



POLICY BRIEF

Resilient Agriculture in the Context of Africa's Climate Change and Biodiversity Challenges and Policy Frameworks:

Opportunities for Africa



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Recommendations

- Integrate agroecological principles into policies, management and partnerships and practices in Africa's agricultural sector.
- Align various policy domains across sectors and scales (e.g., agriculture, environment, climate change, biodiversity, water management and land management).
- Frame interventions in support of sustainable agriculture and nature-based approaches within the context of the broader food system, with efforts to address power and information asymmetries in various dimensions, including gender and age, local/global, small-scale/large-scale.
- Strengthen participatory and cooperative governance systems and structures in support of integrated and inclusive responses.
- Improve food systems in the context of environmental challenges (land, biodiversity, water, climate, etc) through effective intra-governmental coordination across ministries, government agencies, and sub-national levels of government, as well as effective engagement with non-governmental stakeholders.
- Enhance the use of peer-to-peer, reflexive learning approaches and effective collaboration between communities, government, researchers and other stakeholders to develop locally appropriate solutions and scale local successes.



Introduction

Agriculture is central to African economies and livelihoods. The sector accounts for approximately 14 per cent of the continent's GDP and about 43 per cent of the work force (OECD/FAO 2021). While investments in large scale agriculture and agro-processing have been growing, the sector is still dominated by some 33 million smallholder farms, while more than 90 per cent of farming on the continent is rainfed rather than irrigated. Productivity has been growing, but this is off a low base. Sub-Saharan Africa produces only 10 per cent of the world's agricultural output, despite accounting for a quarter of the world's arable land (IFAD 2021). The continent spends about \$35 billion annually on food imports (Christiaensen 2020).

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Enhanced agricultural productivity based on agroecological principles and nature-based approaches will be key to ensuring Africa's growth and prosperity while ensuring food and nutrition security and environmental resilience. The COVID-19 pandemic and the conflict in Ukraine have led to a substantial increase in the number of food insecure people in Africa and has renewed focus on the vulnerability engendered by the region's reliance on food imports. Yet, even as the region must grapple with these immediate crises, it is also increasingly exposed to a number of interlinked environmental challenges that pose significant threats to the agricultural sector and the broader development ambitions of the continent. Innovative and integrated responses must be found to develop a vibrant, productive and competitive agricultural sector that concomitantly address the inter-linked challenges of land degradation, biodiversity loss, ineffective water cycles and the impacts associated with climate change.

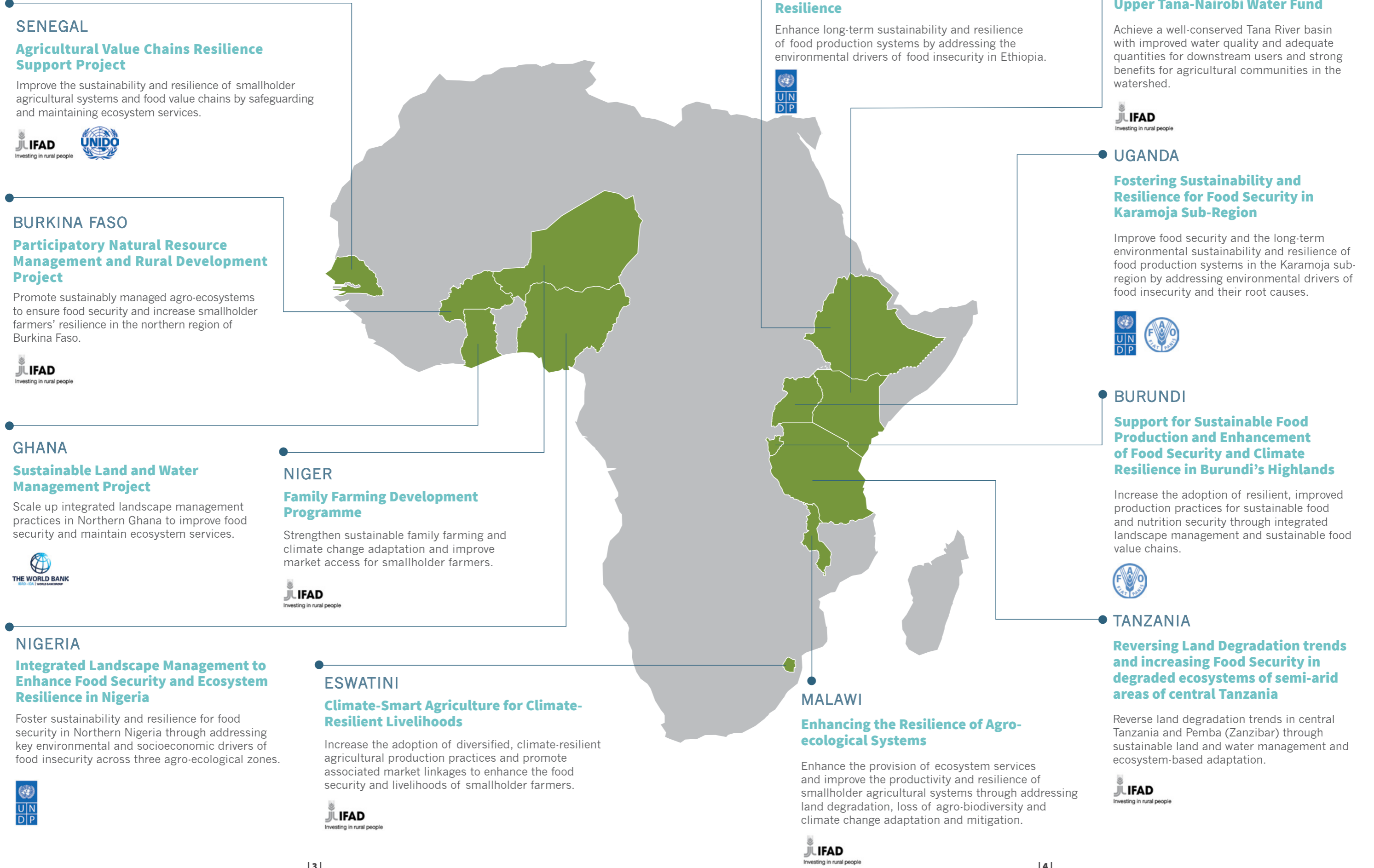
Innovative and integrated responses must be found to develop a vibrant, productive and competitive agricultural sector that concomitantly address the inter-linked challenges of land degradation, biodiversity loss, ineffective water cycles and the impacts associated with climate change.

