GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

UNTAPPED OPPORTUNITIES FOR CLIMATE ACTION

An assessment of food systems in Nationally Determined Contributions

COUNTRY ASSESSMENT

KENYA

GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

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PREFACE

Integrating food systems transformation into the Nationally Determined Contributions (NDCs) – the national climate actions at the heart of the Paris Agreement, is critical to delivering on interconnected ecological, biodiversity, health, economic, social, and cultural goals. Taking a food systems approach builds climate resilience and results in a diversity of context-specific solutions for food production, distribution, consumption, and waste. Yet, food systems are rarely prioritized in climate policy.

This country assessment is part of a suite of publications that are designed to centre food systems transformation in future climate policy:

1. **Untapped Opportunities for Climate Action: An Assessment of Food Systems in Nationally Determined Contributions**: A summary report providing a synthesis of the 14 country assessments with recommendations and priority actions for policymakers and climate policy advisors
2. **A Practical Guide to Assessing Food Systems in Nationally Determined Contributions (NDCs)**: A guide with a framework designed to enable users to take a food systems approach to developing future NDCs and implementing climate policies.
3. A set of **14 country assessments** examining the latest NDCs of 14 countries from around the world, outlining areas of improvement and opportunity

Users are also encouraged to read ***Confronting the climate crisis with food systems transformation: Stories of action from 14 countries,*** which provides a catalogue of global case studies that complement the suite of materials for policymakers, advisors, and advocates of climate action.

OVERVIEW OF KENYA'S FOOD SYSTEMS

The agricultural sector is the backbone of Kenya's economy and food supply chain. It accounts for 33% of the country's estimated 9,315 billion Kenyan shillings (KES) (82 billion USD)* gross domestic product.[1] Local production supports 75% of the population's food needs, whereas 80% of the rural population depends on household production for food and as their sole source of income.[2] The main staple food of Kenya is maize, grown on 2.1 million hectares of land,[3] and accounting for about 36% of total food caloric intake in the country. In addition to livestock and dairy, the government of Kenya promotes the production of maize, rice, potatoes, tea, and coffee (known as the "Big Five").[4] However, Kenya still imports maize from Tanzania and Uganda, and also imports over 60% of the wheat needed to meet domestic demand.[5]

Kenya's economy is highly dependent on horticulture and floriculture exports. With highly export-oriented horticulture and floriculture,[6] Kenya has become the largest African horticulture exporter to the European Union.[7] More than 95% of the fresh fruits and vegetables consumed in Kenya is grown domestically, mainly by smallholder farmers, and is supplied to rural and urban markets by small and medium-size enterprises through informal supply chains.[8] The inefficiency of these supply chains leads to the emergence of many brokers and intermediaries, which in turn leads to high food prices and high rates of post-harvest food loss.[9]

The food system in Kenya is characterized by gender disparities. Large-scale production is overall dominated by men, while small-scale vegetable and fruit production is dominated by women. However, women also experience inequitable access to resources.[10] Despite significantly contributing to the national GDP, there is limited formal financial and credit flow into agricultural systems in addition to a lack of infrastructure, poor storage facilities and road networks, and market failures.[11]

Agriculture is the major emitter of greenhouse gases (GHG) in Kenya. Together, Land Use and Land Use Change and Forestry (LULUCF) and agriculture contribute 75% of the greenhouse gas (GHG) emissions.[12] Due to climate change, Kenya's national crop production has significantly decreased in recent years, which directly impacts all four dimensions (availability, accessibility, utility, and stability) of food security.[13] In addition, internally displaced persons have limited access to adequate food and food subsidies in response to a food shortage.[14] Kenya hosts around 490,000 refugees, and their increasing numbers impact the food provision balance in the country.[15]

Article 43(1)c of the Kenyan Constitution states that every person has the right to be free from hunger and to have adequate food of acceptable quality. This is reinforced with respect to children in Article 53. Despite this, more than half (51%) of the Kenyan population lack access to adequate food.[16] Among other factors, this is caused by poverty, market, price, income, expenditure, low dietary diversity and protein quality, low food safety, insufficient food supply, poor infrastructure, long distance to the point of demand, corruption, and little access to finance.[17] As a result, a large share of the more than 75% of Kenyans living in rural areas suffer from inadequate food intake.[18] More than 10 million people in Kenya are chronically malnourished, of which

* Conversions based on February 2, 2022, exchange rates.

