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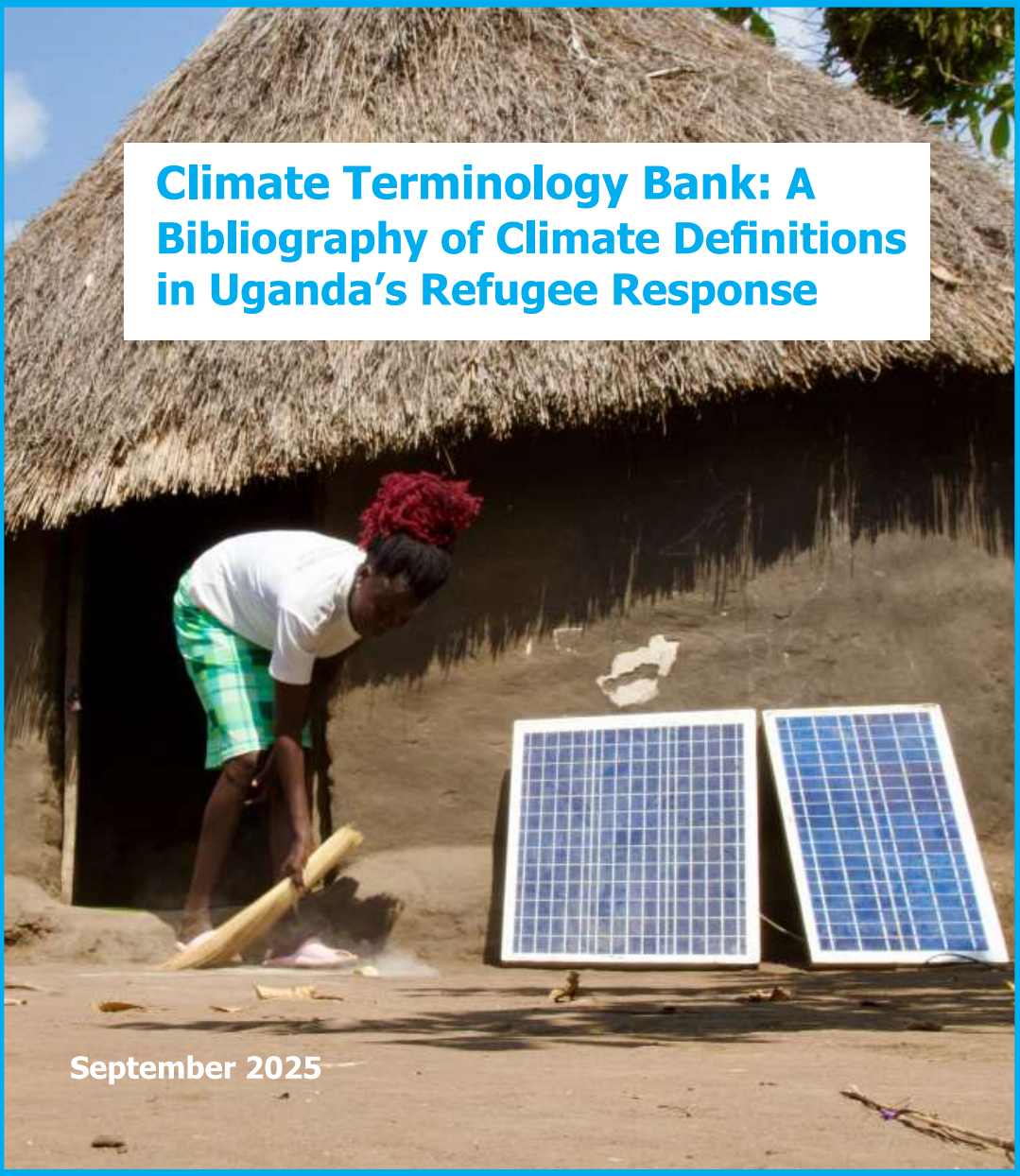
Uganda Learning, Evidence, Accountability, and Research Network

Climate Terminology Bank: A Bibliography of Climate Definitions in Uganda's Refugee Response



September 2025

About U-Learn

U-Learn consortium is led by U-RIL, in partnership with IRC and IMPACT Initiatives. Its objective is to generate and encourage uptake of evidence and insights for the Uganda refugee response. U-Learn is a public good designed to promote improved outcomes for refugees and host communities in Uganda. In collaboration with the government and a wide range of stakeholders, U-Learn focuses on facilitating learning, conducting assessments, and amplifying refugee voices and priorities. U-Learn specializes in Accountability to Affected Populations (AAP), Research and Learning.

About the Uganda Refugee Resilience Initiative (URRI)

The Uganda Refugee Resilience Initiative (URRI) is designed to strengthen the resilience and self-reliance of refugees and host communities in Uganda. Key objectives include strengthening livelihoods, improving infrastructure and services, promoting social cohesion, fostering environmental sustainability, and building resilience against shocks. URRI is a collaborative effort involving the Ugandan government, international organizations, NGOs, and funded by the Government of Denmark.

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Introduction

This guide provides key definitions and facts related to climate and resilience for Uganda's refugee response. Its goal is to build a common understanding among stakeholders and support the integration of climate-smart practices in humanitarian efforts.

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Adaptation

Adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause, or taking advantage of opportunities that may arise.[1] In Uganda, climate change adaptation is guided by the National Climate Change Policy (NCCP) which provides a framework for integrating adaptation strategies into national development planning and sectoral policies. The goal of the policy is to ensure a harmonised and coordinated approach towards a climate-resilient and low-carbon development path for sustainable development in Uganda. Examples of adaptation measures include water harvesting and irrigation systems to address prolonged droughts, climate-resilient agriculture such as drought-tolerant crops, and reforestation efforts to counteract land degradation. In refugee settlements in Uganda, adaptation strategies include energy-efficient cooking technologies to reduce reliance on scarce firewood and livelihood diversification programs to enhance food security.[2]

1 European Environment Agency, DG CLIMA: Adaptation to Climate Change, 2022. https://www.eea.europa.eu/policy-documents/dg-clima-adaptation-to-climate-change

2 U-Learn Uganda, Energy Practices in Ugandan Settlements Amid Environmental Challenges, 2024. https://ulearn-uganda.org/wp-content/uploads/2024/04/Energy-Practices-in-Ugandan-Settlements-Amid-Environmental-Challenges_compressed-1.pdf

Adverse effects of climate change

Adverse effects of climate change mean changes in the physical environment resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socioeconomic systems or on human health and welfare.[3] In Uganda, the impacts of climate change are becoming increasingly severe, including in refugee-hosting districts that are already environmentally and socio-economically vulnerable. Climate change is affecting rainfall patterns, leading to more frequent and intense droughts and floods.[4]

