AGRA
Sustainably Growing Africa's Food Systems

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT
REPUBLIC OF KENYA

KENYA FOOD SYSTEMS AND LAND USE ACTION PLAN (2024-2030)

OCTOBER 2023

Foreword

The transformation and sustainable growth of Kenya's food systems are crucial to the country's development goals. Kenya's food systems currently face unprecedented challenges that require a holistic and integrated approach. Recent developments in Kenya's food systems have highlighted the need for urgent action. The COVID-19 pandemic has disrupted supply chains, increased food insecurity, and highlighted the vulnerability of the country's food systems. Climate change, land degradation, and biodiversity loss also threaten the long-term sustainability of the food system. To address these challenges, the government has prioritised the development of the Kenya Food Systems and Land Use Action Plan 2024-2030.

The Food and Land Use Coalition (FOLU) Growing Better report identified ten critical transitions that need to take place to transform food systems globally, including in Kenya. These transitions provide a road map for action and require the collective efforts of all stakeholders, including the government, private sector, civil society, and development partners. The Kenya Food Systems and Land Use Action Plan 2024-2030 seeks to build a more sustainable, inclusive, and resilient food system that contributes to the country's economic development, food and nutrition security, and environmental sustainability. The Action Plan will prioritise key areas such as sustainable land use, productive and regenerative agriculture, nutrition-sensitive agriculture, value chain development, healthy diets and innovative financing models. It will also promote multi-stakeholder engagement and collaboration.

Successful implementation of this Action Plan will require a whole-of-government approach, with strong leadership and coordination at all levels. The private sector, civil society, development partners, and other stakeholders are invited to join this journey towards a more sustainable and resilient food system that benefits all Kenyans.

In conclusion, the Kenya Food Systems and Land Use Action Plan 2024-2030 provides a road map for action and enables the necessary transitions towards a more sustainable, inclusive, and resilient food system. All stakeholders are urged to take ownership of this Action Plan and work together to realise the shared vision of a food system that nourishes people, protects the planet, and drives the economy.

Prime Cabinet Secretary

Preface

The Ministry of Lands, Public Works, Housing & Urban Development, Ministry of Agriculture and Livestock Development, Ministry of Environment and Forestry, Ministry of Health, and Ministry of Mining, Blue Economy and Maritime of Kenya is pleased to present the Kenya Food Systems and Land Use Action Plan 2024-2030. This Action Plan is a joint effort of our respective ministries and stakeholders to address the critical challenges facing our food systems and land use.

Our Action Plan focuses on five key issues: promoting healthy diets, productive and regenerative agriculture, reducing food loss and waste, gender youth and social inclusion, and protecting and restoring nature. These issues are paramount in ensuring sustainable development, improved food security, and the well-being of Kenyan communities.

We recognize that agriculture is a crucial sector for Kenya's economy, contributing 22.4% of the Gross Domestic Product and employing over 60% of the population in both formal and informal sectors. Agriculture is also essential for food and nutrition security, with over 80% of Kenyans deriving their livelihoods directly or indirectly from the sector. This Action Plan aims to achieve the goals outlined in the Kenya Vision 2030 by proactively maintaining existing markets and creating new ones to increase our bargaining power in the global agricultural market. It also emphasises improving the physical market infrastructure, such as sanitation and storage facilities, to ensure efficient agricultural marketing and faster food distribution from surplus areas to deficit areas.

We are committed to implementing this Action Plan and call on all stakeholders to join us in achieving its objectives. Through collaboration and learning, we can successfully address the challenges facing our food systems and land use, enhance the livelihoods of our farmers, and create more employment opportunities for our communities.

CSs - Ministry of Agriculture and Livestock Development, Ministry of Lands, Ministry of Environment, Ministry of Health, Ministry of Mining, Blue Economy and Maritime Affairs, Ministry of Water, Sanitation & Irrigation

Acknowledgement

I would like to express my gratitude to all the individuals and organisations who contributed to the development of the Kenya Food Systems and Land Use Action Plan 2024-2030. In particular, I would like to acknowledge the support and partnership of FOLU Kenya and its partners, who played an instrumental role in shaping this action plan.