1.3 million people are estimated to have faced severe acute malnutrition.[19] While malnutrition affects all age groups, children and women of childbearing age are among the most severely affected.[20]

Adult obesity has more than doubled, from 3 to 7% between 2000 and 2016.[21] The rise in obesity paired with the prevalence of undernourishment indicate a double burden of malnutrition in Kenya, with possible signs of a triple burden if the prevalence of anemia is also considered.[22]

In addition to the health consequences, food insecurity also directly impacts national development, economic activities, and human capital due to the losses in workplace productivity.[23] Losses in workplace productivity were estimated to cost Kenya 4,350 billion KES (38.3 billion USD) in GDP between 2010–13.[24]

The food systems in Kenya present an opportunity for intervention, as it is mainly anchored by the agricultural sector. As agriculture is vulnerable to climatic shocks and other sectoral instabilities, these challenges translate into social, economic, and environmental upheavals. Transformation of the agricultural sector will result in the reduction of malnutrition through food security, improved employment, reduction of GHG emissions, and gender equality, among other benefits. There is a need to support agricultural resilience, rehabilitation of relevant infrastructural facilities, enhancing the supply chain, and balancing the financial system to stabilize the food systems in Kenya.

NDC STATUS

Kenya submitted its updated NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in 2020. The updated NDC increased the 2030 target by 2 to 32% reduction in GHG emissions relative to business-as-usual scenarios.[25] Kenya is supported by the NDC Partnership in the update of its NDC as well as in conducting a financial and technological assessment.[26] In addition, the country is set to contribute 21% of the costs, and over 15 donors are supporting the implementation of the NDC.[27] However, the submitted NDC does not specify contributions by sector.[28] Kenya seeks to be a low-emission society by 2050. As part of the mitigation measures, Kenya plans to increase the fraction of renewable energy and percentage of forest cover and to promote climate smart agriculture.[29]

The following assessment was conducted between April and September 2021, and is largely based on Kenya's updated NDC as well as interviews with eight key stakeholders.

KEY FINDINGS

NDC DEVELOPMENT PROCESS

TABLE 1: NDC DEVELOPMENT: KEY FINDINGS AT A GLANCE

Key Findings	Areas of improvement
• A robust coordination system was in place for the development of the NDC. • The NDC process was led by the Ministry of Environment and Forestry while the coordination was carried out by the Climate Change Directorate under the Ministry. • The Updated NDC builds upon the National Adaptation Plan (NAP) 2015–2030 and reflects Kenya's Second National Climate Change Action Plan (NCCAP 2018-2022) and the Third National Inventory Report (NIR 3). • Kenya's Gender Analysis (2020)47 was undertaken to ensure that gender-responsive actions are identified, planned, budgeted for, and implemented as part of mainstreaming gender into Kenya's NDC.	• Improve coordination mechanisms set up within and across levels of government. • Ensure participatory governance in order to address structural inequities and power imbalances in food systems. • Expand the consultation process of the NDC to involve all stakeholders, in particular women, smallholder farmers, Indigenous Peoples, and other marginalized groups. • Improve transparency around decision-making and how consultation input is considered.

The updated NDC is in accordance with Decision 4/CMA.1 as required by the United Nations Framework Convention on Climate Change (UNFCCC). This requires Kenya to provide information on public participation and engagement with local communities and Indigenous Peoples in a gender-responsive manner. This is a significant improvement when compared to the development process of Kenya's first NDCs, which were developed by a few selected stakeholders and was heavily reliant on consultants who worked with small teams from different sectors, including government ministries and civil society.[30] Despite the development of a committee of technicians with a broader understanding of climate change and adaptation, the development process of the country's first NDC was characterized by limited sectoral participation.[31] The development of the updated NDC received support from various partners, including the German and U.K. governments.[32] The process entailed the review of relevant national plans, policies, and legislation. Key stakeholders included national and county government sectors, civil society, academia, and the private sector.