© Credit: Save The Children

3 UNFCCC, United Nations Framework Convention on Climate Change – Article 1, 1992. https://unfccc.int/resource/ccsites/zimbab/conven/text/art01.htm

4 Ministry of Water and Environment, Uganda National Climate Change Policy (Government of Uganda, 2015).

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Afforestation

Afforestation is the process of planting trees in areas that have not been forested in recent history (see Reforestation for the difference). Afforestation helps restore abandoned and degraded agricultural lands, prevent desertification, create carbon sinks, and generate new economic opportunities for local communities.[5] In Uganda, afforestation initiatives have been implemented within refugee settlements such as the Nakivale Refugee Settlement, where refugees have engaged in planting thousands of tree seedlings to combat deforestation and restore the local ecosystem (UNHCR, 2017).[6] Similarly, the Bidi Bidi Refugee Settlement has seen community-driven tree-planting efforts, with 5,400 trees planted in Zone 3 to enhance environmental sustainability.[7] These afforestation projects align with Uganda's National REDD+ Strategy and Action Plan, developed by the Ministry of Water and Environment. The REDD+ (Reducing Emissions from Deforestation and Forest Degradation) initiative aims to improve forest resource status, mitigate climate change effects, and promote equitable benefits for communities, including those in refugee-hosting areas.[8]

5 UNDP, Climate Dictionary: An Everyday Guide to Climate Change, 2023. https://climatepromise.undp.org/news-and-stories/climate-dictionary-everyday-guide-climate-change

6 UNHCR, Uprooted refugees plant trees to rebuild Uganda's forests, 2018. https://www.unhcr.org/news/stories/uprooted-refugees-plant-trees-rebuild-ugandas-forests

7 World Vision, A family invests in tree planting to fight climate change, 2022. https://www.wvi.org/stories/uganda/family-invests-tree-planting-fight-climate-change

8 Ministry of Water and Environment, National REDD+ Strategy and Action Plan, 2017. https://www.mwe.go.ug/sites/default/files/library/Final%20-%20Uganda%20REDD%2B%20Strategy%20and%20Action%20Plan-October%202017.pdf

Agrobiodiversity and Biodiversity

Agrobiodiversity refers to the variety of animals, plants, and microorganisms utilised directly or indirectly for food and agriculture. This includes indigenous crops like millet, sorghum, and cassava, as well as livestock breeds such as Ankole cattle and indigenous goats. It is essential for promoting self-reliance and resilience among displaced populations. For instance, in the Nakivale Refugee Settlement, initiatives have empowered local refugee farmers to practice regenerative agriculture and permaculture, enabling them to sustainably grow diverse crops to combat food insecurity and environmental degradation.[9, 10] More broadly, Biological diversity means the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.[11]

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Agroecological zones

An Agro-ecological zone is a mapping unit, defined in terms of climate, landform and soils, and/or land cover, and having a specific range of potentials and constraints for land use.[12] Uganda is divided into 10 main agro-ecological zones characterised by different farming systems; determined by soil types, climate, and socio-economic and cultural factors. The AEZs experience varying levels of vulnerability to climate-related hazards; which include drought, floods, storms, and pests and diseases.[13]

9 The Pollination Project, Cultivating Resilience in Nakivale Refugee Settlement, 2024. https://thepollinationproject.org/cultivating-resilience-in-nakivale-refugee-settlement/
10 FAO, The state of food insecurity in the world, 1999. https://www.fao.org/4/x3114e/x3114e00.pdf
11 UN, Convention on Biological Diversity, Article 2: Use of Terms, 1992.
12 FAO, Biodiversity and agrifood systems in nationally determined contributions – NDC thematic policy analysis, 2024. https://www.fao.org/4/w296
13 Ministry of Agriculture, Animal Industry and Fisheries, National Adaptation Plan for the Agriculture Sector, 2018. https://www.agriculture.go.ug/wp-content/uploads/2019/09/National-Adaptation-Plan-for-the-Agriculture-Sector-1.pdf

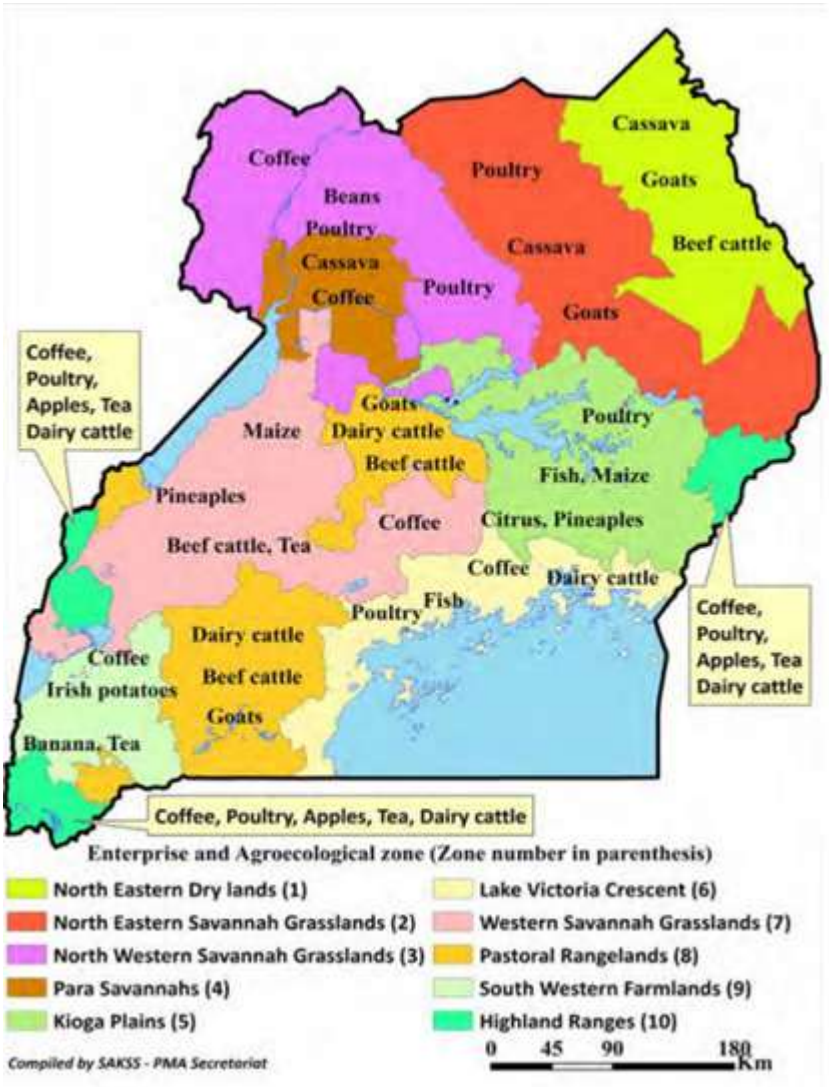

Figure 1: Agricultural practices by agroecological zones in the MAAIF National Adaptation Plan