I would also like to acknowledge the technical experts from the public and private sectors, Non-Governmental Organisations, and Research Institutes who contributed to the development of this plan. Special thanks go to the State Department of Crop Development, AGRA, WRI Africa, and GAIN Kenya.

We appreciate the facilitating role played by the Ministry of Agriculture and Livestock Development, under the leadership of the Cabinet Secretary Mithika Linturi and the Principal Secretary of State Department for Crop Development, Mr. Phillip Kello Harsama; Principal Secretary, State Department for Livestock Development, Mr. John Mueke; Principal Secretary, State Department for Lands and Physical Planning Mr. Nixon Korir; Principal Secretary, State Department for Environment Eng. Festus Ngeno; Principal Secretary, State Department for Forestry, Gitonga Mugambi; Principal Secretary, State Department for Blue Economy and Fisheries Betsy Muthoni Njagi; Principal Secretary, State Department for Irrigation Ephantus Kimani, Principal Secretary, State Department for Health and Professional Standards Mary Muthoni and the Council of Governors. Special thanks go to the team of experts under the leadership of Dr. Patrick Gicheru and Joram Muchangi. The coordinating role led by Mr. Willie Too, Leonard Kubok, and Jeremiah Rogito is also highly acknowledged.

We express our immense gratitude to our development partners across the Agriculture and Rural Development Donor Group (ARDDG), with special thanks to the Food and Land Use Coalition and its partners. My appreciation to AGRA through their President, Dr. Agnes Kalibata, the Country Director, Mr. John Macharia, Dr. Susan Chomba from WRI Africa, and Ruth Okowa of GAIN Kenya for their timely financial and technical support extended to this process.

As it is not possible to mention everyone and every institution individually, kindly take this acknowledgement as an expression of sincere gratitude.

Agriculture Secretary
State Department for Crop Development
Ministry of Agriculture and Livestock Development

Executive Summary

Kenya's economy has been resilient over the years. In the recent past, it has remained strong even with the COVID-19 shock, with real gross domestic product (GDP) increasing by 7.5 per cent in 2021 compared to 0.3 per cent when the effects of the pandemic were very severe. Despite Kenya registering growth in GDP over the last two decades, food insecurity remains an enormous challenge, with close to 10 million people suffering from chronic food insecurity and poor nutrition (GoK, 2011). In 2021, Kenya was ranked 87th out of 116 countries under the Global Hunger Index, with the hunger level categorised as serious.

Agriculture has remained the dominant sector of the economy, accounting for about 22.4 per cent (KNBS 2021). The sector has recorded mixed performance in the recent past. In addition to the challenges of Drought, other climate-related challenges continue to undermine the country's food system.

Food production in the country is not in tandem with the population growth, which has necessitated imports to fill the gap. There has been a gradual increase in food imports. Data from the KNBS (2023) shows that food imports both for household consumption and processing have been on a rising trend. Between 2017 and 2021, imported foods for household consumption rose by 23.2 percent from Kshs.. 185.4 to Kshs.. 228.4. Even more critical is the increase in the proportion of food imports as a percentage of total imports of goods in the country, which has risen from 10 to 17 per cent over the last decade. This, in actual terms, translates to a 2.5-fold increase from $1.2 billion to US$3.0 billion.

In turn, this has increased the country's vulnerability to global food shocks, such as supply bottlenecks occasioned by the COVID-19 pandemic in 2020-2021 and global conflicts.

The current state of the Kenyan food system is unsustainable. A sustainable food and land use transformation matters for Kenya as evidence indicates that Kenya is increasingly becoming food insecure amid other food systems concerns. Among the key issues on the Government of Kenya's (GOK) priorities is transforming food systems to ensure food and nutritional security for the population. Kenya's food and nutritional insecurity situation has pushed food imports to a record high. The challenges in food systems, if not dealt with, could derail the progress Kenya has made in delivering a sustainable food and land use system, as well as other socio-economic gains that have been made. The complexity of the challenges in Kenya's food system requires partnerships and collaboration between relevant stakeholders.