The formulation of the NDC is developed based on the existing policies, and some are relevant to the food systems. In order to ensure alignment and coherence, the process entailed the review of relevant

national plans, policies, and legislations. This includes the National Adaptation Plan (NAP) 2015–2030, new policies, and national plans, and reflect subsequent work as captured in Kenya's Second National Climate Change Action Plan (NCCAP 2018–2022) and the Third National Inventory Report (NIR 3). The majority of policies linked to climate change and those that impact the food systems are derived from the Climate Change Act (2016), which was enacted to facilitate national climate action.

The National Adaptation Plan (NAP) is the basis of the adaptation component stated in Kenya's NDC and aims to consolidate the national action with the economic sectors to attain the 2030 target. The NAP acknowledges drought as a climate change phenomenon causing severe crop and livestock losses. It clearly demonstrates integration with sectors linked with the food systems. The rollout of the NAP required the contribution of all the stakeholders — that is, the National Drought Management Authority, media, public, academia, and public institutions — and the adoption of policies.

The development process was led by the Ministry of Environment and Forestry and coordinated by the Climate Change Directorate. To strengthen government capacity, the Kenya Private Sector Alliance has been brought on board by the government as an equal partner, and its Green National Business Agenda sets out the framework for engagement between the private sector and government, including policy and fiscal incentives to enhance green business. With regards to a wider set of stakeholders, the consultation process was also diverse, as it involved a blend of virtual and in-person expert consultative workshops. The virtual nature of some consultations was a result of COVID-19 regulations.

Kenya's Gender Analysis (2020) was undertaken to ensure that gender-responsive actions are identified, planned, budgeted for, and implemented as part of mainstreaming gender into Kenya's NDC. The analysis explored the gender differentiated impacts of climate change by looking at existing gender inequalities in access to and use of resources, participation, and benefits between various gender groups. It focused on the key NDC sectors of agriculture, energy, and water; the role of gender within these sectors; challenges to women's participation and empowerment; and sectoral opportunities for supporting gender-responsive measures. The gender analysis provides strategic recommendations on governance, planning, and policy that will strengthen the integration of gender equality into NDC planning and implementation processes.

AREAS FOR IMPROVEMENT

Improve coordination mechanisms set up within and across levels of government to develop the NDC and the policy development process. The National Climate Change Council is responsible for oversight and coordination of the implementation of NDC. However, there is a need to continue strengthening the coordination capacity of Climate Change Units (CCUs) at the national and county level to ensure better complementarity and cooperation between national, regional, and global transparency-related activities in Kenya.

Ensure participatory governance in order to address structural inequities and power imbalances in food systems. Devolution under the Constitution of Kenya 2010 comprises two levels of government, namely the National and County Governments. While the NDC mentions cascading of commitments between

the two levels of government from National through the County Integrated Development Plans (CIDPs) of County Governments, inclusive governance mechanisms across jurisdictional levels are not equally implemented and the effectiveness of governance related to the NDC at different jurisdiction levels vary. This is partially due to insufficient allocation of resources to some counties, which affects implementation of climate action plans. Some counties, such as Kiambu County, are more advanced because their policy is already aligned toward more sustainable practices (such as agroecology), which is unique compared to other counties.[33]

Ensure participatory approaches are applied to consult and engage all the relevant stakeholders in the NDC development process. Although the NDC development process involved extensive stakeholder engagement, interviews across sectors[34] revealed that there are still barriers to meaningful participation, including language, exclusion of civil society organizations from the development process, and low levels of active participation. In particular, the participation of women, marginal groups, or communities in consultation processes is often not tangible, and not enough support is given to ensure greater and more effective contributions to consultative processes.[35] Separating men from women during consultation workshops will encourage women to voice their opinions during such engagements. Additionally, engaging stakeholders in local languages will enhance the level of understanding and confidence of key yet vulnerable stakeholders, encouraging them to actively participate. Youth can be engaged through platforms such as the Climate Smart Agriculture Youth Network (CSAYN) Kenya. CSAYN Kenya is a youth platform whose main mandate is to engage youth in climate smart agriculture as a means to catalyze youth engagement in climate action. One interviewee indicated that it is the role of civil society to ensure that the vulnerable communities, the disabled, and women are represented in the drafting and validation of NDCs.[36] Despite significant improvement in inclusive participation, it is still a challenge for some stakeholders to understand key concepts of climate change, which are very often only understood by experts in this field. For example, smallholder farmers have a limited understanding of climate adaptation and mitigation terminologies. It is therefore important for the information discussed during consultations to be made more digestible to allow for meaningful and inclusive engagement.[37] The shift to virtual consultations due to COVID-19 limited the participation of stakeholders who do not possess the resources to participate on online platforms. Despite the inclusion of civil society organizations, interviewees revealed that vocal civil society organizations are often excluded from the development process.[38]