Fortunately, there is a growing body of supportive policy frameworks at national and regional levels, increasing adoption of suitable approaches and practices, and the development of interventions aimed at providing the necessary finance, technical support and skills required for such responses.

This policy brief explores the challenges, but at the same time highlights the opportunities, related to enhancing the resilience of agriculture in the context of emerging environmental concerns in the Africa region. The briefing focuses on the twelve countries of the [Resilient Food Systems programme](#), a multi-institutional initiative tackling major drivers of environmental degradation by advancing a holistic approach to fostering agricultural productivity in smallholder systems.



Twelve countries actively engaged in the RFS programme



SENEGAL
Agricultural Value Chains Resilience Support Project
 Improve the sustainability and resilience of smallholder agricultural systems and food value chains by safeguarding and maintaining ecosystem services.

IFAD UNIDO

BURKINA FASO
Participatory Natural Resource Management and Rural Development Project
 Promote sustainably managed agro-ecosystems to ensure food security and increase smallholder farmers' resilience in the northern region of Burkina Faso.

IFAD

GHANA
Sustainable Land and Water Management Project
 Scale up integrated landscape management practices in Northern Ghana to improve food security and maintain ecosystem services.

THE WORLD BANK

NIGERIA
Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience in Nigeria
 Foster sustainability and resilience for food security in Northern Nigeria through addressing key environmental and socioeconomic drivers of food insecurity across three agro-ecological zones.

UN DP

NIGER
Family Farming Development Programme
 Strengthen sustainable family farming and climate change adaptation and improve market access for smallholder farmers.

IFAD

ESWATINI
Climate-Smart Agriculture for Climate-Resilient Livelihoods
 Increase the adoption of diversified, climate-resilient agricultural production practices and promote associated market linkages to enhance the food security and livelihoods of smallholder farmers.

IFAD

ETHIOPIA
Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience
 Enhance long-term sustainability and resilience of food production systems by addressing the environmental drivers of food insecurity in Ethiopia.

UN DP

KENYA
Upper Tana-Nairobi Water Fund
 Achieve a well-conserved Tana River basin with improved water quality and adequate quantities for downstream users and strong benefits for agricultural communities in the watershed.

IFAD

UGANDA
Fostering Sustainability and Resilience for Food Security in Karamoja Sub-Region
 Improve food security and the long-term environmental sustainability and resilience of food production systems in the Karamoja sub-region by addressing environmental drivers of food insecurity and their root causes.

