGC, 2021. 8. Financial Protection Forum, 2019.
9. MAAIF, Agriculture Cluster Development Project. 10. ACODE (2020). 11. SME Finance Working Group (SMEFWG), 2021
GoU: Government of Uganda. UNCDF: UN Capital Development Fund

AGRICULTURE AND LIVESTOCK | FINANCING

Financing gaps & opportunities

- **GoU is exploring the creation of a climate-dedicated National Financing Vehicle (NFV)** to mobilize both national and international climate finance resources directed to high impact climate action. The National Development Bank (UDBL) has been identified as the most viable option to host an Uganda climate-focused NFV.[7] FSDU could convene with authorities and actors from the ecosystem to provide support into making any form of National Climate Green Fund a reality.
- The +5,000 **Savings and Credit Cooperatives (SACCOs)** registered could be better supported by **including them into legal banking frameworks**, and improving their governance, and supervision mechanisms.[3] FSDU could convene with authorities and regulators to explore/provide advice.
- **Financing for better seeds bundled with technical assistance** – When providing working capital funding for investment in seeds, FIs could offer assistance for input quality verification and weather appropriateness of the purchased seeds. FSDU could play a role in facilitating knowledge management tools to promote learning and scaling up, and **expanding research around the connection of CSA with agro-finance**. (see the following slide)
- **Value chain financing**, whereby integrator firms act as a middle-men between smallholder farmers and banks, collecting information and assuming a certain amount of credit risk, **is increasing** in Uganda.[1]
- **Warehouse receipts** are issued by warehouse operators to producers who deposit commodities with them. As such, they provide evidence of creditworthiness and can be used as collateral. New improvements to the WRS in Uganda appear to have promising results.[2] WRS, and broader arrangements against alternative forms of collateral, can work but often fail other than via the largest warehouse/silo operators due to banks ability to ensure collateral is valid/secured properly etc. However, recent examples at a lower scale are DFCU Bank Baraka loans**.** FSDU could potentially provide further research on the success factors for flexible forms of collateral aiming smaller loans could work.
- **Small loan first-loss guarantees with a gender focus:** provide SMEs with access to financial services as well as risk-sharing support to encourage FI to expand their lending portfolio. (example IFC's Small Loan Guarantee Program a pooled first-loss guarantee targeted to female-owned SMEs or SMEs working in priority sectors like climate or agriculture). ACELI and others have been active in this space.

Source: 1. World Bank, 2018. 2. Katunze et al. 2017. 3.Targeted to medium to large companies. 4. When many farms/households in one area are adversely affected by a single phenomenon, such as weather, biological, infrastructure, price, and market risks. 5. MAAIF Annual performance report 2020. 6. Agricultural finance yearbook, 2020 . 7. CGC, 2021. 8. Financial Protection Forum, 2019.
9. MAAIF, Agriculture Cluster Development Project. GoU: Government of Uganda. WRS: Warehouse Receipt System.

CLIMATE SMART AGRICULTURE (CSA) - UGANDA

- Climate smart agriculture is an approach to farming that **increases productivity and resilience to the impacts of climate change**, and where possible reduces emissions.
- FSDU could play a role in facilitating knowledge management tools to promote learning and scaling up of CSA, particularly in **expanding research around the connections between CSA with agro-finance**.
- A stakeholder mapping exercise commissioned by the Ministry of Agriculture identified and documented **the stakeholders implementing CSA technologies and practices throughout the country:**

Coping strategies for climate change on agriculture

- Promoting highly adaptive and productive crop varieties and animal breeds;
- Climate Smart Agriculture and other ecologically compatible cropping systems;
- Sustainable management of rangelands and pastures;
- Irrigation agriculture;
- Sustainable land use and soils management;
- Agriculture diversification;
- Post harvest handling, storage and value addition.
- Innovative credit and insurance schemes.
- Supporting community based adaptation strategies.

Major CSA technologies and practices identified in Uganda and their impact

- Contour bunds: controlled soil erosion and harvested water.
- Water diversion channel: harvested roadside runoff water and diverted it into the garden.
- Cowdung manure: put in planting holes for soil fertility improvement.
- Irrigation: increased water availability during drought.
- Grass mulch: enhanced SWC in the garden.
- Insecticides: controlled passion fruit diseases.
- Compost making: fertility improvement,
- SWC: water harvesting and conservation and soil erosion control.
- Irrigation: improved water availability.
- Agroforestry: soil fertility improvement.
- Agronomic practices: improve production.
- Solar driers: post-harvest handling and value addition.
- Diversification of enterprises: alternative livelihood.
- Zero grazing: improved animal production.
- Large planting holes and grass cover: harvested runoff and encouraged water infiltration into the soil.
- Firelines: avoid burning of the entire plantation in case of wildfire outbreak.
- Fire gangs - urgently respond and put out any fire outbreaks.

Opportunities identified across different districts

- ✓ Presence of other actors in multiple districts has offered the opportunity for **collaboration and increased access to CSA knowledge**. The presence of **complementary actors** allows farmers to freely acquire inputs (e.g. equipment, techniques) and training which then enhance production.
- ✓ Existence of **committed farmers** to host demo gardens.
- ✓ In south-western highlands, the presence of **committed partners** e.g. KaZARDI, DLGs, Calitas Uganda, Excel Hort Consult, Self Help Africa, ISSD, OWC/NAADS to support seed multiplication and distribution. In the Mukono district pig production space, **collaborative linkages with partners** (MAAIF SLM Project, Mukono ZARDI and the DLG) enabled the youths to acquire inputs for the SLM interventions.
- ✓ Presence of **NGOs and other CSA actors** to support the group of farmers.
- ✓ **Existence/availability of a ready market** for the vegetables in the town.
- ✓ Presence of **women groups** enables the easy provision of training and other services. Also, the **youths** are hardworking and willing to learn and open up to new ideas.
- ✓ Existence of **training centre** which offers farmers free access to knowledge, skills and other materials to enhance the productivity of their farming enterprises.

Source: 1. World Bank, 2018. 2. Katunze et al. 2017. 3.Targeted to medium to large companies. 4. When many farms/households in one area are adversely affected by a single phenomenon, such as weather, biological, infrastructure, price, and market risks. 5. MAAIF Annual performance report 2020. 6. Agricultural finance yearbook, 2020 . 7. CGC, 2021. 8. Financial Protection Forum, 2019.
9. MAAIF, Agriculture Cluster Development Project. GoU: Government of Uganda. WRS: Warehouse Receipt System.

CONTENTS

FISHERIES AND AQUACULTURE | STYLISED FACTS

- **The subsector accounts for ~1.6% of GDP**.[5] It recorded an **annual production of ~561,000 MT** (2019), of which ~15,000 MT[7] came from aquaculture (fish farms). Between June 2020 and July 2021, at least **15,149 MT of fish worth USD 118.6 million** (Shs419b) were **exported**.[1]
- Fish factories employ over 5,600 permanent workers, and the entire fish value chain creates **jobs for more than a million people, including fishermen, transporters, boat-builders and others**.[4] Estimations from 2006 hold that **fisheries provide employment to 700,000 Ugandans and it's a source of livelihood for +1.2 million Ugandans**. [6]
- **Lakes and sources**: Out of Uganda's total area of 241,550 km^2 **~18% is covered by water**. The country has over 165 lakes and many rivers. The most productive is Lake Victoria which accounts ~58% of the total fish catch, followed by Lake Kyoga and Lake Albert (16% and 13% respectively); the rest come from minor lakes, rivers and swamps.
- **Fish species**: over 350 fish species which are known to exist in water bodies in Uganda, including the Nile Perch, Nile Tilapia, Herring, Catfish, Hydrocynus, Small Sardine, Lungfish, and Haplochromines. There are different stages of development among fisheries chains.
- Production of **Tilapia** is currently booming in Uganda and Kenya. Fast growth and transformation are being driven by increasingly large and **sophisticated investors entering** the market.[4] Some important players providing support and investment are: Msingi (Gatsby Foundation funded and founded), Yalelo and Joint Ventures such as Nutreco-aquafeed. Developmental financing institutions also now entering space with investments coming from AgDevCO + institutional money from private partners.
- Wild catch is declining because of overfishing/unsustainable fishing of freshwater fish. Tilapia farming has a relatively lower carbon footprint than cattle or poultry
- Considering environmental factors, Small-scale commercial cage farmers have an advantage over pond farmers regarding the fact that there are still many suitable sites available
- **Aquaculture** could be used as one of the **adaptation measures to help communities** that have depended on fish to supplement capture fisheries. However, the development of aquaculture in Uganda is constrained by low adoption of appropriate technologies, inadequate investment in research and inadequate aquaculture extension services.[2]
- As a response to overfishing, in 2017 President Museveni created a new **Fisheries Protection Unit**, manned by the army **to enforce fishing regulations on the lakes**.