Agroecology

Agroecology is the application of ecological principles to the design and management of sustainable agricultural systems. It focuses on integrating biological and cultural processes to produce food sustainably, enhancing biodiversity, and reducing environmental impacts.[14] It includes intercropping, agroforestry, organic farming, and soil conservation techniques to sustain smallholder farmers' livelihoods. It is closely linked to afforestation. In refugee settlements, agroecology is applied through kitchen gardening, permaculture, and tree planting initiatives.[15]

Agroforestry

Agroforestry is a land management system that integrates trees and shrubs into agricultural landscapes. It enhances biodiversity, reduces soil erosion, improves water retention, and contributes to climate change mitigation by sequestering carbon.[16] In Uganda's refugee-hosting landscapes, agroforestry practices are increasingly promoted among both refugee and host communities. Farmers receive support along the value chain, including capacity building in improved crop production and agroforestry techniques. Central tree nurseries supply a variety of seedlings such as timber species (teak, eucalyptus, Gmelina arborea), fruit trees (cashew, citrus, jackfruit, mango, papaya), and multipurpose trees (senna, moringa, neem) to households, communities, and institutions like schools. Refugees are encouraged to plant fruit trees due to limited land access, while host communities, with more available space, are supported to establish timber woodlots. In 2023, nearly half a million seedlings were planted, with about 75% surviving. These efforts are complemented by the promotion of energy-efficient cooking stoves to reduce wood fuel demand.[17]

14 Gliessman, S. R. Agroecology: The Ecology of Sustainable Food Systems, 2014.
15 Food and Agriculture organisation of the United Nations (FAO), The 10 Elements of Agroecology: Guiding the Transition to Sustainable Food and Agricultural Systems, 2018.
16 World Agroforestry Centre, Agroforestry Systems in Sustainable Agriculture, 2019.
17 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

Biochar

Biochar is black carbon produced from biomass sources i.e. wood chips, plant residues, manure or other agricultural waste products for the purpose of transforming the biomass carbon into a more stable form (carbon sequestration).[18] In Uganda, biochar has demonstrated significant potential to improve degraded soils and reduce greenhouse gas emissions in smallholder farming systems. For instance, research in eastern Uganda showed that converting maize, sorghum, and groundnut residues into biochar can boost soil health and long-term carbon storage.[19] Another study in western Uganda examined community-led biochar production as a feasible model for soil enhancement, clean cooking, and water filtration.[20] Refugee-hosting areas often affected by land degradation, poor soil quality, and limited fuel resources could benefit from small-scale biochar systems. These can improve yields in kitchen gardens, reduce reliance on firewood, and provide an alternative livelihood pathway. Integrating biochar into humanitarian agricultural programming could enhance both climate resilience and food security in displacement-affected communities.

Carbon footprint

A carbon footprint is a measure of the greenhouse gas emissions released into the atmosphere by a particular person, organisation, product, or activity. A bigger carbon footprint means more emissions of carbon dioxide and methane, and therefore a bigger contribution to the climate crisis.[21] Uganda's greenhouse gas emissions have increased from 53.4 million tonnes of CO_2 equivalent ($MtCO_2e$) in 2005 to 90.1 $MtCO_2e$ in 2015.

18 USDA Agricultural Research Service, Biochar – Kurt Spokas, 2023. https://www.ars.usda.gov/midwest-area/stpaul/swmr/people/kurt-spokas/biochar/

19 Okia, C.A., Ssemaganda, I., Nyeko, P. & Kaizzi, C.K., Potential for biochar use in Uganda: A review of feedstock availability and biochar's effects on soil properties, 2019. https://pmc.ncbi.nlm.nih.gov/articles/PMC6916656/

20 Schreiner, K.M., Langergraber, G. & Iqbal, H.M.N., Community-led biochar production in Uganda: A circular solution for soil improvement, water treatment, and energy generation, 2024. https://pmc.ncbi.nlm.nih.gov/articles/PMC11233699/

21 Center for Sustainable Systems, University of Michigan, Carbon Footprint Factsheet, 2024.

The land use change and forestry sector is the largest contributor, accounting for 59.5% of total emissions, followed by agriculture at 26.9%, energy at 10.7%, and waste at 2.9%.[22] Despite this growth, Uganda's overall contribution to global emissions remains minimal. In 2022, Uganda emitted approximately 7.5 million tonnes of CO_2 from fossil fuels accounting for just 0.02% of global emissions and placing the country around 176th globally in total emissions. Per capita, Uganda's emissions stood at approximately 0.15 tonnes per person, significantly below the global average of 4.7 tonnes.[23]

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Circular economy

Circular economy refers to models of production and consumption that minimise waste and reduce pollution, promote sustainable uses of natural resources, and help regenerate nature.[24] This approach supports environmental sustainability and builds economic and social resilience. In Uganda's refugee response for example Nakivale Refugee Settlement, these principles have been embraced through several refugee-led initiatives for example, the Usafi Nakivale group which was trained and collects and sorts plastic waste to manufacture reusable plastic dustbins, a move that reduces open dumping and promotes waste reuse while providing income for 107 group members.[25]

22 European Commission, Joint Research Centre, Crippa, M., Guizzardi, D., Pagani, F., Banja, M., Muntean, M., Schaaf, E., Monforti-Ferrario, F., Becker, W.E., Quadrelli, R., Risquez Martin, A., Taghavi-Moharamli, P., Köykkä, J., Grassi, G., Rossi, S., Melo, J., Oom, D., Branco, A., San-Miguel, J., Manca, G., Pisoni, E., Vignati, E. and Pekar, F., GHG emissions of all world countries, 2024. https://data.europa.eu/doi/10.2760/4002897

23 TheGlobalEconomy.com (2023). Carbon dioxide emissions per capita – Uganda. Available at: https://www.theglobaleconomy.com/Uganda/Carbon_dioxide_emissions_per_capita

24 UNDP, The Climate Dictionary, 2023. https://www.undp.org/publications/climate-dictionary

25 Oxfam Uganda, Usafi Group is Committed to Waste Management and Environmental Protection, n.d.https://uganda.oxfam.org/latest/stories/usafi-group-committed-waste-management-and-environmental-protection?/

© Credit: ULearn

Climate Change

The Uganda National Climate Change Act 2021 defines Climate change as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods.[26] This definition aligns Uganda's climate framework including the Act and the 2015 National Climate Change Policy with international agreements such as the UNFCCC, Kyoto Protocol, and Paris Agreement, and it mandates climate-resilient actions across all levels of government.[27] The Policy encourages the integration of refugee needs into climate adaptation, resource management, and livelihood-building efforts.