The development of the Kenya Food Systems and Land Use Action Plan 2024-2030 was conducted through an inclusive and consultative process. The formulation of the action plan involved a series of discussions and dialogues on food systems in Kenya among stakeholders,

and it included counties and regional economic blocs in the country, aiming to translate conversations into actionable plans that can be effectively monitored. A Draft strategy was developed and presented to stakeholders for feedback, and the final Draft was then subjected to a national stakeholder validation process for adoption. The final Draft action plan received input from the Government of Kenya under the leadership of the Chief Cabinet Secretary/Cabinet Secretary of the Ministry for Crop, Livestock Development, and Agricultural Research. Their input contributed to the finalisation of the action plan.

The key components of this Action Plan are to address challenges in five critical transitions as identified in the FOLU Action Agenda Scoping Report for Kenya, which are:

i) Healthy diets
ii) Productive and regenerative agriculture
iii) Protecting and restoring nature and
iv) Food loss and waste and
v) Youth and social inclusion.

The report also addresses cross-cutting issues such as the role of youth and harnessing the Digital Revolution in addressing food and land use issues in the country. The solutions/proposals for addressing the challenges faced in Kenya are based on the review of the legal, policy, regulatory and institutional framework and meeting with stakeholders, including counties. The report presents evidence-based priorities that, if implemented, could contribute to Kenya achieving a sustainable food and land use system. The report is structured in such a way that for each critical transition, there is a goal and the key result area that the action plan seeks to address and several strategic objectives that would be achieved.

The main audience for the Action Plan will be policymakers, government officers, academia, development partners, donors, non-governmental organisations (NGOs), civil society organisations (CSOs), faith-based organisations (FBOs) and the private sector.

The Ministry of Agriculture and Livestock Development will lead the implementation of this Program. The other line ministries involved in the implementation are Environment and Natural Resources, Health, Water and Irrigation and Lands. The Monitoring, Evaluation, Accountability and Learning (MEAL) framework will facilitate tracking and evaluation of performance targets, as well as serve as an accountability and learning framework for the various nutrition stakeholders in addition to supporting results.

The evidence generated will inform review, planning, resource allocation, decision making and adaptive management, as well as real-time monitoring of the food and land use actions planned annually.

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Abbreviations and Acronyms

AGRA - Alliance for Green Revolution in Africa
CAIT - Climate Analysis Indicators Tool
CIDPs - County Integrated Development Plans
COVID - Coronavirus Disease
CS - Cabinet Secretary
CSOs - Civil Society Organizations
FBOs - Faith-Based Organizations
FFS - Farmer Field Schools
FOLU - Food and Land Use Coalition
FLW -Food Loss and Waste
GAIN - Global Alliance for Improved Nutrition
GDP - Gross Domestic Product
GHG - Greenhouse Gas Emissions
CGA - Consumer Grassroots Association
IEC - Education and Communications
IPM - Integrated Pest Management
KALRO - Kenya Agricultural Livestock Research Organization
KeFoSLUAP -Kenya Food System and Land Use Action Plan
LMICS - Low- and Middle-income Countries
MEAL - Monitoring, Evaluation, Accountability and Learning
MoA - Ministry of Agriculture
NCDs - Non-Communicable Diseases
NGOs - Non-Governmental Organisations
PELUM -Participatory Ecological Land Use Management
VBA - Village-Based Advisors
WRI -World Resources Institute

INTRODUCTION

1. INTRODUCTION

1.1. Background Information

Kenya's economy has been resilient over the years. In the recent past, it has remained strong even with the COVID-19 shock, with real gross domestic product (GDP) increasing by 7.5 per cent in 2021 compared to 0.3 per cent when the effects of the pandemic were very severe (World Bank 2020). However, the economy has been severely tested by recurring and cyclical Droughts. The cycle has reduced over the years, from every 10 years down to every five years and further down to every two to three years in the very recent past (NDMA 2021). The latest Drought, which ended this April, has been one of the worst Droughts in the last five decades. The time for recovery and rebuilding of stocks of food and livestock has become increasingly shorter with every Drought. Despite Kenya registering growth in GDP over the last two decades, food insecurity remains an enormous challenge, with over 10 million people suffering from chronic food insecurity and poor nutrition (GoK, 2011). The 2022 Global Hunger Index, Kenya ranks 94th out of the 121 countries with the hunger level categorised as serious (Global Hunger Index 2022).