UN DP FAO

BURUNDI
Support for Sustainable Food Production and Enhancement of Food Security and Climate Resilience in Burundi's Highlands
 Increase the adoption of resilient, improved production practices for sustainable food and nutrition security through integrated landscape management and sustainable food value chains.

FAO

TANZANIA
Reversing Land Degradation trends and increasing Food Security in degraded ecosystems of semi-arid areas of central Tanzania
 Reverse land degradation trends in central Tanzania and Pemba (Zanzibar) through sustainable land and water management and ecosystem-based adaptation.

IFAD

MALAWI
Enhancing the Resilience of Agro-ecological Systems
 Enhance the provision of ecosystem services and improve the productivity and resilience of smallholder agricultural systems through addressing land degradation, loss of agro-biodiversity and climate change adaptation and mitigation.

IFAD



Agriculture and Africa's Deepening Environmental Challenges

The environmental challenges facing Africa are deeply interlinked. The continent is highly vulnerable to climate impacts with climate change in turn impacting biodiversity, water availability, desertification and land degradation. There are other important drivers of environmental challenges: land conversion for industrial and urban development, poor land use practices, pollution, unsustainable harvesting of natural resources and other trends are directly undermining the ecosystem services on which Africans rely for their livelihoods.



Africa's Interlinked Environmental Challenges

- The United Nations Convention to Combat Desertification (UNCCD) estimates that land degradation affects up to two thirds of productive land area in Africa (ELD Initiative & UNEP 2015).
- Human-induced global warming has been more rapid in Africa than the rest of the world, according to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. The warming trend for 1991–2020 was higher than for the 1961–1990 period in all African subregions and significantly higher than the trend for 1931–1960 (WMO 2020).
- The frequency of extreme weather events has increased substantially in Africa over the past four decades—and it has increased at a faster pace than in the rest of the world. Relative to 1970–79, the frequency of droughts in sub-Saharan Africa nearly tripled by 2010–19, while it more than quadrupled for storms and increased more than tenfold in the case of floods (World Bank 2021).
- Between 2010 and 2020, Africa lost an average of nearly 4 million hectares of forest area per year. This is the highest rate of deforestation of any global region and is 15 per cent higher than the continent experienced from 2000-2010 (FAO/ UNEP 2020).
- 14 per cent of Africa's wilderness area has been lost since the 1990s (Watson et al. 2016).



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Agriculture is impacted by these environmental challenges, but it also plays a contributing role. Smallholder farming is the primary driver of deforestation in Africa (Weng et al. 2019). Drawing on data from the mid-1990s, the United Nations Environment Programme has estimated that overgrazing of forage plants by livestock is responsible for about half of all soil degradation in Africa, with poor agricultural management practices accounting for a further 24 per cent of soil degradation (ELD Initiative & UNEP 2015). A review of the impact of agriculture on biodiversity in Africa concluded that **“The main threat for all species in natural habitats remains the conversion of forests and grasslands to agriculture”** (Perrings & Halkos 2015), a finding that has been corroborated by more recent analysis (Leisher et al. 2022).

Given the prominent role of agriculture as a driver of environmental degradation, there has been a growing interest in transforming agricultural practices to reduce these negative impacts and even play a role in restoring ecosystem functioning. A transition towards more sustainable agriculture, and food systems more broadly, also requires a focus on equity, social well-being and the inclusion of farmers and communities themselves in designing and implementing locally appropriate solutions.

A number of related concepts have emerged that incorporate these approaches, including agroecology, conservation agriculture, regenerative agriculture, sustainable land and water management, and farmer-led natural regeneration. While these concepts are not precisely interchangeable, they all share a concern with integrating more sustainable, locally appropriate agricultural practices. Such practices improve yields by increasing soil nutrient and organic matter content, reducing soil erosion, and improving water retention, but they also contribute to broader environmental benefits such as more resilient ecosystems, improved carbon sequestration, enhanced water management and restoring biodiversity (IUCN 2021). From a food systems perspective, the **“triple wins”** of increased agricultural productivity, together with enhanced resilience of communities and agro-ecosystems, lies at the centre of agroecology. Achieving such outcomes, however, **“requires a paradigm shift in the practice of agriculture across the value chain, localisation of the food system, and a change in the market systems to meet the needs of the hungry communities while restoring the ecosystems from which such food systems depend on”** (Rapando & Matsaba 2021).



Integrated Agriculture Interventions Through the Resilient Food Systems Programme

The Resilient Food Systems programme is contributing to a paradigm shift in Africa's agriculture: one which emphasizes the importance of natural capital and ecosystem services to enhance agricultural productivity. The programme fosters sustainability and resilience by creating or strengthening institutional frameworks, scaling up integrated approaches, and monitoring and assessment of global environmental benefits.