Climate change Mitigation

Mitigation means making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gases (GHG) into the atmosphere. [28]

Climate finance

Climate finance refers to financial resources and instruments that are used to support action on climate change.[29] The Uganda Refugee Response Plan (RRP) emphasises the need for sustainable energy access and environmental restoration in refugee-hosting areas, with funding from international donors, government initiatives, and private sector investments. Programs such as the Uganda Energy Credit Capitalisation Company (UECCC) support renewable energy projects.[30]

26 Government of Uganda, National Climate Change Act, 2021. https://acsa-ug.org/wordpress/wp-content/uploads/2022/09/The-National-Climate-Change-Act-2021.pdf
27 Ministry of Water and Environment, National Climate Change Policy, 2015. https://mwe.go.ug/library/national-climate-change-policy
28 European Environment Agency, What is the difference between climate change adaptation and mitigation?, n.d. https://www.eea.europa.eu/help/faq/what-is-the-difference-between#:~:text=In%20essence%2C%20adaptation%20can%20be,(GHG)%20into%20the%20atmosphere.
29 United Nations Development Programme, What is climate finance and why do we need more of it?, n.d. https://climatepromise.undp.org/news-and-stories/what-climate-finance-and-why-do-we-need-more-it
30 Office of the Prime Minister, Republic of Uganda, and United Nations High Commissioner for Refugees, Uganda Country Refugee Response Plan: Detailed Planning 2024–2025, 2024. https://data.unhcr.org/en/documents/details/106734

Climate justice

Climate justice means putting equity and human rights at the core of decision-making and action on climate change.[31] In Uganda, where over 1.7 million refugees live alongside host communities in climate-sensitive districts, a climate-justice approach ensures that interventions like reforestation, clean-energy solutions, and livelihood programs are designed to benefit all groups equitably. UNHCR actively advocates for such integrated approaches, promoting displaced and host community inclusion in climate policies, access to support mechanisms, and participatory decision-making under frameworks like the Refugee and Host Population Empowerment (ReHoPE) strategy.[32] Climate-justice measures in Uganda include community-led reforestation, clean energy for households, and livelihood initiatives.

Climate resilience

Ability to prepare for, recover from, and adapt to the negative impacts of climate change. Climate resilience is focused on how people and systems act vis a vis climate change (while climate mitigation and climate adaptation is about the type of action that is done for people/a group/society to become climate resilient).[33]

31 United Nations Development Programme, Climate Dictionary: An Everyday Guide to Climate Change, n.d. https://climatepromise.undp.org/news-and-stories/climate-dictionary-everyday-guide-climate-change

32 Coggio, T., Can Uganda's Breakthrough Refugee-Hosting Model Be Sustained?, Migration Policy Institute, 2018. https://www.migrationpolicy.org/article/can-ugandas-breakthrough-refugee-hosting-model-be-sustained

33 Center for Climate and Energy Solutions, What is climate resilience and why does it matter?, n.d. https://www.c2es.org/document/what-is-climate-resilience-and-why-does-it-matter/

Climate security

Climate security refers to the impacts of the climate crisis on peace and security, particularly in fragile and conflict-affected settings.[34] It includes the integration of sustainable land management and energy solutions in refugee-hosting districts such as Yumbe, Adjumani, and Arua. These regions face increasing environmental pressure due to high refugee populations, which accelerates deforestation, soil degradation, and water scarcity. In response, the Office of the Prime Minister (OPM) and UNHCR, in partnership with development actors, have implemented projects promoting climate-resilient agricultural practices, reforestation, and the adoption of clean cooking technologies (like energy-efficient stoves) to reduce environmental strain and prevent conflict over natural resources.[35]

Climate Services

Climate services (also referred to as Climate Information Services) involve the systematic collection of climate data and the generation and provision of a wide range of information on past, present, and future climates.[36] These services develop products that assist decision-makers in managing climate-related risks and opportunities. They are essential for effective adaptation planning, as they provide reliable, relevant, usable, and timely climate information necessary for informed decision-making.[37]

34 United Nations Development Programme, What is climate security and why is it important?, 2023. https://climatepromise.undp.org/news-and-stories/what-climate-security-and-why-it-important

35 Office of the Prime Minister, Republic of Uganda, and United Nations High Commissioner for Refugees, Uganda Country Refugee Response Plan: Detailed Planning 2024–2025, 2024. https://data.unhcr.org/en/documents/details/106734

36 World Meteorological organisation, Climate Services for Supporting Climate Change Adaptation, 2016. https://unfccc.int/sites/default/files/resource/WMO_Climate_Services_for_Supporting_CCA.pdf

37 UNFCCC, United Nations Framework Convention on Climate Change – Article 1, 1992. https://unfccc.int/resource/ccsites/zimbab/conven/text/art01.htm

Climate Smart Agriculture

Climate-smart agriculture is an approach to farming that sustainably increases productivity, enhances resilience to the impacts of climate change and reduces or removes greenhouse gas emissions.[38] Most CSA initiatives in Uganda's refugee response include practices to better manage the natural resources that sustain agriculture, particularly water, soil and forests. Simple irrigation systems and small-scale infrastructure technologies improve the efficient use of water. Soil management techniques like contour bunds and the use of organic material for fertilisers are also used to improve soil fertility, conserve soil moisture, and store carbon. Agroforestry has a triple benefit of providing additional revenue sources, improving soil fertility and productivity, and storing carbon.[39]

Figure 2: CSA is widely agreed to have three mutually reinforcing objectives.[40]

38 Food and Agriculture organisation of the United Nations, History of Climate-Smart Agriculture – FAQs, 2021. https://www.fao.org/climate-smart-agriculture/overview/faqs/history/en/
39 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response
40 Food and Agriculture Organisation (FAO), Climate-Smart Agriculture, 2024 https://www.fao.org/climate-smart-agriculture/overview/faqs/history/ en/

Climate smart programming

There is no universally accepted definition of climate-smart programming. It equates with programming that supports development and enables people to anticipate, absorb and adapt to climate shocks. In the Uganda refugee response, climate-smart programming involves integrating climate risk and resilience into interventions in areas such as shelter, livelihoods, energy, and WASH. [41] In Uganda's refugee response, climate-smart programming in the WASH sector includes the use of solar-powered water systems and flood-resilient infrastructure to ensure consistent access to safe water amid climate shocks.[42] [43]

Climate-Smart Villages (CSVs)

Climate-Smart Villages are community-based initiatives designed to test and implement various CSA practices. They aim to increase the resilience of communities to climate change by integrating CSA technologies, practices, and knowledge-sharing.[44] CSVs present a promising model for empowering both refugee and host communities to adapt to climate change. For instance, organisations have piloted CSA demonstration plots in refugee-hosting districts like Adjumani and Kiryandongo, where farmers are trained on composting, drought-tolerant crops, and mulching techniques to conserve soil moisture. These initiatives not only improve food security but also foster peaceful co-existence through shared learning spaces.