Factors that increase Fisheries vulnerability to Climate Change[4]

- Common constraints in **fisheries** value chains are **transportation, institutional frameworks** for marketing, **lack of capital** (financial and physical) and management skills, lack of formal horizontal linkages, post-harvest losses, and supply fluctuations. The **aquaculture** value chain shows weaknesses in **input supply and delivery**, resulting in **low productivity**.[6, 8]
- The impacts of climate change in Ugandan fisheries result from an **increase in mean air temperature, shifting precipitation patterns, habitat degradation and an increase in extreme weather events** (droughts and floods).[3]
- Climate change adaptation strategies to decrease vulnerability within this value chain may include supporting **fishers' advocacy and safety and** developing and **disseminating post-harvest handling technologies**.[3]
- Uganda's insufficient energy and transport infrastructure increase costs and climate change vulnerability especially for fisheries in isolated areas (e.g. ice making, storage for larger fish, and drying and processing for small fish).
- There's an information gap regarding statistics that indicate the effects of specific parameters such as an increase in temperature on fish stock distribution and abundance in Uganda.[2]

Source: 1. Fortune of Africa. Annotation: exports mainly to DRC - fresh on ice. The international export of Nile Perch is currently very small 2. CIF, 2017- PPCR Strategic Program For Climate Resilience For Uganda. 3. World Bank, 2020 4. See relevant recent joint ventures: https://www.seafoodsource.com/news/aquaculture/east-africa-aquaculture-boosted-by-nutreco-fish-feed-production-deal. 5. UBOS. GDP at constant prices in 2020/2021. 6. World Fish Center, 2012 Original reference for 2006: over 300,000 people are directly employed in the sector and over 1.2 million people derive their livelihoods from fisheries-related activities. Replaced by FAO estimates (2003). 7. Updated reference to include FAO statistic (no-date). From https://www.fao.org/fishery/en/countrysector/naso_Uganda. 8. Annotation: feed inputs are main constraint now - especially soybean/soymeal, animal proteins and fats at quality required. MT: Metric Tonnes.

FISHERIES AND AQUACULTURE | VALUE CHAIN ANALYSIS

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	Inputs / Hatchery	Production / Nursery	Processing	Marketing / distribution	Consumption
Value chain elements	• Body of water • Fish seed and feed • Water– irrigation & storage • Tools (nets, canoes) • Fertilisers • Labour • Finance	• Labour • Fertilisers • Water– irrigation & storage • Veterinary services • Rule of law, taxes and tariffs • Finance	• Cooling and storage • Skills • Technology • Assets and infrastructure • Value addition • Finance	• Transport infrastructure • Logistics: storage, load consolidation • Branding & product standards • Commercialisation and payment systems	• Market infrastructure • Export policies and opportunities • Inventory management
Climate change effect / risks	• **Diminished availability of seed** due to overfishing, pollution, habitat destruction and heat-related events • **spread of** water hyacinth, algae and other **invasive species**[1] • Storms and high winds on the lakes result in **input and gear destruction,** greater danger for fishermen • Increased **price of feed**	• Decrease in **fish size**[2]**,** shifts in **distribution patterns** and changes in **species composition** • Decrease in **productivity** and predictability of **lake seasonality** • Increase **costs and loss of fish** due to flooding, disease, and infestation by **invasive weeds** • **Loss of fishing gear**, handling and processing infrastructure and households • **Plastic pollution** in water	• Increase **cost of cooling and processing, and post harvest losses** • Reduction in **quality and quantity of fish** to process • Increase in **pest and disease infestation, and higher usage of preservatives** • Destruction of and **damage to infrastructure** during extreme events	• Increase in **price fluctuation** • Reduction in market value • Poor **access to markets** • Increase in weather event potentially **affecting roads and infrastructure** • Increase in **transportation and other costs**	• Shorter shelf life • Increased **pressure on fisheries** as agriculture decreases and price increases for available supply of fish • **Decreased revenues** from declines in catch and/or stock abundance but but major growth in production via aquaculture
Potential solutions	• Genetic diversity and research • Enabling environment through research and management • Insurance of physical capital equipment • Cluster insurance schemes • Weather warning systems • Support for fishers' advocacy	• Institutional adaptation; livelihood adaptation; and risk reduction and management for resilience (e.g. early warning and information systems, and prevention and preparedness strategies) • Increase access to finance • Support transition from fisheries into aquaculture maybe	• Strategies for resilience in value-added fish products e.g. canned fish, sausages, soups, etc • Aquaculture development – premium species e.g. cage fish • Improved post-harvest technology (e.g. solar driers) • Alternative sources of renewable energy for cooling	• Mobile / digital services access to information, data collection, and transparency • Income diversification • Infrastructure provision (e.g., roads) • Potential collaboration/ support of cooperative groups if linked to financial access	• Production of high value-added byproducts (conversion of fish skins into leather for export, isinglass and pharmaceuticals could be manufactured from waste) • Opportunities in production and distribution of small fish for low-income groups

Source:1. GIZ Climate Risk Profile, Uganda. 2. increase in pelagic species that are smaller and more adaptable to change. (World Fish Center, 2012)

FISHERIES AND AQUACULTURE| FINANCING

Current Financing

- Occasionally, grants have been accessible to farmers in the recent past largely through Government, donor agencies or Non-Governmental Organizations associated with specific programs they might have been addressing in aquaculture. Such **grants are primarily disbursed to farmers in kind, in the form of inputs or technical advice**.[1]
- A common **problem small producers particularly have with financing their enterprises is associated with cash flow**. Most do not have savings that can cover up during the moments when they have no other sources of income, though by the end of the year they often have earned that amount of money.[3]
- Fish enterprises' access to **formal financial credit is limited to supporting fish production, exports and R&D**. Lack of access to formal credit to meet the needs of fish SMEs has motivated **NGOs and other informal financing mechanisms to fill the gap**, but serious limitations prevail in part due to high donor dependence and limited funding capacity to support business expansion and growth needs.[3]
- Msingi East Africa - a non-profit industry development organisation currently providing funding in the aquaculture sector - but not really with a climate resilience angle. Tilapia farming has been slow to take off on a commercial basis. Producers active don't always have access to vital components, e.g., high grade feeds and quality seed. A key driver of competitiveness in aquaculture is aquafeed. Good quality feed costs $700/MT in Egypt, but often over $1,100 in Kenya and Uganda. This difference is caused by low investment and limited competition in local feed production (https://www.msingi.com/aquaculture-2/aquaculture/)
- Msingi invests in aquaculture through various mechanisms from returnable instruments (such as debt, guarantee facilities and grants) to technical assistance and research.
- With Aqua-Spark, Msingi is crowding in finance, including through launching Africa's first dedicated aquaculture investment fund ($50 million)-
- Aqua-Spark and Norfund (Norway's development finance institution) funding e.g., Lake Harvest (which does contract fish-farming). Aqua-Spark looking to raise $300 million over the next six to eight years - enough to cover the investment needs of the top 25 companies in its pipeline.
- Private-sector driven out grower programs an opportunity to increase the production potential of small-scale farmers. Larger farms would provide smaller farmers with feed, fingerlings and training and then buy-back fish from the smaller farmers. Larger farmers can limit their production risks by having some level of control over the farming practices of smaller farms and they also become platforms for growth in local small-scale production. Successful case studies in Mozambique (Chicoa Fish Farm funded by IDH Farmfit Fund under an Aqua-Spark portfolio). But there are financial challenges (working capital challenges), even on the part of the larger farmers in buying inputs. Technologies that allow larger farms to remotely monitor farm performance of small-scale farmers could assist in de-risking financing the smaller farmers for larger farms, input providers and banks.

Source: 2. World Fish Center, 2012. 3. Jaabi et al, 2014.

FISHERIES AND AQUACULTURE | FINANCING

Financing gaps & opportunities

- **Finance for operational costs** is needed to support production. Giving **soft loans to farmers** in form of inputs such as feed, seed, and equipment as for most smallholder farmers, is necessary. FSDU could provide research/convening to develop contracts that grant funders a portion of profit when successful and explore potential bundling with microinsurance to protect the downside.
- **Marketing and entrepreneurship:** Training of fisheries officers is currently lacking especially in farm management and production economics. The key skills of how to run a farm and its finances, to write simple cost-benefit analyses and to assess profitability are crucial. Also lack of marketing and markets-based training are constraining farmers.[1] FSDU could partner and convene to provide capacity building (e.g develop training programmes virtual or on-site).
- **Explore efficient ways of enhancing financing through farmers associations**. To address past challenges regarding diminished profit by collective ownership of fish farms, the favoured approach now is to encourage individual farmers to form associations of independent fish farms. Through these associations, farmers then pool resources to access technical services and training (through direct procurement themselves, as the association, access grants/donor support) and do collective marketing. (e.g., Uganda Fish Processors and Exporters Association (UFPEA), Walimi Fish Farmers' Cooperative Society (WAFICOS) National Farmers Federation, Uganda Cooperative Alliance).[1] FSDU could provide research.
- Adaptation support to decrease vulnerability within the fisheries value chain may involve **supporting fishers' advocacy and safety and** developing and disseminating post-harvest handling technologies. There is an opportunity to support an enabling environment for adaptation and discourage negative informal adaptation by incorporating CC as a cross-cutting issue within differing governance structures for fisheries and aquaculture.[2] FSDU could convene with governmental entities.
- Innovative lending technologies of financial institutions and leasing firms can be instrumental in addressing the SMEs' persistent financing difficulties associated with lack of information and high transaction costs.[3] FSDU could convene/partner to develop/expand products such as leasing fixed assets (vehicles, boats).
- Enhance access to finance for **fisher communities to transition into new areas**, and or to buy improved equipment for safer and more efficient fishing. Similarly, mitigating **or transitioning women traders out of the 'sex for fish' cycle into roles as sellers** of tilapia in town, etc. (e.g., Kenya's Victory Farms). FSDU could convene with partners to do this.

