

Review of Policies and Frameworks on Climate Change, Agriculture, Food and Nutrition Security in Eastern Africa

Ethiopia, Kenya, Rwanda, Tanzania, and Uganda

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Uganda**

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**Accelerating Impacts of CGIAR Climate Research for Africa
(AICCRA)**

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About AICCRA reports

Titles in this series aim to disseminate interim climate change, agriculture, and food security research and practices and stimulate feedback from the scientific community.

About AICCRA

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture. It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

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Abstract

This is a review of policies, strategies, and frameworks related to climate change, agriculture, food, and nutrition security in Ethiopia, Kenya, Rwanda, Tanzania, and Uganda. The five focus countries have made tremendous efforts to strengthen the enabling environment for addressing climate change and improving agricultural productivity and food and nutrition security by putting the appropriate policies, frameworks, and strategies in place. This policy review was based on document review and expert consultations in each country and specifically: i) analyzed the policy integration between climate change and agriculture and food and nutrition security for each country, and ii) examined the institutional landscape for climate change, agriculture, food, and nutrition security Eastern Africa.

There are deliberate and proactive efforts to strengthen the integration and coherence in the more recent policies and frameworks for climate change, agriculture, food, and nutrition security. Most East African countries have prioritized agricultural productivity, food availability, and climate change adaptation in most of their policies and frameworks, with a narrow focus on food utilization and climate change mitigation. However, little effort has been made to integrate budgeting and planning, implementation and monitoring processes, bringing together climate change and agriculture, and food and nutrition security. There is a need to strengthen the linkages and coordination between climate change and agriculture, food and nutrition stakeholders to improve efficiency and reduce overlaps in implementing programs and projects.

Keywords:

Policy coherence; climate change; agriculture; food and nutrition security; East Africa

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Acronyms

AMCEN	African Ministerial Conference on Environment
ARNS	Africa Regional Nutrition Strategy
ASAL	Arid and Semi-arid Land
ASDP	Agriculture Sector Development Programme
AU-NEPAD	African Union-New Partnership for Africa's Development
CAADP	Comprehensive African Agriculture Development Programme
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCAP	Climate Change Action Plan
COMESA	Common Market for Eastern and Southern Africa
COP	Conferences of the Parties
CRMA	Climate Risk Management and Adaptation Strategy
CSA	Climate-Smart Agriculture
DRR	Disaster Risk Reduction
EAC	East Africa Community
EACCCMP	East African Community Climate Change Master Plan
ERS	Economic Recovery Strategy
GDP	Gross Domestic Product
GESIP	Green Economy Strategy and Implementation Plan
GHG	Green House Gas Emissions
ICESCR	International Covenant on Economic, Social and Cultural Rights
IDDRSI	IGAD Drought Disaster Resilience and Sustainability Initiative
IFAD	International Fund for Agricultural Development
IGAD	Intergovernmental Authority on Development
INDC	Intended Nationally Determined Contributions
KALRO	Kenya Agricultural Livestock Research Organization
KCSAS	Kenya Climate Smart Agriculture Strategy
KRDS	Kenya Rural Development Strategy
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NAPA	National Adaptation Plans of Action
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
NDC	Nationally Determined Contributions
REMA	Rwanda Environment Management Authority
ROK	Republic of Kenya
SADC	Southern African Development Community
SDGs	Sustainable Development Goals
UNCSD	United Nations Conference on Sustainable Development
UNFCCC	United Nations Framework Convention on Climate Change

Introduction

The triple crisis of climate impacts, desert locusts, and Covid-19 are amplifying the weaknesses of the food production systems in Sub-Saharan Africa (SSA). The growing hunger and undernourishment in the continent is the worst adaptation challenge the world is facing in 2021 (GCA 2020).

The stark reality is that climate change is happening. And with these global shifts comes local and specific realities. For Africa, the outcomes of climate change are here, and this is not inconsequential as “in addition to conflicts, instability and economic crises, climate variability and extreme weather and climate events are among the key drivers of the recent increase in global hunger” (WMO 2019). For East Africa, the climate change predictions are grim. In the decades ahead, projections suggest that East Africa will see annual temperatures rise by 1.8°C to 4.3°C (with a mean of 3.2°C) by the period 2080 through 2099 (IPCC, 2014). It is projected that global warming will worsen droughts, flooding, famine, and species extinction in East Africa. Some of these extreme events, such as frequent and severe droughts, are already being experienced in the region.

Climate change will significantly affect agriculture-based livelihoods. Higher temperatures are likely to directly reduce yields of desirable crops in the long term, and changes in precipitation patterns are directly increasing short-term crop failures and influencing long-term production declines for rain-fed agriculture. The high inter-annual unpredictability in precipitation negatively impacts rural livelihoods and increases food insecurity. Food security is defined as a situation where all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Climate change is increasing food insecurity, exacerbating under-nutrition, undermining efforts to reduce poverty, and challenging the resilience of vulnerable populations (FAO and ECA 2018). Global hunger is increasing under climate change, and to adapt to climate change and ensure food security, major interventions are required to transform current patterns and practices of food production, distribution, and consumption (Herro Acosta et al. 2019).

Thus, the transformation of agricultural sectors to be resilient in the face of climate change is necessary. The close relationship between weather and agricultural output is especially significant in the rain-fed small-holder systems of production that dominate the African continent. Extreme weather under climate change in one locality can have effects that interlink across national and regional sectors. Adaptation of the agriculture sector to climate change will be necessary to maintain or increase agriculture productivity to meet current and future food security goals (Dupar 2019). Moreover, because the agriculture sector is both affected by climate change, as well as being a contributor to climate change through GHG emissions, strategies, policies and frameworks for agricultural productivity gains and food and nutrition security support, have implications for both climate change adaptation and climate change mitigation.

Tackling hunger and nutrition is not only about boosting food production but also has to do with increasing incomes, creating resilient food systems, and strengthening markets so that people can access safe and nutritious food (Mbow et al., 2019). Thus, food security is linked to larger development agendas and agricultural policies within a nation; therefore, “successfully addressing the food security and nutrition challenges countries, communities and households face requires

policy coherence and integrated, cross-sectoral planning and implementation of policies and actions” (FAO 2019). Such policy coherence between the agriculture and food security realm must now also consider coherence with climate change policies and frameworks. As climate change mitigation and adaptation have become targeted and committed to under the United Nations Framework Convention on Climate Change (UNFCCC) by nations, the Nationally Determined Contributions (NDCs), Nationally Appropriate Mitigation Actions (NAMAs) and National Adaptation Plans (NAPs) developed by countries lay out the various mitigation and adaptation programmes that countries will undertake. Climate change frameworks and programmes do not necessarily align with or cohere with existing national agriculture or food and nutrition policies. In fact, an integrating and enabling environment is essential for implementing climate change adaptation and mitigation measures in agriculture to ensure food and nutrition security and improved livelihoods.

With the right enabling environment, “policies that operate across the food system can support more sustainable land use management, enhanced food security and low-emissions development” (Dupar 2019). However, without integration, policies can work at cross purposes, creating inefficiencies or outright contradicting and impeding each other’s goals. Thus “for adaptation and mitigation throughout the food system, enabling conditions need to be created through policies, markets, institutions, and governance” (Mbow et al. 2019). However, despite this need for integration and coherence, the policy realms for climate change are still emerging, and their integration into regional and national development and agriculture strategies is not well understood.

This policy review was undertaken in Ethiopia, Kenya, Rwanda, Tanzania, and Uganda to understand the current state of policies, strategies, and frameworks on climate change, agriculture, food, and nutrition security in Eastern Africa, including the degree of integration and policy coherence across climate change, agriculture and food and nutrition security policies and frameworks. The review also examines some of the regional, continental, and global frameworks on climate change, agriculture, and food security relevant to Eastern Africa.

Methodology

The overall methodological approach to achieve the policy review objectives were the iterative process of a desk review of relevant literature; stakeholder consultations through questionnaire surveys, expert group discussions, and key informants; and relevance scoring.

The desk review involved a comprehensive literature review of various documentation relevant to each country and climate change and food and nutrition security: publications, conference proceedings, presentations and reports, relevant government policy documents, strategies, long- and mid-term plans of the government such as sector-based project documents, programs and strategy documents prepared by sector ministries and various organizations in the context of climate change, agriculture, food, and nutrition security. The desk review not only investigated at the national level but also focused on regional, continental and global policies and conventions related to climate change, agriculture, and food and nutrition security relevant to the Eastern Africa countries. The desk review also included the review of institutional arrangements within each country and at regional level.

Many partners and actors are working across scale, globally, regionally, and nationally to contribute to policies and strategies formulation and implementation in climate change,

agriculture, and food and nutrition security. The stakeholder consultations covered actors and key informants representing relevant lead agencies, development partners, research institutes, and regional sector offices, which have tasks intended to address climate change, agriculture, food, and nutrition security issues. Structured questionnaires were distributed to experts. At the national level, the expert consultations included actors and key informants representing relevant lead agencies, research organizations, and national government and non-governmental institutions with the mandate to address climate change, agriculture, food and nutrition security. Structured questionnaires were administered to experts and analyzed. Some of the questions asked to the experts included a list of policy or framework documents on climate change; the primary objectives of the policy or framework; the key intervention areas, and their relevance to agriculture, food and nutrition security.

Relevance scoring on a scale of 1 to 5 was done on the level to which climate change policies and frameworks address agriculture, food and nutrition security on the three themes of agricultural productivity, food availability, food access, and food nutrition (Table 1). Conversely, agriculture, food, and nutrition security policies were scored on how well they integrate climate adaptation and mitigation. In some cases, the relevance scores were then aggregated to percentiles and grouped into three categories of relevance: High (>75%), Medium (50-74%), and Low (less than 49%).

TABLE 1: Scoring for policy

Relevance	Description	Score
Very High	Climate change or agriculture, food and nutrition security are the primary objectives	5
High	Climate change or agriculture, food and nutrition security are a significant but not primary objective	4
Moderate	Climate change or agriculture, food and nutrition security objectives are not explicitly stated; but the activities promote climate change adaptation and mitigation actions or agriculture, food and nutrition security	3
Little	Climate change or agriculture, food and nutrition security are not the target objective, but the activities have indirect adaptation and mitigation or agriculture food and nutrition security benefits	2
Very Little	Climate change or agriculture, food and nutrition security are not the target objective at all, but the activities have minimal indirect links to climate actions or agriculture and food and nutrition security	1

The key informants interviewed from the different institutions in the five countries, including the number of policies and frameworks reviewed are presented in Annex 1.

Policy environment: Global, pan-African, and regional frameworks with relevance to climate change, agriculture, food and nutrition security

Overarching Frameworks

The climate change, agriculture, and food and nutrition security policy environment of the five reviewed countries exist within a meshwork of global, African, and regional treaties, frameworks, and initiatives that address human rights and global goals for global health and sustainability. Such global and regional initiatives can set the standards to which national policies are responding. In the following, brief introductions are given to four frameworks that set broad goals for the world and Africa: The International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966); the Sustainable Development Goals (SDGs); the AU Agenda 2063; and the Science Technology Innovation Strategy for Africa (STISA-2024). Other broad agreements and frameworks that have relevance in the countries for food and nutrition security under climate change are the framings of disaster risk planning; these include the Sendai Framework for Disaster Risk Reduction (SFDRR, 2015-2030) and the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI) Strategy (2013).

International Covenant on Economic, Social and Cultural Rights (ICESCR 1966)

The ICESCR is a multilateral treaty that commits signing parties to work toward granting of economic, social, and cultural rights (ESCR) to all members of a nation. It was ratified by Ethiopia in 1993, Uganda in 1987, Kenya in 1972, Rwanda in 1975, and Tanzania in 1976. The treaty commits parties to work towards granting of economic, social, and cultural rights (ESCR) to all individuals and territories and regions within the governing state. This treaty's articles lay out the social and cultural rights ascribed to all members of a state and were important for addressing communities of people who were previously underserved, marginalized or discriminated against either actively or passively in national governments. Articles of the treaty include self-determination, representation in government, rights to fair wages, education, and an adequate standard of living. Article 11 specifically addresses the right to food and housing security and puts food security for all as a needed policy goal for nations stating:

“The States Parties to the present Covenant, recognizing the fundamental right of everyone to be free from hunger, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed: a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources; b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need.”

Because this Treaty was developed in the 60s, there are no linkages to food and nutrition security, and climate change.

Agenda 2030 – Sustainable Development Goals (SDG 2015)

The SDG dedicated to climate change is SDG 13 on Climate Action. Targets under this goal include strengthening resilience and adaptive capacity to climate-related risks. This SDG targets improving human and institutional capacity on climate change adaptation, mitigation and impact reduction. Also included is the need for monitoring for extreme events and early warning. The goals of this SDG include integrating climate change into national policies, strategies and planning, and promoting mechanisms for raising the capacity for effective climate change-related planning and management in least developed countries (LDCs). Moreover, addressing climate change in LDCs includes mobilizing resources from developed countries under the UNFCCC commitments. SDG 2 is dedicated to ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture. Under this SDG, a range of targets are relevant to national food and agricultural policies. These targets include decreasing hunger by doubling agricultural productivity and incomes of small-scale food producers. Included with this is ensuring sustainable food production through resilient agricultural practices. Other SDGs with climate change elements include zero poverty (SDG 1), gender equity (SDG 5), sustainable consumption and production (SDG 12), life below water (SDG 14), and life on land (SDG 15).

AU Agenda 2063 — “The Africa We Want”— (Agenda 2063, 2015)

African Union’s Agenda 2063 is Africa’s 50-year strategic framework for transforming the continent. The seven aspirations of the agenda are:

1. A prosperous Africa based on inclusive growth and sustainable development
2. An integrated continent politically united and based on the ideals of Pan-Africanism and the vision of the African Renaissance
3. An Africa of good governance, democracy, respect for human rights, justice and the rule of law
4. A peaceful and secure Africa
5. Africa with a strong cultural identity, common heritage, values and ethics
6. An Africa whose development is people-driven, relying on the potential offered by the African people, especially its women and youth, and caring for children
7. An Africa as a strong, united, resilient, and influential global player and partner

Climate change, agriculture and food security are extensively covered under Aspiration 1. Goals under Aspiration 1 include: 1) high standard of living, quality of life and well-being for all citizens; 2) well-educated citizens and skills revolution underpinned by science, technology and innovation; 3) health and well-nourished citizens; 4) transformed economies; 5) modern agriculture for increased productivity and production; 6) blue ocean economy of accelerated economic growth; and 7) environmentally sustainable and climate-resilient economies and communities. Priority areas for agriculture include: 1) modernizing the sector for increased production, 2) productivity and value addition anchored in scientific knowledge, 3) building resilient food and agricultural systems, and 4) self-financing agricultural development. An additional priority includes increased intra-African trade in food and agriculture. This is to be achieved through broader and deeper continental market integration, which needs to be facilitated by national level policies to establish adequate market and trade infrastructure in target agricultural value chains to connect farmers to local, national, and regional markets. Of relevance to climate change include goal 7: promoting environmentally sustainable and climate-resilient economies and communities. This is to be done by prioritizing sustainable natural resource management and biodiversity conservation with a

focus on climate-resilient, low-carbon production systems to reduce vulnerability to climate risk and related natural disasters. Other priority areas relevant to climate change include sustainable consumption and production patterns; water security; climate resilience and natural disasters preparedness and prevention; and renewable energy. Priority areas of relevance to food and nutrition security include health and nutrition, reduction in poverty, inequality and hunger, and management of marine resources and energy.

Agenda 2063 is being operationalized under five 10-year plans, and currently is in the “First Ten-Year Implementation Plan (FTYIP) of Agenda 2063 (2013-2023). The continental plan builds on and seeks to accelerate the implementation of existing continental frameworks to address the development of key sectors such as agriculture, trade, transport, energy and mining. For agriculture, these include the New Partnership for Africa’s Development (NEPAD), the Comprehensive Africa Agriculture Development Programme–CAADP, the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (3AGTs), and Africa’s Agro-industry and Agribusiness Development Initiative (3ADI).

Science Technology Innovation Strategy for Africa (STISA-2024)

Under the AU Agenda 2063, distinct strategies were developed and adopted. The first two dealt directly with education needs: (1) Continental Strategy for Education (CESA-16-25); and (2) Continental Strategy for Technical and Vocational Education and Training. The third strategy of STISA-24 envisions the creation of a knowledge-based economy through science and technology innovation-led transformation of the continent. Science and Technology innovation is expected to trigger socio-economic development and growth across critical sectors such as agriculture, energy, environment, health, infrastructure development, mining, security, and water, among others. STISA is anchored on six (6) priority areas, namely: 1) Eradication of hunger and achieving food security; 2) Prevention and control of diseases; 3) Communication (physical and intellectual mobility); 4) Protection of our space; 5) Living together in peace and harmony to build the society; and 6) Wealth creation. Successful implementation of this strategy assumes that the following pre-conditions are fulfilled: i) building and/or upgrading research infrastructures; ii) enhancing professional and technical competencies; iii) promoting entrepreneurship and innovation; and iv) providing an enabling environment for Science, Technology, and Innovation (STI) development in the African continent.

Sendai Framework for Disaster Risk Reduction (SFDRR 2015-2030)

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted in March 2015 during the Third UN World Conference. This worldwide framework acknowledges the risk to development gains from disaster. Climate change and subsequent droughts and floods are just part of the potential risks identified under the framework. The framework aims to achieve a substantial reduction of disaster risks and losses in lives, livelihoods, and health and the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries over the next 15 years. The stated goal of the Sendai Framework is to “Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.” Therefore, disaster risk and resilience-building need to be built into all levels of policy planning through four priority areas: 1) understanding disaster risk; 2) strengthening disaster risk governance to manage

disaster risk; 3) investing in disaster reduction for resilience; and 4) enhancing disaster preparedness for effective response and to “Building Back Better” in recovery, rehabilitation and reconstruction.

IGAD Drought Disaster Resilience and Sustainability Initiative Strategy (IDDRSI 2013)

The regional strategy aims to address the effects of drought and related shocks in the Intergovernmental Authority on Development (IGAD) region, which incorporates three of the five reviewed countries: Ethiopia, Kenya and Uganda. Developed following the severe drought that devastated the region in 2010/2011, this strategy serves as a common framework for developing and designing national and regional programs to enhance drought resilience. Utilizing core concepts of sustainability and resilience, it addresses the need for a “comprehensive and holistic approach to addressing chronic food and nutrition insecurity.” There are seven (7) priority intervention areas: 1) ensuring equitable access and sustainable use of natural resources, while improving environmental management; 2) enhancing market access, facilitating trade and availing versatile financial services; 3) providing equitable access to livelihood support and basic social services; 4) improving disaster risk management capabilities and preparedness for effective response; 5) enhancing the generation and use of research, knowledge, technology and innovations in the IGAD region; 6) promoting conflict prevention and resolution and peacebuilding; and 7) strengthening coordination mechanisms and institutional arrangements for more organized, collaborative and synergistic action as well as improving partnerships to increase the commitment and support necessary to execute the objectives of the initiative (IGAD 2013).

Pan-African and regional frameworks on food security and nutrition

The food and nutrition policies of the five reviewed countries articulate with Pan-African and regional policies and strategies. However, the five reviewed countries are not all members of the same regional organizations (Table 2). The following section highlights regional frameworks with at least one member of the reviewed countries. It is important to note that there are other regional frameworks for west and southern Africa relevant to climate change, agriculture, and food and nutrition security that were not reviewed in this study.

TABLE 2: Reviewed countries’ membership in regional organizations

Country	AU	EAC	IGAD	COMESA	SADC
Ethiopia	+		+	+	
Uganda	+	+	+	+	
Kenya	+	+	+	+	
Rwanda	+	+		+	
Tanzania	+	+			+

AU- African Union, with 55 member states

EAC – East African Community, with 6 member states

IGAD – Intergovernmental Authority on Development, with 8 member states

COMESA – Common Market for Eastern and Southern Africa, with 21 member states

SADC – Southern African Development Community, with 16 member states

Comprehensive African Agriculture Development Programme (CAADP 2003)

CAADP is coordinated by the New Partnership for Africa's Development (NEPAD), an implementing Agency of the Africa Union. CAADP aims to stimulate and facilitate increased agricultural performance through improved policy and institutional environments, access to improved technologies and information, and increased investment financing. Through CAADP, African governments committed to increase public investment in agriculture to 10% of annual national budgets and to raise and maintain agricultural productivity and annual growth by at least 6%. Focused on national level interventions, CAADP is organized around four interlinked pillars: i) Sustainable land and water management; ii) Rural infrastructure and trade-related capacities for market access; iii) Food security; and iv) Agricultural research, technology dissemination and adoption.

CAADP focuses on accelerating agricultural growth and transformation, targeting increased agriculture production and productivity; expanded local agro-industry and value chain development inclusive of women and youth; increased resilience of livelihoods and improved management of risks in agricultural sector; and improved management of natural resources for sustainable agriculture. The development of National Agricultural Investment Plans (NAIPs) is at the heart of CAADP implementation, but these plans do not yet sufficiently consider or implement adaptation to climate change. The NEPAD Planning and Coordinating Agency (NPCA) and the Department of Rural Economy and Agriculture of the African Union Commission (AUC-DREA) have established the necessary action framework. The project has four modules: Policy Advice, Climate Change Adaptation in Agriculture, Agricultural Technical and Vocational Education and Training (ATVET), and Women in ATVET. The climate module promotes adaptation to climate change order to secure a productive and climate-resilient agricultural sector in Africa. One of the flagship programs under CAADP is the Africa Climate-Smart Agriculture Alliance (ACSAA). The ACSAA was launched in June 2014 to leverage the partners (members) effort to support scaling up of CSA to at least 6 million farm households practicing. Members of the Alliance include five INGOs: CARE; Catholic Relief Services; Concern Worldwide; Oxfam; and World Vision, and four technical partners, namely: FAO; FANRPAN; FARA and CCAFS.

In addition, NEPAD also established a climate fund in 2014 to provide technical and financial assistance to African Union member states, Regional Economic Communities (RECs), and institutions to implement projects targeting the adaptation of agriculture to climate. These plans do not yet sufficiently consider or implement adaptation to climate change. The CAADP agenda for adaptation to climate change was successfully implemented, but mitigation is weak. All five reviewed countries are signatories to this compact. Rwanda was the first country to sign the CAADP compact in March 2007.

CAADP Framework Pillar III on African Food Security (FAFS, 2009)

CAADP Pillar III is a deliberate attempt to ensure that the agricultural growth agenda targets the chronically poor and vulnerable directly, rather than through indirect trickle-down effects typical of past development policies and programmes. CAADP Pillar III focuses on the chronically food-insecure and vulnerable populations affected by various crises and emergencies. The CAADP Framework for African Food Security (FAFS) brings structure and congruence to this effort to articulate Africa's actionable food security agenda. The FAFS aims to guide and assist stakeholders in Africa to simultaneously meet the objectives of CAADP Pillar III and the broader African development agenda. The food security challenges addressed in the FAFS are threefold: i)

inadequate food supply; ii) widespread and persistent hunger and malnutrition; and ii) inadequate management of food crises. FAFS aims to provide principles, recommended actions, coordination, peer review, and tools to guide national and regional policies, strategies, investments, partner contributions, and advocacy efforts for improved food supply and security risk management. This framework has paid limited focus on climate change adaptation and mitigation.