41 UNHCR, Uganda: Energy and Environment Factsheet, 2023. https://data.unhcr.org/en/documents/details/101236
42 UNICEF, UNICEF and other humanitarian actors respond to water challenges in Kiryandongo Refugee Settlement, 2023. https://www.unicef.org/uganda/stories/unicef-and-other-humanitarian-actors-respond-water-challenges-kiryandongo-refugee
43 UNHCR, Water, Sanitation and Hygiene (WASH), 2023. https://www.unhcr.org/africa/what-we-do/respond-emergencies/water-sanitation-and-hygiene
44 CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). (2016). Climate-Smart Villages

Climate variability

Climate variability refers to "variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all spatial and temporal scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability).[45] In refugee settlements such as Nyumanzi in Adjumani District, increasing climate variability, particularly prolonged dry spells, has compromised watershed areas, leading to the drying up of streams, declining groundwater levels, and unreliable boreholes. These changes have exacerbated water scarcity, posing serious threats to both human health and essential ecosystem services.[46]

Conservation Agriculture

A set of farming practices that minimise mechanical soil disturbance, maintain a permanent organic soil cover, diversify and rotate plant species, and enhance natural biological processes[47].

Coping capacity

The ability of people, institutions, organisations, and systems, using available skills, values, beliefs, resources, and opportunities, to address, manage, and overcome adverse conditions in the short to medium term.[48]

45 IPCC, Special Report: Global Warming of 1.5 ºc - Glossary, n.d.
46 U-Learn, Living with climate-related hazards: Impacts and community responses among refugees and hosts in Nyumanzi Settlement, Adjumani – Uganda, 2023. https://ulearn-uganda.org/living-with-climate-related-hazards-impacts-and-community-responses-among-refugees-and-hosts-in-nyumanzi-settlement-adjumani-uganda/
47 FAO, Conservation Agriculture, 2024. https://www.fao.org/conservation-agriculture/overview/what-is-conservation-agriculture/en/
48 https://websites.fraunhofer.de/CIPedia/index.php/Coping_Capacity#cite_note-1

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Coproduction

In the context of climate services, co-production refers to the collaborative process between climate scientists and stakeholders (such as policymakers, practitioners, and communities) to generate and use climate information effectively. The aim of co-production is to enhance the relevance and usability of climate services by ensuring they address the actual needs and preferences of end-users, leading to better-informed decision-making and more effective adaptation strategies.[49]

49 IPCC, Climate Change 2022 – Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, June 2023

© Credit: Save The Children

Disaster risk management

Disaster risk management is the application of disaster risk reduction (DRR) policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.[50] DRM is critical due to the increased vulnerability of refugee settlements to climate-induced hazards such as floods, droughts, and landslides. For instance, in late 2022, floods in the West Nile region affected over 10,000 people, damaging shelters and sanitation facilities in several refugee settlements.[51] Humanitarian actors, including UNHCR and the Office of the Prime Minister (OPM), have incorporated DRM into settlement planning by relocating communities from high-risk zones, establishing early warning systems, and promoting reforestation and soil conservation practices. The Uganda Country Refugee Response Plan (2022–2025) underscores the importance of strengthening early warning systems and integrating climate-related disaster risk reduction strategies across refugee-hosting districts.[52]

Disaster risk reduction

Disaster risk reduction (DRR) is the concept and practice of reducing risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, reduced vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.[53] DRM practices seek to achieve DRR. In refugee-hosting districts such as Isingiro, initiatives have been implemented to strengthen local preparedness and resilience through improved natural resource management, disaster risk mitigation, and early warning systems. For instance, a project funded by the European Union Trust Fund

50 United Nations Office for Disaster Risk Reduction (UNDRR), The Sendai Framework Terminology on Disaster Risk Reduction – "Disaster risk management", 2017. https://www.undrr.org/terminology/disaster-risk-management Accessed on 10 June 2025.
51 UNHCR, Uganda: Floods and landslides impact update – West Nile Region, 2022a. https://data.unhcr.org/en/documents/download/98093
52 UNHCR, Uganda Country Refugee Response Plan (2022–2025), 2022b. https://data.unhcr.org/en/documents/download/106734
53 https://inee.org/collections/risk-reduction-resilience

and implemented by Oxfam, in partnership with Joint Effort to Save the Environment (JESE) and the Civil Society Budget Advocacy Group (CSBAG), reached over 415,000 people, including refugees in Kyaka II and Nakivale settlements, focusing on enhancing local disaster risk management capacities. [54]

Drought-Tolerant Crops

A drought is an exceptional period of water shortage for existing ecosystems and the human population (due to low rainfall, high temperature and/or wind).[55] Drought-Tolerant Crops are plant varieties that have been bred or genetically modified to withstand prolonged periods of low water availability. These crops are crucial in regions prone to drought, ensuring food security despite challenging climatic conditions.[56] In Uganda's refugee-hosting districts, such as those that were involved in the Northern Uganda Resilience Initiative (NURI), climate-smart agriculture programs have introduced drought-tolerant, fast-maturing, and pest/disease-resistant crop varieties. For instance, extension staff trained farmers in the cultivation of these improved varieties alongside practices like intercropping, timely land preparation, and soil and water conservation.[57] These initiatives have increased the resilience of farmers during dry seasons.

54 Oxfam Uganda, Strengthening resilience through enhanced local disaster risk management, 2022. https://uganda.oxfam.org/latest/publications/strengthening-resilience-through-enhanced-local-disaster-risk-management

55 Intergovernmental Panel on Climate Change (IPCC), Glossary. In: Climate Change 2022 – Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2023.

56 United Nations Economic and Social Commission for Western Asia (UNESCWA), Drought-tolerant crop, n.d. http://www.unescwa.org/sd-glossary/drought-tolerant-crop#

57 U-Learn, How Localisation and Resilient Design Fueled the Success of Climate Smart Agriculture Programmes in Uganda's Refugee Response, 2024. https://ulearn-uganda.org/nuri-csa-blog/

Early warning systems (EWS)

The set of technical, financial and institutional capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organisations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss.[58].
In Uganda, the National Emergency Coordination and Operations Centre (NECOC) established in 2014 under the Office of the Prime Minister's Department of Disaster Preparedness and Management is the central facility for early warning and emergency coordination and operates under the National Policy for Disaster Preparedness and Management (2010). NECOC supports multi-sectoral coordination and public communication on threats such as floods, droughts in both refugees and host communities.[59]

Ecosystem management

Ecosystem management refers to an integrated approach that considers the entire ecosystem, including humans, and the full spectrum of ways people use, benefit from, and value nature. The overall goal of ecosystem management is to sustain the capacity of ecosystems to provide goods and services on which humans depend, even when the ecosystem is facing change and uncertainty.[60]

58 IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I.

59 Office of the Prime Minister (OPM). National Policy for Disaster Preparedness and Management. Kampala: Government of Uganda, 2010.