Source: 1. SARNISSA, 2009. 2. World Fish Center, 2012. 3. Jaabi et al, 2014.

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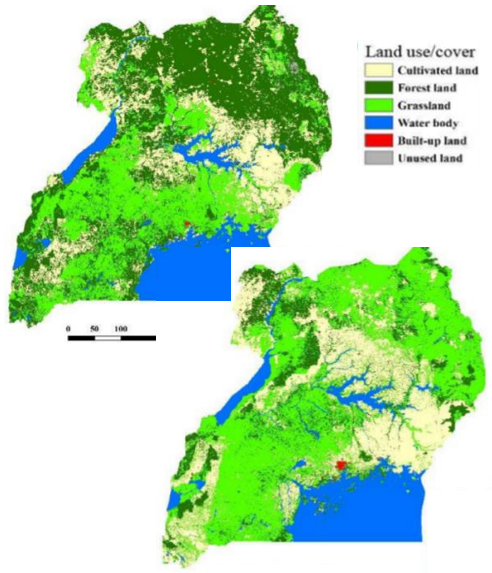
FORESTRY| STYLISED FACTS

- **The subsector accounts for ~3.5% of GDP.**[1] The Uganda Forestry Policy brings estimations that **forestry employs about one million people across Uganda**, comprising 100,000 people in the formal sector and 900,000 people in the informal sector including household labour. Youth in the forest sector are predominantly involved in charcoal production, followed by fuelwood collection, as these activities provide quick economic returns.[4]
- Uganda's GHG emissions have been driven mainly by land-use change and forestry (90%). In fact, **Uganda is ranked among the top 20 on the global list of tropical countries emitting carbon from deforestation**. Major causes of deforestation include clearing for settlements and agriculture, overgrazing, wildfires, charcoal burning, over-exploitation of wood resources for commercial purposes.[2]
- **Forest cover is disappearing at an alarming rate**. Between **1995 and 2005**, there was a **loss of over 1 million** ha of natural forests (woodland and tropical high forest combined), which represents a reduction in forest cover of 2.7% per annum.[1] The total net loss of Uganda's forests during **2000–2015 was estimated at 1.8 million ha**, equivalent to an average annual loss rate of 4%. In 2000, forests covered 19.4% of the land area, but this had reduced to 12% by 2015.[3]
- The **direct economic value of forests** mainly centres around three areas: (i) tourism; (ii) harvesting for timber and forest products; and (iii) provision of fuelwood. In addition, forests **support other natural resource-based activities through reducing vulnerability,** slowing down soil degradation, and increasing resilience to climate change by providing environmental goods and services, incomes and other forest resource-based livelihoods, and safety nets during extreme changes.[3]

Land use / cover changes of Uganda between 2006 (above) and 2010 (down)



Source: Zhang, Fan; Zhan, Jinyan; Zhang, Qian; Yao, Lina; Liu, Wei (2017). Impacts of land use/cover change on terrestrial carbon stocks in Uganda. Physics and Chemistry of the Earth, Parts A/B/C,

Factors that increase Forestry's vulnerability to Climate Change

- Due to ongoing conflicts and instability in the Democratic Republic of the Congo and South Sudan, **Uganda is hosting over 1.3 million refugees and asylum-seekers**. This has led to an increase in the rate of degradation and tree loss, with accelerated land cover changes in bushland and woodland especially in the northern region.[3]
- CC and intensified land use will **exacerbate degradation and desertification**, as tree mortality increases with **reduced rainfall and the incidences of pest**, diseases and **forest fires rise**. [1]
- Demand for wood fuels is expected to rise at 4.2 percent per annum in fuelwood equivalent, due to population growth, rapid urbanization, and rising wealth. [3]
- Natural forests that remain on customary land are threatened and suffer from a **lack of collective rights** and benefits for their sustainable management. [3]

Source: 1. UBOS..GDP at constant prices in 2020/2021. 2. National Climate Change Policy, 2015. 3. Green Climate Fund, 2020. 4. FAO,2021.
Ha: hectares

FORESTRY | VALUE CHAIN ANALYSIS

	Planting & growing	Harvesting	Transport	Processing	Selling / Consumption
Value chain elements	• Land • Seeds • Water– irrigation & storage • Tools, machines • Fertilisers • Labour • Finance	• Labour • Fertilisers • Water– irrigation & storage • Veterinary services • Rule of law, taxes and tariffs • Finance	• Storage • Cooling • Technology • Skills • Value addition • Finance	• Transport infrastructure • Logistics: storage, load consolidation • Branding & product standards • Commercialisation and payment systems	• Market infrastructure • Export policies and opportunities • Inventory management
Climate change effect / risks	• Loss of **forest biodiversity** • Higher incidence of tree mortality, pest/disease and **wildfires** • **Migration of trees** by changing climate • Loss **of soil fertility** and soil nutrients • Increase in **soil erosion and landscape changes (e.g. landslides)**	• **Power outages** increase in frequency during the rainy season. • Higher forest **fire risk in dry periods;** pressure on forests when other livelihood assets collapse	• Extreme events deteriorate unpaved road rail and other infrastructure and heavily affect **transportation costs**	• Increase in **price fluctuation** • Reduction in market value • Poor **access to markets** • Increase in weather events potentially affecting **roads and infrastructure** • Increase in transportation and other costs	• Illegality and violence due to increased regulation
Potential solutions	• Strengthen existing national forestry policy to reduce deforestation and forest degradation • Afforestation, reforestation, agroforestry and natural regeneration • Channel carbon credit incentives • Expansion of tree cover on individual land • Improved seeds and drought-resistant, fast-growing tree species • Strengthen existing forestry research	• Irrigation and CSA techniques to prevent wildfires • Inter-cropping opportunities for shorter-term sources of cashflow • Skills and equipment enhancement (e.g. address inefficiencies with pit saw operations to ensure the quality of timber is appropriate for domestic and export markets). • Market intelligence – ensure material planted is right for the available markets.	• Infrastructure provision (e.g., rails and roads)	• Business models to support the direct economic value of forests focusing on nature-based tourism; productive forestry; and provision of fuelwood. • Incentivize activities related to downstream value-adding / processing for wood products (e.g production of laminate/chipboard; construction grade timber, etc).	• Promote and encourage efficient biomass energy production and utilization technologies to reduce biomass consumption. • Market intelligence to understand anticipate demand.

1. Includes planting, cultivation and harvesting / cattle , poultry raising. 2. Indirect effect of CC. See: http://www.fess-global.org/Publications/Other/Climate_Change_and_Conflic_%20in_Uganda.pdf
CSA: Climate Smart Agriculture

FORESTRY| FINANCING

Current Financing

- Who is/has provided financing for the sector:
  - Trees for Global Benefits: A Cooperative Community Land-Use Carbon Offset Project, Uganda (USAID/DFID funded) - https://www.myclimate.org/fileadmin/user_upload/myclimate_-_home/01_Information/05_Climate_protection_projects/0_klimaschutzprojekte/uganda-7181/klimaschutzprojekt-uganda-7181-PDD.pdf
  - Gatsby Foundation - Tree Biotechnology Programme (2002; objectives were: private sector and small grower development, poverty alleviation, and the reduction of negative environmental impact from forestry)
  - Sawlog Production Grant Scheme (2004; technical and financial assistance to commercial tree growers with 25 - 500 hectares of land)
- Uganda has developed a **National REDD+ Strategy** to reduce deforestation and forest degradation. (https://infoflr.org/sites/default/files/2017-10/20160829_iucn-forest-brief-no-11_web.pdf)
- Carbon markets in Uganda - Carbon markets are emerging as an additional source of revenue in Uganda. Examples include:
  - Mandulis Energy selling forward carbon credits (at US $16/ton CO2) to United Statesbased WREN (a Y-combinator project) into the voluntary offset market to secure early cash flow; and
  - UpEnergy have created product subsidies by monetising the reduced carbon output of their fuel-efficient stoves at a price of US $4/ton CO2 Impact Carbon provides intermediary services linking local producers of cook stoves and household solar products with carbon markets, thereby ultimately helping to reduce the cost of such products for consumers (Climate Finance Pathfinder)
- **Forest Carbon Partnership Facility (FCPF)** launched by the World Bank to assist developing countries in their efforts to reduce emissions from deforestation and degradation by providing value to standing forests. Uganda is currently a recipient to the Readiness Fund aspect of the FCPF with the country's Readiness Package having been endorsed:
  - Country page - https://www.forestcarbonpartnership.org/country/uganda
  - Latest Annual Report (2020) https://www.forestcarbonpartnership.org/system/files/documents/Uganda%27s%20REDD%2B%20Readiness%20FCPF%20AF%20Progress%20Report%20ver%209.07.2020%20%28002%29.pdf
- While there have been numerous initiatives in Uganda to promote tree planting on private land, there has been a disproportionate focus on target-driven seedling distribution—an approach which has given insufficient consideration to who will own, manage, and benefit from such tree growing over the medium to longer term. As a result, seedling and sapling survival rates have been poor.
- Uganda Insurers Association has the Uganda Agricultural Insurance Scheme but has not developed an insurance product against forest fire due to lack of re-insurance for forestry (https://media.africaportal.org/documents/PRS102.pdf)

Financing gaps & opportunities

- The GoU, in partnership with IUCN, the World Resources Institute (WRI) and other government agencies, conducted an extensive assessment of restoration potential in the country. The study identified 8,079,6221 ha. of land that could benefit from restoration and will help Uganda operationalize its Bonn Challenge pledge of restoring 2.5 million hectares of degraded and deforested land by 2020.
- **Clean Development Mechanism (CDM)** established by the Kyoto Protocol for assisting developing countries in achieving sustainable development and assisting industrialised countries to meet emission reduction commitments. Under CDM, projects that reduce greenhouse gas emissions and contribute to sustainable development can generate Certified Emission Reductions (CERs), a tradable commodity in international carbon markets.[1]
- **Voluntary Carbon Market.** Voluntary carbon market methodologies are less demanding. The average volume-weighted price in 2007 voluntary markets was US$ 6.10 per tonne of CO_2. In response to concern over quality and stories of 'carbon cowboys', suppliers have embraced a range of tools to prove the legitimacy of credits, including Voluntary Carbon Standard, CDM, CCX, VER+ and Gold Standard and others. (e.g. Plan Vivo, managed by Ecotrust under their Trees for Global Benefit)[1]
- Key barriers for both included a **lack of start up funding, low levels of indigenous technical capacity and experience, bureaucratic processes and high transaction costs.**

Source: 1. LTS, 2008. 2. Green Climate Fund, 2020.