Malabo Declaration on Accelerated Agricultural Growth (Malabo, 2014)

The Malabo Summit reconfirmed that agriculture should remain high on Africa's development agenda and is a critical policy initiative for African economic growth and poverty reduction. The Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihood outlines the seven commitments: i) recommitment to the principles and values of the CAADP process; ii) enhancing investment finance in agriculture; iii) ending hunger by 2025; iv) halving poverty through agriculture by 2025; v) boosting intra-African trade in agricultural commodities and services; vi) enhancing resilience to climate variability; and vii) enhancing mutual accountability for actions and results. It emphasizes the need for enhancing the resilience of livelihoods and production systems to climate variability and other related risks. The Malabo Declaration envisions that by 2025, at least 30% of African farms, pastoral, and fisher households will be resilient to climate and weather-related risks. The Malabo Declaration commits to ending hunger in Africa by 2025 through accelerated agricultural growth, reducing post-harvest losses, integrating measures for increased agricultural productivity with social protection initiatives focusing on vulnerable social groups, and improving nutritional status, particularly for children.

Africa Regional Nutrition Strategy (ARNS, 2015–2025)

"All African countries have adopted the global targets for nutrition improvements as agreed by the World Health Assembly in 2011". These targets, as stated below, are, therefore, adopted as the ARNS 2015-2025 Impact Objectives:

1. 40% reduction of the number of African children under 5 years who are stunted by 2025;
2. 50% reduction of anemia in women of child-bearing age in Africa by 2025;
3. 30% reduction of low birth weight in Africa by 2025;
4. No increase of overweight in African children under 5 years of age by 2025;
5. Increase exclusive breast-feeding rates during the first six months in Africa to at least 50% by 2025;
6. Reduce and maintain childhood wasting in Africa to less than 5% by 2025."

The ARNs sets out three strategic pathways: i) AUC defines standards, norms, policies and frameworks for AU Member State adoption and ratification; ii) AUC convenes, and facilitates consensus ("One voice") on matters regarding nutrition security in Africa; and iii) AUC advocates and promotes the implementation of nutrition security policies and programs. Under pathway 3, ARNs aligns with FAO 2013 to support improving nutrition through agriculture, encouraging support of agricultural development pathways that target nutritious food for local consumption. In the ARNs focus on potential nutrition deficits in African populations, climate change is only addressed as one risk to food production in the appendix on Risk Analysis. The strategy recognizes the role of agriculture, food and nutrition in Africa but fails to acknowledge climate change issues.

EAC Agriculture and Rural Development Policy (EAC-ARDP, 2006)

An outcome of the EAC Treaty, this policy aims to enhance cooperation at the regional level in agriculture and rural development to achieve food security and rational agricultural production. It focuses on: i) achieving food security and improving the standards of nutrition by increasing output, quality and availability of food; ii) encouraging rational agricultural production through complementarities and specialization; iii) improving standards of living in rural areas through increased income generation from agricultural production, processing, and marketing; iv) increasing foreign exchange earnings through production and export of agricultural and fisheries products; v) supporting industrialization; vi) encouraging the development of new and appropriate technologies that improve land and labor productivity; and vii) promoting sustainable use and management of natural resources. Other cross-cutting areas include gender integration, sustainable land and environmental management, and an enabling legal and regulatory framework for agricultural and rural development. While this policy adequately addresses agriculture, food and nutrition security, there is no emphasis on climate change adaptation and mitigation.

EAC Agriculture and Rural Development Strategy (EAC-ARDS, 2005–2030)

The EAC-ARDP supports regional cooperation in agriculture and rural development to address food security and agricultural development needs. The EAC-ARDS frames 15 strategic interventions for the region: 1) improving food security; 2) accelerating irrigation development; 3) strengthening early warning systems; 4) strengthening research; extension and training; 5) increasing intra- and inter-regional trade and commerce; 6) improvement of physical infrastructure and utilities; 7) improving governance, 8) establishing legal and regulatory frameworks; 9) promoting agro-based industries and value addition; 10) promoting emerging industries; 11) mainstreaming social services and cross-cutting issues; 12) natural resource management and tourism; 13) access to productive resources; 14) control of animal and plant pests and diseases; and 15) financing of agriculture and agro-processing. Programs under the strategy will be implemented at the EAC and partner states. The EAC-ARDP and EAC-ARDS are regional in their intent and complement the national-level focus of the CAADP. But their focus is on food security through production and sustainable development, and climate change adaptation is not highlighted.

EAC Food Security Action Plan (EAC-FSAP, 2011–2015)

This action plan guided the coordination of the EAC and partner states in rationalizing a joint regional food security program to support implementation of the CAADP and FAFS. The action plan recognizes the role of climate change in agriculture sector by influencing production, productivity, food access, availability and utilization and the need for adaptation. The action plan priority interventions include enabling policy, legal and institutional framework; increasing food availability in sufficient quantity and quality; improving access to food; improving the stability of food supply and access; enhancing the efficiency of food utilization, nutrition, and food safety, implementation strategy and monitoring and resource. However, the action plan is silent on mitigation and opportunities presented by the adaptation options that have co-benefits for reducing greenhouse gas emissions.

EAC Food and Nutrition Security Policy (EAC-FNSP, 2014)

A priority outcome of the EAC-FSAP, this policy aims to ensure food security and adequate nutrition for the people of East Africa through an adequate nutritious food supply. It acknowledges the impacts of climate change on the attainment of food and nutrition security. It thus recommends planned adaptation through drought preparedness, prevention and mitigation measures to cushion the negative impacts of climate change. This policy pays limited attention to climate mitigation. It emphasizes strengthening resilience among households, communities and livelihood systems by promoting sustainable utilization of natural resources, environmental conservation and uptake of disaster risk reduction with enhanced post-harvest value addition. This is achieved through: i) strengthened disaster risk preparedness and management with sustainable utilization of natural resources and environmental conservation under the changing climate; and ii) improved post-harvest handling, agro-processing, and value addition.

EAC Food and Nutrition Security Strategy (EAC-FNSS, 2018–2022)

The EAC-FNSS frames three objectives: i) To improve sustainable and inclusive agricultural production, productivity, and trade of crops, animal and animal resources, fisheries, aquaculture, apiculture and forest products by 2022; ii) To strengthen resilience among households, communities and livelihood systems by promoting sustainable utilization of natural resources, environmental conservation and uptake of disaster risk reduction with enhanced post-harvest value addition by 2022; iii) To improve access and utilization of nutritious, diverse and safe food by 2022. Though the overall goal of the EAC-FNSS is to attain food and nutrition security for all people in the region, it acknowledges several constraints to achieving this. These include low adoption of improved agricultural technologies, poor access to inputs, climate variability and change, limited market integration, and poor pre- and post-harvest management, among others.

Under Objective 1, in the Theory of change, it points out that “transformation of food and agriculture systems into inclusive and sustainable agricultural-led economic growth requires comprehensive investments in key aspects of the system, from producers to policies and institutions that result in efficiency improvements, including through reduced food loss and waste, and affect development across value chains and markets” and the role of this strategy is to support partner states in developing and harmonizing national level policies. Moreover, in this strategy, it acknowledges that climate change will have to be dealt with to obtain Objective 1. In the list of seventeen activities for objective 1, three of these deal explicitly with climate change: “(xiv) supporting integration of regional climate change mitigation and adaptation strategies to food and nutrition security, (xv) supporting the development of regional multi-sectoral frameworks on implementation of food security in the context of the changing climatic conditions, and (xvi) promoting strengthened regional level capacity, information and knowledge sharing, communication and research on climate change and food and nutrition security.”

EAC Food and Nutrition Security Action Plan (EAC-FNSAP, 2018–2022)

The EAC-FNSAP goal is to contribute to reaching the three objectives of the FNSS (see above) in the elimination of hunger, malnutrition, and extreme poverty in the EAC by 2022. The action plan is aligned to the EAC-FNSS, 2018-2022, and is informed by and contributes to global, continental and regional food security commitments (e.g., EAC agriculture and food security instruments, CAADP and SDGs).

The strategy recognizes climate change as an emerging driver of food security in East Africa. In the situational analysis of this strategy, opportunities and response measures to address climate change are discussed. These measures include: “research to provide new tools and approaches for increasing agricultural productivity, monitoring and managing threats and risks, better natural resource management, and climate change adaptation...creating awareness about the effects of climate change on food security and recommend appropriate adaptive interventions... regional collaboration and investments that cut across the borders” as well as integrating historical and future climatic information to inform adaptation of agricultural systems.

SADC Declaration on Agriculture and Food Security (SADC-DAFS, 2004)

This declaration commits member states to promote agriculture as a pillar in regional development strategies and programmes in order to achieve short, medium- and long-term objectives on agriculture and food security. The declaration considers long-term, mid-term, and short-term plans on agriculture and food and nutrition security. Some key issues addressed are access to agriculture inputs, agro-industrial development and processing, control of crop and livestock diseases, water management and irrigation, market access, research, technology development and dissemination, and other cross-cutting issues like gender and HIV and AIDS.

In the short-term, the focus is on ensuring small-scale farmers access to agricultural inputs, improving fertilizer usage in the region, and increasing the production of drought-resistant crops and short-cycle livestock. Medium- to long-term approaches concentrate on maintaining sustainable agriculture and food security measures through environmental conservation, disaster preparation, and research into modern agricultural technologies. It emphasizes climate change adaptation and agricultural productivity but has limited attention to mitigation aspects.

Global, pan-African and regional frameworks and climate change

The climate change policies and frameworks for the reviewed countries have developed in accordance with, and reaction to, global through regional climate change frameworks and initiatives. The most encompassing of these is the UN Framework Convention on Climate Change, which has set a range of reporting and policy development needs for signatory countries. Pan-African and regional climate change frameworks also can intersect with national planning and development. Note again that the reviewed countries are members of different and non-exclusive regional organizations (see Table 3 above). The following regional climate change frameworks were reviewed that have at least one member of the reviewed countries.

United Nations Framework Convention on Climate Change (UNFCCC, 1992)

All of the reviewed countries have signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC): Ethiopia 1992, 1994; Uganda 1992,1993; Kenya in 1992,1994; Rwanda 1992,1998; and Tanzania in 1992, 1996. Both the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 1997 Kyoto Protocol comprise various obligations for the parties to these international agreements to adopt and implement adaptation and mitigation policies. The primary objective of the UNFCCC is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This will allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened, and enable economic development to proceed sustainably. Climate change mitigation is supposed to be successfully

implemented so that ecosystems, food production, and economic growth can continue to flourish. The Parties in the UNFCCC should protect the climate system for the benefit of present and future generations of humankind on the basis of equity and following their common but differentiated responsibilities and respective capabilities. The parties to the convention meet annually from 1995 in Conferences of the Parties (COP) to assess progress in dealing with climate change. The Paris Agreement (2015) recognizes adaptation to climate change and the need to enhance the adaptive capacity, strengthen resilience, and reduce vulnerability to climate change. The Paris Agreement aims to hold global temperatures well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C [Article. 2.1. (a)]. The countries commit to developing plans to mitigate climate change by reporting on their 'intended nationally determined contributions' (INDCs, or sometimes just referenced as NDC) to UNFCCC that will be updated and reviewed periodically (Art. 7.1). As signatories to the UNFCCC, all the reviewed countries have submitted their first NDCs, and some have submitted their updates: Ethiopia 1st, 2017, updated July 2021; Uganda 1st 2016; Kenya 1st 2016, updated December 2020; Rwanda 1st 2016, updated May 2021; Tanzania 1st 2018, updated July 2021)

The preamble of the Paris Agreement makes specific reference to “safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change” and also refers to human rights, gender, ecosystems, and biodiversity, all issues that are central to agriculture. Despite these mentions of food security in the Paris Agreement, agriculture did not feature prominently in the UNFCCC negotiations until COP23, held in 2017 in Bonn, Germany when parties made a landmark decision to establish the Koronivia Joint Work on Agriculture (KJWA). The KJWA is a landmark decision recognizing the role of agriculture in tackling climate change. The decision recognizes agriculture’s vital role in building resilient and sustainable futures for every human being while preserving natural ecosystems and broadens the conversation on agriculture from its former scientific and technical focus to a more implementation-oriented approach.

“[Decision 4/CP.23](#) requests the two Subsidiary Bodies under the Convention, namely the [Subsidiary Body for Scientific and Technological Advice \(SBSTA\)](#) and the [Subsidiary Body for Implementation \(SBI\)](#), to jointly address issues related to agriculture, taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security.”

The Koronivia decision addresses six interrelated topics, including soils, livestock, nutrient use and water management, methods for assessing adaptation, and the socio-economic and food security dimensions of climate change in agriculture (UNFCCC 2018). The KJWA is viewed as an opportunity to promote the development and transfer of knowledge, best practices, and technologies with the aim to address and face the major challenges posed by climate change to agriculture and food security (FAO 2018).

The KJWA process was established to bring agriculture into the official UNFCCC negotiations. Since 2018, workshops have been held on topics focusing on adaptation, resilience, soil health, nutrient use, improving livestock management systems, and the nexus of the socioeconomic and food security dimensions of climate change and agriculture. At the recently concluded COP26, the negotiators could not reach a final decision on the way forward for KJWA, and discussions are expected to resume in June 2022 (see [https://unfccc.int/COP26 KJWA Draft Conclusions](https://unfccc.int/COP26%20KJWA%20Draft%20Conclusions)).

African Union Climate Change Strategy (AU-CCS, 2014)

The signatory states to the AU were ratifying the global climate change accords of the UNFCCC and the Kyoto protocols. They had adopted the Algiers Declaration on Climate Change in November 2008, which called for Africa to have “a common African position and the need to speak with one voice in the negotiations process for the new legally binding global climate change regime.” At the 12th session of the African Ministerial Conference on the Environment (AMCEN) in 2008, a conceptual framework for a comprehensive African climate change program was outlined. Following this, a special session of AMCEN was called in May of 2009, where AMCEN released the Nairobi Declaration on the African Process for Combating Climate Change and reaffirmed the 2008 conceptual framework.

The 2009 Nairobi Declaration is striking in how it positions the role and needs of Africa in relation to these worldwide climate change frameworks. The declaration states:

“Expressing concern at the scientific conclusions contained in the fourth assessment report of the Intergovernmental Panel on Climate Change, particularly as they relate to the social, economic, and environmental impacts of climate change in Africa and noting that, while Africa has contributed the least to the increasing concentration of greenhouse gases in the atmosphere, it is the most vulnerable continent to the impacts of climate change and has the least capacity to adapt.”

The Nairobi declaration emphasizes that Africa needs to “actively and strategically engage in the negotiations” of the UNFCCC and stresses that adaptation and continuing to meet the development needs of African nations must be the priority of AU member states. The declaration then has a list of 41 “resolves” which contain a range of specific calls to action, including enacting already pledged actions, developing new protocols of coordination, new financial mechanisms, and aiding in the integration of climate change adaptation into national, regional development plans, policies, and strategies. Mitigation is addressed as not a priority, and indeed care is needed to ensure international mitigation plans which “should be vigorous, realistic and flexible to ensure the effective participation of African countries, especially smallholder land users” and also “to agree that any African climate change mitigation efforts will be voluntary and will require adequate financing, technology, and capacity support” (all above quotes from the Nairobi Declaration, AMCEN 2009).

This Nairobi Declaration was submitted to the AU Executive council for their July 2009 Summit in Sirte, Libya. Also submitted to the Council was the May 2009 report from the African Ministerial Conference on Financing for Development which “expressed concerns at the negative impacts and serious threats of carbon emissions to Africa’s economies and the continent’s ability to attain the Millennium Development Goals.” This statement also called for the AU to position itself to benefit from the rapidly evolving carbon markets for mitigation efforts. From these two statements, the AU executive council endorsed the recommendations of AMCEN and requested the Commission to “support and facilitate the implementation of the recommendations” at the July 2009 Summit.

One outcome of this endorsement was drafting an AU-wide Climate Change Strategy. The first draft Strategy was submitted to AMCEN in Bamako, Mali, in September 2011. After feedback, the African Strategy on Climate Change was released in May 2014, stating that “The Vision of the

African strategy is to provide the AU as a whole, the RECs, Member States, and other stakeholders with a reliable source of strategic guidance to enable them effectively address climate change challenges." As released, it was to be a 20-year strategy, to be reviewed every 5 years.

"The overall objective of this strategy is to enable the continent to achieve 'climate-smart' socio-economic development." The strategy is organized around four pillars: i) Climate change governance; ii) Promotion of research, education, awareness-raising, and advocacy; iii) Mainstreaming and integrating climate change in planning, budgeting, and development processes; and iv) Promotion of national, regional, and international cooperation.

Elements of particular interest in the 2014 AU Climate Change Strategy are the way in which the adaptation now "must shift from vulnerability assessment to the implementation of adaptation programmes" and the striking emphasis on the eight adaptation points, with five of them specifically referencing costs and funding. Funding from developed nations "must reflect responsibility for economic and social damages resulting from climate change in the context of their historical contributions to greenhouse gases and current climate change" and funding should move beyond adding adaptation to other 'development', but that adaptation needs to be its own projects. Mitigation needs are addressed but not centralized to the goals of the strategy. The 2014 CSS calls on member states to develop their nationally appropriate mitigation commitments and action plans, reduce emissions from deforestation and land degradation, and consider the "economic and social consequences of response measures." While mitigation was not central in the strategy, it was acknowledged as a possible touchstone in overall goals to green economic development and create unique pathways of development for Africa:

While Africa has attached far-reaching policy importance and premier significance to adaptation and the need to build climate-resilience capabilities in the Member States, that does not imply that mitigation is not a concern in its own right. Yes, the urgent priority is placed on adaptation, but mitigation is valued crucially in the context of evolving green economies and therefore avoiding the pitfalls of environmentally-harmful techno-industrial and agricultural change that characterized the unsustainable economic trajectories of Annex 1 countries. p23

In section XI.8, this strategy also explicitly links agricultural development and adaptation to climate change. In Actions 1 to 9, the strategy recognizes the importance of agriculture and food security. It emphasizes the need to integrate risk management into national development plans, food security infrastructure, and contingency plans. The strategy also highlights the links between integrated management of water, energy, and food security, including the use of adaptation funds to improve food security through ecologically sustainable and climate-resilient improvements in agricultural production. While food security is well integrated into the strategy, nutrition security issues are not explicitly incorporated. This strategy also highlights the role of historic emitters and stresses the need for mitigation efforts not to preempt the right to food security and adaptive capacity in Africa.

AfDB Climate Risk Management and Adaptation Strategy (CRMA, 2009)

While not a state agent in and of itself, the African Development Bank's role in African development investment means that its plans and strategies regarding climate change and agricultural development are important to consider in a review of policies and programs. The bank currently operates around its five priority areas (H5s): Light Up and Power Africa; Feed Africa;

Industrialize Africa; Integrate Africa; and Improve the quality of life for the people of Africa. As a Bank strategy, this document lays out how climate change is a risk factor for agricultural development financing. It, therefore, centers on climate change and subsequent vulnerabilities and risks in development plans as a necessary consideration in investment portfolios. The strategy indicates the need for investment in capacity building to tackle climate change, while at the same time, the AfDB itself needs to 'climate proof' its own investments. "The overall goal of the Bank's Climate Risk Management and Adaptation Strategy (CRMA) is to ensure progress towards eradicating poverty and contributing to sustainable improvement in people's livelihoods considering CRMA. The specific objectives are: i) To reduce vulnerability within the RMCs to climate variability and promote climate resilience in the past and future Bank-financed development investments making them more effective; ii) To build capacity and knowledge within the RMCs to address the challenges of climate change and ensure sustainability through policy and regulatory reforms." The strategy focuses on three main areas of intervention: i) climate-proofing investments—focuses on actions to ensure that development efforts are protected from negative impacts of climate change, climate variability, and extreme weather events and to ensure that climate-friendly development strategies are pursued; ii) policy, legal and regulatory reforms—focuses on supporting the development of policies that can address additional climate change related risks as well as strengthening the legal and regulatory reforms to create an enabling environment for the implementation of climate risk management and adaptation; iii) knowledge generation and capacity building—focuses on the use of available global financial resources as well as its own investment windows to address the specific CRMA related activities in its operations, as appropriate. This CRMA pays limited specific attention to agriculture, food, and nutrition security, but these can be outcomes of the interest in poverty eradication.

AfDB Climate Change Action Plan (CCAP2 2016-2020)

The AfDB's 2011-2015 Climate Change Action Plan was designed to support RMCs in adapting to and mitigating climate change while supporting the Bank's focus on infrastructure development and regional operations. The action plan was organized around three pillars—low carbon development, climate-resilient development, and a funding platform—to help African countries strengthen their capacity to respond to climate change and mobilize resources from climate finance, the private sector, and the market mechanisms. This CCAP considered the Bank's long-term strategy for green growth with respect to infrastructure and climate. In agriculture, food and nutrition security supported farmers through innovative CSA practices and access to inputs for increased agricultural productivity.

CCAP2 developed out of the lessons learned from the original CCAP: "1) Engaged leadership at the Bank's highest level is critical to future CCAP achievements; 2) Dedicated resources for climate change, in addition to enhanced capacity to mobilize climate finance at scale, will tremendously help the Bank meet future CCAP goals; and 3) Increasing climate finance will require greater innovation and risk. Other lessons included difficulties in measurement and reporting structures and the need to integrate climate change into the Bank's investment considerations more fully.

The 2016-2017 plan is built on the member states' NDCs and the bank's five priority areas. The CCAP2 targets supporting national climate change programmes and policies, adaptation plans and strategies, and appropriate national mitigation plans to address climate change challenges. The conceptual framework of the CCAP2 addresses issues of food security through the eradication of hunger and poverty. The bank, through the CCAP2, looks at opportunities to increase food production through CSA. The bank's nutrition action plan is tailored to guide the implementation

of nutrition-sensitive CSA, which aims to increase food availability and cater to dietary diversity and nutrition awareness-raising activities. The bank is already implementing post-harvest loss reduction programmes to address food and nutrition security in the continent.

EAC Climate Change Policy Framework (EAC-CCP, 2011)

“The overall objective of the EAC Climate Change Policy is to guide Partner States and other stakeholders on preparing and implementing collective measures to address climate change in the region while assuring sustainable social and economic development.” The policy guides interventions on climate change adaptation and mitigation to reduce the vulnerability of East Africa, enhance adaptive capacity and build socioeconomic resilience of vulnerable populations and ecosystems, with a focus on three pillars: adaptation, mitigation, and climate change research. Adaptation to climate change is of priority to the EAC region, given the region's high vulnerability to the impacts of climate change, with the emerging associated challenges, especially food security. Adaptation is guided by National Adaptation Programmes of Action (NAPAs) and National Adaptation Plans (NAPs).