Expand the consultation process of the NDC to involve women, smallholder farmers, Indigenous Peoples, and other marginalized groups. Clear communication was a major consideration to facilitate stakeholder ownership and effective implementation. However, detailed information on the process and the accessibility of documentation provided to inform full and effective participation was not presented. Interviews and research conducted on those likely to be excluded in participation also revealed that due to resource limitations, those located in remote rural areas were often not included in the recruitment process that enabled stakeholders to participate in the NDC update process. Stakeholders who were likely not adequately consulted include Indigenous Peoples, pastoralists, women, smallholder farmers, and displaced and local communities.[39]

Improve transparency around decision-making and how input from consultation is considered. Interviewees revealed that the process of providing input and feedback during the NDC update process was efficient. However, in some cases where evidence-based input (that is, relevant scientific data) was provided, there was no transparency with regards to the process of deliberation on submitted data, which led to the exclusion of some feedback from key stakeholders in the NDC.[40]

CONTENT OF THE NDC

TABLE 2: NDC CONTENT: KEY FINDINGS AT A GLANCE

Key findings

- The NDC promotes transformational agriculture, in particular for crops, livestock, and fisheries, to contribute toward meeting the ambitious climate change adaptation and mitigation targets set out in Kenya's NDC.
- The NDC includes measures to improve climate services to build climate resilience through sustainable land use management, the provision of safety nets, extension services, as well as access to finance specifically targeted at marginalized communities.
- The NDC includes measures to build climate resilience for marginalized communities by developing social safety net structures for women, youth, and other vulnerable groups within the County Climate Change Funds (CCCFs).

Areas for improvement

- Account for the contribution and importance of local and international trade on local food systems in light of the increasing importance of trade in Kenya.
- Include measures to promote nutritious, sustainable, whole-food diets.
- Aim to integrate a holistic food systems perspective to account for greater efficiency in the value chain, and reduction of waste and post-harvest losses. Include measures to promote agroecology and regenerative approaches to sustainable land use, such as pest and disease management, and improved soil health.
- Include commitments made in the context of the Glasgow Leaders' Declaration on Forests.

Agriculture is identified as one of the most vulnerable sectors to climate change, and also as a key sector that will contribute toward meeting the ambitious climate change adaptation and mitigation targets set out in Kenya's NDC. The NDC explains the importance of the agricultural sector given that the population is expected to grow by 27% (compared to 2019) to 60.4 million in 2030. Agriculture was also identified as the leading source of emissions in Kenya in 2015, accounting for 40% of emissions. The NDC, however, does not provide sectoral mitigation targets.

The NDC promotes transformational agriculture, in particular for crops, livestock, and fisheries. This is done through the promotion of climate smart agriculture (CSA)* in line with the Kenya Climate Smart Agriculture Strategy (KCSAS) (2017–2026) and efficient livestock management, which aims to increase productivity.

* The Strategy defines climate smart agriculture as "Agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (mitigation), and enhances the achievement of national food security and development goals." Chapter 3 of the Strategy describes in more detail the type of measures envisioned to implement CSA, including promoting crop diversification and sustainable management of natural resources, as well as reducing enteric fermentation in livestock production and enhancing the production of rain-fed rice, among others.

The strategy aims to transform and develop by uniting agriculture, development, and climate change. It also emphasizes the need for a coordination framework for successful implementation. The Kenya Agriculture – Climate Multi Stakeholder Platform is a network of organizations whose work is inclined toward CSA practices. The platform's main agenda is to coordinate stakeholders in the CSA arena and their work. The platform's formation is anchored on Kenya's commitment to implement CSA measures to address the impacts of climate change and to meet obligations to the Paris Agreement in reducing emissions, as stipulated in the country's NDC.