60 International Rice Research Institute (IRRI). An Ecosystem-Based Approach to Climate-Smart Agriculture with Some Considerations for Social Equity, 2022. https://cgspace.cgiar.org/items/a201b541-07cc-405b-b397-b72ec0f6bf9c

Global warming

The progressive gradual rise of the earth's surface temperature compared to pre-industrial levels - caused by greenhouse gas emissions and responsible for changes in global climate patterns.[61]

Greenhouse gases

Greenhouse gases are any gas that absorbs infrared radiation in the atmosphere. It includes carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and ozone (O3), among others.[62]

Green jobs

Green jobs are decent jobs that contribute to protecting and restoring the environment and addressing climate change. Green jobs can be found in both the production of green products and services, such as renewable energy, and in environmentally friendly processes, such as recycling.[63] In Uganda's refugee-hosting areas, initiatives have been undertaken to promote the productive use of energy (PUE), which has led to the creation of green jobs for both refugees and host communities. Access to clean off-grid energy has expanded in rural areas and refugee settlements, facilitating income-generating activities such as solar-powered irrigation, agro-processing, and the establishment of energy service businesses.[64]

61 https://unfccc.int/resource/cd_roms/na1/ghg_inventories/english/8_glossary/Glossary.htm and https://www.ipcc.ch/sr15/chapter/glossary/

62 Food and Agriculture organisation (FAO), 2024, Introducing Climate-Smart Agriculture. https://www.fao.org/climate-smart-agriculture-sourcebook/concept/module-a1-introducing-csa/a1-overview/en/?type=111

63 ILO, What is a Green Job?, 2024. https://www.ilo.org/resource/article/what-green-job

64 U-Learn, Productive Use of Energy in Uganda's Refugee Response, 2023. https://ulearn-uganda.org/productive-use-of-energy-in-ugandas-refugee-response/

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Similarly, the Climate Smart Jobs (CSJ) Programme supports inclusive job creation by promoting innovative, sustainable solutions for smallholder farmers and agri-businesses, with a specific focus on climate-smart agriculture, environmental stewardship, and resilience. Operating in Northern Uganda including refugee-hosting areas, the programme engages women, refugees, and host communities to boost incomes and productivity while addressing climate risks. CSJ implements a market systems development approach that fosters climate adaptation, supports sustainable land management, and empowers local entrepreneurs through innovation funds and technical support.[65]

Integrated Pest Management

An ecosystem approach to crop production that combines different management practices to grow healthy crops and minimise the use of pesticides.[66] In Uganda's refugee-hosting settlements, IPM techniques such as crop rotation, use of pest-resistant crop varieties, and biological pest controls have been promoted through climate-smart agriculture programs to reduce pest damage and enhance sustainable agricultural productivity.[67]

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65 Climate Smart Jobs (2024). Programme Overview. Available at: https://csj.co.ug/
66 FAO, Conservation Agriculture, 2024. https://www.fao.org/conservation-agriculture/overview/what-is-conservation-agriculture/en/
67 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

Integrated soil fertility management (ISFM)

Making soil nutrients available by adding fertilizers and organic inputs (e.g. composting, crop residue, nitrogen-fixing legumes) and reducing nutrient loss through soil and water conservation.[68] In Uganda's refugee-hosting districts, ISFM has proven effective in increasing crop yields and restoring degraded land, especially where recurrent cultivation and poor soil health are common. For instance, in the West Nile subregion, farmer groups supported under climate-smart agriculture programs have adopted ISFM by integrating composting with intercropping and mulching. These practices not only improve food security for refugee and host communities but also promote long-term soil resilience in fragile ecosystems.[69]

Integrated water resources management (IWRM)

A process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.[70]In Nakivale Refugee Settlement, located in Isingiro District, a catchment-based IWRM approach has been employed to manage water resources sustainably. This strategy considers water availability and security from a development perspective, aiming to optimize resource use within the settlement and the surrounding catchment area. By integrating humanitarian and development perspectives, the approach seeks to protect the environment while meeting the needs of both refugees and host communities.[71]

68 FAO, Conservation Agriculture, 2024. https://www.fao.org/conservation-agriculture/overview/what-is-conservation-agriculture/en/

69 Duguma, L., Nzyoka, J., Okia, C., Watson, C. and Ariani, C., Restocking woody biomass to reduce social and environmental pressures in refugee-hosting landscapes: Perspectives from Northwest Uganda, 2019. World Agroforestry, Working Paper No. 298. http://dx.doi.org/10.5716/WP19032.PDF

70 https://www.unep.org/topics/fresh-water/water-resources-management/integrated-water-resources-management

71 Global Compact on Refugees. (n.d.). IWRM: Accommodating Refugees in Nakivale

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Land use

Land use refers to the total of arrangements, activities and inputs undertaken in a certain land cover type (a set of human actions). The term land use is also used in the sense of the social and economic purposes for which land is managed (e.g., grazing, timber extraction, conservation and city dwelling).[72] In Uganda, changes in land use have had significant implications for emissions and ecosystem health. For example, in refugee-hosting areas such as West Nile, growing population pressures have led to the conversion of forested and grassland areas into farmland and settlement space. This has contributed to deforestation and land degradation, with associated impacts on carbon emissions and biodiversity.[73]

Refugee Settlement. Retrieved from https://globalcompactrefugees.org/good-practices/iwrm-accommodating-refugees-nakivale-refugee-settlement

72 IPCC, 2000: Land Use, Land–Use Change, and Forestry: A Special Report of the IPCC. [Watson, R.T., I.R. Noble, B. Bolin, N.H. Ravindranath, D.J. Verardo, and D.J. Dokken (eds.)]. Cambridge University Press, Cambridge, UK, 375 pp.