East Africa Climate Change Policy (EACCP) seeks to mainstream climate change adaptation into national and regional development plans by sector: water resources, agriculture and food security, energy, and ecosystem services (EAC, 2011). The policy puts adaptation as a critical priority, while mitigation comes in the second position. Adaptation priorities include strengthening meteorological services and improving early warning systems; disaster risk management through risk reduction, preparedness, mitigation, and reconstruction; scaling up of efficient use of water and energy resources; irrigation; crop and livestock production; strengthening pre- and post-agricultural losses; protection of wildlife and key fragile ecosystems such as wetlands, coastal, marine, and forestry ecosystems; improving land use, soil protection, tourism; climate-proofing social infrastructure, and reducing climate-sensitive vector and water-borne diseases. On mitigation, while the EAC region has a negligible contribution to global GHG emissions, the region needs to reduce GHG emissions through NAMAs for sectors with potentially high emission factors, notably the energy, transport, etc. agriculture, waste management, and industry sectors.

EAC Climate Change Strategy (EAC-CCS, 2011-2016)

The EAC-CCS gives the direction and scope of implementation of the policy in the short-term, defining all the necessary actions and resources needed in order to achieve its goal. The strategy sets out a range of measures, considering those already in place in the partner states, to ensure effective implementation of the EAC-CCP at all levels. In terms of adaptation, the strategy emphasizes increasing resilience to the adverse impacts of climate change and contributes to the achievement of SDGs in the EAC region through: i) Improving climate change adaptation technical capacity, policy leadership, and action readiness of regional institutions; ii) Strengthening resilient and sustainable management of biologically significant transboundary freshwater ecosystems in the EAC region; and iii) Enhancing resilient and sustainable drinking water supply, sanitation, and wastewater treatment services in the Lake Victoria Basin. Regarding mitigation, it supports partner states in reviewing and updating their NDCs in line with the Paris Agreement.

EAC Climate Change Master Plan (EAC-CCMP, 2011–2031)

The plan provides a long-term vision to operationalize a comprehensive framework for climate change adaptation and mitigation through strengthening regional cooperation to address climate

change impacts on shared resources such as wildlife and water ecosystems. The EAC-CCMP's vision is to ensure that: "The people, the economies, and the ecosystems of the EAC partner states are climate-resilient and adapt accordingly to climate change." It is aligned and consistent with EAC's mandate and development priorities as articulated in a number of relevant environmental and climate change documents such as the EAC Climate Change Policy, EAC Climate Change Strategy, EAC Protocol on Environment and Natural Resources Management, and EAC Food Security Action Plan. The overall objective of the EAC-CCMP is to strengthen regional cooperation to address climate change issues that concern regionally shared resources. The main regional issues which have been identified and prioritized by the EAC partner states as being vulnerable to climate change are: i) Agriculture (crops, livestock, and fisheries) and food security; ii) Water security; iii) Energy security; iv) Ecosystems services and biodiversity; v) Tourism; vi) Infrastructure; vii) Human health, sanitation, and settlements; viii) Trade and industry; ix) Education, science, and technology. Under agriculture, for example, the master plan emphasizes ensuring that the people, economies, and ecosystems of the EAC partner states are climate-resilient with agriculture and food security prioritized. To ensure that the above sectors are climate-proofed, the EAC-CCMP has established eight key pillars: adaptation interventions; mitigation interventions; technology development and transfer; capacity building; education, training, and public awareness; gender, youth, and marginalized groups; climate risk management and disaster risk reduction and climate finance (EAC 2011a).

COMESA-EAC-SADC Programme on Climate Change Adaptation and Mitigation in Eastern and Southern Africa Region (PCCAM-ESA, 2011)

COMESA-EAC-SADC formed a five-year programme to address climate change. The Programme's overall objective was "Impacts of climate change in the COMESA-EAC-SADC region are addressed through successful adaptation and mitigation actions which also build economic and social resilience for present and future generations." Reversing land degradation and improving food security were key goals of this early programme: "The programme will contribute to reversing trends in deforestation and adverse land-use practices, applying adaptation strategies for food security, the protection and sustainable management of water resources and biodiversity, all of which warrant serious examination and investment".

This programme supported national planning for climate change and aided member states in accessing financing for climate change adaptation in agriculture, forestry, and other land uses. A specific focus was on encouraging the adoption of Climate-Smart Conservation Agriculture and targeted funding of CSA programs at the national levels. Along with aiding access to adaptation financing, this programme addressed mitigation through an interest in establishing carbon trading benefits.

Comprehensive Framework for COMESA Climate Change (COMESA, 2009–2013)

This initiative was initially presented as the African Biocarbon Initiative in 2008 and approved by the COMESA summit in 2009 under the Comprehensive Framework name, but is sometimes referenced just as COMESA Climate Change Initiative. This had as its goal "achieving economic prosperity and climate change protection" and had eight areas of focus: 1) Post-Kyoto Protocol regime and beyond; 2) Enabling policy and institutional framework; 3) Enhancing financing mechanisms; 4) Enhancing research, information management, and communication; 5) Enhancing technology transfer; 6) Enhancing capacity building; 7) Enhancing partnerships; and 8) Implementing early action projects in agriculture and food security, sustainable energy,

ecosystems and biodiversity, sustainable trade and Disaster Risk Management (DRM). This Climate Change Initiative was further developed and became the core pillars of the subsequent Programme on Climate Change in the tripartite COMESA-EAC-SADC. Beyond partnership building, support for negotiations, finance access, and capacity building, the fifth pillar of the Initiative was “Piloting flagship projects with a focus on climate-smart agriculture.”

SADC Climate Change Adaptation Strategy for the Water Sector (SADC- CCAS, 2011)

The SADC climate change strategy is centered on the water sector. The strategy calls for the implementation of adaptation measures at different governance levels in the region, especially the transboundary water resources, while mitigation actions are promoted only voluntarily. Focal areas include governance, water management, and infrastructure development through different adaptation processes such as preparation, response, and recovery. Although the strategy is centered on water management and governance, it is linked to food security through the development of efficient and resilient irrigation systems to foster agriculture productivity. The strategy also addresses climate vulnerability through improved water supply systems.

Climate Change Policy Updates

The policy environment of Africa, East Africa, and the reviewed countries is a rapidly evolving landscape. In the time since the extensive in-country review studies, several important developments in relation to climate change, agriculture, and food and nutrition security have been developed. This section analyzes these very new pan-African and regional policies and strategy developments.

Draft African Union Climate Change Strategy (AU-CCS 2020-2030)

The AU-CSS was initially released in 2014 as a 20-year strategy, but with planned 5-year cycles of review. This renewal and revitalization of the AU-CCS more fully centers the need for an Africa-centered and Africa-led approach to continental-wide action. This CCS builds off the goals and structure of the African Agenda 2063, released in 2015. The new CCS is framed to overcome the shortcomings of current climate change approaches on the continent and in the past CCS. These are: financial mechanisms inadequate; insufficient capacity development; dependence on development assistance and donor funds; failure to adequately address the real development needs of African peoples; and the need to now incorporate NDCs (Kanyangarara 2020). This new draft states:

“The Agenda 2063 Aspirations are of high relevance and together with the declarations, form the bedrock on which this Africa Climate Change Strategy is built. This strategy defines the main parameters for an effective, coordinated climate change response for the African continent that builds resilient capacities for adaptation and unlocks the benefits of the massive mitigation potential of the continent. Rooted in Pan-Africanism and the African Renaissance, the strategy also provides a robust framework for ensuring climate justice for Africa and Africans through effective participation as an equal at the United Nations Framework Convention on Climate Change (UNFCCC) and other international fora. This strategy is thus key for realizing the African Vision of ‘an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena.’”

Structurally the new Draft AU CCS is simplified compared to the 2014 CCS. Again, following the major calls of the Agenda 2063, this new strategy envisages five key results: i) Effective institutional capacities to implement climate change strategies; ii) Climate change strategies are harmonized; iii) Africa speaks with one voice; iv) Resilience built, and vulnerability reduced; and v) Increased access to finance.

This strategy acknowledges the need for adaptation, similar to the 2014 CCS, but in this document, mitigation potential and the opportunities that pursuing mitigation could unlock are much more at the forefront of the document:

“While it is acknowledged that adaptation is a much more important response for Africa than mitigation, it must also be recognized that there are huge potential gains if the continent were to push adaptation together with unlocking its mitigation potential. As seen, adaptation in Africa is heavily dependent on development assistance which has the downside of entrenching the beggar perception of the continent, consequently compromising its ability to speak as an equal in the global discussions. On the other hand, mitigation is where Africa can speak from the high moral ground, given its historically insignificant emissions and its large share of untapped mitigation potential.

Along with shifting to a more proactive stance on pursuing mitigation potential, this document directly links the mitigation agenda to potentials for diverse funding streams from external partners, as well as linking mitigation co-benefits as a way to incentive private and national funding for adaptation measures:

“While adaptation is unquestionably and rightly the top priority for African countries, in order to create optimal responses, mitigation should be considered to balance the climate change solution equation. It is recognized that the continent has immense mitigation potential in its vast landmass, forests, agricultural systems and oceans. Africa also has unrivaled potential for renewable energy, especially solar, for its own development and export. This potential should be quantified and put on the table as the continent’s contribution in return for finance and technology needed to adapt and develop despite climate change.”

Thus, while adaptation is still a key concern for the possibility of continued economic development as well as for the possibility of producing a food-secure continent, this new draft frames the financial needs for this to be African driven and not be so much at the whim of donor funds and donor led development projects. As can be seen in Result 5 and its Activity list, the new CSS is calling for a diversification of the financial capacities at the continental level from a new array of options.

Moreover, though deep analysis of nutrition is not a component of the new CSS, food security is a strong component of the adaptation agenda. Food security is mentioned in as a major climate change risk to the continent. But for activities addressing food security, it is only mentioned in the activities of Result 4 in Activity 5: Capacitate Regional Climate Centers says such centers will help inform what are “the appropriate agricultural systems to adopt for food and livelihoods security.” Thus, agricultural information and robust advisory services are positioned as key tools for adapting to climate change and increasing food security. Part of this adaptation agenda relies on the development and adoption of climate-smart agriculture, stating:

“Climate-smart sustainable land and water use, agricultural practices and ecosystem management can turn Africa from a hungry continent into a net food exporter in a short period of time.”

This overall vision is strong and optimistic. Like the African Agenda 2063, this new AU Climate Change Strategy is oriented strongly to Africa's internal rationale and development needs as envisioned from an African perspective.

AU Green Recovery Action Plan (2021)

Launched in July of 2021 by the AU Commission in response to the emerging effects of the Covid-19 pandemic, stating “COVID-19 represents the biggest global economic shock since The Great Depression is affecting Africa particularly hard due to existing vulnerabilities. As a result, food insecurity and debt has been rising, and hard-won development gains are being lost.

The Green Recovery Action plan has five priority areas:

- Climate finance, including increasing flows, efficiency, and impact of funding
- Supporting renewable energy, energy efficiency and national Just Transition programmes
- Nature-based solutions and focus on biodiversity through work on sustainable land management, forestry, oceans, and ecotourism
- Resilient agriculture, by focusing on inclusive economic development and green jobs
- Green and resilient cities, including a focus on water (flooding and water resources) and enhancing information, communication and technology

This recovery plan acknowledges the losses to development progress that occurred under Covid-19 and is providing a coordinating framework to align covid-19 with a furthering of the AU Agenda 2063 goals and SDGs. Recovery is to include significant moves to greener economies, and as such, this Action Plan aligns with the overarching adaptation and mitigation agendas of the CCS. Similarly, there is an emphasis on the types and ways of climate financing, unlocking the full potential of nature-based systems and solutions, and a focus on resilient agriculture.

COMESA Regional Resilience Framework (2020)

Ethiopia, Kenya, Rwanda and Uganda all participated in the development meeting for this new framework which was approved by sector ministers in 2020. The resource mobilization and implementation plan for this framework are still under development. The vision for this framework is “realizing a fully integrated, internationally competitive regional economic community with high living standards that is sustainable and resilient to climate shocks and stresses.” Priority areas under the framework are: 1) Disaster Preparedness, Response and Recovery; 2) Private Sector Development and Risk Financing 3) Risk Informed Regulation; 4) Knowledge and Innovation. A key element of this resilience framework is that member countries are encouraged to fund Climate Smart Agriculture development and pay closer attention to land degradation and soil management. By focusing on resilience as the active goal, the framework stresses the need to improve member states and regional ‘absorptive, adaptive, and transformative’ capacities.

“Resilience programming facilitates the paradigm shift from a reactive, unanticipated risks and short-term response focused on meeting immediate needs towards a proactive and

deliberate effort of addressing the root causes of vulnerability through a comprehensive package of programmes that are complementary, and which builds on the resilience capacities of the households, communities and institutions. Interventions under a resilience approach are based on a thorough understanding of the shocks impacting on communities, their capacities and responses to cope, adapt and transform from such events, and their well-being outcomes.” (COMESA 2020)

In this resilience framework, adaptation and mitigation are not strongly referenced, as the language of the framework focuses on the concept of overall resilience. Moreover, this framework centers on food and nutrition security in its theory of change which

“is premised on the appreciation that households and communities are not passive actors in development and that they have inherent absorptive and adaptive capacities which, if supported by an enabling environment, will bring about the necessary transformation to a society where households and communities are food and nutrition-secure, have sufficient and diversified income sources, are integrated and inclusive, not prone to violence and displacement as a result of climate shocks and stresses” (COMESA 2020).

COMESA Medium-Term Strategic Plan (2021-2025)

The MTSP is a cross-sector plan for boosting economic development with a focus on trade and investment. Drafted in 2020, the new plan follows from MTSP 2016-2020. This previous plan incorporated Climate Change under Objective 8: Ensure Regional and Secretariat Readiness. As such, climate change was addressed as: “1) Developing strategies and tools for mainstreaming climate risk analysis, proofing and resilience building into COMESA wide operations, investments, and programmes; 2) Development of COMESA wide applicable environmental safeguards, including for climate risks; and 3) Establishing a comprehensive early warning system for climate change, food security, and conflicts, including epidemics and other threats; and 4) Combatting climate change and promoting climate-smart agriculture.”

Climate change is more mainstreamed into the core programmes and operations of COMESA. This new strategic plan envelopes climate change more fully into the strategy as the plan was formed through a consultative process that took into consideration the overarching goals of the AU Agenda 63, SDGs and goals of the various RECs. Five of the pillars of the new strategic plan now directly include climate change concerns: “i) Trade and Market Integration: measurement of, and reduction of the carbon and environment footprints of COMESA trade; promotion and facilitation of trade in green products and services; ii) Physical Interconnectivity: green climate-resilient infrastructure development; reducing GHG emissions from transport and energy; increased production and trade in clean renewable energy; iii) Productive Integration: CSA and circular industrial processes; reduction in emissions and waste from production and enhanced access to finance for green investments; iv) Gender and Social Affairs: women and youth participation in the PA processes; NDCs; enhanced access to climate finance; and v) Effective Secretariat: capacity to mainstream climate change into all programmes, processes and support to MS; Resilience Framework implementation; attainment of Carbon Neutrality by December 2024 and Accreditation to the Green Climate Fund (GCF)”.

COMESA Strategy on Climate Change (2020-2030)

“As climate change unfolds, experiences in handling resulting disasters accumulate. It is evident that the COMESA member states, as is the case in much of Africa, are ill-prepared and have inadequate resources to competently and holistically address the issues... (COMESA 2020)

The COMESA strategy highlights the need for integration across member states and that “much more efficiency and effectiveness can be achieved if all the well-meaning efforts to combat climate change in the region are better coordinated, harmonized, and aligned.” The current strategy has three broad result areas: 1) Competent Institutions focused on strengthening, coordinating, and streamlining regional and national structures, capacity building, technology transfer, and inclusive planning; 2) Effective Support to the Member States, supporting compliance with the Paris Agreement, building capacity for NDC implementation, support a unified AU presence at the UNFCCC and build resilience; 3) Enhanced Access to Finance, facilitating climate-sensitive public sector financing, enlisting private capital, the diaspora, increasing financial instruments, payment for ecosystem services, capitalizing on mitigation potentials, and climate finance.

Climate change in this strategic plan is the realm in which development must operate and is in itself a space of untapped opportunity. New methods of investments, mitigation tradeoffs, and carbon taxes are seen as elements for strategic engagement. This plan does not address climate change in relation to the risks to agriculture or food and nutrition security but instead treats climate change as the new reality for business development. As stated, “It is observed that while adaptation is the top priority for ESA countries, the Strategy recognizes the important role that the bloc can play in mitigating climate change at the global level and earning significant income in the process.”

SADC Regional Indicative Strategic Development Plan (2020-2030)

The new SADC development plan was approved at the summit in August 2020. This strategy is based on a foundation goal of Peace, Security, and Good Governance, which will be gained through three pillars: 1) Industrial development and market integration; 2) infrastructure development in support of regional integration; 3) social and human capital development.

Climate change is considered part of a general risk to Peace, Security and Good Governance as the strategy advocates coordination among member states to ‘address the impact of climate change, pandemics and natural disasters’ under this pillar. But more holistically, “Climate change resilience and the scaling-up of climate mitigation measures are also emphasized as a cross-cutting issue in the Regional Indicative Strategic Development Plan. It is expected that disaster risk management investments will be scaled up to ensure increased resilience. Food and nutrition security are incorporated as outcomes of the pillar on social and human capital development. Increasing food and nutrition security are linked to health services provisions.

SADC Vision 2050

Developed alongside the RISDP, the Vision 2050 was formulated to be aligned to the AU Agenda 2063 and seeks to build “A peaceful, inclusive, competitive middle- to high-income industrialized region, where all citizens enjoy sustainable economic well-being, justice, and freedom” and utilizes the foundation and pillar framing as the RISDP and the same use of climate change as a cross-

cutting issue. As such, the RISDP can be understood to be the short-term strategy for starting to build toward the 2050 Vision. In this vision, climate change is a risk to development and natural resources but is rarely discussed in close relationship to risks in agricultural productivity or food and nutrition security other than in relation to extreme weather.

Under strategic objective 4, climate change is directly addressed: Strengthened climate change adaptation and mitigation. This Objective has two outcomes:

Outcome 1: Enhanced sector-based approaches towards developing climate change resilience; Key Interventions: i) Appropriate meteorological technologies capable of serving the needs of the region strengthened; ii) SADC Climate Change Strategy and Action Plan and other regional and international instruments operationalized; iii) Tripartite Programme on Climate Change Mitigation and Adaptation (TPCCMA) and SADC's Climate Change Adaptation Strategy (CCAS) for the water sector implemented; iv) Use of climate-smart techniques and technological advancements promoted; v) Strategies for sustainable environment and natural resource management promoted; vi) Climate proofing strategies for all climate-sensitive sectors developed and implemented; vii) Regional codes that mainstream climate change strategies and the efficient use of resources developed; and viii) M&E mechanisms to anticipate and measure climate-related risks promoted and upgraded.

Outcome 2: Reduced carbon footprint in the region. Key Interventions: i) SADC Regional Green Economy Strategy (SRGES) and Action Plan implemented; ii) Employment creation opportunities for green jobs in the climate mitigation sector promoted; and iii) Implementation of mitigation plans and strategies by the Member States promoted.

Analysis of coherence and integration

Twenty-one of global and regional policies and frameworks relevant to Ethiopia, Kenya, Rwanda, Tanzania and Uganda were analyzed on the cross integration of climate change (mitigation and adaptation), agriculture (productivity), and food security (availability, access, and nutrition) (see Table 3).

Comparing across all of the reviews, the global and continental frameworks on climate change have made significant progress in integrating agriculture, food and nutrition security (Table 4). The global frameworks on agriculture, food and nutrition security have moderately integrated climate change adaptation and mitigation. However, most of the frameworks launched before 2010 in the reviewed countries focused more on enhancing agricultural production and improving food and nutrition security with limited emphasis on climate change adaptation and mitigation.

The level of integration of the six key elements (adaptation, mitigation, agricultural productivity, food availability, food access, and food utilization) varied across all the global and regional frameworks. The least integrated element was climate change mitigation at 46%, followed by food utilization (59%), then food access (72%), adaptation (74%), food availability (78%), and agricultural productivity (84%) in ascending order. The global frameworks on climate change had the highest weighted scores for mitigation at 68% compared to 34% and 36% for global cross-cutting climate change, agriculture, food and nutrition security, and global agriculture, food and nutrition security frameworks, respectively (Table 4). There is a need to further integrate mitigation and food utilization as critical elements in global climate change, agriculture, and food and nutrition security frameworks.

TABLE 3: Coherence and integration of climate change, agriculture, food and nutrition security in global and regional frameworks relevant to Eastern Africa

Frameworks	Focus area(s)	Integration of climate change (adaptation and mitigation), agriculture, food and nutrition security
Global Frameworks		
Sustainable Development Goals (SDGs)	Adaptation, mitigation, production, access, utilization	Goal 1, no poverty; Goal 2, zero hunger; Goal 5, gender; Goal 10, reduce inequalities; Goal 12, sustainable consumption and production; Goal 13, climate action; Goal 14 and 15 building of resilience of life on land and on water; Goal 16, peace, justice and strong institutions; and Goal 17, partnerships.
Sendai Framework for Disaster Risk Reduction (SFDRR)	Adaptation (disaster risk management)	Emphasis on DRR and resilience-building into policies, plan, programmes and budget. Does not integrate climate change mitigation, agriculture, food and nutrition security.
International Covenant on Economic, Social and Cultural Rights (ICESCR)	Agriculture production, food access, utilization	The right to adequate food in availability and in quantity and quality sufficient to satisfy the dietary needs of individuals, and acceptable within a given culture.
United Nations Convention Framework on Climate Change (UNFCCC)	Adaptation, mitigation, agriculture production, food access, utilization	Countries under review have all ratified: Kenya (1994), Ethiopia (1994), Tanzania (1996), Uganda (1993) and Rwanda (1998). These countries have submitted national communications and nationally determined contributions (NDCs). The Paris Agreement makes specific reference to “safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change.”
Regional Frameworks		
African Union Climate Change Strategy (AU-CCS)	Good governance, adaptation, production, food access, utilization	Emphasizes good governance as a prerequisite for combating effects of climate change. Limited focus on harmonization of adaptation, mitigation of climate change, agriculture, food and nutrition policies at African Union level.
AfDB Climate Risk Management and Adaptation Strategy (CRMA)	Adaptation	Focuses on reducing vulnerability and building climate resilience in the Bank’s financed infrastructure investments but has no mention of agriculture, food and nutrition security.
AfDB Climate Change Action Plan (CCAP2)	Adaptation, production, access, utilization	It supports low carbon development, climate resilient development and funding platform but has no mention of agriculture, food and nutrition.
EAC Climate Change Policy (EAC-CCP)	Adaptation mitigation, production, access, utilization	Guides Partner States and other stakeholders on preparation and implementation of collective measures to address adaptation and mitigation of climate change while assuring sustainable social and economic development. Addresses agriculture, food and nutrition security issues.
EAC Climate Change Master Plan (EAC-CCMP)	Adaptation, mitigation, agriculture production, food access	Operationalizes a comprehensive framework for adaptation to and mitigating of impacts climate change through regional cooperation and shared resources in key economic sectors including agriculture and food but with limited attention on nutrition security.