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GOVERNMENT CLIMATE-OBSERVANT ENTITIES AND POLICIES

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Implementing Entities

- **MWE:** Ministry of Water and Environment
  - Direct access entity and National Implementing Entity for Green Climate Fund, Adaptation Fund
  - Climate Change Department with the financial support of the Government of Denmark.
- **MoFPED:** Ministry of Finance, Planning and Economic Development.
  - National Designated Authority (Green Climate Fund) & Partner and Operational Focal Point (Global Environment Facility)
- **MAAIF:** Ministry of Agriculture, Animal Industry and Fisheries

- Not many entities are qualified/certified to receive funds from large climate funds
- The ones that are, report having struggled putting together proposals for funding requirements

Documents and policies

- **National Climate Change Bill, (2020):** to give force of law to the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol) and the Paris Agreement, 2015 to which Uganda is a signatory.
- **Nationally Determined Contributions (updated 2021):** strong emphasis on adaptation actions, to ensure all people and communities are resilient to climate impacts. Uganda has committed to reducing its emissions by 22% by 2030, with actions focused in energy, forestry, and wetlands.
- **National Climate Change Policy (2015):** to ensure harmonized and coordinated approach towards a climate- resilient and low-carbon development path for sustainable development in Uganda.
- **National Adaptation Plan (NAP) Road map (2015):** In 2016, the Uganda Government partnered with the joint FAO-UNDP Integrating Agriculture in National Adaptation Plans (NAP-Ag), funded by the International Climate Initiative (IKI), to integrate the agriculture sector into Uganda's NAPs process.
- **National Disaster Preparedness and Management Policy (2011):** Covers vulnerability assessment, mitigation, preparedness, responSe and recovery.
- **National Forestry Policy (2001)**

Strategies

- **GoU - Uganda Vision 2040, Uganda Green Growth Development Strategy (2017), and Third National Development Plan (NDPIII) 2020/21 - 2024/25** outline commitments to environmentally sustainable and socially inclusive growth that prioritizes green job creation, low carbon emissions, and climate resilience.
- **Climate Investment Funds**
  - PPCR (Pilot Programme for Climate Resilience) Strategic Program For Climate Resilience For Uganda
  - Scaling Up Renewable Energy in Low Income Countries (SREP)
  - Forest Investment Program (FIP)

THE NATIONAL CLIMATE FINANCE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK IN UAGANDA (1/6)

Climate change policy framework and institutional framework in Uganda

A range of policies and regulations are already in place and are shaping the climate change (adaptation finance) framework in Uganda. However, there is no specific climate finance policy. The 2015 NDC for Uganda has been revised and updated in collaboration with the development of Uganda's Long-Term Climate Change Strategy (LTS). An interim draft of the updated NDC was submitted to the UNFCCC in October 2021 and is currently being finalised with its costed implementation plan being developed as well. Similarly, the LTS is also in the final stages of approval by the government of Uganda for further submission to the UNFCCC Secretariat. National policies and regulations shape the mandate and roles of different agencies. However, respective constitutions need to be clear; especially with regard to the mandate for mobilizing and managing climate finance. ***Findings from the interviews are included in this section as italicized green text.***

→….. "Uganda has many fantastic and comprehensive policies to create an enabling environment for climate adaptation financing. However, these are un implemented and lack actionable measures and steps to these policies for example on how the private sector can be engaged to implement these policies. There is a communication gap between the policy developers and industry - SMEs that are causing the environmental degradation", according to feedback from Finding XY.

Third National Development Plan (NDP III), Climate Change Bill and Climate Change Act
The GoU recognizes the importance of climate in the development process along with the risks and opportunities climate change may represent. To showcase its commitment to include climate resilience in its development programmes and create enabling environment to move from business-as-usual development and transition toward a new paradigm that supports low-emission, climate-resilient development, shifts production and consumption processes to emit fewer greenhouse gases and promotes sustainable development, climate change has been mainstreamed in the National Development Plans (NDP). The National Development Plan (NDP III) 2020/21 – 2024/25 is based on eight thematic areas with climate change mainstreamed into it. It serves as the single most powerful guide for investment planning, budget allocation and social interventions in the country. All government programmes are linked to the NDP within the existing policy, legal, planning, monitoring and reporting systems. The Climate Change Bill has recently been passed into law to address the need for an overreaching standalone legal framework for climate change as stipulated by the Uganda National Climate Change Policy (NCCP) but, to also facilitate its implementation and that of the country's Nationally Determined Contribution (NDC). The Climate Change ct 2021 outlines commitment to green, inclusive growth that priorities green job creation, low carbon emissions, and climate resilience.

Uganda National Climate Change Policy
The main objective of the National Climate Change Policy (NCCP) policy document is to ensure a harmonized and coordinated approach towards a climate resilient and sustainable low carbon development path for Uganda. The NCCP confirms that climate change in Uganda must be tackled as a "multi-sectoral" approach and that a coordinating unit needs to be able to reach through to different line ministries/agencies. It assigns the national climate change coordination function to the Climate Change Unit (CCU), which has since been promoted to the level of a governmental department (the CCD) under the MoWE.

CCD is currently facing several challenges in playing its role. These include;

a) *Not fully tracking climate finance from bilateral support due to insufficient information available*
b) *Inadequate capacity to tap into all climate finance instruments e.g. green bonds, carbon markets*
c) *Low capacity to develop proposals and bankable projects*
d) *Limited domestic systems to manage, measure, track, verify and monitor climate finance*
e) *Insufficient data from stakeholders for the national GHG inventory*
f) *Limited data on all sectors due to lack of resources and capacity to capture GHG emissions which in turn affects its reporting obligations to the UNFCCC, according to presentation by the new Commissioner during the Environment and Climate Change Development Partners Group meeting (ECCDPG) held on 2nd February 2022.*

CCD's current priority needs include:

a) *Support to fully operationalize the recently developed national climate change act*
b) *Development of the local financial solutions tailored to address specific barriers*
c) *Intensifying long term observations of climate variables such as temperature, air pressure, wind and rainfall etc.*
d) *Conducting a study on loss and damage because a lot of loss is being experienced due to the impacts of climate change through the country*
e) *Maintenance and improvement of the national GHG inventory*
f) *Undertaking issuance of carbon footprint certification*
g) *Readiness support to build capacity in carbon pricing. Currently, many carbon buyers showing interest but offering very low prices,*

While support provided by development partners in the development of proposals is very vital, its is not enough. The support should also continue to the implementation stage. Foristance, the World Bank supported GoU to develop a good REDD+ strategy which now requires financing for implementation. This was a lengthy process that took over 10 years according to presentation by the new Commissioner during the Environment and Climate Change Development Partners Group meeting (ECCDPG) held on 2nd February 2022.

THE NATIONAL CLIMATE FINANCE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK IN UAGANDA (2/6)

In addition to CCD as facilitator, a number of different other institutions play also a role. For instance, the National Climate Change Policy Committee (NCCPC) was established to coordinate policy implementation and ensure information flow on resource allocation for the implementation of the policy. It is chaired by the Prime Minister and brings together Ministers from various departments. The National Climate Change Advisory Committee ensures working level coordination and provides technical input to NCCPC. It is chaired by the Minister for Water and Environment and brings together technical representatives from the various government departments, private-sector associations, civil society, academia and district authorities.

The Parliamentary Forum on Climate Change (PFCC) addresses the environmental, social and economic pressures presented by global climate change. It is the climate change arm of the Parliament; ensuring that organisations are accountable for the mandate that they are given. In addition to CCD, the policy assigns also to MoFPED, the National Planning Authority, and the Ministry of Local Government a role in national coordination to ensure policy implementation. Moreover, each ministry and respective government agencies designate a focal point that is also "*accountable for the implementation"* of the prescribed policy responses that concern them. According to the NCCP, the National Environment Management Authority (NEMA) is responsible for ensuring sound environmental management and biodiversity conservation in Uganda and that *"…Environmental Impact Assessments (EIAs) are prepared in accordance with the Ugandan Guidelines and the latest international standards and environmental criteria…"* and that EIAs are submitted to NEMA for approval.