73 Duguma, L., Nzyoka, J., Okia, C., Watson, C. and Ariani, C., Restocking woody biomass to reduce social and environmental pressures in refugee-hosting landscapes: Perspectives from Northwest Uganda, 2019. World Agroforestry, Working Paper No. 298. http://dx.doi.org/10.5716/WP19032.PDF

Loss & Damage

The term "Loss & Damage" (L&D) refers to the economic and non-economic impacts of climate change, including extreme weather events and slow onset events. Economic losses can be understood as the loss of resources, goods and services that are commonly traded in markets. Non-economic losses can be understood as the remainder of items that are not commonly traded in markets.[74] involve loss of traditional lands, disruption of cultural practices, erosion of indigenous knowledge, and decline in local ecosystems, all of which affect the well-being and resilience of both refugees and host communities.[75] In Uganda's refugee-hosting areas, such as the Bidibidi Refugee Settlement in Yumbe District, climate-induced events have led to significant losses. In 2024, erratic rainfall patterns resulted in a severe drought, jeopardising crop yields and threatening food security for nearly 190,000 South Sudanese refugees. The drought not only affected agricultural productivity but also strained relations between refugees and host communities due to increased competition for scarce resources like water and firewood (Okudi, 2024).[76] [77]

© Credit: Save The Children

74 UNFCCC, Loss and Damage – Online Guide, February 2020
75 UNFCCC, Non-Economic Losses, n.d.
76 Nile Post, Food Security: Drought looms over Bidibidi Refugee Settlement, 2024. https://nilepost.co.ug/2024/05/19/food-security-drought-looms-over-bidibidi-refugee-settlement/
77 Okudi, M. (2024, May 19). Food Security: Drought looms over Bidibidi Refugee Settlement. Nile Post.

Maladaptation

Maladaptation refers to actions or strategies that inadvertently increase the risk of negative climate-related outcomes.[78] Maladaptation can occur when environmental interventions fail to consider local ecological and social dynamics. For instance, in the West Nile sub-region, the rapid expansion of refugee settlements has led to significant land use changes, including deforestation and degradation of savannah grasslands and woodlands. These changes have been primarily attributed to activities such as deforestation, bush-burning, and the establishment of refugee settlements, which have increased pressure on natural resources and led to environmental degradation.

Nationally Determined Contributions

Uganda's NDC reduce national emissions and adapt to the impacts of climate change was first submitted in 2015 to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC), and then updated in 2022. The NDC seeks to transition to a low-carbon, climate-resilient and green economy. The NDC identifies 1) priority adaptation measures in agriculture, and promoting climate-resilient livestock production systems; 2) mitigation measures in CSA that are aligned with the REDD+ Strateg; and 3) mitigation measures to promote a climate-smart dairy livestock value chain, improve livestock feed quality, and manure management.[79]

78 IPCC, Annex I: Glossary [Matthews, J.B.R. (ed.)], 2018. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V. et al. (eds.)]. Cambridge University Press. https://doi.org/10.1017/9781009157940.008

79 Ministry of Water and Environment, Updated Nationally Determined Contribution, 2022. https://unfccc.int/sites/default/files/NDC/2022-09/Updated%20NDC%20_Uganda_2022%20Final.pdf

Nature-based solutions

These refers to actions to protect, conserve, restore, and sustainably use and manage ecosystems to support climate change adaptation and mitigation efforts, preserve biodiversity, and enable sustainable livelihoods and Indigenous Peoples, who hold generational knowledge on protecting nature.[80] In Uganda's refugee-hosting landscapes, nature-based solutions are increasingly applied through agroforestry, reforestation, wetland restoration, and climate-smart agriculture initiatives. These approaches help reduce flood risks, restore degraded lands, improve soil and water health, and enhance the resilience of both refugee and host communities to climate shocks.

Permaculture

Permaculture is an agricultural management approach to efficiently utilise land and resources in a way that mimics natural ecosystems and does not produce waste.[81] Permaculture has been promoted in Uganda's refugee settlements such as Rwamwanja, Nakivale, as a strategy to maximise food production on small plots of land while reducing dependency on external inputs. Techniques such as companion planting, mulching, rainwater harvesting, and circular gardening systems are particularly suited for resource-constrained refugee settlements. These practices enhance household food security, improve soil fertility, and foster climate adaptation through low-cost, nature-based solutions.[82]

80 UNEP, Overview: Nature-based Solutions, n.d. https://www.unep.org/topics/nature-action/nature-based-solutions/overview-nature-based-solutions.
81 Generation Restoration, 2024, Refugee Empowerment in Uganda through Regenerative Approaches. https://genr.world/refugee-empowerment-in-uganda-through-regenerative-approaches-rwamwanja-rural-foundation/ ; https://unffe.org.ug/healthy-and-sustainable-agriculture-practices-in-uganda/#:~:text=Definition%3A%20Permaculture%20designs%20agricultural%20landscapes,resources%20and%20energy%2Defficient%20technologies
82 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

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Reducing Emissions from Deforestation and Forest Degradation (REDD+)

An effort to create financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development (SD). [83]

In Uganda's refugee-hosting districts where rapid population growth and heavy dependence on wood fuel are major drivers of forest loss, REDD+ provides a structured framework for intervention. As outlined in Uganda's 2017 National REDD+ Strategy and Action Plan, efforts such as forest landscape restoration, tree planting, and community-based forest management are explicitly recognised as core strategic options that reduce emissions, conserve biodiversity, improve livelihoods, and ensure equitable benefit-sharing.[84]

83 UN-REDD Programme, Uganda forges ahead with sustainable development through REDD+, 2024. https://www.un-redd.org/post/uganda-forges-ahead-sustainable-development-through-redd

84 UNFCCC & Republic of Uganda (2017). National REDD+ Strategy and Action Plan (October 2017). United Nations Framework Convention on Climate Change and Government of Uganda. Available at: https://redd.unfccc.int/media/final_-_uganda_redd_strategy_and_action_plan-october_2017.pdf

Reforestation

Reforestation is the process of replanting trees in areas that had recent tree cover but where forests were lost, due to wildfires, drought, disease, or human activity such as agricultural clearing.[85] In settlements such as Bidibidi, reforestation initiatives have included the establishment of food forests, tree nurseries, and agroforestry systems, often incorporating species with both ecological and economic value. Trees like moringa and eucalyptus are planted not only to restore forest cover but also to support household health (e.g., through medicinal uses or water purification) and income generation. These efforts contribute to carbon sequestration, soil restoration, and the resilience of both refugee and host communities to climate variability.[86]

© Credit: ULearn

85 One Tree Planted, Reforestation, n.d. https://onetreeplanted.org/pages/reforestation Accessed on 11 June 2025.

86 Duguma, L., Nzyoka, J., Okia, C., Watson, C. and Ariani, C., Restocking woody biomass to reduce social and environmental pressures in refugee-hosting landscapes: Perspectives from Northwest Uganda, 2019. World Agroforestry, Working Paper No. 298. http://dx.doi.org/10.5716/WP19032.PDF

Regenerative Agriculture

There is no broadly agreed-upon definition of regenerative, but most definitions describe it as agriculture that improves the health of the landscape.[87] Regenerative agriculture strengthens both environmental and economic resilience through practices that rebuild soil fertility, increase biodiversity, and support community livelihoods. In Uganda's refugee-hosting areas, these approaches are especially critical for addressing land degradation and food insecurity.