TABLE 3: Coherence and integration of climate change, agriculture, food and nutrition security in global and regional frameworks relevant to Eastern Africa

Frameworks	Focus area(s)	Integration of climate change (adaptation and mitigation), agriculture, food and nutrition security
EAC Climate Change Strategy (EAC-CCS)	Adaptation, mitigation, agricultural production, access, utilization	It sets out a range of measures, considering those already in place in the Partner States, to ensure effective implementation of the Climate Change Policy at all levels of climate change adaptation and mitigation, agriculture, food and nutrition security.
IGAD Drought Disaster Resilience and Sustainability Initiative Strategy (IDDRSI)	Adaptation, agriculture, food and nutrition	Addresses the effects of drought and related shocks and recognizes the challenges of food and nutrition insecurity to build resilience.
Comprehensive African Agriculture Development Programme (CAADP)	Agricultural production, food access, utilization	Stimulate and facilitate increased agricultural performance through improvements in policy and institutional environments, access to improved technologies and information, and increased investment financing.
CAADP Framework Pillar III on African Food Security (FAFS)	Agricultural production, food access, utilization	Coordinated and peer review tools to guide national and regional policies, strategies, investments, partner contributions and advocacy efforts to overcome these challenges, leading to increased food supply, reduced hunger and malnutrition, and improved food security risk management.
Malabo Declaration on Accelerated Agricultural Growth (Malabo)	Adaptation, agricultural production, access, utilization	Enhancing resilience of livelihoods and production systems to climate variability and related risks. Envisions that by 2025, at least 30% of African farms, pastoral, and fisher households will be resilient to climate risks.
COMESA, EAC, SADC Programme on CC Adaptation and Mitigation, (PCCAM-ESA)	Adaptation, mitigation and agricultural productivity	Addresses climate change through mitigation and adaptation actions that translates into economic growth and social resilience for present and future generations. This initiative has brought in different partners at international and local level to work on specific aspects.
EAC Agriculture and Rural Development Policy (EAC-ARDP)	Agricultural production, food access, utilization	Enhance cooperation in agriculture and rural development to achieve food security and rationalize agricultural production to promote complementarities and sustainability of rural life.
Africa Regional Nutrition Strategy (ARNS)	Agricultural production, access, utilization	Recognizes the role of Agriculture, food and nutrition in Africa. However, it has failed to take into recognition climate change issues.
EAC Food and Nutrition Security Policy (EAC-FNSP)	Adaptation, agricultural production, food access, utilization	Acknowledges the contribution of disasters arising from climate change to food and nutrition security and recommends systematizing the use of drought preparedness, prevention and mitigation measures including rainwater harvesting in the ASALs.
East African Community Food Security Action Plan (EAC-FSAP)	Adaptation, agricultural production, access, utilization	Aims to increase resilience at all levels by decreasing food insecurity and linking vulnerable people into opportunities for agricultural growth.
SADC Climate Change Adaptation Strategy for the Water Sector (SADC-CCAS)	Adaptation, agricultural production	Supports adaptation measures at different governance levels in the region, especially the transboundary water resources. Focal areas include governance, water management and infrastructure development through different adaptation processes.

TABLE 3: Coherence and integration of climate change, agriculture, food and nutrition security in global and regional frameworks relevant to Eastern Africa

Frameworks	Focus area(s)	Integration of climate change (adaptation and mitigation), agriculture, food and nutrition security
SADC Declaration on Agriculture and Food Security (SADC-DAFS)	Agricultural production	Promotes agriculture as a pillar in regional development strategies and programmes in order to achieve short, medium- and long-term objectives on agriculture and food security.

National policies and frameworks relevant to climate change, agriculture, and food and nutrition security

The next three chapters (including this chapter) report on the national level findings of the policy reviews of Ethiopia, Kenya, Rwanda, Uganda, and Tanzania. As detailed in the methods section, the country reviews were done through a combination of desk reviews and key stakeholder interviews. Key informants aided the review consultants in identifying national policies, strategies and frameworks that are important in addressing the climate change, agriculture, and food and nutrition security nexus. Each national review report consolidated the consultant's findings and presented detailed explanations of the key policies, strategies, and frameworks. This document presents brief synthetic descriptions of the reviewed policies, strategies, and frameworks.

Having identified key policies, strategies, and frameworks, each consultant applied a relevance scoring on these, as explained in the methodology chapter. Relevance scoring on a scale of 1 (low) to 5 (high) was done to assess the level to which climate change policies and frameworks integrate agriculture, food and nutrition security. The climate change policies were ranked on their inclusion of the four themes of agricultural productivity, food availability, food access, and utilization. Conversely, agriculture, food and nutrition security policies and frameworks were scored on how well they integrate climate change under the two climate change themes, adaptation, and mitigation. Cross-cutting policies of relevance were scored on their inclusions of all six themes (climate change mitigation and adaptation; agricultural productivity; food availability, access and utilization).

This section draws from both the original country reviews as well as updates the analysis with some of the broader national cross-cutting policies and frameworks that were recently released and thus not able to be included in the original country review reports.

Ethiopia

Environment Policy of Ethiopia (1997)

This older policy for Ethiopia is tied to the concepts of sustainability and sustainable development. The goal is to “improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made and cultural resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.” It also acknowledges the need to protect social and cultural environments along with the physical environment. It acknowledges that any environmental protection has to acknowledge cross-sectoral issues. Land quality and degradation are major concerns for both human and natural systems, with subsequent loss of food systems, but climate change is not mentioned.

Environmental and Social Safeguards Framework (ESSF 2015)

The goal of the Climate Resilient Green Economy initiative of Ethiopia both elaborates on the dangers of climate change to Ethiopia as well as developing a full range of strategies and programs to build a climate resilient Ethiopia. This framework was developed as a tool to guide CRGE investments and programmes. “The specific objectives of the ESSF are to: 1) Customize a set

of internationally recognized standards and frameworks in environmental and social safeguards to the CRGE investment; 2) Avoid, minimize or mitigate any direct, indirect, and potential adverse environmental and social impacts of CRGE investments; 3) Define and set in place the roles and responsibilities of all relevant stakeholders and institutions in executing safeguards of CRGE investment initiatives throughout their life cycles; and 4) Ensure that effective mechanisms are in place for safeguard compliance during CRGE investment implementations. This framework oversees all of the climate resilient investing and, as such, has much relevance to climate change policy in Ethiopia

Ethiopia: Beacon of Prosperity Ten Years Perspective Development Plan (2021-2030)

Released in June of 2020, and endorsed in December by the cabinet, this development plan is targeted at economic growth, aiming to bring Ethiopia continuous GDP growth that benefits all sectors of society. Available overviews of the plan position four big challenges to prosperity: macro-economic imbalances; vulnerability to shocks (Covid-19, climate changes, desert locust infestation, etc.); poor quality and high inequity in infrastructure projects; poor quality services in health and education. The plan has six strategic pillars:

- Ensure quality growth
- Improve productivity and competitiveness
- Undertake institutional transformation
- Ensure the private sector's leadership in the economy
- Ensure equitable participation of women and children
- Build climate resilient green economy

Under the last pillar, the components listed include modern and energy saving technologies, renewable energy production, forest protection and development, improve productivity and reduce GHG emission, and fighting land degradation and pollution.

Agriculture has such focus areas as mechanization, water projects to decrease rain dependence land consolidation, animal feed and health improvements, horticulture through irrigation and urban farming, capacity development, mobilized private sector and overall climate resilient sustainable agricultural development. Objectives of these focus areas are:

- Improve income and livelihood options for farming and pastoral communities through increased productivity and competitiveness
- Modernize agriculture and ensure national food and nutrition security
- Raise export of agricultural output and substitute imports
- Make agriculture a viable and profitable enterprise through value addition
- Create rural employment opportunities
- Enhance livestock health access and quality
- Preserve animal genetic resources and increase pastoral research
- Improve the development of animal feed and access to markets
- Develop livestock specific extension package for each livestock type

Overall, it is claimed in the press releases that the plan hopes to build on public-private partnerships to develop the economy for more private sector enterprises from both domestic and foreign investors.

Kenya

Kenya Vision 2030

The Kenya Vision 2030 is a long-term development blueprint and a road map for Kenya's economic and social development. It aims at transforming Kenya into "a newly industrializing, middle-income country providing a high quality of life to all its citizens in a clean and secure environment by the Year 2030". Agriculture is identified as a key sector in achieving the envisaged annual economic growth rate through transformation of smallholder agriculture from subsistence to an innovative, commercially oriented and modern agricultural sector (GOK, 2011). The agriculture issues emphasized include increasing productivity of crops, livestock, and tree cover; introducing land-use policies for better use of high- and medium-potential lands; developing more irrigable areas in arid and semi-arid lands for both crops and livestock; improving market access for smallholders and adding value to farm, livestock and forestry products before they reach local, regional and international markets. Climate change and or environment does not feature in Vision 2030 as a pillar. However, environmental considerations of development are contained within the social and economic pillars. However, the government has put in place policy, institutional and legislative frameworks to address environmental degradation and negative impacts on ecosystems. Further, Kenya is a signatory of international treaties on climate change such as UNFCCC, Kyoto protocol, Paris agreement, Copenhagen Accord among others.

Economic Recovery Strategy for Wealth and Employment Creation (ERS) (2004)

The ERS laid emphasis on economic growth, creation of wealth and employment and revitalization of the agriculture sector as a means of eradicating poverty and achieving food security through good governance, transparency and accountability. The strategy identified agriculture as the leading productive sector for economic recovery. In addition, the strategy recognized that revival of agricultural institutions and investment in agricultural research and extension as critical and essential for reduced poverty, food insecurity and sustainable economic growth. Chapter 6 was dedicated to productive sectors. Section 6.2 on Agriculture and fishing identifies factors that led to the decline in agricultural productivity. These included poor institutional governance and capacity, lack of a comprehensive legal framework for consistent policies; poor access to farm credit, high cost of farm inputs, low level of public funding and inefficient use of public resources, inefficient infrastructure, and inappropriate technology. This strategy emphasized on improving agricultural productivity, food and nutrition security, but failed to consider climate change adaptation and mitigation issues. For example, Chapter 7 of the ERS recognizes interventions in health and nutrition as one of the ways of promoting equity and socio-economic agenda. Section 7.8 focuses on food and nutrition, where the Kenyan government has committed to eliminating Vitamin A deficiency in under 5-year olds by promoting awareness campaigns on the benefits of improved nutrition; and the production and consumption of nutritious food.

Green Economy Strategy and Implementation Plan (GESIP, 2016-2030)

The Green Economy Strategy and Implementation Plan (GESIP) underpins Kenya's commitment to undertake a transition to a green economy in line with the outcome of the United Nations Conference on Sustainable Development (UNCSD) held in 2012 (Rio+20 Summit). In addition, GESIP outlines an avenue for functional interaction between economic development and the SDGs. It focuses on five themes to guide Kenya's transition to a sustainable development pathway: sustainable infrastructure development, building resilience, resource efficiency, sustainable

natural resource management, social inclusion, and sustainable livelihoods. Within the building resilience theme, it promotes the development and enhancement of agricultural infrastructure to improve food and nutrition security, increase rural incomes and reduce poverty levels. It further promotes climate change adaptation and mitigation through building resilience and enhancing the low-carbon development pathway.

Threshold 21 (T-21)

This dynamic simulation tool is designed to support comprehensive, integrated long-term national development planning. A T-21 model (called T-21-Kenya model) has been developed for Kenya that integrates the analysis of the risks and impacts of climate change across the major sectors of the economy, society and environment to inform coherent national development policies that encourage sustainable development, poverty eradication, and increased well-being of vulnerable groups, especially women and children, within the context of Vision 2030. This customized model complements available budgetary models and other short- and medium-term planning tools. It provides a comprehensive long-term perspective on development, including climate change issues, the SDGs, and Kenya's Vision 2030. The NCCAP provides vital input to the Medium-Term Development Plan (20013-2017) and the National Monitoring and Evaluation System (NIMES).

Rural Development Strategy (KRDS) (2002-2017)

The Kenya Rural Development Strategy (KRDS) aims to improve rural Kenya, and it considers food security promotion and attainment of poverty alleviation, and equitable growth and development in rural areas. Several policy actions and interventions were implemented within the KRDS framework to facilitate the process of rural development, with agriculture providing the stimuli, resources, and markets. Agricultural growth must serve as the catalyst for broad-based economic growth and development. Through forward and backward linkages to the non-farm economy, agriculture will generate raw materials, employment, income, larger markets, and growth in the rest of the economy (Horizon, 2015 and Agriculture Sector Brief).

Kenya National Social Protection Policy (2015)

This policy ensures that all Kenyans live in dignity and exploit their human capabilities for their own social and economic development. The policy emphasizes protecting individuals and households from the impact of adverse shocks in ways that do not trap them in poverty by reducing their exclusion and strengthening their ability to graduate from social assistance and become financially self-sufficient. It works to cushion workers and their dependents from the consequences of income-threatening risks such as sickness, poor health, and injuries at work and the threat of poverty in their post-employment life. The policy promotes key investments in human capital and physical assets to ensure resilience and promote integration of social service providers.

Big Four Agenda (2018–2022)

This agenda sets out four priority areas for the country: food security, affordable housing, affordable healthcare, and increased manufacturing. Under the Big Four agenda, all sector plans and budgets are to be aligned to these priorities. Food security is to be addressed through increased production for both large-scale and smallholders and reducing food costs. Healthcare is to be addressed through restructuring of the National Hospital Insurance Fund (NHIF) and private

insurance reformation. Affordable housing is to be addressed through supporting the building of half a million affordable housing units through policies to lower construction costs as well as through supporting affordable mortgages. Increasing manufacturing in select industries through ICT investments, policy easing, production of industrial parks and promoting market access.

Rwanda

Vision 2020

Vision 2020 is a long-term strategy for Rwanda's development, and the strategy was elaborated through a national consultative process and was adopted in 2000. The vision aims to transform Rwanda's economy into a middle-income country with a per capita income of about 900 USD per year from 290 USD in 2000; this will require an annual growth rate of at least 7% (MINECOFIN, 2000). The country aims to transform agriculture from subsistence farming to a market-led modern farming system (Ministry of Finance and Economic Planning, 2000; and Rwanda Vision 2020) and has integrated issues related to climate change. The Vision sets a target for the growth rate for agriculture at 4.5-5% per year through an increase in agricultural productivity and animal husbandry to improve food security and nutrition.

Vision 2050

This vision targets "Prosperity and high quality of life for all Rwandans" through five pillar actions: human development; agriculture and wealth creation; competitiveness and integration; urbanization; and capable and accountable institutions. The Vision 2050 was framed to take into consideration global and regional initiatives such as Sustainable Development Goals (SDGs), Paris Declaration on Climate Change, EAC Vision 2050, and African Union Agenda 2063. As such plans for human development and agricultural change are formulated to include sustainability and resilience to climate change. Moving from Vision 2020 to Vision 2050, Rwanda has included lessons learned from successful high-income countries in its new vision, made new global commitments, and set the Vision 2050 aspirations as embedded in Rwanda's long-term Green Growth and Resilient Strategy (GGCRS).

Seven Years Programme: National Strategy for Transformation (NST 1, 2017-2024)

The programme has three pillars: economic transformation, social transformation, and transformational governance. Under social transformation, one of the priority areas is "Promoting resilience and enhancing graduation from poverty and extreme poverty by 2024, which includes One Cow per Family and other programmes to increase small livestock ownership. Priority 2 is Eradication of malnutrition, in which increasing food security is a key target. This is connected conceptually to the economic transformation pillar, which focuses on modernizing and increasing agriculture and livestock productivity. However, the economic transformation pillar makes no direct reference to food security. Under economic transformation, land use consolidation will be promoted, increasing the acreage under consolidation from 18% to 70%. Such initiative is vital in supporting the crop intensification programme (CIP) in accomplishing its goals. Besides putting efforts into irrigation and mechanization as climate adaptation and mitigation strategies, the program seeks to promote the use of improved seeds and increase use of fertilizers. Environment and climate change are treated as a broad cross-cutting area, with a focus on improving cross-

sectoral coordination to ensure smooth implementation of environmental policies and regulations.

National Investment Strategy (2002)

The National Investment Strategy aims to improve the prioritization of investment, both public and private, and to increase its impact on the beneficiaries. Priority areas include agriculture and rural development. Agriculture investments focus on post-harvest handling activities, land and soil protection, irrigation, livestock promotion, enhanced use of fertilizers, labor-intensive public works under HIMO for terracing and marshlands, and management of hills management. Others include environment (water resource protection and fight against soil erosion, water supply (rural and urban) at affordable rates, and health (easy access to primary care, health insurance, and well-equipped district and province hospitals).

Economic Development and Poverty Reduction Strategy II (EDPRS) (2013)

EDPRS II aims at “Accelerating progress to middle income status and better quality of life for all Rwandans through sustained average GDP growth of 11.5% and accelerated reduction of poverty to less than 30% of the population.” It aims to increase the production of food crops constrained by several factors such as land-use patterns, soil quality and technology dissemination and adoption, and rural infrastructures. The EDPRS priority areas include the environment and climate change, increase in productivity of agriculture, food security and malnutrition; improving quality, demand, and accessibility of healthcare; and enabling graduation from extreme poverty. EDPRS II highlights the green economy as a priority and identifies the National Environmental Fund (FONERWA) as a key strategic tool established in 2014 and serves as a “one-stop-shop” to mobilize and channel domestic and international resources into climate and environment projects. It has supported 32 projects as of June 2017 (FONERWA, 2017).

National Social Protection Policy (2011, 2020)

This policy aims to give “social protection” to all citizens through the four pillars of (i) social security, (ii) social care services, (iii) short-term social assistance, and (iv) livelihood and employment support and aims to not only secure the eradication of extreme poverty but also promote human capital development and social transformation as the foundation for long-term prosperity and support the delivery of equitable and inclusive development. The national social protection policy and strategy has integrated and extended the cash programmes to other government initiatives such as climate adaptation and disaster management, agriculture, and environment protection. It considers food insecurity and malnutrition as key challenges affecting poor households and vulnerable children. The policy framework facilitates access to essential services for poor and vulnerable households, particularly health, education, shelter, water and sanitation, and strengthening food and nutritional programs. While giving attention to factors of vulnerability, and acknowledging food insecurity as a problem, this policy does not directly address climate change as a component of vulnerability.

Urbanization and Rural Settlement Sector Strategic Plan (2013-2018)

Since 2004, the Rwandan Government has formulated policies, laws, and regulations to manage urban and human settlements. The Sector Strategic Plan of the Urbanization and Rural Settlement Sector was developed with objectives of good management for development and spatial

distribution of growth. The strategy preserves land for agriculture production and conservation of the environment. Households would have much better living standards, nutrition levels, and service provision. Through this strategy, the country should be prepared for the risks associated with climate change, population growth, rising oil prices, and integrating community health services at every level.

National Land Policy (2004)

This policy addresses the problems of insecure land tenure in Rwanda. It states that all people, including women, should be able to acquire secure land tenure. Moreover, it discourages the too small parceling of land which leads to land degradation as well as producing parcels too small for agricultural production to meet the nutrition requirements of the family. Increased land parceling is tied to increased food insecurity. This policy aims to regularize land tenure as a first step to encouraging transitions in farming practices that protect and build soils and investment in agricultural innovation. The policy does not specifically address climate change, but many of the conditions of degradation and productivity problems identified are likely to be exacerbated by climate change.

Tanzania

Tanzania Vision 2025

In this Vision, Tanzania is determined to transform itself from a low productivity agricultural economy to a semi-industrialized one through modernized and highly productive agricultural activities. Agricultural activities are effectively integrated and buttressed by supportive industrial and service activities in rural and urban areas. The transformation is expected to create an agricultural economy that generates reasonably high incomes and ensures food security and food self-sufficiency. The Vision does not clearly stipulate interventions on climate change.

Uganda

Uganda Vision 2040

The National Vision is “A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years”. This involves changing from a predominantly low income to a competitive upper middle-income country within 30 years. It is envisaged that the country will graduate to the middle-income segment by 2017 and reach a per capita of USD 9,500 by 2040. The theme of the Vision is “Accelerating Uganda’s Socioeconomic Transformation. This accelerates economic growth and job creation, modernizes agriculture to enhance productivity, and develops value-addition industries.

Second National Development Plan (NDP II) (2015/16-2019/20)

This Plan aims to propel the country towards middle-income status by 2020 through strengthening the country’s competitiveness for sustainable wealth creation, employment and inclusive growth. Agriculture is one of the priority sectors recognized to have a multiplier effect to deliver on the goal of this plan. Interventions identified to promote agricultural growth include: i) increasing production and productivity in 12 selected agricultural enterprises (coffee, tea, cotton,

rice, maize, beans, cassava, bananas, dairy, beef, fish, and citrus); ii) enhancing value addition and marketing for the 12 selected agricultural enterprises along the agricultural value chain; iii) establishing a Women Enterprise Initiative; iv) strengthening the institutional framework to support production, value addition and marketing; and v) strengthening agricultural products quality assurance systems (invest in laboratories, technologies).

National Environment Act (2019)

This Act replaces the 1995 National Environment Act (NEA). The original Act focused on the sustainable management of the environment and established the National Environment Management Authority (NEMA). The new Act continues and expands the regulatory frames. Expansion of the NEA was considered necessary with the new hazards of the increased petroleum activities in the country, coupled with other hazardous chemicals which the older NEA was not adequate to address. The new Act also has provisions for addressing the management of plastics, limiting lightweight bags and beginning to regulate single-use plastic bottles. The new Act also has climate change effects on the environment as a concern, which was not the case for the 1995 NEA.

An Act to repeal, replace and reform the law relating to environmental management in Uganda; to provide for the management of the environment for sustainable development; to continue the National Environment Management Authority as a coordinating, monitoring, regulatory and supervisory body for all activities relating to environment; to provide for emerging environmental issues including climate change, the management of hazardous chemicals and biodiversity offsets; to provide for strategic environmental assessment; to address environmental concerns arising out of petroleum activities and midstream operations, to provide for the management of plastics and plastic products; to establish the Environmental Protection Force; to provide for enhanced penalties for offenses under the Act; to provide for procedural and administrative matters; and for related matters.

In the long list of principles of Environmental Management that make up the scope of authority of this Act, there is “ensuring that in the implementation of public and private projects, approaches that increase both the environment and people’s resilience to impacts of climate change are prioritized.” It also mandates a Policy Committee on the Environment, whose sphere of activity shall include “provide guidance in the formulation and implementation of environmental and climate change policies, plans and programmes; and “to provide guidance on harmonization of policies of Government with respect to the environment, natural resources, water and climate change.” The Act also reauthorizes NEMA, and places first in its list of functions “(a) to advise on the formulation and implementation of environmental and climate change policies, plans and programmes.”

Under the scope of Management, which includes special conservation areas, environmental management of lakes, rivers and natural beaches, management and utilization of wetlands, and management of hilly and mountainous areas, the last category is management and conservation of biological diversity, which includes the sub-section Management of Climate Change Impacts on Ecosystems, which entails:

“(a) address the impacts of climate change on ecosystems, including by improving the resilience of ecosystems, promoting low carbon development and reducing emissions from

deforestation and forest degradation, sustainable management of forests and conservation of forest carbon stock; and

(b) advise institutions, firms, sectors or individuals on strategies to address the impacts of climate change, including those related to the use of natural resources.”