In addition to the challenges of Drought, other climate-related challenges continue to undermine the country's food system. For instance, 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, adversely affecting the livelihoods of nearly 164,000 households (World Bank, 2021).

Agriculture has remained the dominant sector of the economy, accounting for about 22.4 per cent (KNBS 2021). The sector has recorded mixed performance in the recent past. Agricultural output contracted by 0.1 per cent in 2021 compared to a particularly strong performance of 5.2 per cent in 2020, attributed mainly to poorly distributed, as well as inadequate long rains and short rains. The performance of the agricultural sector in the last five years is as follows:

TABLE 1: AGRICULTURAL PERFORMANCE, 2018-2023(%)

2018	2019	2020	2021	2022	2023
6.1	2.8	5.2	-03	-1.9	3.0**

Source: Kenya National Bureau of Statistics, National Treasury
** - Projected

The Kenya Vision 2030 identifies agriculture as a key economic sector, central to achieving "a globally competitive and prosperous country with a high quality of life by 2030 in Kenya". Agriculture is therefore expected to deliver on Kenya's regional and global commitments, such as the Comprehensive Africa Agricultural Development Programme (CAADP), African Union (AU) Agenda 2063 and Sustainable Development Goals (SDGs). In order to achieve the aspirations in the Kenya Vision 2030, the government has developed the Agriculture Sector Growth and Transformation Strategy (ASGTS) and a new National Agricultural Investment Plan (NAIP, 2018-2030).

The production of food also shows a mixed performance. Maize production, the staple food for the country, declined by 12.8 percent from 42.1 million bags in 2020 to 36.7 million bags in 2021. Milk production, another important food commodity in the country, increased by 26.6 percent from 688.3 million litres in 2020 to 801.9 million litres. Overall, the value of marketed agricultural production increased by 4.2 per cent from Kshs.. 505.3 billion in 2002 to Kshs.. 527.0 billion in 2021. Meanwhile, the production of sorghum (a Drought-tolerant crop) declined by 57.1 per cent, while that of Irish potatoes increased by 10.5 per cent. Table 2 below shows the production of a few food commodities in the country.

TABLE 2: AGRICULTURAL PERFORMANCE, 2018-2023(%)

Commodity value chain	2017	2018	2019	2020	2021
Maize (Total marketed '000 tonnes)	239.2	441.5	316.7	261.3	228.4
Milk sold centrally (Million litres)	591.4	652.3	685.9	684.4	801.9
Sugar ('000 tonnes)	4,715.6	5,262.2	4,606.1	6,810.9	7,783.3
Wheat ('000 tonnes)	156.9	330.3	348.8	280.8	241.9

Source: Kenya National Bureau of Statistics, 2021

This shows that the country's food systems are fair at best and precarious at worst. Food availability and access are influenced by the ability of individuals and households to produce their food in sufficient quantity and to generate income to purchase food, the adequacy of infrastructure, the effectiveness of food distribution systems and the affordability of food prices. Other factors include access and control of productive resources (land, seed and water), governance, legal and regulatory frameworks, the macroeconomic environment, gender dynamics, emergencies and conflicts. The country is increasingly dependent on food importation to meet its food requirements. Therefore, the country faces multiple challenges in ensuring a

sustainable food system that is currently characterised by diminishing food production or capacity to produce food (see table above); food production not in tandem with increasing population growth, weak natural resource base, declining fertility of soils hence declining productivity and climate change. Currently, one of the main challenges for the agricultural sector in Kenya is to provide enough food, in quantity and quality, to meet the nutritional needs of a growing population while at the same time ensuring that there is sustainable resource-use efficiency, especially natural resources.