The policy indicates also that each ministry *"will be expected to report on their progress in the implementation of their respective tasks and in the attainment of their expected results."* The results are amalgamated by CCD in a consolidated progress report (on the overall implementation of the policy) for consideration by the Cabinet and the Prime Minister's Office. However, the National Environmental Act, Cap 153 clarifies NEMA's authority; saying that "*…the authority shall be the principal agency in Uganda for the management of the environment and shall coordinate, monitor and supervise all activities in the field of the environment…"* and *"…mobilise, expedite and monitor resources for environmental management."* NCCP highlights that the Ugandan National Meteorological Authority (UNMA) is responsible for coordination of climate and weather-related information and acts as a focal point for Inter-governmental Panel on Climate Change (IPCC).

→However, there is limited uptake of climate information especially weather data from Uganda National Meteorological Authority (UNMA). This could be due to the public's lack of confidence in the climate data provided apparently not being accurate. This presents a need to support better early warning systems:, according to feedback from the National Planning authority (NPA)

→ UNMA needs institutional strengthening to increase and automate weather data stations across the country to provide real time weather information in a format that can be effectively used by stakeholders such as farmers and policy makers for decision making. As part of mainstreaming climate change into its programmes, USAID is currently exploring how its funded institutional and systems strengthening (ISS) Activity implemented by Cardo International could work with UNMA to strengthen its capacity to have more automated weather stations for data collection. However, this is not a core result area for this activity according to feedback from USAID.

Regarding the National Planning Authority (NPA), NCCP highlights that it "*…coordinates, manages and evaluates frameworks, systems and strategies for cost-effective and participatory development planning in Uganda, and produces development plans."* NPA ensures that *"…ministries, departments and agencies concerned integrate climate change through adequate provisions in their annual work plans for the implementation of the climate change policy, building on the guidance provided in the costed implementation strategy but consistent with all relevant national policies and legislations…and ensure that these agreed work plans are implemented, through a review of quarterly and semi-annual reporting by the institutions concerned and appropriate follow-up actions by the NPA."*

While there has been progress in policy development, on-the-ground, impact is not reported and the effectiveness of public spending on climate change actions and particularly on adaptation activities in the private sector is yet unclear (ODI, 2013). This was echoed by feedback from USAID and Finding XY (as noted above).

→ "In terms of planning, Uganda has made great strides. If the NDP III is the guiding plan for all Uganda's MDAs, Uganda is doing fine on paper. But translating these plans to finance is still a challenge. Issues of how much the District Development Plans include and how much finance is actually accessed is not known"…..according to feedback from USAID.

The Ministry of Local Government (MoLG) provides"*…guidance to the districts to translate the policy priorities and the implementation strategy into coherent plans at the district level, ensures that districts make adequate provisions in their development plans, annual plans and budgets for the implementation of the climate change policy and ensures that these are acted upon as planned through a review of relevant reports…."*

At the district level, the climate change focal point is anchored within the Natural Resources Department of the District Local Government and all departments ensure that climate change issues in their sectors are integrated into the District Development Plans as stipulated by section 5.1.4 of the NCCP. The existing Environment Committee structure at the district level acts as a mechanism to ensure cross-sectoral coordination.

Source: ODI, 2013, Uganda National Climate Change Finance Analysis.

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One of the NCCP objectives is "*to facilitate the mobilisation of financial resources to address climate change in Uganda*". NCCP gives MoFPED tasks that are also highlighted in Section 5.1.2 (on overseeing and tracking of climate funds and concerning the NDA role); e.g. "*ensure that national, sectoral and district-level budgets and indicative planning figures integrate climate change through appropriate provisions for the implementation of the policy and its strategy…review quarterly and semi-annual reports from the ministries, departments and agencies…facilitate the introduction of relevant financial mechanism…to support financial resource mobilisation and investment for the implementation of the policy.*"

Despite the international commitment to provide climate funding to developing countries, there is also a need to **mobilize national sources**. The ministry of Water and Environment estimated that Uganda requires US$ 2.5 billion annually for 15 years from 2015 to address the impacts of climate change. To implement the Nationally Determined Contributions (NDCs), Government of Uganda planned to provide 30 percent of the required funds, while the remaining 70 per cent was to be accessed from international sources (MWE, 2015). In the 2007–2008 fiscal year, the costs of climate change damage were equivalent to 4.4% of the national budget, exceeding the budget allocation for the environment and natural resource sector (UNFCCC, 2021). Between 2008/2009 and 2011/2012, Uganda's on-budget climate change relevant spending was an average of 0.2% of GDP- though the Climate Change Policy suggests that around 1.6% cent of GDP should be spent (ODI, 2013).

→ *…….this situation has not changed much since the 2013 ODI study. The Government climate change expenditure is also less that the 30 percent stipulated in the NDC as to be covered by national sources. Thus, Government of Uganda is currently not fully meeting its climate change financing obligation and targets as stipulated in its legislation framework according to feedback from the National Planning Authority.*

The Government climate change expenditure is currently concentrated in a handful of Ministries: Agriculture, Water and Environment, Energy, and Transport, and with the exception of the Ministry of Energy, is primarily focused on supporting adaptation activities. At the district level, climate-relevant investments were higher: 2% of total government expenditures, of which 98% was for adaptation activities, mostly in water, agriculture and natural resources sectors (ODI, 2013). However, this Government climate change expenditure on adaptation is not currently disaggregated to indicate funds spent on climate adaptation activities in the private sector by SMEs.

→ *Of the 0.2 % budget allocated to climate change, it is not clear how much is spent on adaptation financing for SMEs in the agriculture, forestry, fisheries sector according to feedback from NPA.*

→ *District - level budgets have ceilings and the leaders are often directed to slash and cut their budget priorities to cover for supplementary budgets, according to feedback from MAK/MUCCRI.*

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Source: UNFCCC, 2021. Needs-Based Climate Finance Project. Technical Assessment of Climate Finance in the East African Community
ODI, 2013, Uganda National Climate Change Finance Analysis
AfDB (2020), Potential for Green Banks & National Climate Change Funds in Africa - Scoping Report. Available at https://www.afdb.org/en/documents/potential-green-banks-national-climate-change-funds-africa-scoping-report
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Other sectoral legal policies: Climate Change Act (CCA) 2016, Uganda National Meteorological Authority Act, 2012; The National Environmental Act, Cap 153, 1995 (amended in 2005, The Physical Planning act, 2010; The National Agricultural Research Act 2005, The Land Act (Amendment Act, 2004), National Forestry and Tree Planting act, 2003, National Planning Authority Act 2002,The Water Act, 1997
Government of Uganda (OCTOBER 2015). UGANDA'S INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC). Available at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Uganda%20First/INDC%20Uganda%20final%20%2014%20October%20%202015.pdf.

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Government agencies are expected to report to the MoFPED - with copies for the NPA and CCD - on a quarterly and semi-annual basis on their progress in the implementation of their respective tasks and in the attainment of their expected results and performance targets. MoFPED currently plays the National Designated Authority (NDA) function for the Green Climate Fund (GCF), Global Environment Facility (GEF) Focal Point and the Designated Authority (DA) for the Adaptation Fund.

> → *Majority of concept notes and proposals submitted to the NDA Committee are around climate mitigation and few on adaptation particularly from the private sector. The people designing climate projects are still designing them like the old conventional development projects. Elements and questions on ownership, gender, equity, accountability, and transparency are still not well addressed in the design of climate change programmes and projects, if not included in climate financing, the purpose and the intent of adaptation finance will not be addressed. The private sector has not been supported enough to understand how climate change affects them and there are still challenges on the how to identify these climate adaptation opportunities for the SMEs according to feedback from Climate Action Network Uganda (CANU) - a member of the NDA Committee.*

In partnership with the Global Green Growth Institute (GGGI), MoFPED in its role as the DNA to the GCF has recently concluded implementing the first phase of the GCF Readiness and Preparatory Support Program Uganda that aimed to prepare and support the three nominated Direct Access Entities (DAEs) of Kampala Capital City Authority (KCCA), National Environment Management Authority (NEMA) and Uganda Development Bank Ltd (UDBL) to engage better with the GCF through the GCF direct access accreditation process (GGGI, 2021). Uganda Development Bank Limited is processing it's GCF direct access accreditation to mobilise credit/loans for on-lending to beneficiaries while KCCA and NEMA are to be accredited for grants. MoWE is already accredited by the Adaptation Fund (for upto a cumulative amount of USD 20 million for the entire country) and has been fast tracked and accredited by the GCF for small size projects (upto USD 50 millions) with category B of environmental and social risk and fiduciary standards of grants award (GCF, 2022). This makes it the only national institution accredited by the GCF. MoFPED has also established a climate finance website found at http://climatefinance.go.ug/ to ease access to climate finance information for stakeholders in Uganda.