Integration of climate change, agriculture, food, and nutrition security into national policies and frameworks

These cross-cutting policies, strategies and frameworks were analyzed on the integration of climate change (mitigation and adaptation), agriculture (productivity), and food security (availability, access, and nutrition) as described in detail in the methods section. The findings show that policies enacted before 2010 have low weighted scores, especially with regard to integration of climate change. This is likely because climate change adaptation and mitigation were not well understood or addressed before 2010. Thus, it is not surprising that these cross-cutting national policies do not incorporate climate change. However, policies and frameworks for development and agriculture enacted after 2010 increasingly make efforts to integrate climate change. This is likely because of the significant role of agriculture in contributing to the national GDP growth and livelihoods in eastern Africa, the known climate risks to agriculture, and the negative impacts of climate change on food security

TABLE 4: Integration of climate change, agriculture and food security into national policies and frameworks

National policy and framework	Integration level (overall weighted scores)
<ul style="list-style-type: none"> Ethiopia: Environmental and Social Safeguards Framework (ESSF 2015) Uganda: Second National Development Plan (NDPII) 2015/16-2019/20 Rwanda: Seven Years Programme: National Strategy for Transformation (NST 1, 2017-2024) 	High (≥ 75)
<ul style="list-style-type: none"> Ethiopia: Land Management and Administration Policy Ethiopia: Environment Policy of Ethiopia (1997) Kenya Vision 2030 Kenya: Threshold 21 (T-21) Kenya: Economic Recovery Strategy for Wealth and Employment Creation (ERS) (2004) Kenya: Land Policy 2008 Rwanda: Vision 2020 Rwanda: National Investment Strategy (2002) Rwanda: Economic Development and Poverty Reduction Strategy II (EDPRS) (2013) Rwanda: National Social Protection Policy (2011, 2020) Rwanda: Urbanization and Rural Settlement Sector Strategic Plan (2013-2018) Rwanda: National Land Policy (2004) 	Medium ($\geq 50 - \leq 74$)
Kenya: Environmental Management and Coordination Act (1999)	Low (≤ 49)

National policies and frameworks relevant to climate change, agriculture, and food and nutrition security

In Eastern Africa region, there are many agriculture, food and nutrition policies and frameworks aimed at enhancing agricultural growth through increased productivity, improved research, improved nutrition and market orientation. Tables (5-9) briefly describe the policies and frameworks on agriculture, food and nutrition security reviewed for each country. An analysis of the integration of climate change adaptation and mitigation into these policies are presented in Tables (10-14).

Ethiopia

Ethiopia has shown strong economic growth in recent years, but the country has historically been affected by weather extremes (particularly droughts), resulting in large income swings. Such shocks are expected to become more pronounced and frequent in the future and would lead to water scarcity and degradation of forest and range resources, with a negative impact on agriculture, food production, and food and nutrition security. Ethiopia has developed many explicit climate change related policies and programmes, but also has a range of agriculture development and food and nutrition security policies and programmes. For Ethiopia, 14 policies on agriculture and nutrition security were reviewed for their inclusion of climate change adaptation and mitigation. Table 5 briefly summarizes these policies, while the analyses of coherence and integration of climate change is presented in Table 10.

TABLE 5: Ethiopia's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
Food Security Strategy (2002)	The strategy addresses both the supply (availability) and the demand (entitlement) side of the food equation at national and household levels, with a focus on the diversity of food production zones in Ethiopia. It addresses three pillars: increasing food availability through increased domestic production; ensuring access for food deficit households; and strengthening emergency response capabilities.
National Nutrition Strategy (2008)	The objective to ensure that all citizens secure adequate nutritional status in a sustainable manner, for a healthy and productive life. Priorities include pregnant and lactating women; infants and children under five; people living with HIV/AIDS; food insecure households; displaced population groups. Implementation through community programs and enhanced mechanisms of management and information.
Nutrition Sensitive Agriculture Strategic Plan (2016-2020)	The strategy developed to add value and create synergy between the agriculture sectors initiatives, with that of the National Nutrition Programme, and the Comprehensive Africa Agriculture Development Plan (CAADP) among others. The overall goal of the NSA strategy is to contribute to the National Nutrition Programme (NNP II goal of improving nutritional status of children and women by increasing the quantity and quality of food available, accessible and affordable and promoting utilization of diverse, nutritious and safe foods for all at all times.
National Food Nutrition Policy (2018)	First official food and nutrition policy for Ethiopia, it follows from the earlier National Nutrition Strategy (2008) and Food Security Strategy (2002). The policy creates a legal framework to address the food and nutrition security challenges in Ethiopia through multi-sectoral integration and collaboration of government and nongovernmental

TABLE 5: Ethiopia's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
	organizations at all levels, with the goal of attaining optimal nutritional status at all stages of life at a level that is consistent with a high quality of life, productivity and longevity of life.
Agriculture Extension Strategy of Ethiopia (2017)	This strategy aims to develop a pluralistic extension system throughout the country by providing demand-driven and market-oriented extension services to farmers, pastoralists and agro pastoralists with the goal of transforming Ethiopia's agriculture from subsistence production to commercialization.
Growth and Transformation Plan I (2010-2015)	Five-year plan for improving national economy of Ethiopia which set goals for GDP growth and action plans toward reaching this growth. Had an emphasis on agricultural sector growth including transformation toward more intensive and commercial production.
Agriculture Sector Policy and Investment Framework (2010-2020)	Provides a strategic framework for prioritization and planning of investments to drive agricultural growth and development, including operationalizing the CAADP Compact agreement. This policy aims to sustainably increase rural incomes and national food security. The policy also encourages agricultural commercialization and agroindustry development.
National Strategy for Infant and Young Child Feeding (2004)	The strategy focuses on infants and young children, through better coordination across a range of essential nutrition actions, which will consolidate nutrition interventions into holistic technical package to the benefit of young children and women of reproductive age.
Rural Development Policy and Strategies (2003)	This strategy aims to build a market-based economy, which will benefit a wide section of society; eliminate food aid dependence; and will ensure rapid economic growth. To meet these goals the strategy emphasizes increasing farming productivity.
Poultry development roadmap (2015–2020)	Set the goal to raise chicken meat production to 164,000 tones and eggs to 3.9 billion by the year 2020 through expansion of specialized poultry and improved feed, animal health services and chicken breeds.
Ethiopian Strategic Investment Framework Sustainable Land Management (2010)	Aims to bring together governmental and civil sectors to upscale SLM technologies and approaches. The development objective is to improve the livelihoods of farmers, herders, and forest resource users by scaling up SLM practices with proven technologies with the potential to restore, sustain and enhance the productivity of Ethiopia's land resources and rebuild natural capital assets.
Ethiopia Livestock Master Plan Roadmaps for Growth and Transformation (2015-2020)	The Plan sets out investment interventions (e.g., better genetics, feed and health services) that improve production and productivity livestock value chains for poultry, red meat-milk, and crossbred dairy cows. These approaches have been adopted in GTP II 2015-2020 to meet GTP II and CRGE targets.
Dairy cow dairy development roadmap (2015/16–2019/20)	Set the goal to raise total cattle milk production to 7967 million liters by 2020 through genetics, feed and health interventions to improve traditional family cow dairy production and expand and improve specialized dairy production units.
Red meat /milk and cattle feedlot systems development roadmap	Set the goal to raise red meat production to reach 1,933,000 tons in the year 2020 through improvements of animal health and feeding, and the implementation of a genetic recording scheme.

Kenya

Kenya's agriculture is mainly rainfed and is vulnerable to climate change induced failures, whether from droughts, extreme rainfall and increased rainfall variability. Household food and nutrition security in Kenya varies across the country, but food insecurity is a chronic problem for up to 10 million people in Kenya, with two to four million requiring emergency food assistance in any given year (Kamenwa 2017). Smallholder production dominates the agriculture productivity, producing 25% of the total gross domestic product but also employing 75% of the work force. As much as 80% of rural populations make their direct subsistence and livelihood off of agricultural production. Alongside these smallholder producers, large-scale and intensified agriculture production does exist. Food security and agriculture development policies in Kenya have to deal with this wide range of production types and environmental challenges. For Kenya, 15 policies and frameworks were reviewed (with 10 ranked for climate change integration), and these are described in detail in (Radeny et al. 2020) and are briefly summarized in Table 6. A detailed analysis of the integration of climate change is presented in Table 11.

TABLE 6: Kenya's national agriculture, food, and nutrition security legal and policy framework

National policy and framework	Description
Agriculture Sector Development Strategy (ASDS) (2010-2020)	Provides a framework for transforming agriculture into an innovative, modern and commercially viable sector. Kenya's CAADP commits the Government to implementing the common vision of the sector, as described in the ASDS to address the agricultural development agenda in the country.
Kenya Climate-Smart Agriculture Strategy (KCSAS) (2017-2026)	Recognizes climate change as an emerging issue for food and nutrition security, and advocates for adaptation interventions to build resilience of agricultural systems and adapt to climate change while minimizing GHG emissions for enhanced food and nutritional security and improved livelihoods.
Agriculture Sector Transformation and Growth Strategy (ASTGS) (2019-2029) Abridged Version	The strategy aims to transform the agriculture sector in Kenya to ensure food and nutrition security over a period of 10 years.
Kenya Climate-Smart Agriculture Implementation Framework (KCSAFP) (2018-2027)	Provides guidelines for implementing CSA approaches, practices and technologies at national and county government levels, considering local context and Kenya's global obligations.
National Agricultural Research System Policy (2012)	The overall objective of this policy is to create an enabling environment for a vibrant agricultural research system that contributes effectively to national development. The Policy seeks to enhance coordination among various players operating in research and development.
Strategic Plan for Agricultural and Rural Statistics (2015-2022)	Developed together with the Kenya National Bureau of Statistics, the plan seeks to support monitoring and evaluation of the performance of agricultural development policies.
National Agricultural Sector Extension Policy (2011)	The policy seeks to empower the extension clientele through sharing information, imparting knowledge and skills, and changing attitudes so that they can efficiently manage their resources for improved quality of livelihoods.
National Food and Nutrition Security Policy (2011)	The policy aims to effectively address food insecurity and malnutrition by increasing the quantity and quality of food available, accessible and affordable to all Kenyans at all times.
National Food and Nutrition Security Policy Implementation Framework (2017-2022)	Implementation Framework is a tool for effective implementation of the National Food and Nutrition Security Policy, in a comprehensive and coordinated manner to improve food and nutrition security.

TABLE 6: Kenya’s national agriculture, food, and nutrition security legal and policy framework

National policy and framework	Description
Agriculture and Food Authority Act (No. 13 of 2013) revised edition 2019	The Act provides for establishment of the Agriculture and Food Authority and seeks to streamline the legislative framework governing the agriculture sector at county and national levels.
National Livestock Policy (2019)	The policy aims at transforming livestock sector from subsistence to commercialized undertaking by applying modern technologies acquired through continuous research and innovations. It advocates for close inter-sectoral linkages between national and county Governments.
National Oceans and Fisheries Policy (2008)	This policy focuses on the promotion, implementation and monitoring of sustainable management and responsible fishing practices. The policy notes that fisheries play in food security, creation of employment, and other economic benefits to those engaged in the industry.
Agricultural and Livestock Research Act (2013)	The Act provides for the establishment and functions of the Kenya Agricultural and Livestock Research Organization (KARLO) for the co-ordination of agricultural research activities in Kenya.
National Agribusiness Strategy (2012)	The strategy aims to guide the development and transformation of the agricultural sector towards its re-orientation from subsistence to a new focus on competitively meeting market demands and commercialization.
Fisheries Management and Development Act (2016)	The Act aims to protect, manage, use and develop the aquatic resources in an ecologically sustainable manner to enhance food security, and the Kenya Fisheries Advisory Council, Kenya Fisheries Service and Fish Levy Trust Fund.

Source: Radeny et al. 2020, CCAFS WP 330

Rwanda

The availability of sufficient quantities of appropriate quality food supplied through domestic production or importation is associated with food production and purchase power of each household. Rwanda’s food balance sheet has been improving as the country became self-sufficient in 2009 (NISR, 2016). Results of a Comprehensive Food Security and Vulnerability Analysis and Nutrition Survey (NISR, 2016) show the status of Food Security in Rwanda and states that about 40% of the population are food secure, 40% are marginally food secure, 17% are moderately food insecure, and 3% are severely food insecure. Local agriculture is not currently sufficient for national food security. Food products are the main components of imported consumer goods, with a share of 47.6% in value and 80.5% in volume. In Rwanda, climate change impacts significantly affect agriculture, food and nutrition security. Temperature increases, and more frequent droughts, are the causes of low productivity. The impacts vary across regions and may change areas suitable for agriculture. The length of growing seasons affects crop yields, and as a consequence hunger and nutrition. For Rwanda six policies on agriculture and nutrition security were reviewed for their inclusion of climate change. Table 7 briefly summarizes the policies and frameworks reviewed, while Table 12 shows the analysis of integration of climate change.

TABLE 7: Rwanda's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
National Agriculture Policy (2018)	Provides the policy framework for a productive, green, and market-led agriculture sector. The objectives are formulated according to the Malabo Declaration (2014) under the CAADP framework: increased contribution to wealth creation; economic opportunities and prosperity; improved food security and nutrition; and increased resilience and sustainability.
National Food and Nutrition Policy (2013–2018)	The policy aims to improve the household food security and nutritional status, reduce chronic malnutrition in children (less than two years) and to actively identify and manage all cases of acute malnutrition. The policy promotes biofortification program of agricultural crops, e.g., boosting the use of high iron biofortified beans and orange flesh pro-vitamin A sweet potatoes.
Strategic Plan for the Transformation of Agriculture (PSTA) (2018–2024)	This strategy harmonizes agriculture sector development activities with national development strategies, and outlines priority investments in agriculture and estimates required resources. Serves as the implementation plan of the National Agricultural Policy and represents the agriculture sector's strategic document under Rwanda's National Strategy for Transformation. The strategy also prioritizes food security and poverty reduction while meeting SDGs and Malabo Declaration Commitments.
National Agriculture Extension Strategy (2009)	The objective of the strategy is to contribute to effective adoption of agricultural innovations, in order to increase, diversify, specialize and intensify agricultural production, in a sustainable and economically profitable manner. It provides guidelines on how extension services shall be provided for all crops and livestock, including addressing cross cutting issues such as nutrition, gender, CSA and environment friendly practices. The strategy supports a decentralized extension system which is farmer driven and for market-oriented extension. Agricultural extension service providers are to be trained on climate change and will contribute to sustainable food and nutrition security.
Strategies for Sustainable Crop Intensification in Rwanda (2011)	Aims to increase productivity and improve food security. It focuses on particular priority crops through five target areas: sustainable management of natural resources, water and soil husbandry, marshland development, use of irrigation development schemes, supply and use of agricultural inputs, and food and nutrition security and vulnerability management. Incorporation of climate change is through government assistance to the private sector for improving investment into adaptation and mitigation actions.
National Post Harvest Staple Crop Strategy (2011)	This framework strengthens the harvesting, post-harvest handling, trade, storage, and marketing within staple crop value chains. The main objective is to strengthen food security among rural staple crop producers, improve consumer access to safe and affordable food, and support the private sector investments.

Uganda

Food availability in developing countries like Uganda is greatly dependent on favorable and reliable climate, a reason why current climate change is hitting hard on the general population, and even more so on the poor. Changing temperature patterns in Uganda have been linked to more frequent and prolonged droughts and consequent increased cattle death and food scarcity. Rainfall has decreased, become less predictable, and less evenly distributed. Floods, landslides, droughts, and other extreme weather events are increasing in frequency and intensity. Uganda's economy is particularly vulnerable to climate change given its heavy reliance on its natural resource base, with rain-fed agriculture being the backbone. Prolonged and frequent droughts in many parts of the country, particularly the arid areas of the northeast, have led to heavy reliance on food aid, and droughts have significantly affected Uganda's water resources, hydroelectricity production, and agriculture, among others (NAPA, 2007; AMCEN, 2011; Uganda National Climate Change Policy, 2015). In order to support food security, agricultural development policies should consider the emerging climate change conditions. For Uganda, seven agriculture and food and nutrition security policies and frameworks were reviewed. Table 8 briefly summarizes the reviewed policies and frameworks, while Table 13 presents the analysis of integration of climate change.

TABLE 8: Uganda's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
Uganda Food and Nutrition Policy (2003)	This policy promotes the nutritional status of the people of Uganda through multi-sectoral and coordinated interventions that focus on food security, improved nutrition and increased incomes. Implementation of the policy is expected to spur growth in the agriculture sector through the establishment of effective linkages to and exploitation of existing and potential local, regional and international markets.
Food and Nutrition Strategy (2005)	This strategy focusses on addressing the right to food by providing preferential treatment to vulnerable and disadvantaged segments of the population. The strategy addresses how the poor and marginalized sections of the population can increase their income security both through on-farm and off-farm employment and livelihood opportunities.
National Agriculture Policy (2013)	The overall objective of the policy is to achieve food and nutrition security and improve household incomes through coordinated interventions that focus on enhancing sustainable agricultural productivity and value addition; providing employment opportunities and promoting domestic and international trade.
National Agricultural Extension Policy (2016)	The goal of this policy is to establish and strengthen a sustainable farmer-centered agricultural extension system for increased productivity, household incomes and exports. Included in these strategies is dissemination of climate change adaptation and mitigation technologies.
Agriculture Sector Strategic Plan (2016)	The plan articulates the national agricultural development priorities as identified in the National Development Plan (NDP) II and the National Agriculture Policy (NAP) 2013. Focuses on 12 priority and four strategic commodities for investment strategies along the whole value chain. Promotes agriculture extension and research, water provision, mechanization, infrastructure development, training and capacity building, institutional development, and information services.
Animal Breeding Act (2001)	This act provides for the promotion, regulation and control, marketing, import and export, and quality assurance of animal and fish genetic materials.
Agricultural Education and Skills Improvement Framework (AESIF) (2015–2025)	The framework addresses training, education and skills improvement for agricultural knowledge systems at regional and country levels targeting reforms at agriculture colleges and vocational training as well promoting lifelong learning in the informal sector.

Tanzania

Tanzania's country-level food security situation appears to have improved over time (CFSVA, 2012). However, household nutrition status has not substantially improved despite remarkable economic growth (IFPRI, 2010). Tanzania households are food insecure because of lack of purchasing power at the household level (NNS, 2011). Efforts to advance nutrition in Tanzania dates back to the 1940s and has taken different forms, with each programme addressing specific issues that contribute towards nutrition status of the country. Most farming systems in Tanzania are rain-fed, and only a small area is irrigated. From various research conducted in the region to date, it has been reported that agriculture plays a dominant role in spurring growth and getting large numbers of people out of poverty. It is thus a principal route to meeting the Millennium Development Goals. Agriculture is to be considered more than simply an economic activity: it is key for food security and thus for survival; a means of livelihood and culture; and a provider of environmental services. Smallholder subsistence agriculture, with its specific roles for farmers, is intimately intertwined with rural ways of life. For Tanzania, 13 agriculture and food and nutrition policies and frameworks were reviewed, and these are briefly summarized in Table 9, while the analysis of integration of climate change is presented in Table 14.

TABLE 9: Tanzania's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
Agriculture Climate Change Resilience Plan (2014–2019)	The plan puts in place a well-articulated action plan for climate resilient agricultural growth in Tanzania. Specific objectives included implementing a participatory, risk-based approach to climate action; developing time-bound, prioritized and costed actions to implement the National Climate Change Strategy (NCCS) strategic interventions for agriculture and food security; identifying entry-points to mainstream climate change adaptation and mitigation actions into agricultural programmes and projects; strengthening the institutional framework for addressing climate change issues, including strong coordination across the different levels; and leveraging additional financial resources to promote climate resilient agricultural growth.
Agriculture Sector Development Strategy (2015/16–2024/25)	This strategy focuses on inclusive and sustainable agriculture growth; improved food and nutrition security; and rural poverty reduction. It aims to transform the agricultural sector into modern, commercial, highly productive, resilient, competitive in the national and international market.
Tanzania Climate-Smart Agriculture Programme (2015–2025)	This programme is coupled with the Climate Change Resilience plan and creates an enabling environment for introducing context specific climate-smart technologies and approaches at the community level, particularly geared toward small-scale farmers who are at the centre of Tanzania's climate change adaptation official policies.
Tanzania Agriculture and Food Security Investment Plan (2011/12–2020/21)	This is a 10-year roadmap for investment in agricultural and rural development, coordinating and harmonizing the resources to accelerate implementation of existing initiatives and to launch new initiatives which address national, regional, and sectoral development priorities in line with CAADP development objectives and target of CAADP target of six per cent annual growth in agricultural sector GDP.

TABLE 9: Tanzania's national agriculture, food and nutrition security legal and policy framework

National policy and framework	Description
Agriculture Sector Development Programme (2016)	This is a comprehensive coordination framework that guides and implements activities to realize the agricultural components of Tanzania's Vision 2025. It stipulates goals relating to food and nutrition security, commercialization, trade, growth, agriculture services, gender equality and women's empowerment, youth employment and environmental protection.
Food and Nutrition Policy (1992)	Administered by the Ministry of Health, this early policy did not include climate change concerns, and focuses on nutrition access more than food security. Overall nutrition policy is less comprehensive than agricultural development policies.
National Agriculture Policy (2013)	The agriculture policy seeks to develop a competitive agriculture industry that can bring broad-based economic growth and contributes towards poverty alleviation. To address challenges including stagnant growth in the sector the policy has institutionalized reforms such as <i>KILIMO KWANZA</i> Resolve, SAGCOT, Bread basket initiative, Tanzania Food Security Investment Plan to speed up implementation of ASDP.
Climate-Smart Agriculture Guideline for URT (2017)	Following from the Climate-Smart Agriculture Programme this guideline frames how to identify CSA approaches and identify suitable CS technologies for Tanzania. It also aims to facilitate implementation and upscaling of CSA in Tanzania.
National Nutritional Strategy (2011)	The strategy aims at sharpening focus and momentum towards improved nutrition status especially for the vulnerable groups. The goal of the NNS strategy is to ensure all Tanzanians attain adequate nutritional status required for a healthy and productive nation with a specific focus on women of reproductive age and children under 5 years of age.
Tanzania Five Years Development Plan (2016/17–2020/21)	Second medium-term strategy for implementing Tanzania Vision 2025. Following on the income growth successes of the 1 st FYDP, this second strategy increases strategic private partnerships and focuses on development corridors or clusters to increase investment synergies.

Integration of climate change in agriculture, food and nutrition security policies and strategies

As shown above, for Ethiopia, Kenya, Rwanda, Uganda, and Tanzania, there are many agriculture, food and nutrition security policies and frameworks aimed at enhancing agriculture through many strategies, including technology change and adoption, improved research, market reorientation, and improving extension services. For food and nutrition security, emphasis is on improved access, which could be in market development or productivity increases. For nutrition, the emphasis is on access and larger health services and proper information. The extent to which these agriculture and food and nutrition security strategies and frameworks integrate climate change varies over time and between the countries. In the following Tables (10 – 14), the synthesized outcomes of the level of integration of climate change for the review for each country are presented.