In **Ethiopia**, the programme has established and developed the capacity of integrated multi-sector platforms at the national-, district- and community-level. At the local level, the project has established Community Watershed Management Committees to serve as the primary local institutions responsible for implementing the Sustainable Land and Water Management activities. These committees, together with the district technical committees, are responsible for rehabilitating degraded land, sustainably managing livestock, managing local water supplies, and halting and reversing deforestation (Resilient Food Systems 2020a).



In **Senegal**, the programme has been working with farmers to restore land degraded through groundnut monoculture. By improving the health and productive capacity of natural resources within Senegal's Groundnut Basin, and scaling successful approaches across communities, the programme is increasing agricultural yields and building the climate resilience of smallholder food systems, enabling smallholder farmers to achieve food and nutritional security and improve their livelihoods (Resilient Food Systems 2020b).



In **Burundi**, the Resilient Food Systems programme has been implementing anti-erosion approaches, such as agroforestry and contour planting, to stabilise the landscape and return nutrients and moisture back into the soil. For communities along the banks of the Kayokwe, Mubarazi and Ruvyironza rivers, planting bamboo has proved to be one of the most successful approaches for combatting soil erosion and preventing landslides (Resilient Food Systems 2021a).



In **Malawi**, the programme has introduced beekeeping as an alternative livelihood option to charcoal production. Around the town of Karonga where these activities have been centred, tree felling has decreased and charcoal production has come to a standstill as community members are introduced to more profitable, more sustainable livelihood options (Resilient Food Systems 2021b).



In **Tanzania**, the Resilient Food Systems programme is working with inhabitants from the village of Munguli to help them achieve Village Land Forest Reserve status for the areas surrounding the village. By partnering Munguli villagers with forest experts, the project seeks to advance conservation initiatives by harnessing local indigenous knowledge and encouraging informed community stewardship (Resilient Food Systems 2022).



In **Kenya**, the programme supports the Upper Tana-Nairobi Water Fund. The Fund coordinates the financing and implementation of integrated responses to help thousands of farmers in the Upper Tana watershed restore degraded land, harvest water, conserve soil, and introduce sustainable, nutritious and high-value crops. The Fund uses funding from “at the tap” downstream stakeholders—business and water users in the city—to finance “at the top” upstream investments in water conservation and sustainable agriculture (Resilient Food Systems 2021c).



In northern **Ghana**, the programme supports a comprehensive landscape approach to sustainable land and watershed management at the community level, with planning activities targeted at management of ecosystems at the landscape level, and improved food security and poverty reduction at community level. This is to generate triple-win situations; agricultural productivity increases are combined with the enhancement of ecosystem services and also with improvements of livelihoods, incomes and food security (Resilient Food Systems 2019a).



In **Eswatini**, the programme worked closely with government and community stakeholders to restore land degradation on the banks of the Mhlatuzane River, allowing for improved water management and the planting of crops and food trees on the rehabilitated land (Resilient Food Systems 2021d).



In **Niger**, restoration of over 10,000 hectares of degraded land has improved household incomes of farming communities and contributed to enhancing biodiversity (Resilient Food Systems 2019b).



Droughts in **Burkina Faso** in the 1970s and 1980s led to widespread land degradation, which has been exacerbated by climate change and poor agricultural practices. Interventions have been structured around a community-led approach. Capacity support has been provided to ‘relay farmers’ and community of practice groups from within communities, who in turn help with disseminating knowledge about new techniques related to land restoration, water management and farming methods (Resilient Food Systems 2021e).



The Resilient Food Systems programme has worked with several partners in **Nigeria** to establish a new multi-stakeholder platform to bring together stakeholders across the agricultural value chain. The objective of the multi-stakeholder platform is to strengthen collaborative efforts between various partners: private sector actors within agri-food value chains, the Nigerian government, and civil society. The platform is also gender-sensitive and aims to integrate women farmers in the agricultural sector to overcome gender disparities within the food system.



In **Uganda**, the programme demonstration woodlots have been planted around homesteads to restore forest areas but also provide wood fuel for cooking. The initiative has also been working with communities to restore forests under Farmer Managed Natural Regeneration programmes.

More examples of integrated responses to environmental challenges can be viewed at the Resilient Food Systems programmes [website](#).



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In a similar vein, the Africa Green Recovery Action Plan, adopted in 2021, calls for realigning policies, finance and support to incentivise investment and increase profitability of food system practices in ways that deliver positively for climate, biodiversity, nutrition and poverty-reduction (African Union 2021). These same principles are reflected in a number of other Africa regional policy frameworks and initiatives.