The NDC includes measures to improve climate services to build climate resilience. The NDC aims to build the resilience of the agricultural system through the sustainable management of land, soil, water, and other natural resources as well as insurance and other safety nets. The NDC aims to strengthen communication systems on climate smart agriculture extension services and agro-weather issues. Drought risk management includes early warning, preparedness, and response for enhanced drought resilience. Kenya aims to improve early warning and tailor-made climate information services through institutional strengthening of Kenya Meteorological Department and other information user institutions. The NDC also aims to rollout Early Action Protocols for forecast-based financing to enable adequate access to humanitarian assistance for the most vulnerable populations.

The NDC includes measures to build climate resilience for marginalized communities by developing social safety net structures for women, youth, and other vulnerable groups within the County Climate Change Funds (CCCFs). The NDC promotes access of women, youth, and other vulnerable groups to enterprise funds, climate finance and credit lines, and gender-responsive technologies and innovations in the private sector, through financing capacity-building and start-up services. Furthermore, Kenya's Vision 2030 development blueprint ensures an industrialized economy in a clean and secure environment. It makes special provisions for Kenyans with various disabilities and previously marginalized communities, and its ambition is to generate opportunities for youth and women and to promote entrepreneurship. Opportunities for youth and women set out in the Vision are a drive to sustainable food systems and make provision for the creation of small and medium enterprises and the continuous growth of urban and rooftop agriculture. However, the Vision is opaque in its quantification of impacts, that is, urban agriculture and rooftop crop production.

AREAS FOR IMPROVEMENT

Recognize and account for the contribution and importance of local and international trade on Kenya's food systems. In 2020, Kenya signed an Economic Partnership Agreement with the U.K., and Kenya is currently negotiating a free trade agreement with the United States. The country seeks to also benefit from the African Continental Free Trade Area (AfCFTA), which came into effect in January 2021. The NDC should include the importance of trade to Kenya's local food system given the increasing participation of Kenya in international trade.[41] However, Article 3.5 of the United Nations Framework Convention on Climate Change (UNFCCC) states that "measures to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."[42] Therefore, regulations such as carbon taxes imposed by the destination would act as a trade barrier for Kenya, given the country's uncompetitive carbon footprint for its export product.

Include measures to promote nutritious, sustainable, whole-food diets. Kenya prioritizes the food security of its citizens, hence response to climate change should safeguard the citizens' basic rights to food. While undernutrition in Kenya has gradually declined, the NDC could put in place stronger measures to meet the recommended intake of nutritious foods such as fruit and vegetables. Therefore, the NDC could include measures that promote nutritious, sustainable, and whole-food diets that align with the National School Meals and Nutrition Strategy (2017–2022). The strategy outlines the design and implementation of nutrition-sensitive school meals. As an example, Kenya has joined France in the United Nations Food Systems Summit (UNFSS) coalition on school meals, which aims to ensure that every child has the opportunity to receive a healthy, nutritious meal by 2030. This is based on the commitment of the government of Kenya to ensure that school children are well nourished and healthy, and are able to learn and develop to their full potential. The strategy builds upon relevant policies and laws that relate to the education, health, and nutrition of Kenyan school children. Other dietary measures could include scaling up of existing food banks (such as Food Banking Kenya) that source and redirect nutritious surplus food saved from landfills to redirect to hungry people. The organization establishes an effective sourcing storage and distribution network that guarantees food safety. By reducing unnecessary food loss, the food banking system also reduces GHG emissions. The NDC should concretely support measures to integrate climate change in policies and frameworks on agriculture, food, and nutrition security to provide and strengthen the enabling environment for building farmers' resilience and adaptive capacity. Similarly, climate change policies and frameworks need to integrate agriculture, food, and nutrition security.

Aim to integrate a holistic food systems perspective to account for multiple elements of the agricultural sector, such as greater efficiency in the value chain and reduction of waste and post-harvest losses, to ensure climate resilience. The agricultural sector contributes 34% to gross domestic product. However, challenges exist that call for increased investments by both the public and private sectors. In 2020, widespread flooding damaged cropland and increased post-harvest losses. Also, desert locust infestations in arid and semi-arid areas destroyed about 175,000 hectares of crop and pastureland. This affected the livelihoods of nearly 164,000 households. Kenya's NDC focuses mostly on the production of food. The NDC therefore needs to account for and address issues of post-harvest losses, as this affects overall productivity, food security, and emissions from the food sector.[43] Sectoral considerations — such as low-tech business cases for private sector companies who have invested in minimizing food loss in the early post-production stages of the dairy, grains, and tomato value chains — show significant potential to reduce national emissions (given the GHG intensity of these sectors) and are promising examples for inclusion in the NDC.