For Ethiopia, the integration of climate change into agriculture, food and nutrition security policies and frameworks had a wide variance of weighted scores, from 32% to 100% (Table 10). The nutrition and food policies that ranked the lowest were all from the early 2000s. This was before Ethiopia established the large national plan for the Climate Resilient Green Economy in 2010. After this national reset, it can be seen that the newer agriculture policies more actively embrace and address climate change.

TABLE 10: Integration of climate change into agriculture, food and nutrition security policies and frameworks in Ethiopia

Agriculture, food and nutrition security policies and frameworks	Climate Change		Weighted score (%)	Score range
	Adaptation	Mitigation		
Poultry development roadmap, (2015–2020)	5	5	100	High (≥75%)
Ethiopian Strategic Investment Framework Sustainable Land Management (2010)	5.0	3.7	87	
Ethiopia Livestock Master Plan Roadmaps for Growth and Transformation (2015-2020)	5.0	3.0	80	
Nutrition Sensitive Agriculture Strategic Plan (2016-2020)	5.0	2.8	78	
National Food Nutrition Policy (2017)	5.0	2.2	72	Medium (50-74%)
Dairy cow dairy development roadmap (2015/16–2019/20):	5	2	70	
Red meat /milk and cattle feedlot systems development roadmap (2015-2020)	5	2	70	
Agriculture Extension Strategy of Ethiopia (2017)	5.0	1.9	69	
Growth and Transformation Plan I (2010-2015)	4.1	2.3	64	
Agriculture Sector Policy and Investment Framework (2010-2020)	3.0	2.5	55	
National Nutrition Strategy (2008)	3.9	1.2	51	Low (≤49%)
National Strategy for Infant and Young Child Feeding (2004)	3.2	0.0	32	
Rural Development Policy and Strategies (2003)	3.2	0.0	32	
Food Security Strategy (2002)	3.2	0.0	32	
Average score			60	

For Kenya, the range of weighted scores was equally broad, ranging from 31% to 95% (Table 11). Though the lowest scores do not have a clear trend for being older, but the highest two scores come from the most recent agriculture strategies and frameworks from 2017 and 2018. These were expressly designed to make climate change a component of the agricultural sector: Kenya Climate Smart Agriculture Strategy (2017-2026) at 92%; and Kenya Climate Smart Agriculture Implementation Framework (2018-2027) at 95%.

TABLE 11: Integration of climate change into agriculture, food and nutrition security policies and frameworks in Kenya

Agriculture, food and nutrition security policies and frameworks	Climate Change		Weighted score (%)	Score range
	Adaptation	Mitigation		
Kenya Climate Smart Agriculture Implementation Framework (2018–2027)	5.0	4.5	95	High (≥75%)
Kenya Climate Smart Agriculture Strategy (2017–2026)	5.0	4.2	92	
National Livestock Policy (2015)	4.3	3.6	79	
Agriculture, Livestock and Food Authority Bill (2012)	4.3	1.8	61	Medium (50-74%)
Agriculture Sector Development Strategy (2010-2020)	3.2	2.1	53	
National Agricultural Sector Extension Policy (2012)	2.3	0.0	46	Low (≤49%)
National Food and Nutrition Policy (2011)	3.4	0.0	34	
Strategy for Revitalizing Agriculture (2004-2014)	3.1	0.0	31	
National Agricultural Research System Policy (2012)	3.1	0.0	31	
National Oceans and Fisheries Policy (2008)	3.1	0.0	31	
Average score			55.3	

Source: Amwata et al. 2019

For Rwanda, integration was lowest for the National Food and Nutrition Policy, 65%, and highest for the newest Strategic Plan for the Transformation of Agriculture (2018-2024), and the Strategies for Sustainable Crop Intensification (2011), which both ranked at 80% integrated (Table 12).

TABLE 12: Integration of climate change into agriculture, food and nutrition security policies and frameworks in Rwanda

Agriculture, food and nutrition security policies and frameworks	Climate Change		Weighted score (%)	Score range
	Adaptation	Mitigation		
Strategic Plan for the Transformation of Agriculture (2018–2024)	4.5	3.5	80	High (≥75%)
National Agriculture Extension Strategy (2009)	4	3.5	80	
Strategies for Sustainable Crop Intensification in Rwanda (2011)	4.5	3.5	80	
National Post Harvest Staple Crop Strategy (2011)	4	3.5	75	
National Food and Nutrition Policy (2013–2018)	3.5	3	65	Medium (50-74%)

For Uganda, the Food and Nutrition Policy (2003) and Food and Nutrition Strategy (2005) both had very little inclusion of climate change concerns, with weighted values of 20 and 30% (Table 13). In contrast, the more recent Agriculture Sector Strategic Plan and National Agriculture Extension Policy have high integration of climate change, at 75%. This Extension Policy explicitly targeted the need for information services and training on adaptation and mitigation technologies.

TABLE 13: Integration of climate change into agriculture, food and nutrition security policies and frameworks in Uganda

Agriculture, food and nutrition security policies and frameworks	Climate Change		Weighted score (%)	Score range
	Adaptation	Mitigation		
Agriculture Sector Strategic Plan (2016)	4.0	3.5	75	High (≥75%)
National Agricultural Extension Policy (2016)	4.0	3.5	75	
National Agriculture Policy (2013)	2.5	3.0	55	Medium (50-74%)
Animal Breeding Act (2001)	4	0.0	40	Low (≤49%)
Agricultural Education and Skills Improvement Framework (AESIF) (2015–2025)	1.5	1.5	30	
Food and Nutrition Strategy (2005)	3	0.0	30	
Uganda Food and Nutrition Policy (2003)	2	0.0	20	
Average score			50	

For Tanzania, most of the agriculture and food and nutrition policies only have a medium level of integration of climate change (Table 14). The current five-year development plan, which is the implementation plan for the Tanzania Vision 2025, has a very low integration of climate change, which is similar to the very low incorporation of climate change concerns in the Vision 2025.

TABLE 14: Integration of climate change into agriculture, food, and nutrition policies and frameworks in Tanzania

Agriculture, food and nutrition security policies and frameworks	Integration of climate change Weighted score (%)
Agriculture Climate Change Resilience Plan (2014–2019)	High (≥75%)
Agriculture Sector Development Strategy (2015/16–2024/25)	
Tanzania Climate-Smart Agriculture Programme (2015–2025)	
Tanzania Agriculture and Food Security Investment Plan (2011/12–2020/21)	Medium (50-74%)
Agriculture Sector Development Programme (2016)	
Food Security and Nutrition Policy (1992)	
National Agriculture Policy (2013)	
Climate-Smart Agriculture Guideline for URT (2017)	
National Nutritional Strategy (2011)	
Tanzania Five Years Development Plan (2016/17–2020/21)	Low (≤49%)

Overall, countries in Eastern Africa are making efforts to integrate climate change into agriculture, food and nutrition security policies and frameworks, especially for the more recent policies and frameworks, with a focus mainly on climate change adaptation. For many African countries, mitigation is often considered an adaptation co-benefit because adaptation is the priority and adaptation actions with mitigation benefits are highly prioritized. However, there is a need for improved coherence and integration. From the weighted relevance score, it can be seen that agricultural and food and nutrition policies are not fully integrated with climate change concerns. Even in Ethiopia and Kenya, where broad cross-sector policies have been developed for green and resilient economies, the on-the-ground agricultural strategies and programs do not adequately address the realities of climate change. Most agriculture, food, and nutrition sector policies in Kenya, Ethiopia, Rwanda, Tanzania, and Uganda need more deliberate and proactive mainstreaming of climate change adaptation and mitigation, which has been a significant limitation in strengthening climate change adaptation. Integrated approaches are needed in developing interventions that aim to promote adaptation to climate change.

National policies and frameworks on climate change

Each of the reviewed countries generally situate their evolving national level policies on climate change within global and regional climate change policies and frameworks (see Chapter 3). The reviews examined the national policies and frameworks on climate change, looking at the institutional networks within the countries as well as analyzing the national policies for the extent to which these policies and frameworks integrate agriculture, food and nutrition security. In reference to global policy climate change mandates, all five reviewed countries have submitted their Initial and Second communications to the UNFCCC. Very recently, all but Uganda have submitted their updated Nationally Determined Contributions (NDCs). Similarly, all countries have developed their NAPA and a National Climate Change Response Strategy (see Table 15). In this, we can see the value of global agendas with clear mandates on communications to incentivize the development of national level policies and strategies. Beyond these few conformities in strategies, the five reviewed countries have a lot of dissimilarity in how developed their national level climate change policies and frameworks are. Summaries of the national policies and frameworks analyzed in the country reviews and the analysis of integration are given in tables for each country (Tables 16 - 20). Following these, detailed descriptions of the most recently released climate change policies are given, including the four new Updated NDCs.

TABLE 15: Summary of climate change policies and frameworks in Eastern Africa

National policies and frameworks for climate change	Kenya	Ethiopia	Rwanda	Tanzania	Uganda
National Initial and Second Communications	+	+	+	+	+
National Climate Change Council	+	-	-	-	-
National Adaptation Plans/NAPA	+	+	+	+	+
National Climate Change Response Strategy	+	+	+	+	+
National Climate Change Action Plan	+	-	-	Under-development	+
Climate Change Act	+	-	-	-	-
National Climate Change Framework Policy	+	-	+	+	+
National Climate Change Communication Strategy	-	-	-	+	-
Updated National Determined Contribution	+	+	+	+	-
Climate change coordination units	+	+	+	+	+

Ethiopia

Ethiopia has a long history of engagement with climate change. There is also growing evidence of a link between climate-related disasters, conflict and security, with pressure on resources often leading to increased mobility and the probability of conflict; and all these increase the cost of adapting to climate change in Ethiopia (Sherman et al. 2013). Having recognized the threat of climate change to its economic development goals early, the country has given prominence to climate change in its core development Visions and strategic plans, reframing the main economic development around the comprehensive Climate Resilient Green Economy in 2010. Subsequent climate change policies to meet UNFCC commitments have been developed. In this review, seven major climate change policy frameworks were reviewed for their integration of agriculture and food and nutrition security. In Table 16, brief descriptions are given of the policies that were

reviewed in the country report, and Table 21 gives the analysis of integration. Also included in this section is a detailed description of Ethiopia’s 2021 Updated NDC.

TABLE 16: Ethiopia’s national climate change legal and policy framework

National policy and framework	Description
Intended Nationally Determined Contribution (2016), updated in 2021	The NDC was developed based on the overall Climate-resilient Green Economy Strategy (2011). Low carbon growth, climate resilience, poverty reduction and green economy development are the core of the adaptation outcomes. Mitigation commitments were for a 64% reduction by 2030.
Climate Change Education Strategy of Ethiopia (2017-2030)	This strategy makes climate change learning a core component of national education curricula, especially for primary and secondary schools.
Growth and Transformation Plan II (2015-2020)	The GTP II aims to sustain the accelerated growth and establish a springboard for economic structural transformation and thereby realizing the national vision of becoming a lower middle-income country by 2025. Macroeconomic development, domestic fabrication and increased agricultural productivity are all to be promoted.
National Adaptation Plan (2017)	Aims at creating climate change resilient development for Ethiopia and its people through achieving the following adaptation objectives: integrate currently disparate sectoral and regional adaptation initiatives; mainstream and institutionalize the implementation of climate change adaptation in the country’s development governance structures; mobilize resources from public and private climate finance sources and from both domestic and international sources to enable the country to implement its climate change adaptation initiatives and to develop appropriate technical, material and expert capacities.
Climate Resilient Green Economy (2010)	This strategy was developed to compliment the economic development objectives of GTP1 that aimed to triple GDP per capita by 2025 without increases in GHG emissions. The CRGE strategy provides key targets for reducing GHG emissions and increasing climate resilience in eight key sectors: energy supply; buildings and cities; reduction emission from deforestation and degradation (REDD); soil-based emissions; livestock; transport; industry; and health.
Second National communications (2016)	Increased reporting on GHG emissions with agriculture, land use and forestry accounting for 79% of all emissions. Reports increased variability in the rainy season along with overall increased climate change vulnerability for sectors of the society with increased food insecurity.
National Framework for Climate Services (2019)	Part of the global framework, this aims at developing a coordinating mechanism for developing and delivering climate information services. This will aid in risk management through prediction based advisory services.

Ethiopia Updated NDC (2021)

The original NDC intended a 255 MtCO₂e reduction, or 64%, a reduction from the business-as-usual scenario by 2030. The mitigation and adaptation pathways outlined in the original NDC were based on the Climate Resilient Green Economy Strategy, which emphasizes the role of climate change adaptation and green economy development as the pathway to being a middle-income country with increased food security and well-being. Under the original NDC, “Ethiopia also seeks to maximize the synergies between adaptation and mitigation, especially involving agriculture and

forests. Many of the measures involving forestry and agriculture can provide substantial economic and livelihood benefits. By targeting actions in these sectors, Ethiopia is seizing the opportunities that ambitious climate action brings, helping to reduce both its future emissions and its vulnerability to climate impacts.” The NDC states there is 80% abatement potential but acknowledges a need for support in finance, infrastructure, technology and capacity building.

The new NDC increases the Ethiopian mitigation target to a 68.8% (-277.7 MtCO₂e) reduction by 2030. Land use and livestock are the two sectors targeted with the largest mitigation potential. For the Land Use sector, land restoration, grassland improvement, and reforestation will aid emissions removal. For the livestock sector, mitigation measures, efficiency gains and output growth targeted through the Livestock Master Plan, the 10-year Development Plan, and CRGE are projected to decrease the livestock emissions. These mitigation measures are not explicitly tied to adaptation co-benefits, nor do they mention food security and vulnerable populations.

Adaptation in the agriculture sector includes climate-smart practices, livestock diversification, livestock health services for resilience, livestock disease control, drought-resistant crops and animals, improved crop varieties, increased disease and pest monitoring, crop insurance, and improved pasture land management. Food security improvements are only directly mentioned in the adaptation section under “improving agricultural productivity in a climate-smart manner (promote yield increasing techniques)” as well through the construction of irrigation systems.

About 20% of the NDC mitigation and adaptation goals are unconditional, while 80% are dependent on international support. The NDC claims “this is regarded as appropriate when considering Ethiopia’s marginal historical responsibility and least developed country (LDC) status, domestic resource availability and sustainable development priorities.”

Kenya

Kenya is undergoing climate change that is already affecting its short and long rains, with trends toward overall lower total precipitation (GoK 2018). The intensity of rains in shorter periods has generated frequent floods, and regions can also subsequently face drought conditions as the rainy season is shortened and lands dry out faster under higher heat. Kenya’s agriculture is largely rainfed and is dominated by smallholder farmers. The risks of climate change to Kenya’s agricultural production and food security have been long known. However, it is not clear if the rapidly developing climate change policy and frameworks for adaptation and mitigation are well integrated with the country’s agricultural sector and food and nutrition security needs and policies. This country review looked at eight climate change policies and frameworks and evaluated them on their level of inclusion of food and nutrition security. In Table 17, brief descriptions are given of the climate change policies that were reviewed, and the analysis of integration is given in Table 22. Also included in this section is a detailed description of Kenya’s 2020 Updated NDC.

TABLE 17: Kenya's national climate change legal and policy framework

National policy and framework	Description
National Climate Change Response Strategy (2010)	NCCRS is the first national policy document on climate change, with the aim of advancing integration of climate change adaptation and mitigation into all government planning, budgeting, and development objectives.
National Climate Change Action Plan (2013–2017)	NCCAP is a five-year plan aimed at supporting Kenya's own carbon climate resilient development goals with defined adaptation, mitigation and enabling actions.
National Adaptation Plan (2015-2030)	Kenya's NAP was submitted to the UNFCCC in 2017. It provides a climate hazard and vulnerability assessment and identifies priority adaptation actions in the 21 planning sectors in MTP II.
Kenya's Nationally Determined Contribution (2016), updated in 2020	Kenya's NDC under the Paris Agreement includes mitigation and adaptation contributions. For adaptation, Kenya will ensure enhanced resilience to climate change towards attainment of Vision 2030 by mainstreaming climate change into the MTPs and implementing adaptation actions. For mitigation, Kenya seeks to abate its GHG emissions by 30% by 2030 relative to the BAU scenario of 143 MtCO ₂ eq.
Climate Change Act (No. 11 of 2016)	The Climate Change Act is the first comprehensive legal framework for climate change governance for Kenya and aims to enhance climate change resilience and low carbon development for sustainable development of Kenya.
Climate Risk Management Framework (2017)	CRMF integrates disaster risk reduction, climate change adaptation, and sustainable development to be pursued as mutually supportive rather than stand-alone goals. It promotes an integrated climate risk management approach as part of policy and planning at National and County levels.
National Climate Change Framework Policy (2018)	NCCFP aims to ensure integration of climate change into planning, budgeting, implementation and decision-making across all sectors of the economy both at National and County levels.
National Policy on Climate Finance (2018)	NPCF establishes the legal, institutional, and reporting frameworks to access and manage climate finance—with the goal of supporting Kenya's national development goals through enhanced mobilization of climate finance that contributes to low-carbon climate-resilient development.

Source: GoK 2018; Radeny et al. 2020.

Kenya Updated NDC (2020)

In Kenya's original NDC, the mitigation plan was ambitious with a planned 30% reduction by 2030 against the business-as-usual (BAU) scenario project of 143 MtCO₂eq. Baseline emissions estimates for Kenya from 2010 placed emissions at 73 MtCO₂eq, with 41% of that from agriculture and 37% from land use, land-use change, and forestry sector (LULUCF). Moreover, the original NDC states, "as a minimal contributor to global GHG emissions, Kenya places significant priority on adapting to the effects of climate change." Adaptation in Agriculture, Livestock Development, and Fisheries was through "Enhance resilience of the agriculture, livestock and fisheries value chains by promoting climate-smart agriculture and livestock development" Kenya's contribution was premised on a combination of domestic and international support stating "Kenya will require international support in the form of finance, investment, technology development and transfer, and capacity-building to fully realize her intended contribution" (RoK 2015).

In the updated NDC, the mitigation goals have been advanced by a small amount. The goal is now to abate GHG by 32% by 2030 compared to the BAU of 143 MtCO₂eq. However, “the country’s focus is on adaptation with great mitigation potential.” Individual sector targets are not addressed in the new NDC, but it does include potentials for low carbon transportation and renewable power generation. Adaptation stays central to the Kenyan NDC. The NDC states, “It is committed to enhancing its adaptation ambition by committing to bridging the implementation gaps, which include:

- “Enhancing the adaptive capacity and climate resilience across all the sectors of the economy and at the two levels of government - National and County governments;
- Exploring innovative livelihood strategies for enhancing climate resilience of local communities through financing of locally led climate change actions;
- Enhancing risk-based approach to climate change adaptation through development and application of comprehensive climate risk management tools that would help in addressing and adaptively managing climate risks;
- Addressing residual climate change impacts, loss and damage, especially in the productive sectors of the economy;
- Enhance generation, packaging, and widespread uptake and use of climate information in decision making and planning across sectors and counties with robust early warning systems (EWS);
- Enhance uptake of adaptation technology, especially of women, youth and other vulnerable groups, incorporating scientific and indigenous knowledge;
- Enhancing investment in ocean and blue economy;
- Institutional strengthening of the CC, the Climate Change Units, and related institutions across sectors and counties, as well as non-state actor institutions;
- Strengthening tools for adaptation monitoring, evaluation and learning (MEL) at the national and county levels, including non-state actors.”

Food security is not directly addressed, but loss and damage in the productive sectors is indicative of this concern. In the direct adaptation programme for agriculture (crops, livestock and fisheries) three areas are addressed: mainstream CSA, with an emphasis on ‘innovative, commercially oriented, competitive and modern sector; building resilience through sustainable land management, use of insurance and other safety tools, and strengthen communication and extension on CSA and agro-weather conditions.

The new NDC, unlike the original, makes a concrete pledge of national funding for these goals; however, the main funding is still expected to be internationally driven (87%).

Rwanda

Rwanda has been engaged in climate issues since 1992 with its participation in the Rio Convention and has made good progress with national policy and environmental strategies. In 2005 Rwanda filed its Initial National Communication, and in 2009, the Climate Change and International Obligations Unit (CCIOU) was established within the Rwanda Environment Management Authority (REMA), overseeing its Designated National Authority (DNA) to coordinate carbon market activities (DNA, 2011). In 2010 the Second National Communication was completed, including a stand-alone mitigation strategy, the Carbon Policy and an updated emissions inventory (SNC, 2010). Also in 2010, a National Implementing Entity (NIE) application was submitted to access international resources under the UNFCCC’s Adaptation Fund. Subsequently, Rwanda signed the Paris agreement in 2016 and submitted its Updated NDC in 2020. In the Rwanda country review, five

climate change policies and frameworks were analyzed for their inclusion of agriculture and food and nutrition security issues. Table 18 provides brief explanations of these policies, and Table 23 presents the analysis of integration. Also included in this section is a detailed description of Rwanda’s 2020 Updated NDC.

TABLE 18: Rwanda’s national climate change legal and policy framework

National policy and framework	Description
Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development (2011)	This strategy moves from project-based adaptation to an integrated approach to adaptation and aims to build strong systemic climate resilience and low carbon production and lifestyles. The strategy has 14 programmes for action that are related to climate change, agriculture and food security. It also has mechanisms to mobilize funding to finance programs identified in all sectors.
National Environmental and Climate Change Policy (2019)	Framed within national, regional and global development commitments this policy promotes green growth and climate resilience as a means to meet development agendas while enhancing natural environments, providing green economic transformations and promoting adaptation and mitigation. Food security is a consideration, but nutrition is barely addressed.
National Determined Contribution (2015), and updated in 2020	Adaptation commitments clearly laid out and quantified for numerous sectors with the goal of being a climate resilient economy. Emissions reductions are not quantified. Mitigation to be met through development of a low carbon economy, focused on developing a low carbon energy supply and avoiding deforestation.
National Disaster Management Policy and Strategy (2012)	The policy emphasizes preparedness of the government, communities and other stakeholders for disaster management activities. It aims to establish and strengthen Disaster Management institutions and partnerships with a coherent and coordinated approach. Develops the institutional structures, roles and responsibilities, authorities and key processes required to achieve a coordinated and consistent approach.
National Adaptation Programmes of Action (2006)	Contains information to guide national policy-makers and planners on priority vulnerabilities and adaptations in important economic sectors. NAPA constitutes primary policy guidance for informing Strategic Sector Plans.

Rwanda Updated NDC (2020)

In its original INDC, Rwanda focused on its adaptation needs stressing its vulnerability to climate change related floods, landslides and droughts.

“Adaptation is the first priority of the country due to the high vulnerability of key economic activities such as agriculture, energy and forestry. In addition, Rwanda has one of the lowest GHG emissions per capita in the world estimated at 0.99 tCO₂eq/person (2013). It should also be noted that the net emissions of Rwanda as per second national communication (emissions net of sequestration) were negative in 2005.”