However, the institutional mechanism at MoFPED is currently not well structured as there is no specific unit to coordinate climate finance activities. Staff involved in climate finance issues are also working in other units, coordinating several other development financing activities and are not fully dedicated according to presentation by MoFPED during the Environment and Climate Change Development Partners Group meeting (ECCDPG) held on 2nd February 2022. To bridge this gap, MoFPED is currently setting up a Climate Finance Unit to coordinate climate finance policy issues and existing climate financing mechanisms. However, there is no climate finance policy for Uganda in place. The process of developing this policy had been started in the past with support from GIZ although it was not completed. MoFPED has observed that grants to GoU from developing partners have reduced from about 40% in early 2000 to about 15% currently. Development partners are working directly with civil society organisations and the private sector. This has resulted to GoU borrowing expensively to meet export credit expenses. MoFPED highlights that while the OECD reports indicate a lot of money is coming into Uganda from developed countries, the ministry cannot certify all this support. Majority of climate finance is coming from bilateral entities and UNFCCC mechanisms such as GEF, GCF and Adaptation Fund. Other challenges MoFPED faces include limited participation of the private sector and the corporate world in climate finance activities, taxation advocacy measures are not doing well and the difficulty to track what has been spent on climate activities in the country.

> → *The Governor Bank of Uganda has also constituted a High Level Stakeholder Sustainable Policy Committee to bring together different stakeholders in the financial sector to design policy and strategies of financing climate sustainability initiatives. This committee is chaired by the Governor and implements its activities in collaboration with the Uganda Bankers' association. It is currently conducting an assessment of the ecosystem on sustainability initiatives implemented by commercial financial institutions with the objective of taking advantage of available climate finance opportunities according to feedback from the Advisor to Bank of Uganda on Financial Markets Development and Lead, High Level Stakeholder Sustainable Policy Committee.*

Source: UNFCCC, 2021. Needs-Based Climate Finance Project. Technical Assessment of Climate Finance in the East African Community
ODI, 2013, Uganda National Climate Change Finance Analysis
AfDB (2020), Potential for Green Banks & National Climate Change Funds in Africa - Scoping Report. Available at https://www.afdb.org/en/documents/potential-green-banks-national-climate-change-funds-africa-scoping-report
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GGGI, 2021. https://gggi.org/project/project-reference-profiles-ugandaug13-readiness-support-to-strengthen-ugandas-engagement-with-the-gcf/#:~:text=The%20Readiness%20Program%20builds%20on,%2Dstakeholder%20input%3B%20ii.)
Other sectoral legal policies: Climate Change Act (CCA) 2016, Uganda National Meteorological Authority Act, 2012; The National Environmental Act, Cap 153, 1995 (amended in 2005, The Physical Planning act, 2010; The National Agricultural Research Act 2005, The Land Act (Amendment Act, 2004), National Forestry and Tree Planting act, 2003, National Planning Authority Act 2002,The Water Act, 1997
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THE NATIONAL CLIMATE FINANCE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK IN UAGANDA (5/6)

The ministry is to implement a budget tagging process to ease the identification of what has been spent on adaptation and mitigation and the national climate finance policy will provide the legal framework to cover such issues. MoFPED's current climate finance priority needs include;

a) Setting up a climate finance unit to support
b) Support for project preparation and carrying out feasibility studies
c) Conduct discussions with development partners on where else to get money since they have been borrowing expensively and
d) Need for a lot of awareness creation on climate finance issues in the country is a priority.

Additionally, the NCCP recommends for the establishment of a separate national climate change fund/facility to facilitate mobilisation of financial resources from the private sector and international sources. In alignment with this objective and green growth development goals, Uganda is currently exploring the creation of a climate-dedicated National Financing Vehicle (NFV) as an innovative mechanism to mobilize both national and international climate finance resources directed to high impact climate action. UNDP is working with partners to build GoU ownership of the future NFV to fast track current investment trajectories that are not on track to meet these goals, predominantly from the private sector (AfDB, 2020). The recommended potential host organizations and partners entail Uganda Development Bank, Uganda Energy Credit Capitalization Company (UECCC) and the Agricultural Credit Facility (ACF).

→ *However, MoFPED seems to be rather opposed to another institution hosting the climate-dedicated National Financing Vehicle (NFV) and has dragged its feet choosing and officially giving the mandate to any of the institutions recommended as potential host institutions according to feedback from MAK/MUCCI and UDB respectively.*

At regional level, Uganda is party to the East African Community climate change policy which urges Partner States to develop consistent national policies to ensure harmonized action. The East African Development Bank (EADB) is in the process of seeking its GCF direct access accreditation and is currently at stage two of this process. EADB started this GCF direct access accreditation process in 2014 however, it has not been completed as yet due to a number of challenges. The bank lacked the necessary documents on environmental and social safeguards fiduciary standards. These entailed a climate change policy, environmental and social safeguard policy and, the gender policy and action plan. These have been developed, are fully operational and EADB also initiated its accreditation process for the Adaptation Fund (AF) during the recently concluded COP26 in Glasgow (according to feedback from EADB).

→ *…..“Using the GCF Online Accreditation System (OAS) can be problematic, organisations that are planning to seek GCF accreditation should not start the process unless they have all the documents are in place*

Environmental Policy
In 1994, Uganda developed its Environmental Policy that recognises the importance of conservation and restoration of ecosystems and addresses environmental problems

Constitution of the Republic of Uganda
The Constitution of the Republic of Uganda, 1995 as amended in 2005 is the starting point for developing the climate change policy for Uganda and provides an overall regulatory framework for the implementation of the Policy. It provides for an integrated approach taking both economic and socio development and, environmental protection into account.

Uganda Vision 2040
The 2013, Uganda Vision 2040 indicates Uganda's aspiration to pursue socio –economic transformation based on a green economy. It recognizes the need to promote climate change resilience and low carbon development pathways and refers to significant financing for national climate change-related expenditures to come from international climate funds. However, the Vision is silent on how the money particularly climate adaptation finance is mobilised and which agency has the mandate to perform this task.

The Green Growth Development Strategy
The green growth development strategy, 2017 document shows Uganda's commitment to promoting green growth principles to accelerate the implementation of global development goals.

THE NATIONAL CLIMATE FINANCE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK IN UAGANDA (6/6)

Nationally Determined Contributions Partnership Plan

The Nationally Determined Contributions Partnership Plan was developed in 2018 following the submission of Uganda's Intended National Determined Contributions (INDC) to the UNFCCC. The INDC became Uganda's National Determined Contributions (NDC) once the Paris Climate Agreement was formed. The partnership aims to achieve national climate goals as part of Uganda's obligation to the Paris Agreement.

International Climate Change Frameworks (UNFCCC and Kyoto Protocol)
Uganda is a signatory (in 1992) to the United Nations Framework Convention on Climate Change (UNFCCC), ratified the Kyoto Protocol (in 2002) and, signed and ratified the Paris Climate Agreement in 2016. Uganda also ratified the 2030 Agenda for Sustainable Development with its associated Sustainable Development Goals (SDGs) that inform and guide global and national development. This signifies Uganda's commitment to the adoption and implementation of policies and measures designed to mitigate climate change and adapt to its impacts. Several strategies and plans have been developed to comply with the requirements of the UNFCCC.

These include but not limited to the Nationally Determined Contributions (NDCs) which has been revised and updated and, an interim draft was submitted to the UNFCCC in October 2021 and is currently being finalised. Its costed implementation strategy as also being developed. Uganda's Long-Term Climate Change Strategy (LTS) is also currently in the final stages of approval by government for submission to the UNFCCC.

Additionally, several other national policies legislation and sectoral policies, strategies and plans that are related to climate change are also in place. These include among others:
Uganda National Meteorological Authority Act, 2012; The National Environmental Act, Cap 153, The Physical Planning act, 2010; The National Agricultural Research Act 2005, The Land Act (Amendment Act, 2004), National Forestry and Tree Planting act, 2003, National Planning Authority Act 2002, The National Environment Act, 1995 (amended in 2005); The Water Act, 1997

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STAKEHOLDERS INTERVIEWED

Institution	Interviewee	Contact	Interview date
Equity Bank	Paul Odong Head of Programmes, Equity Bank	Email: Paul.Odong@equitybank.co.uk Mobile: +256 752 606 555 and DL: +256 312 327 000	13/12/2021
United Bank of Africa (UBA)	Mathias Muhwezi	Email: mathias.muhwezi@ubagroup.com Tel: 256 774 621 656 and +256 200 506 824	14/12/2021
Finding XY - Uganda Green Enterprise Finance Accelerator (UGEFA) programme Implementer	Eddie Sembatya Managing Director	Email: eddie.sembatya@findingxy.com Tel: +256 782 973 409	15/12/2021
National Planning Authority (NPA)	Aaron Werikhe Planner Environment and Natural Resources	Email: aronwerikhe@gmail.com Tel: +256 774693761	15/12/2021
Uganda Development Bank Limited	Junior Nuwahereza Senior Environmental and Social Risk Officer	Email:jnuwahereza@udbl.co.ug Tel: 0414355550|Mob:0772 081512/0702 429450	14/12/2021
Climate Action Network - Uganda (CANU)	Miriam Talwisa National Coordinator	Email: miriam.talwisa@gmail.com Tel: +256-704-908 385 and +256-781-591814	17/12/2021
	Anthony Wolimbwa	Email: anthony.wolimbwa@gmail.com Tel: +256 774 492 372	17/12/ 2021
United Nations Capital Development Fund (UNCDF)	Joel Lead Infrastructure Specialist and also involved in the designing of LoCAL	Email: joel.mundua@uncdf.org	20/12/2021
	Sophie De Coninck Global Climate Facility Manager Local Climate Adaptive Living Facility (LoCAL) | LDC Portal (un.org)	Email: sophie.de.coninck@uncdf.org Cell: (+256) 0780 102 378 What's App : (+32) 473 943 986	11/01/2022