Include measures to promote agroecology and regenerative approaches to sustainable land use, such as pest and disease management, and improved soil health. The demonstrative example of Kiambu County could be replicated across counties through alignment of policies to ensure more sustainable practices (such as agroecology). Given the increasing incidence and magnitude of both the impacts of locusts as well as the Fall armyworm infestation affecting major crops such as maize, including integrated pest management in the NDC will reduce the threat to food security. However, the NDC refers to the Kenya CSA Strategy, which aims to provide an immediate and effective response in case of any crisis or emergency; that is, Control and Management of Desert Locusts, El Niño Response Programme, and Animal Take-off Programme.

Additionally, the NDC needs to provide more clarity on agriculture's contribution to ecosystem restoration, through aspects such as improved soil health.

Integrate the commitments made in the context of Glasgow Leaders' Declaration on Forests and Land Use. By making an explicit link in its NDC to the commitments and actions taken in the context of the Glasgow Leaders' Declaration, Kenya can accelerate the shift toward sustainable food systems, in particular through measures that further promote regenerative agricultural practices, restore degraded land, and protect natural ecosystems.

IMPLEMENTATION OF THE NDC

TABLE 3: NDC IMPLEMENTATION: KEY FINDINGS AT A GLANCE

Key findings

- In the revised NDC, Kenya commits to mobilize resources to meet 13% of this budget, as opposed to no commitment in the first NDC.
- The NDC indicates actions for public sector finance and fiscal policy toward ecologically beneficial forms of sustainable production in the fisheries sector for better and healthier food, and resilient livelihoods and communities.
- Kenya has developed an integrated Measurement, Reporting and Verification (MRV) system, including an integrated MRV tool, for monitoring and reporting of both mitigation and adaptation actions, together with their results.

Areas for improvement

- Provide clear sector-based allocations for financial support to establish stronger rural livelihoods and communities producing better and healthier food under ecologically beneficial forms of farming.
- Accelerate the process of the development of a multi-stakeholder MRV tool and reach out to more actors to ensure a facilitated, robust, and inclusive reporting system.
- Concretely detail safeguards for the protection and expansion of rights in agroecology and regenerative approaches to allow marginalized groups access to key resources necessary for a food systems transformation in Kenya.
- Include specific vehicles for technology development and transfer.

Kenya adopts an "all of society approach" for NDC implementation. Kenya's approach in tackling climate change and its impacts involves engagement of all actors, including government and non-government players such as civil society and private sector actors, academia, media, development partners, and citizens.

Compared to the first NDC, which was fully conditional on support, Kenya commits to mobilizing resources to meet 21% of its mitigation budget and will require international support for the remaining 79%. In turn, Kenya will aim to meet 10% of its adaptation costs. The total cost of implementing mitigation and adaptation actions in the updated NDC is estimated at 7,043 billion KES (62 billion USD). Kenya commits to bearing 13% of these costs. However, the country's capability of implementing this contribution is subject to limitations, with poverty alleviation and sustainable economic development being the key national objectives. Increasing the per-capita GDP growth equitably above the 2019 levels of 6.36% is therefore a priority. As a result, the country will need substantial support to realize its development objectives through the low carbon climate-resilient development pathway that has informed the NDC update process. The remaining costs will require substantial international support in the form of finance, technology development and transfer, and capacity-building. Kenya is open to any climate finance in terms of loans as part of its domestic contribution.