The adaptation plan focused on building a climate resilient economy, including green industry development, low carbon energy production, and sustainable land and water use. Attaining food security is a targeted outcome of the adaptation plan. The original NDC links strategically to

Rwanda's 2011 Green Growth and Climate Resilient Strategy (GGCRS). In the original NDC, specific mitigation rates are not set, but a range of actions that can reduce emissions are targeted in the energy, transport and industry sectors. The country targets carbon sequestration through land reforestation and soil management strategies.

In the updated NDC, the main projected increases in Rwanda's emissions comes from "increasing demand for power generation, road transport and other modern energy use." From the 2015 baseline of 5.3 million tCO₂e, BAU projects 12.1 million tCO₂e in 2030. Rwanda commits to an unconditional 16% reduction relative to BAU based on domestically supported mitigation measures. A further 22% is framed, conditional on international support and funding. In the detailed lists of mitigation measures, adaptation co-benefits are listed, with decreased food insecurity recognized as a co-benefit of such mitigation measures as increasing solar-powered irrigation pumps, bio-gas production and use, soil and water conservation measures such as terracing, multi-cropping, and crop rotation, improved livestock husbandry, improved manure management, conservation tillage, improved livestock species and population, anaerobic composting and waste water treatment plants.

24 adaption interventions are developed in NDC, which align with the programmes of action of the Green Growth and Climate Resilient Strategy. For the agriculture sector these adaptation interventions are:

- Develop climate resilient crops and promote climate resilient livestock;
- Develop climate resilient post-harvest and value addition facilities and technologies;
- Strengthen crop management practices;
- Develop sustainable land use management practices;
- Expand irrigation and improve water management;
- Expand crop and livestock insurance.

Similar to the mitigation plan, the NDC lists potential mitigation co-benefits with these agriculture interventions.

Uganda

Uganda is ranked as one of the most unprepared and vulnerable in the world in respect to climate change impacts (CIGI, 2007), and the gravity of the impacts on livelihood and economy will be much higher if no appropriate measures are taken to climate-proof Uganda's citizens. Climate change and variability is, therefore, a development issue, which must be part of any development initiative. At the National level, programs for climate change adaptation were developed in 2006 and approved in 2007 but implementation is slow. Some development practices attempted include i) strengthening access to climate information and early warning to farmers and other communities spearheaded by the Ministry of Water and Environment; and ii) improving agricultural practices and alternative livelihood options targeting farmers who do not have access to irrigation, land-poor farmers, women headed households and the landless to build reliable livelihoods.

Despite the known need, there had been a slow response towards supporting community climate change adaptation (Zake and Sekate 2015). Responses only come when disasters hit at the extreme level, e.g., floods, famine in drought-hit areas like Isingiro in 2016/2017, or during pest outbreaks like the army worm that affects maize. Thus, the evolving climate change strategies and initiatives need to include agricultural adaptation and development along with provision for

continued or improved food and nutrition security. For Uganda, five climate change policies were reviewed for their inclusion of agriculture and food and nutrition security issues. Table 19 gives brief explanations of these policies and Table 24 presents the analysis of integration. Following these, descriptions of three recent Ugandan climate change policies that were not included in the weighted integration analysis are presented.

TABLE 19: Uganda’s national climate change legal and policy framework

National policy and framework	Description
National Policy for Disaster Preparedness and Management (2010)	Establishes institutions and mechanisms for effective disaster management; starting from vulnerability assessment to preparation and mitigation, and if needed response and recovery. Includes other disasters, not only climate change.
Uganda National Climate Change Policy (2015)	This policy recognizes climate change as the greatest challenge and aims to ensure that all stakeholders address climate change impacts and their causes through appropriate measures, while promoting sustainable development and a green economy. It mainstreams climate change issues across all government departments and harmonizes the Ugandan climate change policies with the East African Community policy.
National Adaptation Programmes of Action (2007)	Identified immediate, urgent and priority project activities necessary to enhance adaptation capacities to climate change for the nation. NAPA projects were designed to address specific urgent and immediate problems faced by communities to address the adverse impacts of climate change and variability. Includes a list of nine priority projects, many of which are, yet to be implemented due lack of funding.
National Strategy and Action Plan to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda (2013-2022)	This strategy aims to strengthen human resources and skills to advance low-emission and climate resilient development. The strategy acknowledges the need to incorporate climate change knowledge into all business, technical, vocational education and training.
Uganda’s Intended Nationally Determined Contribution (2015)	Submitted in 2015 the NDC commits to the need for adaptation as a governmental priority while also pledge a 22% baseline reduction in GHG emissions.

Uganda NAMA on Climate-Smart Dairy Livestock Value Chains (2017)

Agriculture is both a key sector of the Ugandan economy as well as one of the main emitters of GHGs. Because livestock are a large portion of the emissions and overall rates of livestock emissions can be changed, the dairy value chain is considered a targetable sector for mitigation efforts. The Ugandan Plan for Modernisation of Agriculture (PMA) (2001) included seven pillars: research and technology development, national agricultural advisory services, rural finance, agro-processing and marketing, agricultural education, physical infrastructure, and sustainable natural resource utilization and management. Following the awareness that there were other needed elements for increasing agricultural productivity, like roads and energy, the Rural Development Strategy (RDS) was framed (2005), emphasizing increasing productivity, increased production of selected crops, and value addition and market access. Overall policy goals of the agriculture sector are on the food security issue, but is criticized for not being holistic in its ability to do transformative modernization “the PMA does not recognize the need for commercialization of various agricultural activities and the necessity to bring farmer to markets.” This dairy value chain

NAMA seeks to fit into the agriculture policies and be part of the increase in food security through improved agricultural practices while at the same time decreasing emissions. The NAMA states

“The objective of this NAMA is to trigger resilient low-carbon development in the dairy sector through the introduction of climate-smart agricultural practices and to bring the dairy production sector of Uganda onto a low carbon and more resilient path.”

Pathways to the mitigation outcome is through feeding strategies, hay production and manure management, and breed type changes. The overall goal of the NAMA is climate change mitigation and resilience stating,

“The NAMA will address this gap by proposing a holistic approach to transforming a specific subsector of agriculture, namely the dairy sector, through measures and interventions including the commercialization of activities along the dairy value chain, introduction of policy support measures and incentives, capacity- building, and awareness-raising. The combination of these mitigation and resilience activities will contribute to the overall sectoral adaptation to climate change.’

Uganda National REDD+ Strategy and Action Plan (2017)

This strategy aims to promote sustainable forest management, biodiversity conservation and enhancement of forest carbon stocks. This strategy is part of the climate change mitigation strategy and addresses deforestation and forest degradation. There are 8 strategic options framed in this strategy. Many are addressed at changing forest use practices (e.g., charcoal production, wood stoves, restoring natural forests, commercial timber plantations, and wildfire management), and one option focused on strengthening the policy implementation environment. The other two Strategic Options have to do with agriculture and livestock concerns. Strategic Option 1 promotes Climate smart agriculture which will decrease the need for agricultural expansion into forest land. The proposed CSA practices includes i) sustainable land management (SLM) and agroforestry practices; ii) rainwater harvesting; and iii) greenhouse cultivation of vegetables. Strategic Option 7 is for improving livestock rearing in the Cattle Corridor to decrease pressure on forest conversion to pasture. Under this Option, the three practices are livestock breeding programmes, drinking water dams for livestock, and fodder agroforestry plantations.

In the review of the policy environment which will enable the Climate Smart Agriculture approach of Strategic Option 1 a number of enabling policies are found: National Development Plan II (2015-2020), supports sustainable land management; the Agricultural Policy (2013) support SLM, rain water harvesting, water supply development; Strategic Investment Framework for Sustainable Land Management (2010-220) supports SLM, livelihood diversification, the Uganda Forestry Policy (2001) supports improved use of the forests for improved food security, sustainable use; the Draft Rangeland Management and Pastoralism Policy (2014) supports climate change resilience in pastoral communities through land management and diversification; the National Forest Plan (2011-2021) supports agro-forestry initiatives; the National Forestry and Tree Planting Act (2003) supports technical service delivery to forest and agroforest actors; the National Physical Planning Act (2010) allows governmental planning of physical space use, including sub-division of agricultural land; the National Advisory Services Act (2001) supports development of advisory services and develop agricultural technologies, as well establish farmer associations; and the Agricultural Extension Policy (2016) which strengthens the entire extension services. All of these policies can be seen as providing an enabling environment for the Climate -Smart agriculture

practices being suggested in this strategy. It is worth noting that the CSA options are very specific, due to the required accountancy and reporting structures of a formal NAMA.

The only place in this strategy where food security is addressed is in relation to the Climate Smart Agriculture. For Option 7, Livestock Rearing in the Cattle Corridor, increased productivity of the cattle is addressed through the recommendation of “change to exotic cattle breeds and crossbreeding” and introducing fodder trees and stall feeding. Mitigation goals are also to be met by “reduction of extensive free-grazing of traditional livestock.”

Uganda National Climate Change Bill (2021)

Written in 2020 and passed by a unanimous vote by the Ugandan Parliament in April 2021, the Climate Change Bill was passed into law on September 7, 2021 when signed by the President. It states:

“The Object of this Bill is to give the force of law in Uganda to the UNFCCC, the Kyoto Protocol, and the Paris Agreement; to provide for climate change response measures; to provide for participation in climate change mechanisms; to provide for measuring of emissions, reporting and verification of information; to provide for institutional arrangements for coordinating and implementing climate change response measures; to provide for financing for climate change; and other related matter.”

The call for this bill came from the awareness that there was no legal framework governing climate change, with the lack being “an obstacle in translating the identified policy priorities into implementable actions with tangible climate change benefits.”

It establishes a climate change fund, climate change budgeting and allocation, tasks the Ministry of Education to include climate change in the national curriculum, provides for emissions measurement and baselining, and sets the timeline for the establishment of the Framework Strategy on Climate Change, and a National and District level Climate Change Action Plans, and allows for the establishment of a National Climate Change Advisory Committee. The act both provides mechanisms for incentives for climate change mitigation and adaptation actions, as well as provides a mechanism in Clause 25 for litigation against “an individual or private entity whose action or omission threatens or is likely to threaten efforts towards adaptation to or mitigation of climate change.” This potential for litigation is considered to be a strong turning point.

Tanzania

In Tanzania, the country covers a range of rainfall patterns, reflecting complex seasonality patterns and inter-annual variability. Northern areas experience rainfall during the October–December (short rains) and March–May (long rains) seasons, whereas the southern areas experience a single rainy season from roughly October to April. Observations suggest that traditional rainfall patterns in Tanzania are being disrupted with late onsets of the rains and wet seasons interspersed with prolonged dry spells (Sieber et al., 2015). Regarding future climate change, consensus on warming is high. The Tanzanian region exhibits considerable climatic and topographic variability and the impacts of climate change on the agricultural sector will vary depending on the existing agro-ecological zones.

In Tanzania, climate change is currently the responsibility of the Vice President’s Office (VPO) that has two agencies: Division of Environment (DoE) and the National Environment Management Council (NEMC). Specifically, the DoE guides the integration of climate change into national policies and plans, while NEMC is responsible for enforcement as mandated by the Environmental Management Act (URT, 2004). Although Tanzania lacks a national climate change policy, it does, however, have a National Climate Change Strategy (NCCS) (URT, 2012), which guides the integration of climate change in sectoral policies and plans. In this report, five climate change frameworks were reviewed for their incorporation of agriculture and food and nutrition security. Brief descriptions of the policies are presented in Table 20 and Table 25 presents the analysis of integration. Also included in this section is a detailed description Tanzania’s 2021 Updated NDC.

TABLE 20: Tanzania’s national climate change legal and policy framework

National policy and framework	Description
National Adaptation Programme of Action (2007)	Identified priority areas through climate change vulnerability assessment across seven key economic sectors. Priorities included mainstreaming of adaptation into development and sectoral policies including increasing environmentally friendly and sustainable natural resource use and agriculture. Provides plans for climate change adaptation for in water, agriculture, and energy sectors. Agriculture and food security are deemed most vulnerable sectors to climate change. The NAPA prioritizes a wide range of agriculture adaptation measures, such as the promotion alternative market systems and make better use of weather data.
National Climate Change Strategy (2013)	This strategy applies to the mainland, whereas the National Climate Change Strategy for Zanzibar, was launched in 2014. Both documents cover agriculture mitigation and adaptation amongst their top priorities. Both are multi-sectoral documents directing every sector to prepare an action plan for its implementation. The two strategies give significant emphasis on agriculture sector with enhancing resilience through sustainable livelihoods as a major strategy for the mainland.
Nationally Determined Contribution (2015)	Tanzania’s NDC has interventions for mitigation and adaptation contributions. For adaptation, priority sectors include agriculture and livestock, and climate resilient development is centered as Tanzania’s path forward; along with support of maintaining its forest stock as a carbon sink.
National Climate Change Communication Strategy (2012)	The NCCS details the potential impacts of climate change by sector before presenting the adaptation strategies identified for each sector. The strategy encourages cross-sectoral integration and coordination across economic sectors. However, the strategy provides no details on the modalities of how this would be achieved beyond forming technical and steering committees.
Water Resources Sector Management Strategic Intervention and Action Plan for Climate Change (2013)	Adaptation in the water sector includes use, reuse and conservation of ground and surface water; water catchment protections; and Includes provisions for integrated water management.

Tanzania Updated NDC (2021)

In its original NDC, Tanzania commits to emission reduction actions only when the action contributes to sustainable development. The intended reduction contributions are focused on the country’s top contributors: transport, energy, forestry and waste management. The commitment of the original NDC was for 10-20% by 2030 against the BAU of 138-153 MtCO₂e.

In the original NDC, the very low emissions of Tanzania were stated: “Tanzania has negligible emissions of greenhouse gases (total and per capita), whereby per capita emissions are estimated at 0.2 MtCO₂e. On the other hand, the country has a total of 88 million hectares of land areas, of which 48.1 million are forested land and under different management regimes, with a current estimated total of 9.032 Trillion tons of carbon stock. The estimates are based on the present stocks from limited studies. This implies that Tanzania is a net sink.”

Adaptation efforts are geared towards developing a resilient climate pathway, which is expected to reduce climate-related disasters. The original NDC states that “more than 70% of all-natural disasters in Tanzania are climate change related and linked to recurrent droughts and floods.” Implementation of adaptation and mitigation efforts will need “timely access to adequate and predictable financial resources.”

The updated NDC reiterates ongoing effects of climate change on Tanzania:

“Tanzania is already affected by climate change and variabilities, with extreme events such as droughts and floods causing major economic costs, reducing long-term growth, and disrupting livelihoods of both rural and urban communities. Climate change impacts are affecting agricultural production, water resources, marine and coastal zones, public health, energy supply and demand, infrastructure, biodiversity, and ecosystem services”

In the NDC it continues to point out Tanzania’s low emissions relative to global standards “The per capita emissions of the United Republic of Tanzania were estimated at 0.22 tCO₂e in 2014, which is significantly below global average of 7.58 tCO₂e recorded in the same year” and reiterates commitment to climate change adaptation as its top priority in the NDC. Climate resilient development is the key frame of adaptation, with climate change and climate change resilience to be considered in all development planning. For agriculture this includes improved land and water resource management, adoption of climate-smart interventions in agriculture and livestock, crop insurance for small holders, livelihood diversification of livestock keepers, sustainable rangeland management and further research, and extension in agriculture and climate services.

The new NDC does increase the mitigation commitment, a 30-35% reduction against BAU, but directly links this commitment to “availability of adequate and predictable financial and technological support from the international community.” For its mitigation efforts, Tanzania focuses on low emission development pathways but states “Whether the low or high ambition scenario is realized ultimately depends on the level of international support”.

Integration of agriculture, food and nutrition security in climate change policies and strategies

The extent of integration of agriculture, food, and nutrition into climate change policies and frameworks is advanced in many eastern African countries. Over 60% of the total climate change policies reviewed in eastern Africa showed medium to high weighted scores (see Table 21 – 25). In Uganda, the weighted scores ranged from 45% to 78%, with an average of 67%. Uganda has integrated agricultural productivity (90%) in its climate change policies, followed by food availability (76%), then access (67%), while utilization was the least integrated (47%). For Ethiopia integration is relatively high, ranging from 60 to 80%. The Ethiopian climate change frameworks focused on food availability, followed by agricultural productivity and food access. Food utilization had low integration. The Rwanda review had relatively high weighted scores, 65 to 77%, for the integration of agriculture, food and nutrition security in the climate change policies. For Tanzania, the weighted scores ranged from moderate to high for integration of agriculture, food and nutrition security in climate change policies. The country review highlighted that agricultural productivity and food availability were the most prioritized agriculture measure in the climate change frameworks. For Kenya, the scores ranged 66-78% with an average of 70%. The Kenyan climate change frameworks prioritize agricultural productivity increases and food security issues.

TABLE 21: Integration of agriculture, food and nutrition security into climate change policies and frameworks in Ethiopia

Climate change policies and frameworks	Agriculture, food, and nutrition security				Weighted score (%)	Score range
	Productivity	Availability	Access	Utilization		
Intended Nationally Determined Contribution (2016)	4.0	4.0	4.0	4.0	80	High (≥75%)
Climate Change Education Strategy of Ethiopia (2017-2030)	4.5	5	3.6	1.5	74	Medium (50-74%)
Growth and Transformation Plan II (2015-2020)	3.8	3.9	3.6	2.9	72	
National Adaptation Plan (2017)	3.7	3.7	3.6	3.2	72	
Climate Resilient Green Economy (2010)	3.3	3.5	3.5	3.0	66	
Second National communications, (2016)	3.5	4.0	3.5	2.0	66	
National Framework for Climate Services, (2019)	3.1	3.8	4	1.2	60	
Average Score	3.7	4	3.7	2.5	70	

TABLE 22: Integration of agriculture, food and nutrition security into climate change policies and frameworks in Kenya

Climate change policies and frameworks	Agriculture, food, and nutrition security				Weighted score (%)	Score range
	Productivity	Availability	Access	Utilization		
Climate Change Act (2016)	5.0	3.3	3.9	3.2	77.0	High (≥75%)
National Climate Change Framework Policy (2016)	4.0	3.7	3.2	3.1	70.0	Medium (50-74%)
National Climate Change Action Plan (2012)	3.9	3.3	3.1	3.3	68.0	
National Adaptation Plan (2016)	4.4	2.9	2.9	3.1	67.0	
Kenya National Climate Change Response Strategy (2012)	3.8	3.4	3.4	2.6	66.0	
Average Score					69.3	

TABLE 23: Integration of agriculture, food and nutrition security into climate change policies and frameworks in Rwanda

Climate change policies and frameworks	Integration of agriculture, food and nutrition	
	Weighted score (%)	Score Range
Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development (2011)	77	High (≥75%)
National Environmental and Climate Change Policy (2019)	72	Medium (50-74%)
National Determined Contribution (2015)	70	
National Disaster Management Policy and Strategy (2012)	68	
National Adaptation Programmes of Action (2006)	65	

TABLE 24: Integration of agriculture, food and nutrition security into climate change policies and frameworks in Uganda

Agriculture, food and nutrition security policies and frameworks	Agriculture, food, and nutrition security				Weighted score (%)	Score range
	Productivity	Availability	Access	Utilization		
National Policy for Disaster Preparedness and Management (2010)	3.5	4.5	4.0	3.5	78	High (≥75%)
Uganda National Climate Change Policy (2015)	4.8	4.3	4.0	2.0	76	
National Adaptation Programmes of Action	4.5	3.5	3.0	2.5	68	Medium (50-74%)
National Strategy and Action Plan to strengthen human resources and skills to advance green, low-emission and climate-resilient development in Uganda (2013-2022)	4.8	3.5	3.0	2.0	67	
Uganda's Intended Nationally Determined Contribution (2015)	4.5	2.0	1.5	1.0	45	Low (≤49%)
Average Score					67	

TABLE 25: Integration of agriculture, food and nutrition security into climate change policies and frameworks in Tanzania

Climate change policies and frameworks	Integration of agriculture, food and nutrition
	Weighted Score Range
National Adaptation Programme of Action (2007)	High (≥75%)
National Climate Change Strategy (2013)	
Nationally Determined Contribution (2015)	
National Climate Change Communication Strategy (2012)	
Water Resources Sector Management Strategic Intervention and Action Plan for Climate Change (2013)	Medium (50-74%)

Integration of climate change, agriculture, food and nutrition security into projects and programmes

For the reviewed countries, there are also many ongoing projects and programmes for development that address agriculture, food and nutrition security, and climate change. These projects and programmes were also analyzed on the extent to which they integrate climate change, agriculture and food and nutrition security (see Table 26). A few selected projects and programmes on climate change, agriculture, food and nutrition security from the reviewed countries are discussed below.

Kenya Cereal Enhancement Programme-Climate Resilient Agricultural Livelihoods Window (KCEP-CRAL)

This programme aims to increase incomes and reduce poverty among rural households including those in arid and semi-arid lands-ASALs through the following objectives: (i) contribute to national food security by increasing production of cereal staples (maize, sorghum, millet, and associated pulses); (ii) increase income of smallholders in medium and high potential production areas as well as those in ASALs of targeted crops; (iii) support smallholder farmers in graduating from subsistence to commercially oriented, resilient agricultural practices through productivity improvements, post-production management practices and market linkages for targeted value chains; and iv) empower county governments and communities to sustainably and consensually manage their natural resources and build resilience to climate change. These objectives will be achieved through the implementation of the following components: i) cereal productivity enhancement including capacity building for climate-resilient productivity and natural resource management; ii) post-production management and market linkages; iii) financial services; and iv) Programme Management and Coordination. The total budget is \$118 million, and the partners include Equity Bank, Kenya Agricultural Livestock Research Organization (KALRO) AGMARK Eastern Africa Grain Council (EAGC), IFAD and European Union.

Kenya Agricultural Productivity and Agribusiness Project (KAPAP)

The programme facilitates the carrying out of agricultural research resulting in the release of new crop varieties and other crop and animal-related technologies; training of researchers and capacity building of their institutions; empowerment of farmers and their organizations to strengthen demand for services; and piloting with encouraging results on public-private partnerships (PPPs) in provision and financing of extension services. The total budget was US\$ 98.58 million, and the partners include World Bank and Ministry of Agriculture, Livestock and Fisheries.

Kenya Resilience and Economic Growth in Arid Lands - Improving Resilience (REGAL-IR)

The programme works with communities to build their capacity to cope with and rebound from shocks such as recurring droughts. In consultation with community members, targeted interventions support local structures to improve social, economic and environmental resilience. Its main activities include improving capacity of individuals and community-based enterprises to become more competitive in business and non-pastoral activities; support community structures to better manage natural resources and relieve pressure on the environment; support community and entrepreneur access to market information and produce markets; strengthen capacity to manage conflict; and improve consumption of nutritious foods. The project budget is \$45m and the partners include United States Agency for International Development (USAID), World Food

Programme, Population, and Health Integrated Assistance (APHIA+) and Millennium Water Alliance (MWA).