STAKEHOLDERS INTERVIEWED

Institution	Interviewee	Contact	Interview date
KfW	Anna Nikolaeva – Schnieper Senior Portfolio Coordinator Rural Development and Financial Sector	Email: Anna.Nikolaeva–Schnieper@kfw.de Mobile: +256 776 759 147 Tel: +256 200 348860	20/12/2021
FCDO	Alex Crook The East African Regional Resource	Email: alex.crook@fcdo.gov.uk Tel: +256 752 767722	07/01/2022
EADB	Francis Ogwang Head of EADB Uganda country office	Email: fogwang@eadb.org	18/01/2022
	Edward Okot Consultant for Environmental and Social Safeguards and member of the steering committee for the UNFCCC Regional Collaboration Centre Kampala	eomoya@eadb.org	18/01/2022
Brac Uganda	Francis Tabu Head of Programmes and acting Country Director	Email: tabu.drachi@brac.net Tel: +256 757840600 | Mobile : +256 772613347	18/01/2021
	Jane Kyokusiima Karemire Head of Strategy, Fundraising & Knowledge Management BRAC Uganda - Country Office	Email: kyokusiima.jane@brac.net Mob: +256773382049	18/01/2022
	Martin Okwir Coordinator- Emergency Preparedness and Response, Disaster Risk Reduction & Climate Change Adaptation	Email: okwir.m@brac.net Tel: +256 782430 828 Mob: +254 716 316 101	18/01/2022
Bank of Uganda	Simon Rutega Advisor to Bank of Uganda on Financial Markets Development and Lead of the Governor's constituted High Level Stakeholder Sustainable Policy Committee	Email: rutegasimon@gmail.com and srutega@bou.or.ug	13/01/2022

STAKEHOLDERS INTERVIEWED

Institution	Interviewee	Contact	Interview date
FCDO	Isha Shelat The Climate Change Officer	Email: isha.shelat@fco.gov.uk	7/01/2022
USAID	Doreen Tukezibwa From the Natural Resources Unit	Email: dtukezibwa@usaid.gov Tel: +256 782 578 410	12/01/2022
	Robert Bagyenda Climate Change Integration Lead	Email: rbagyenda@usaid.gov Tel: +256 772 138453	12/01/2022
Environmental Management for Livelihood Improvement Bwaise Facility (EMLI)	Robert Bakiika Executive Director - EMLI and The in-country facilitator for Uganda's NDC Partnership, supporting its update and formulation of the long-term climate change strategy. Also supports climate finance negotiations and has been doing this for the last ten years with the GEF and recently GCF, Adaptation Fund.	Email: bakiika@gmail.com Tel: +256 702643315/+256 782643315	12/01/2022
	Christine Mbatuusa Programme Officer	Email: mbatuusachristine@gmail.com Tel: +256 705 532516	12/01/ 2022
MAK/MUCCRI	Revocatus Twinomuhangi, PhD Senior Lecturer, Department of Geography, Geo-Informatics and Climatic Sciences School of Forestry, Environmental and Geographical Sciences College of Agricultural and Environmental Sciences Makerere University Coordinator, Makerere University Centre for Climate Change Research and Innovations (MUCCRI)	Email: rtwinomuhangi@yahoo.com +256 772 418660 Alternative e-mail address: rtwinomuhangi@yahoo.com; revocatus.twinomuhangi@mak.ac.ug	04/01/2022

MEETINGS ATTENDED

Institution	Interviewee	Contact	Interview date
The Women in Agriculture Impact Investment Facility (WAII) webinar organised by Finding XY	Eddie Sembatya Managing Director	Email: eddie.sembatya@findingxy.com Tel: +256 782 973 409	06/01/2022
The KFW Country Director's presentation made during the Mainstreaming Green Finance: The role of financial Institutions session at the Green Finance Dialogue Forum 2021 whose theme focused on "The Future of Finance is Green: Leveraging SMEs for Uganda's Green Growth" held on 09th December 2021. The forum was organized by the Uganda Green Enterprise Finance Accelerator (UGEFA) programme.	Presenter - Ms. Cornelia Penzel, The KFW Country Director		09/01/2021
Presentations by CCD's New Commissioner and MoFPED during the Environment and Climate Change Development Partners Group meeting (ECCDPG) hosted by FCDO.	Ms. Margaret Athieno Mwebesa, New Commissioner - CCD Mr. Juvenal Muhumuza, Ag. Commissioner and GCF NDA- MoFPED	Email: margaret.mwebesa@mwe.go.ug Email: Juvenal.Muhumuza@finance.go.ug	02/01/2022

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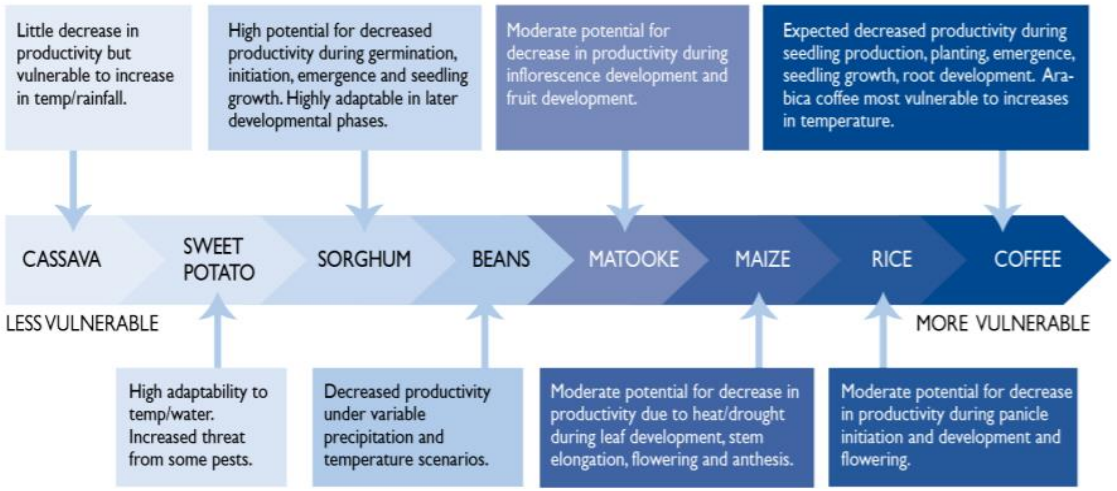
CONTENTS

ANNEX 1 | CLIMATE CHANGE VULNERABILITY CONTINUUM OF SELECTED CROPS

Additional analysis of individual value chains provides a more comprehensive assessment of the effects of climate on individual crop commodities.

- **Coffee:** Rising temperatures and erratic rainfall increase the risk of disease and pest infestations in coffee.
- **Rice:** Two major rice diseases (blast and bacterial leaf blight) affect rice yields and are significantly aggravated by weather conditions such as higher temperatures, air humidity, or soil moisture.
- **Maize:** Aflatoxin contamination represents a serious threat to the marketing of maize and will likely worsen if dry season rainfall increases.
- **East African Highland Banana (matooke)**: the potential impact of pests and diseases on the crop is significant.
- **Beans:** Beans are vulnerable to fungal and viral diseases when excessive rain falls during critical growing periods.
- **Sorghum:** Coupled with irregular precipitation, increased temperatures could result in the proliferation of striga, a parasitic weed that affects sorghum and is prevalent in areas with degraded soils
- **Sweet potatoes and cassava:** Both crops grow well at temperatures much higher than current ones, but are also vulnerable to pests and disease.



Comparison of the extent of climate-related vulnerability by crop

Vulnerability	Coffee*	Matooke	Maize	Beans	Rice	Sorghum	Sweet Potatoes	Cassava
Rising temperature threatens suitability for production	+++	++	++	+	+	+	+	0
Falling soil fertility reduces yields and makes crop more vulnerable to climatic stresses	+++	+++	+++	++	++	++	+	+
Poor moisture retention capacity of soils increases vulnerability to precipitation variability	+++	+++	++	++	++	+	+	+
Pests and diseases increasing with rising temperatures	+++	+++	+	++	++	+	+	-
International prices increasingly volatile as a result of climate change impacts on supply	++	0	++	0	0	0	0	0
High temperatures and unseasonable rain promote rapid spoilage and threaten quality	+++	+++	++	+	0	0	+	+
Rising international concern over carbon footprint may threaten demand for exports	+++	++	0	0	0	0	0	0
Shortages of disease-free planting materials, exacerbated by unreliable precipitation	+++	+++	0	0	0	0	+++	+++
Crop is perishable. Extreme precipitation and flooding make transport more costly & difficult	++	++	+	+	+	+	++	++
Increasing variability of precipitation and extreme events threatens suitability for production	++	++	+++	+++	+++	+	+	+

Key: Relative impact of climate change on various aspects of vulnerability by crop:

+++ Highly Vulnerable
++ Moderately Vulnerable
+ Limited Vulnerability
0 Not Affected