Resilience

The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.[88] Resilience in Uganda's refugee response is strengthened through climate-smart agriculture, natural resource management, and inclusive planning that help both refugees and host communities cope with droughts, floods, and other environmental stresses.[89]

© Credit: Save The Children

87 National Center for Appropriate Technology (NCAT), Glossary of terms: Climate, carbon, and agriculture, 2023. https://attra.ncat.org/glossary-of-terms-climate-carbon-and-agriculture/
88 European Union, Adaptation to climate change, n.d. https://eur-lex.europa.eu/EN/legal-content/glossary/adaptation-to-climate-change.html
89 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

Silvopasture

Silvopasture is the deliberate integration of trees and grazing livestock operations on the same land..[90]These efforts frequently incorporate silvopastoral systems, where forage species are planted among trees and livestock are grazed in a managed rotation. This model delivers multiple benefits: improved soil health, diversified income from timber and livestock, enhanced animal welfare through shade and fodder, and increased climate resilience in vulnerable landscapes. In northwest Uganda's refugee-hosting settlements including Rhino Camp, Imvepi, and Bidi-Bidi, agroforestry initiatives are scaling up under CIFOR-ICRAF's Agroforestry and Nature-based Solutions project. [91]

© Credit: Save The Children

90 United States Department of Agriculture, Working Trees for Agriculture, n.d. https://www.fs.usda.gov/nac/assets/documents/workingtrees/brochures/wts.pdf

91 CIFOR-ICRAF, Scaling up Agroforestry and Other Nature-based Solutions in Refugee Settlement Landscapes of Northwestern Uganda – Phase 2, 2022–2025. https://www.cifor-icraf.org/project/b03ca81c558d4770730708daa607cbeb/

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Sustainable Agriculture

Agricultural systems that foster continued farm productivity, environmental integrity, and farm profitability through the efficient use of ecosystem services and on-farm resources.[92] Sustainable agriculture practices are critical for preserving limited natural resources while supporting food and income security for both refugees and host communities. For example, conservation farming techniques such as minimum tillage, intercropping, and mulching are promoted in settlements like Rwamwanja and Kiryandongo to protect soil fertility, reduce erosion, and maximise land productivity under resource constraints. These practices ensure that refugee-hosting environments remain agriculturally viable despite pressure from growing populations and climate variability.[93]

© Credit: Save The Children

92 National Center for Appropriate Technology, Glossary of Terms: Climate, Carbon, and Agriculture, 2023. https://attra.ncat.org/glossary-of-terms-climate-carbon-and-agriculture/
93 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

Sustainable Intensification

Sustainable Intensification involves increasing agricultural productivity on existing farmland while minimising environmental impacts and conserving natural resources. It aims to achieve higher yields without expanding agricultural land, thereby protecting ecosystems.[94]

Sustainable Land Management (SLM)

The use of land resources (soil, water, animals, plants) to produce goods and provide services to meet human needs while maintaining their productive potential and environmental functions over the long-term.[95] In Uganda's refugee response, SLM practices have been integrated into climate-smart agriculture (CSA) programs to enhance resilience and food security among both refugee and host communities. For instance, the Northern Uganda Resilience Initiative (NURI) program implemented SLM techniques such as intercropping, mulching, and the use of drought-tolerant crop varieties. These practices improved soil fertility, reduced erosion, and increased agricultural productivity in areas facing climatic challenges.[96]

94 Cook, S., Silici, L., Adolph, B., and Walker, S., Sustainable Intensification Revisited Issue Paper, 2015. https://www.iied.org/sites/default/files/pdfs/migrate/14651IIED.pdf
95 Food and Agriculture organisation of the United Nations, Conservation Agriculture, 2024. https://www.fao.org/conservation-agriculture/overview/what-is-conservation-agriculture/en/
96 U-Learn, How Localisation and Resilient Design Fueled the Success of Climate Smart Agriculture Programmes in Uganda's Refugee Response, 2024. https://ulearn-uganda.org/nuri-csa-blog/

Vulnerability to Climate Change

Vulnerability to climate change is the degree to which a system is exposed to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.[97] In Uganda's refugee-hosting districts, particularly in the West Nile region, vulnerability is intensified by unsustainable dependence on natural resources such as firewood, grass, and water. Refugees and host communities rely heavily on these for shelter, energy, and income through activities like charcoal burning and brickmaking. This has led to widespread deforestation and environmental degradation, increasing both food insecurity and social tension. These challenges are compounded by poor and unpredictable rainfall, which severely affects smallholder farmers in host communities such as Yumbe District.[98]

© Credit: ULearn

97 IPCC, Annex II: Glossary. In: Pörtner, H.-O., Roberts, D.C., Tignor, M. (eds), Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge University Press, 2022).

98 UN Women. Supporting refugees and host communities in Uganda, 2022 https://africa.unwomen.org/en/stories/news/2022/12/supporting-refugees-and-host-communities-in-uganda

Water Harvesting

Water harvesting is the collection and storage of water, such as rainwater, to have water available during dry periods.[99] In Uganda's refugee response, water harvesting is a crucial strategy for enhancing water availability for domestic use and agriculture. For example, in Nakivale Refugee Settlement, collective water harvesting systems have been adopted, while in Bidibidi, refugees have been trained in constructing water reservoirs to conserve and store rainwater. These interventions support resilience by ensuring water availability during prolonged dry spells and are often integrated with other climate-smart agriculture practices.[100]

Water resource Management

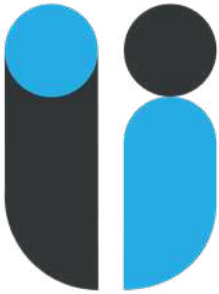
Methods to use, conserve and manage water, land and living resources in a watershed to maintain a water supply crucial for ecosystem and human health. In Uganda's refugee-hosting areas, water management practices address changing precipitation patterns and water stress. Techniques promoted include solar-powered irrigation systems, like those piloted in Kyangwali Refugee Settlement, and simple drip irrigation systems using recycled water bottles. These innovations not only increase productivity but also contribute to climate change mitigation by utilising renewable energy and reducing water waste.[101]

99 Caritas Uganda, Food Income and Livelihood Program – Yumbe Project, 2024. https://caritasuganda.org/hi-flip.php

100 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

101 U-Learn, Application of Climate-Smart Agriculture Approaches in Uganda's Refugee Response, 2025. https://ulearn-uganda.org/application-of-climate-smart-agriculture-approaches-in-ugandas-refugee-response

Notes



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