Kenya Climate Smart Agriculture Project (KCSAP)

This project's objective is to increase agricultural productivity and build resilience to climate change risks (adaptation), and reduce GHG emissions (mitigation) per unit of output (as co-benefits) in the targeted smallholder farming and pastoral communities in Kenya. The five components of the project include: up-scaling climate-smart agricultural practices; strengthening climate-smart agricultural research and seed systems; supporting the development, validation, and adoption of context specific CSA Technologies, Innovations, Management Practices (TIMPS); supporting agro-weather, market, climate, and advisory services and project coordination and management. The Project cost is US\$ 279.70 million, and partners include the Government of Kenya and the World Bank.

Ethiopia: Agricultural Growth Program-II (AGP2)

AGP is a multifaceted investment program supporting agricultural productivity and commercialization, focusing on high agricultural potential areas to address some of the key constraints to agricultural growth and thereby contribute to overall economic growth and transformation. It is a program approach and is viewed by Government as the key investment mechanism for increasing agricultural productivity and commercialization by smallholder farmers' dietary diversity and consumption at the household level and promoting the participation of women and youth.

Ethiopia Productive safety net program (PSNP)

The PSNP aims to enable the rural poor facing chronic food insecurity to resist shocks, create assets and become food self-sufficient by providing multi-annual predictable transfers, such as food, cash, or a combination of both, to help chronically food-insecure people survive food deficit periods and avoid depleting their productive assets. It enhances community-level infrastructure and contributes to environmental transformation. At the household level, families are experiencing improved food security, increased asset creation and protection, increased utilization of education and health services, and improved agricultural productivity.

Tanzania Climate-Smart Agriculture Programme

The CSA Programme (2015-2025) is a MAFC and the Vice President's Office initiative to enhance agricultural development and growth potential under climate change. The CSA programme has six strategic priorities: improved productivity and income; building resilience and associated mitigation co-benefits; value chain integration; research for development and innovations; and improving institutional coordination and sustaining agricultural advisory services. The agro-advisory services that include climate applications for agriculture help farmers to better make informed decisions in the face of risks and uncertainties.

Tanzania Agriculture Sector Development Programme II

The Agriculture Sector Development Programme (ASDP) is a MAFC initiative launched in 2006 to contribute to the targets of reducing rural poverty from 27% to 14% by 2010 and raising agricultural growth to 10% per year by 2010. This first seven-year phase (out of a planned fifteen) concluded in 2013. The programme is currently in its second phase (ASDP-2). ASDP-2 has a

comprehensive coordination framework that guides and implements activities to realize the agricultural components of Tanzania's Vision 2025. ASDP-2 Stipulates goals relating to food and nutrition security, commercialization, trade, growth, agriculture services, gender equality and women's empowerment (GEWE), youth employment, and environmental protection.

Analysis of Integration

In Kenya, many programmes and projects were reviewed, but none ranked in the highest category for integration (Table 26). In contrast, Ethiopia had among the highest categories of integration. For Uganda, 18 projects and programs were evaluated, and none had a high weighted score of $\geq 74\%$. The majority of reviewed programmes (72%) had a low weighted score of $\leq 49\%$, while only 28% had a weighted score of >49 to $\geq 74\%$. In general, it was found that climate change projects highly integrated agriculture, food, and nutrition security than vice versa, especially when considering food and nutrition policies. In Tanzania, 28 projects and programs were evaluated, out of which about 14% had a high weighted score ($>75\%$), with the majority (65%) having a medium-weighted score and 21% had a low weighted score. Overall, the reviewer found that most agriculture, food, and nutrition security projects do integrate climate change adaptation but with no, or limited, mitigation consideration.

Table 26. Extent of integration of climate change, agriculture, food and nutrition security into projects and programmes

Weighted Score Range	Low (<25 - ≤49%)	Medium (≤50- ≤74%)	High (≥75%)
Ethiopia		<ul style="list-style-type: none"> •National Nutrition Programme (2008-2015) •Agricultural Growth Program-II (AGP2) •Productive Safety Net Program •Climate Change Adaptation in the Lowland Ecosystems of Ethiopia (2018) •Sustainable Community Based Seed Production System in Tigray (2016) •Integrated Livelihood Improvement Project in Eastern Tigray (2016) •Scaling Out Sweet Potato and Potato Lead Interventions to Improve Nutrition and Food Security in Tigray and SNPPR (2016) •Strengthening a Community Driven Climate Resilience Building Initiative in Mao Komo Woreda of Benishangul Gumuz Region (2016) •Building Resilience Through Agribusinesses •Livestock for Livelihoods •Making Forestry Sustainable •Market Approaches to Resilience 	<ul style="list-style-type: none"> •UN CC: Learn (2015) •Improving Smallholder Livelihoods and Resilience through Climate Smart Agriculture and Economic Development (2016)
Kenya	<ul style="list-style-type: none"> •Kenya Agricultural Biotechnology Support Programme •National Accelerated Agriculture Inputs •Low Emission and Climate Resilient Development •Technical Assistance for Kenya Small-Scale Irrigation and Value Addition Project •Finance for Innovation and Climate Change Fund •National Farmers Information Service 	<ul style="list-style-type: none"> •Enhancing Agricultural Productivity Project •Integration Smallholder Dairy Specialization Programme (SDSP) •Kenya Climate Smart Agriculture Project (KCSAP) •Information on Nutrition, Food Security and Resilience for Decision Making •Improved Food Security and Resilience for Vulnerable Communities in Kenya 	

Table 26. Extent of integration of climate change, agriculture, food and nutrition security into projects and programmes

Weighted Score Range	Low (<25 - ≤49%)	Medium (≤50- ≤74%)	High (≥75%)
	<ul style="list-style-type: none"> •National Accelerated Agricultural Inputs Access Programme •Kenya Cereal Enhancement Programme - Climate Resilient Agricultural Livelihood •Economic Stimulus Programme (ESP) in Agriculture Sector •Kenya Agricultural Biotechnology Support Programme •National Accelerated Agriculture Inputs Programme •Kenya Agro-dealer Strengthening Programme, •National Farmers Information Service •National Accelerated Agricultural Inputs Access Programme 	<ul style="list-style-type: none"> •Strengthening Adaptation and Resilience to Climate Change in Kenya Plus (StARCK) •Kenya Adaptation to Climate Change in Arid and Semi-Arid Lands •Kenya Agricultural Productivity and Agribusiness Project •Kenya Venture Facility •Youth Empowerment in Sustainable Agriculture •Njaa Marufuku Kenya •Dairy Heifer Project •Resilience and Economic Growth in Arid Lands - Improving Resilience •Kenya Climate Smart Agriculture Project •Low Emission and Climate Resilient Development •Technical Assistance for Kenya Small-Scale Irrigation and Value Addition Project •Finance for Innovation and Climate Change Fund 	
Uganda	<ul style="list-style-type: none"> •Water for Production Project •Agricultural Value Chain Development Programme (AVCP): •Uganda Multi-Sectoral Food Security and Nutrition Project •Agriculture Cluster Development Project (ACDP) •Vector, Pests and disease Control Project •National Agricultural Advisory Services (NAADS) •Indigenous Knowledge (IK) and Natural Resources Management Project •Agricultural Credit Facility (ACF) •Community Agricultural Infrastructure Improvement Programme (CAIIP) 	<ul style="list-style-type: none"> •Drought Adaptation Project •National Agricultural Advisory Services (NAADS) Programme •The Agricultural Technology and Agribusiness Advisory Services Program •USAID agriculture programs •Land Degradation Management Project 	

Table 26. Extent of integration of climate change, agriculture, food and nutrition security into projects and programmes

Weighted Score Range	Low (<25 - ≤49%)	Medium (≤50- ≤74%)	High (≥75%)
	<ul style="list-style-type: none"> •Strengthening Meteorological Services Project •Climate Change and Development Planning Project 		
Tanzania	<ul style="list-style-type: none"> •UN Joint Programme to Support Sustainable Agriculture Value Chain Development in Tanzania •Strengthening Climate Change Governance in Zanzibar •Improve The Competitiveness and Increase Postharvest Value Chain of Small Holder Farmers •Advancing “Healthy Street Food Incentives” to Boost the Safety and Nutritional Balance of Street Food in Sub-Saharan Africa •The Centre for the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) •Participatory Agricultural Development and Empowerment Project (PADEP) •Integrated Rural Development Programme in Pangawe Village 	<ul style="list-style-type: none"> •Irrigation Scheme (Dakawa and Mkule) •Rice project •Kilimo Kwanza Programme •Global Climate Change Alliance programme •Climate Finance Readiness Programme •Strengthening Food and Nutrition Security and Decision Making through Support to the Integrated Food Security Phase Classification (IPC) System •Agricultural sector Development Project (2006-2016) •Support Livelihoods Restoration to the Disaster Affected Communities in Kagera Region of Tanzania (2017-2019) 	<ul style="list-style-type: none"> •Agriculture Climate Resilience Program (ACRP) 2014–2019 •Global Framework for Climate Services (GFCS) Adaption Programme (2014-2017) •Mainstreaming Climate Change Adaptation Through Small Grants Programmes •Strengthening Climate Information and Early Warning Systems for Climate Change Resilience in Tanzania

Institutional landscape for climate change, agriculture, food and nutrition security

Climate change adaptation and mitigation and agriculture, food and nutrition security is undertaken by institutions across global, regional, national, and meso-levels and by many different institutional types. In brief, the types of institutions can be classified into four categories as indicated below:

National Government: Co-coordinating the Government's agricultural policies, initiatives, projects and programmes as they apply to local governments; providing technical assistance, support supervision and training to agricultural advisory services personnel within local governments; and facilitating the development of local-level agricultural services infrastructure in coordination with local governments.

Local governments: Implement decentralized agricultural services, including advisory and regulatory services; develop and implement appropriate by-laws to regulate food security, animal movement, local taxation and any other areas that support the effective local implementation of agricultural programmes, plans and policies at the county/district and within the lower-level local government.

Private Sector: Mobilize farmers to access financial products and services, farm inputs, markets and other relevant agricultural goods and services; advocate for improvement in agricultural services within the prevailing policy and regulatory environment; develop and implement complementary agricultural programmes in line with government policy and plans; and contribute to policy formulation and reviews at all levels.

Development partners: Share good practices and alternative approaches to agricultural development; provide financial and technical support to the agriculture sector; and adhere to partnership principles between Government and donors.

The sectoral and action areas of the institutional actors for each country are summarized in Table 27. The detailed explanations of the main institutional landscape for each country have been described in the country briefs.

In Ethiopia, several institutions cut across climate change adaptation and mitigation and agriculture, food and nutrition security. EFCCC is the national focal point for climate change and serves as the UNFCCC focal point. For agriculture and food security, the Ministry of Agriculture (MoA), previously the Ministry of Agriculture and Natural Resources (MoANR), serves as the national focal point, with food nutrition being coordinated by the Ministry of Health (MoH). The landscape for Ethiopia is described in detail in Amwata et al. (2020).

In Kenya, the National Environment Management Authority (NEMA) under the Ministry of Environment and the Ministry of Finance, Planning and Development are the key institutions for climate change, with the Ministry of Agriculture as the focal point for agriculture and food security. At the national level, Kenya has established a Climate Change Directorate (within the Ministry of Environment and Forestry) as the lead government agency on national climate change plans and actions and serves as the national knowledge and information management center for collating, verifying, refining, and disseminating knowledge and information on climate change. Detailed description of the landscape in Kenya is presented in Amwata et al. (2019).

In Rwanda, the Ministry of Environment (MoE) is responsible for environment, climate change and natural resource management at the national and local levels. The Rwanda Environment Management Authority (REMA), under the MoE, is the national focal point for the UNFCCC. Detailed description of the landscape in Rwanda is presented in Mungai et al. (2020).

In Uganda, the Ministry of Water and Environment, Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Finance, Planning and Economic Development are among the key institutions responsible for climate change, agriculture and food security. At the district level, the Natural Resources Department of the District Local Government is responsible for the implementation of policies, legislation and strategies related to climate change. Uganda has set up two committees on climate change: i) the National Climate Change Policy Committee; and ii) the National Climate Change Advisory Committee. Detailed description of the landscape in Uganda is presented in Mungai et al. (2020).

In Tanzania, the Division of Environment in the Vice President's Office (DoE-VPO) is the key institution responsible for climate change and serves as the national climate change focal point for UNFCCC. The MALF is the primary government institution managing the climate change resilience issues in the agricultural sector. The National Climate Change Steering Committee (NCCSC) and the National Climate Change Technical Committee (NCCTC) are cross-sectoral bodies responsible for facilitating the implementation of the interventions identified in the NCCS. Focal points have been appointed in the key line ministries to mainstream climate change in their respective sectors. A detailed description of the landscape in Tanzania is presented in Amwata et al. (2020).

Several other institutions at global, continental and regional levels are also increasingly working on climate change adaptation and mitigation that are of relevance to the Eastern Africa countries. Although national climate change plans and strategies are often related to some international agendas, such as aligning with SDGs or meeting obligations under the UNFCCC, they are not as closely aligned to the Pan-African or regional frameworks. This is likely because countries developed their climate change strategies and responses prior to formal AU or regional strategies and frameworks (e.g., COMESA, SADC or IGAD). As indicated in previous sections, most national institutions focus on enhancing agricultural productivity, food and nutrition security and promoting climate change adaptation, with very limited focus on mitigation.

TABLE 27: Tanzania's national climate change legal and policy framework

Country	Institution	Focal areas
Ethiopia	<ul style="list-style-type: none"> •National Disaster Risk Management Commission •Ministry of Health •National Meteorological Agency •Ministry of Water Irrigation and Electricity •Ministry of Environment, Forest and Climate Change •Research organizations and Climate Service Provider Institute •Ministry of Agriculture and Natural Resources •Ministry of Livestock and Fishery •Ethiopian Environment and Forest Research Institutes •Ethiopian Biodiversity Institute 	<ul style="list-style-type: none"> •Adaptation and agriculture •Adaptation and agriculture •Adaptation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture
Kenya	<ul style="list-style-type: none"> •Ministry of Environment and Mineral Resources (MEMR) – Environment Directorate, Climate Change Directorate •National Environment Management Authority (NEMA) •Ministry of Planning and National Development •Ministry of Finance •County Governments •National Economic and Social Council •National Drought Management Authority •National Environment Trust Fund •Inter-ministerial Climate Change Coordination Committee •National Council for Science & Technology •Climate Change Units •Kenya Agricultural, Livestock Research Organisation (KALRO) •Ministry of Agriculture, Livestock and Fisheries 	<ul style="list-style-type: none"> •Climate change adaptation, mitigation and Agriculture •Climate change and Agriculture •Adaptation and Agriculture •Adaptation, mitigation, agriculture, food and nutrition security •Adaptation and Agriculture •Adaptation and agriculture •Adaptation and agriculture •Adaptation and Agriculture •Adaptation, mitigation and agriculture •Adaptation, mitigation and agriculture, food and nutrition security •Adaptation, mitigation and agriculture, food and nutrition security •Adaptation, and agriculture, food and nutrition security •Adaptation, mitigation and agriculture, food and nutrition security
Rwanda	<ul style="list-style-type: none"> •Ministry of Agriculture and Animal resources •Ministry of Local Government •Ministry of Finance and Economic Planning •Ministry of Environment and Natural Resources •Ministry of Health (MoH) •Ministry of Gender and Family Promotion (MIGEPROF) •Ministry of Infrastructure 	<ul style="list-style-type: none"> •Adaptation, sustainable agriculture, mitigation, food security, extension services •Good governance, food and nutrition security •Economic empowerment, agricultural productivity, food and nutrition security and climate change adaptation •Land use, adaptation, agriculture, climate change mainstreaming •Food and nutrition security, hygiene •Gender sensitive agriculture development, food and nutrition security •Climate change adaptation of infrastructure, health and nutrition security

TABLE 27: Tanzania's national climate change legal and policy framework

Country	Institution	Focal areas
	<ul style="list-style-type: none"> •Ministry of Disaster Management and Refugee Affairs •Ministry of Education •Rwanda Environment Management Authority (REMA) 	<ul style="list-style-type: none"> •Climate disaster resilience •Nutrition security, agricultural extension, human development, climate science and climate change capacity •Adaptation, mitigation, food security
Uganda	<ul style="list-style-type: none"> •Ministry of Energy and Minerals •Ministry of Planning and Economic Development •Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) •Uganda Food and Nutrition Council •Ministry of Water and Environment •Forestry Resource Research Institute 	<ul style="list-style-type: none"> •Finance, climate change adaptation and mitigation, agriculture and capacity building •Climate change adaptation and mitigation across sectors, including agriculture and financing •Climate change adaptation and mitigation, agriculture, food and nutrition security •Adaptation, agriculture and capacity building •Mitigation, adaptation, capacity building and agriculture •Adaptation, mitigation and agroforestry
Tanzania	<ul style="list-style-type: none"> •Vice President Office •Forum for Climate Change •Tanzania Meteorological Agency •Research and Academia •Ministry of Agriculture •Development partners •NGOs (CARE, Forum CC, CRS) 	<ul style="list-style-type: none"> •Data, coordination, integration of climate change in sectoral policies •Stakeholder engagement on climate, agriculture, food security and nutrition •Adaptation and agriculture by sharing and interpreting climate data and information with relevant institutions •Mobilize resources for research to address CC and develop and/strengthen relevant curricula on CC, A, FS and NS •Setting policy framework Implementation of policy and plans •Financial support for implementation of CC, A, FN security •Support implementation of interventions

Conclusion

The policy reviews of the five countries demonstrated increasing awareness and efforts across regional and national scales to strengthen the enabling environment for addressing climate change and improving agricultural productivity, food and nutrition security through policies, strategies, and implementation frameworks. Most climate change policies and frameworks are aligned with the global frameworks under the UNFCCC and the SDGs. The agriculture and food security policies tend to align with the regional and continental strategies and frameworks (e.g., CAADP). There is a need for more deliberate and proactive integration and coherence of the policies and frameworks for climate change with the agriculture, food and nutrition security policies and frameworks. For example, Kenya has a CSA Strategy and CSA Implementation Framework; however, there is still a need for additional political, institutional, and human capacity and coherent coordination among implementing institutions. Similarly, in Uganda, though climate change was being mainstreamed in national policy, capacity at sectoral departments with climate change cross-linkages was limited. In addition, most agriculture, food and nutrition security strategies and frameworks focus more on agricultural productivity, food access, and nutrition with limited focus on climate change adaptation and mitigation interventions.

Moreover, inadequate mechanisms for linkages and coordination between climate change and agriculture, food and nutrition security stakeholders have resulted in overlaps and inefficiency in implementing programs and projects. For Uganda, implementing the national plans at sub-national levels remains a challenge and is overly reliant on donor funding. The Tanzania review found that most sector-specific policies do not adequately integrate climate change. For Rwanda, though strong national-level frameworks on agriculture and food and nutrition security exist, implementation of these is weak. For Kenya, though there is an increasing effort at the national level to strengthen the climate change action enabling environment, limited progress has been made in integrating these policies and strategies in planning, budgeting, implementation, and monitoring processes. However, Ethiopia has a developed policy realm for integrating climate change into the overarching development and government agenda. Overall, the review found that more deliberate and proactive integration of the cross-sector policies was needed to decrease operational and implementation inefficiencies. The five-country reviews all reported gaps in the financing for integrating climate change, agriculture, food and nutrition security.

A final overarching finding was the trend toward a lack of, or inadequate indicators for, monitoring and evaluating the extent of integration of climate change, agriculture, and food and security in policies, plans, and programmes. A review of the more recent policies and frameworks shows that there is growing awareness at global, regional, and national levels of the added value of integrating climate change within agriculture, food and nutrition security policies and vice versa in national and sectoral planning. Within the reviewed countries, there is a deliberate and proactive integration of the new emerging frameworks and policies for climate change, agriculture, food and nutrition security.

The international, regional, and national frameworks and policies support climate change, agriculture, food and nutrition security as independent frameworks. These frameworks provide opportunities for action and opportunities to learn from existing institutions and mechanisms. The CSA Strategies, for example, provide excellent frameworks and opportunities for integration, but implementation remains a big challenge due to limited resources, and weak institutional coordination and arrangements, as noted in Kenya, Uganda and Tanzania. Climate change institutional capacity and knowledge at the national and local level is still fragile, with the limited technical capacity of local governments to implement adaptation and mitigation plans and related

interventions. There is a gap between national level and local level efforts. The current institutional architecture for climate change in the selected Eastern African countries has been borrowed from theories developed to address environmental issues and might not be sufficiently robust to allow for the inclusion of climate change resilience into plans of the relevant sectors and at different government levels.

There is a strong need for developing supportive institutional arrangements and collaboration to collectively integrate climate change, agriculture, food and nutrition security into existing policies, frameworks, and strategies. Efforts should be put toward building institutional collaboration for capacity development. This capacity development should include knowledge and integrate climate change mitigation opportunities with co-benefits in securing forms of food security aspects. National and regional leadership should work toward designing and implementing coherent and integrated policy approaches. At the policy and institutional level, governments could promote greater coherence, coordination, and integration among adaptation and mitigation efforts and mainstream climate-smart agriculture into broader public policy, expenditures, and planning processes.

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Annex

Annex 1. Key informants interviewed from the different institutions			
Country	Key informants from the different institutions	No. of key informants	No. of policies, frameworks and programmes reviewed
Ethiopia	Ministry of Environment, Forest and Climate Change Ministry of Agriculture, Natural Resources, and Livestock and Fishery Ethiopian Institute of Agricultural Research Ethiopian Environment and Forest Research Institutes		15
Uganda	Ministry of Water & Environment National Agricultural Advisory Services Uganda National Meteorological Authority National Agricultural Research Organization National Animal Genetic Resources Centre & Data Bank Department of Biology Mbarara University of science and Technology	7	25
Kenya	Ministry of Environment, Water and Natural Resources Ministry of Agriculture, Livestock and Fisheries Kenya Agricultural Livestock Research Organization (KALRO) Ministry of Finance, National Treasury and Planning Ministry of Devolution and Planning Ministry of Water and Irrigation Institute of Climate Change Adaptation, University of Nairobi National Institutions of Higher Learning	17	40
Rwanda	Ministry of Finance and Economic Planning Ministry of Environment Ministry of Lands and Forestry Ministry of Agriculture and Animal Resources Ministry of Health Ministry of Local Government Ministry of Education Ministry of Disaster Management and Refugees Rwanda Environment Management Authority Rwanda Natural Resources Authority Rwanda Agriculture Board National Agricultural Export Development Board Rwanda Biomedical Centre National Industrial Research Development Agency	16	18

Annex 1. Key informants interviewed from the different institutions

Country	Key informants from the different institutions	No. of key informants	No. of policies, frameworks and programmes reviewed
	University of Rwanda: College of Agriculture, Animal Production and Veterinary Medicine & College of Medicine and Health Studies		
Tanzania	Vice Presidents Office: Division of Environment Ministry of Agriculture, Food, and Cooperatives Food security department Environment department National Grain Reserves CARMATEC Iringa District Council Institute for Resource Assessment, University of Dar es Salaam National Meteorological Agency Tanzania Sugar Board Sokoine University of Agriculture D-Link Foundation for Energy, Climate, and Environment Tanzania Water Partnership	13	17



AICCRA
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Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

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