Actions have been undertaken to direct public sector finance and fiscal policy toward ecologically beneficial forms of sustainable production in the fisheries sector for better and healthier food, and resilient livelihoods and communities. Rising sea temperatures off the coast of Kenya have triggered mass coral bleaching and mortality on coral reef systems over the past two decades. This impacts the abundance and composition of fish species and negatively impacts coastal fisheries. The reduction in coral reefs reduces food sources for fish, and shrinks their populations, with a knock-on effect for fishing communities. The NDC highlights measures to enhance sustainable production within the fisheries and marine sectors. These include the enhancement and strengthening of governance of community structures in participatory resource management in coastal ecosystems, conducting a blue carbon-readiness assessment for full integration of blue carbon/ocean climate actions into NDCs, developing marine spatial planning, and outlining sustainable management approaches. This is in line with Kenya's commitment to nurture its ocean-based blue economy, which is anchored in a national development plan and which includes food security as one of its four pillars and aims to transform the nation into an industrialized, middle-income country by 2030. Furthermore, there is an allocation of 1 billion KES (about 10 million USD) for a new fish-processing plant near the new coastal port of Lamu. The government also plans to complete another processing plant in Mombasa, the country's major port. Further investments in the blue economy will be made to triple the current contribution to GDP by exploiting its untapped maritime resources.[44]

Kenya has developed an integrated Measurement, Reporting and Verification (MRV) system, including an MRV tool for monitoring and reporting both mitigation and adaptation actions, together with their results. The system is embedded in the Climate Change Act, which obligates all State and Non-State climate change actors to report on all their climate change activities on an annual basis. To facilitate the tracking of climate change actions and reporting, the system includes appropriate indicators, including those on baselines that will be continuously improved over time through an evaluation mechanism. This integrated MRV system is linked with the already existing monitoring and reporting systems, including the National Integrated Monitoring System (NIMES) and County Integrated Monitoring System (CIMES). The United Nations Development Programme (UNDP) is working closely with the Ministry of Environment and Forestry Climate Change Directorate to progress the NDC reporting process, focusing on key sectors like water, energy, and agriculture as well as ensuring that reporting mainstream gender considerations to frame Kenya's reporting through a holistic sustainable development lens. A thematic working group within the Kenya Agriculture – Climate Multi Stakeholder Platform, with the support of the International Centre for Tropical Agriculture (CIAT), is currently developing a tool to facilitate multistakeholder agriculture reporting.

The NDC details the development of infrastructure plans to support implementation of agroecology and regenerative approaches. Kenya aims to plant 350,000 agroforestry trees in farmlands, conduct and implement recommendations on climate and risk assessments on water and irrigation infrastructure, build resilience infrastructure for the protection of dams and dikes and river lines, and promote water harvesting and storage at county and household levels. The NDC promotes the use of appropriate designs and building materials to enhance resilience of at least 4,500 kilometres (2,796 miles) of roads to climate risk.

AREAS FOR IMPROVEMENT

Provide clear sector-based allocations for financial support to establish stronger rural livelihoods and communities producing better and healthier food under ecologically beneficial forms of farming. The KCSAS is an implementation framework through which the NDC commitments are being achieved. The implementation of KCSAS will require a total of 500 billion KES (5 billion USD) for adaptation and mitigation actions for the agriculture sector up to 2026. Although the amount available to fund the implementation of agriculture-based initiatives is not explicitly stated in the NDC, an interviewee revealed that despite existing food systems projects, there is insufficient funding from the government of Kenya to implement sustainable food systems projects.[45] While a small proportion of allocated funding often does trickles down to marginalized communities, gender and other social inclusion considerations should also inform resource allocation. Current budget lines for agricultural activities should be reviewed to ensure the activities being undertaken adhere to climate smart principles.

Include measures to build cross-ministerial collaboration as well as frameworks for stakeholder dialogue, exchange of best practices, and building institutional capacity around healthy dietary transitions. The NDC refers to health problems that are a result of the impacts of climate change. Given concerns of the negative health impacts of the fast-food industry in Kenya, collaboration between the Ministry of Health and the Ministry of Agriculture has the potential to enhance regulations related to unhealthy diets and promote healthier food production and consumption.[46] However, in the context of climate change, food sources are becoming more erratic and scarcer, causing women, youth, and vulnerable groups to experience food insecurity. The related increases in food prices make food more inaccessible to these sub-groups, resulting in deterioration in their nutrition and health status. Hence, greater coordination and cooperation between these ministries must be demonstrated tangibly in the NDC to ensure improved and sustained access to nutritious food.