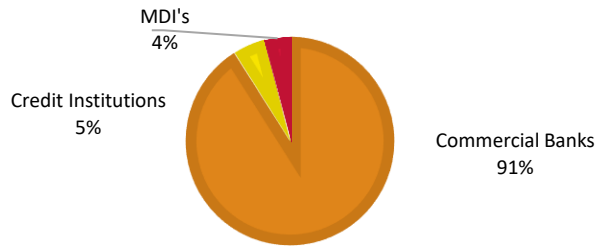
**Note: Threat of rising temperatures is much more acute for Arabica coffee than for Robusta*

Source: USAID, 2013. See annex of the study for a complete analysis of CC vulnerability of selected value chains

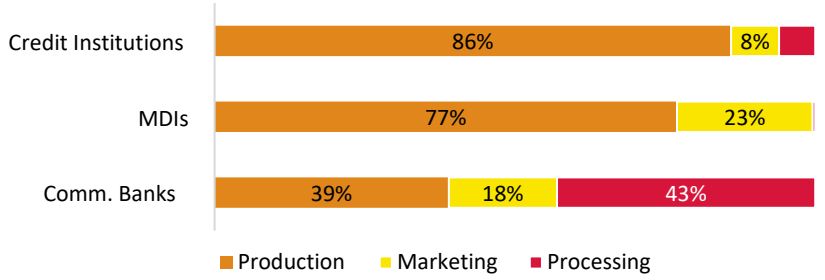
ANNEX 2| AGRICULTURAL FINANCE YEARBOOK, 2020

- **Digitalisation is critical** in farmer/client profiling and data aggregation, developing of credible information system along the value chain, documenting land inventories, risk assessment and credit scoring, agricultural and business skills adoption, identification of genuine inputs, price optimization, commodity aggregation, storage and marketing, improving record keeping and financial literacy, speeding up of lending processes while reducing transaction and access costs. **Government should urgently address issues that place digital financial services (DFS) transactions under multiple legislations.**
- **Successful agri-financing models** for various commodities (rice, dairy, coffee) share common features:
  - **Aggregation** of producers for economies of scale,
  - **Functional linkages between value chain actors** (input distributors, extension agents, agri-markets information providers, producers, storage units, marketing agents, processors, financial service providers etc.) with some of the actors, acting as 'lead agents' in the segments where value chains are weak.
- For these models to thrive, the Government needs to:
  - Develop a **law governing contract farming**
  - **Eliminate disproportionate concessions** / waivers to millers and tariffs (especially on imported rice)
  - Invest in **collection of reliable agricultural data**
- Government's **affirmative schemes** (Uganda Agricultural Insurance Scheme, the Agricultural Credit and Guarantee Facility, Agricultural Business Initiative (aBi) financing and grant schemes etc.), **have contributed to 'blended' finance** for the agricultural sector, but their effectiveness can be improved by documenting the impact achieved so far, the viable financing models that have emerged, and other factors curtailing the growth of agricultural finance.
- SACCOs, as well as some NGOs and MFIs, are already **providing loans with social rather than physical security,** usually in the form of lending to farmers in groups and **using group guarantee for the loan**. At least one service provider also uses **purchase agreements as security**.

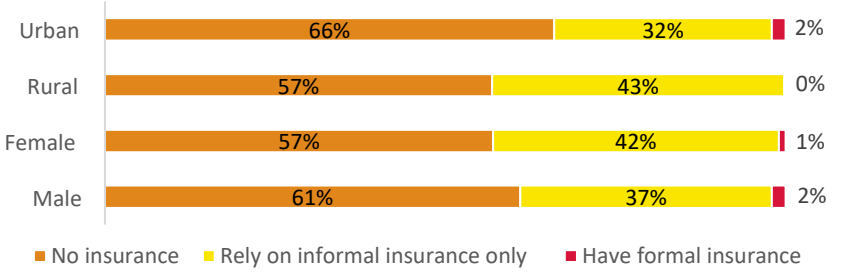
Share of FI in total agricultural (formal) lending - 2019



Total outstanding loans by agricultural activity (2011-2019)



Overall use of insurance services in Uganda (2018)



Source: Agricultural finance yearbook, 2020. EPCR.
FI: Financial Institutions. MFI: Microfinance Institutions. MDI: Microfinance Deposit-Taking Institution

ESTIMATION OF INCOME AT RISK – IaR (1/2)

- The estimation exercise aims to provide a 'back of the envelope' estimate of reduced take-home incomes given different climate change scenarios, to **understand in what forms are workers in the selected sub-sectors impacted economically by climate effects**.
- Following the UNDRR Terminology (2017), **disaster risk is considered as the combination of the severity and frequency of a hazard, the numbers of people and assets exposed to the hazard, and their vulnerability to damage**.[1] Under such framework the following methodology was applied, in order to calculate total "income at risk (IaR)":

Risk	=	**Hazard:** Temporal probability of hazard scenario	x	**Vulnerability:** Degree of loss of a specific type of element at risk	x	**Exposure:** Quantification of exposed element at risk
Total income at risk (IaR)		Year probability of extreme weather effect affecting subsector		% of associated jobs affected		Total yearly income: Individual yearly income x # associated jobs (mill USD)

Estimating "Exposure" or total yearly income per subsector*

Value Chain	GDP constant prices (USD million 2020/21)	# associated jobs	Workers' Monthly Income (USD)	Workers' Yearly Income (USD)	Yearly total income (USD million)
Agriculture and Livestock	6,500	8,369,630	45.3	544	4,554
Fisheries and aquaculture	571	805,000	51.4	616	496
Forestry	1,250	1,200,000	39.9	479	574
Total AFF sector	**8,321**	**10,374,630**	45.2	**542**	**5,625**
Total Uganda	**35,713**	**16,338,000**			

- **Associated jobs per sub-sector** estimated based on recent total employment UBOS data (i.e., 10,3 million workers in AFF sector including subsistence jobs) and combined sources:
  - **Fisheries and aquaculture**: FAO reports 700,000 Ugandans in fisheries-related employment (no date provided). World fish centre (2012) reports estimates of 1.2 million workers (20% / 80% informal/formal) by 2006. **There is a lack of updated official granular data.**
  - **Forestry:** FAO (2021) reports estimates of 1 million workers for the forestry sub-sector by 2001 (90% / 10% informal/formal), which were increased by 20% as a rough estimation of current figures.
- **Monthly workers' income per sub-sector** was estimated as a combination of formal/informal jobs proportions, with median monthly cash earnings for persons in paid employment on the main job as reported by UBOS 2020 (USD 54.7 monthly), and USD 35 a figure provided by World Bank (2018) for subsistence agriculture. The latter was extrapolated for 3 years of 3% inflation (USD 38.3).

Source: Genesis Analytics' *Estimates in purple from latest available data from UBOS and data or formulas in black. 1. Prevention Web.

ESTIMATION OF INCOME AT RISK – IaR (2/2)

Parameters for "Hazard" and "Vulnerability":

Disaster risk is forward-looking, dynamic (it can increase or decrease according to our ability to reduce vulnerability), invisible, unevenly distributed by region, and emergent an complex (involving many processes and full of interconnected risks).[1] Given such complexity, two scenarios were run, based on "low" and "high" hazard and vulnerability parameters.

- **Hazard:** Year probability of extreme weather effect affecting subsector.
- **Vulnerability:** % of associated jobs affected given the occurrence of the hazard.

Value Chain	Low probability			
	Income at Risk (USD mill)	Hazard	Vulnerability	Exposure (USD mill)
Agriculture and Livestock	11.4	5%	5%	4,554
Fisheries and aquaculture	1.2	5%	5%	496
Forestry	1.4	5%	5%	574

The table shows the IaR per subsector if there is a 5% probability of a hazard event affecting 5% of the working population in that sub-sector

Value Chain	High probability			
	Income at Risk (USD mill)	Hazard	Vulnerability	Exposure (USD mill)
Agriculture and Livestock	45.5	10%	10%	4,554
Fisheries and aquaculture	5.0	10%	10%	496
Forestry	5.7	10%	10%	574

The table shows the IaR per subsector if there is a 10% probability of a hazard event affecting 10% of the working population in that sub-sector

Limitations and opportunities to refine the exercise in the future

- **Hazard estimates:** Given the high complexity/number/interconnections of variables involved, and the fact that the behaviour of these variables depends on different GHG emissions scenarios (RCPs), current climate models are still unable to accurately predict the year probability of extreme weather effects affecting a particular geographical region. However, if provided with detailed information by individual value chains and districts, our estimates could be improved by combining the CC vulnerability of **individual value chains with climate risk profiling of different districts**. For example, Isingiro, Kasese, and Luweero, evidence greater household potential resilience and Gulu and Lira host the most vulnerable households. Generally, Isingiro and Kasese are characterized by stronger agricultural bases with more land and significant access to off-farm revenue. More cropland, more forested area and pasture means a more diversified crop mix, greater integration into market activities and a higher degree of agricultural professionalization. Different crops would also react differently to different climate change thread (see Annex 1) [2]
- **Vulnerability estimates:** Greater granularity of labour statistics, contrasted with vulnerability/resilience of each subsector, or type of crop/livelihood, would allow for a better estimation of the number of associated jobs at risk (vulnerability) per subsector and per value chain.
- **Exposure:** Better understanding of median income per subsector would improve the estimation of the total yearly income estimate. The lack of disaggregated data, including gender and formal/informal categories, makes it difficult to estimate how many people are employed in each sub-sector, and their monthly earnings.

Source: 1. Prevention Web. 2. USAID, 2013.