Finally, the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032), adopted by African Heads of State and Government in February 2022, suggests a range of priority actions related to agriculture and food systems, noting that accelerating recent progress on these fronts “requires a profound change in all facets of the food system, especially in the context of climate change, emerging pandemics, and threats to biological diversity” (African Union 2022).

The alignment between regional frameworks and national commitments to global policy frameworks addressing agriculture, biodiversity, climate change, land management and sustainable development creates important opportunities for African countries to create synergies for accelerating impacts while integrating implementation and reporting efforts.

The alignment between regional frameworks addressing agriculture, biodiversity, climate change, land management and sustainable development creates important opportunities for African countries to create synergies for accelerating impacts while integrating implementation and reporting efforts. This also applies to national commitments to global policy frameworks, including the Paris Agreement under the United Nations Framework Convention on Climate Change, the Kunming-Montreal Global Biodiversity Framework under the Convention on Biological Diversity, and commitments under the United Nations Convention to Combat Desertification. In all these cases, there are opportunities to integrate resilient agriculture and nexus issues related to biodiversity, climate and land management.



Resilient Agriculture for a Resilient Africa: Policy Responses

The transition to more resilient and sustainable agriculture is supported by a range of regional policy frameworks and initiatives in Africa. The continent’s development framework, Agenda 2063, calls for stakeholders to work towards a future where “Africa’s unique natural endowments, its environment and ecosystems, including its wildlife and wild lands are healthy, valued and protected, with climate resilient economies and communities” (African Union 2015). The framework highlights the need to enhance Africa’s agricultural sector to address food insecurity, reduce reliance on food imports, improve access to appropriate technology, finance and capacity building, and improve opportunities for women and youth in agriculture.

These approaches are also highlighted in the Comprehensive Africa Agriculture Development Programme (CAADP). CAADP emphasises sustainable land and water management as an imperative for sustainable development, underlining its role in “harmonising the complementary yet historically conflicting goals of production and environment” (AUDA-NEPAD 2009). It calls for an integrated approach to agriculture and environment through bringing together two key objectives:

1. maintaining long-term productivity of the ecosystem functions (land, water, biodiversity) and
2. increasing productivity (quality, quantity and diversity) of goods and services, particularly safe and healthy food.

Relevant African Agriculture, Climate and Biodiversity Frameworks

- Africa Land Governance Strategy (under development)
- African Union Climate Change and Resilient Development Strategy and Action Plan (2022)
- Africa Green Recovery Action Plan (2021)
- Africa Common Position on Food Systems (2021)
- Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience (2018)
- African Ministerial Declaration on Biodiversity (2018)
- Cairo Declaration on Managing Africa's Natural Capital for Sustainable Development and Poverty Eradication (2015)
- Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (2014)
- Comprehensive Africa Agriculture Development Programme (2003)



Conclusion

Africa is facing a number of integrated environmental challenges, including climate change, biodiversity loss, land degradation, deforestation, increasing water scarcity and desertification. Agriculture and broader food systems are impacted by these challenges, but agriculture is also a key driver of these challenges. If agriculture is to contribute to sustainable development on the continent in the manner envisioned by Agenda 2063 and other policy frameworks, widespread adoption of agroecological and related principles and practices will be required. Such transitions will also require a focus on addressing power and information asymmetries within African and global food systems, including gender dimensions. Policy alignment at national, continental and global levels must be strengthened, and participatory and cooperative governance mechanisms developed in support of integrated and inclusive solutions. Greater use of peer-to-peer, reflexive learning approaches and effective collaboration between communities, government, researchers and other stakeholders are required to develop locally appropriate solutions and scale local successes. Numerous interventions across the continent are showing that such shifts are possible and do indeed deliver tangible environmental, social and economic benefits. The widespread adoption of these approaches can ensure that agriculture becomes an integral part of the continent's response to environmental challenges.

National Commitments to Global Frameworks in Agriculture, Climate and Biodiversity Frameworks



United Nations
Framework Convention on
Climate Change

UNFCCC Long Term Climate Resilient Development Plans and Nationally Determined Contributions, National Adaptation Programmes for Action (NAPAs) and Nationally Appropriate Mitigation Actions (NAMAs)



**Convention on
Biological Diversity**

UNCBD National Biodiversity Strategies and Action Plan



United Nations
Convention to Combat
Desertification

UNCCD National Action Plans (NAPs) and Voluntary Land Degradation Neutrality (LDN) Targets

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