Accelerate the process of the development of a multistakeholder MRV tool and reach out to more actors to ensure a facilitated, robust, and inclusive reporting system. While Kenya's policy and planning processes, legal framework, and institutional structures — together with a financing mechanism for climate action — have been, in some places, partially or more extensively defined and implementation has started, they are not yet fully operational. Various sectors are to downscale and contextualize the indicators into their country and sector planning documents. To implement the MRV system, the monitoring and evaluation (M&E) frameworks developed for sectors and counties will track progress of climate action and results. It is not clear if key stakeholders have sufficient the technical skills for MRV. Therefore, current institutional, technical, and financial resources and capabilities for MRV need to be further developed to meet the ambitious requirements from all key stakeholders.

Concretely detail safeguards for the protection and expansion of rights in agroecology and regenerative approaches. While the NDC makes several references to women and gender responsiveness, there are no explicit measures to, for instance, address issues around land titles (currently only 10% of land titles are issued to women, and this translates into only 1.62% of agricultural land being owned by women). The burden of securing access to food in times of crisis falls disproportionately on women. Therefore, a greater allocation of land titles and ownership, as well as land access for women for climate smart

agriculture production, will enable more control over resources, greater access to finance, better decisions about planting drought-resistant crops or investing in alternative livelihoods like goat rearing, and may have a positive impact on the transformation of Kenya's food systems.

Include specific vehicles for technology development and transfer. Kenya's NDC also aims to consolidate successful technologies and develop a transfer strategy to women, youth, and other vulnerable populations. However, the NDC does not include any concrete actions to achieve its commitment to technology development. Instead, achieving the country's technology development commitments is entirely conditional on financial support from international communities.

Improve the development of infrastructure plans to support implementation of agroecology and regenerative approaches. Despite detailed infrastructure plans, greater priority should be given to improved food storage infrastructure, food transportation, and distribution, efficiency and sustainability of food processing in order to reduce post-harvest food loss and waste.

CASE STUDY SUMMARY

Sylvia's Basket, Kenya

Sylvia Kuria, a Kenyan smallholder organic farmer, ambassador at Organics International, and founder of Sylvia's Basket, has a dream to revolutionize the consumption of organic food in Africa:

"*African agriculture is premised on the production of monoculture crops such as maize*," she says. "*These farming systems use large quantities of artificial fertilizers and pesticides, which are damaging soil health, contributing toward climate change, and harming the health of many Kenyans*."

Predicated on the principle that access to affordable, healthy, and nutritious food is a fundamental human right, Sylvia established Sylvia's Basket in 2016.

Sylvia's Basket focuses on four key activities: 1) the establishment of two organic farms; 2) supporting small-scale farmers to establish their own kitchen gardens; 3) a shop and marketing activities; and 4) a training program. In doing so, Sylvia aims to connect farmers directly with customers (cutting out the middlemen), improving incomes of smallholder organic food producers, building capacity and knowledge, and providing access to healthy and nutritious foods to all Kenyans.

Experiential learning through peer-to-peer learning and on-farm training are key to building knowledge, sharing solutions, and ultimately challenging the predominant monoculture-focused agriculture narratives that still dominate investment, research, and policy environments in much of Kenya. Sylvia's Basket places a strong emphasis on collaboration with women and young people; for example, supporting them with training and capacity-building through the establishment of kitchen gardens. Sylvia also emphasizes building the capacity and knowledge of Kenyan farmers via a "seeing is believing" approach. Farmers are invited onsite to Sylvia's farms to learn the key principles of good agroecological farming practice.

Sylvia's Basket recognizes the need to ensure that Kenyans can feed themselves and works to improve access to a variety of indigenous and nutritious fresh fruits and vegetables. Sylvia's farms are organic and are based on agroecological practices (for example, mulching, cover cropping, green manuring, rotational cropping) that build soil health, sequester carbon, and improve the water-retention capacities of soils. This, in turn, builds farm resiliency to the impacts of climate change. Agroforestry, particularly the use of a variety of indigenous nitrogen-fixing trees, reduces the need for fertilizers and pesticides. These methods, combined with avoiding middlemen, have doubled the incomes of farmers who supply her shop.

Furthermore, Sylvia's Basket is part of a multistakeholder platform of the Kiambu County (consisting of various ministries affiliated with agriculture, civil society organizations, private sector, and other stakeholders), which is lobbying for the formulation of an agroecological policy framework for Kiambu County.

Further information and access to the detailed case study can be found here.

ENDNOTES

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