The net result of the current state of production of some of the major food commodities is a weakened food system characterised by a gradual increase in food imports. Data from the KNBS (2023) shows that food imports both for household consumption and processing have been on a rising trend. Between 2017 and 2021, imported foods for household consumption rose by 23.2 percent from Kshs. 185.4 to Kshs. 228.4.

Even more critical is the increase in the proportion of food imports as a percentage of total imports of goods in the country, which has risen from 10 to 17 per cent over the last decade. This, in actual terms, translates to a 2.5-fold increase from $1.2 billion to US$3.0 billion. This has increased the country's vulnerability to global food shocks, such as supply bottlenecks occasioned by the COVID-19 pandemic in 2020-2021 and the ongoing Russia-Ukraine war. One of the effects of increased food imports is lost opportunities for stakeholders in the food and agriculture sector, exerting pressure on the shilling against major global currencies and, ultimately, widening the import-export gap for the country.

High dependence on agricultural imports renders countries vulnerable to fluctuations in global markets, increased national debt and variable weather patterns and can contribute to food insecurity. A spike in maize prices, for example, could leave many people in Kenya unable to purchase sufficient food. People who are poor or who already face obstacles to obtaining adequate nutrition are particularly at risk of experiencing recurring food crises.

COVID-19, global politics and conflict have undermined Kenya's food system by contributing to the rise in prices, as well as shortages of food commodities, including edible oils and fertilisers, among others. Imports from Tanzania doubled from Kshs. 27.9 billion in 2020 to Kshs. 54.5 billion in 2021, partly attributed to the increase in imports of maize and rice from the country. There were also increased imports of sugar and milk from Uganda in the same period.

1.2. Food Systems

A food system (FS) encompasses the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption, and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded. The FS is composed of subsystems (e.g. farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g. energy system, trade system, health system, etc). Therefore, a structural change in the food system might originate from a change in another system; for example, a policy promoting more biofuel in the energy system will have a significant impact on the food system, or high-water tariffs can have adverse effects on the availability and affordability of irrigation water which can have adverse effects in irrigated agriculture. A sustainable food system (SFS) is a system that delivers food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised, meaning that it is profitable throughout (economic sustainability); it has broad-based benefits for society (social sustainability), and it has a positive or neutral impact on the natural environment (FAO, 2023).

The Kenya Action Plan for a new Food and Land Use architecture economy follows the principle of the FOLU analytical pyramid. The FOLU transformation analytical framework is based on four pillars namely: Nutritious food, Nature-based solutions, Wider Choice supply, and Opportunity for all. The Action Plan draws on insights and analysis from FOLU's Global Report, Growing Better: *Ten critical transitions* as illustrated by figure 2. For the case of Kenya, five transitions in food and land use systems have been identified with the potential to deliver immense impact. The FOLU framework is intended to provide an analysis and recommendations to support the Government of Kenya and other stakeholders to venture into socioeconomic development and business opportunities to accelerate the attainment of the goals and targets set out in the country's Vision 2030.

The Food Systems Dialogue process in Kenya reinforced the actions needed to reach **Vision 2030** of 100% food and nutrition security. This will be met through aspiring to**:**

1. **Increase the number of young people receiving school-based agricultural education.**
2. **Increase the uptake of digital agricultural solutions.**
3. **Improve the diversity of diets, including fruits, vegetables, dairy, meat and fish, as well as grains.**
4. **Heighten climate action to build the resilience of the entire population.**

The **ASTGS** furthers the **Big 4 Agenda** aspirations by 2022, which were a 34% increase in the average daily income of farmers, a 27% reduction in malnutrition among children under five years of age, the creation of 1,000 Agro-processing SMEs and 600,000 new jobs, 50% reduction in the number of food insecure Kenyans, a 48% increase in Agriculture sector contribution to GDP and a 47% reduction in the cost of food as a percentage of income.

FIGURE 1: THE TEN CRITICAL TRANSITIONS FOR SUSTAINABLE FOOD AND LAND USE SYSTEMS

1.3. Overview of Food and Land Use in Kenya

Food security exists when all people, at all times, have both physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 1996).

The current state of the Kenyan food system is unsustainable. A sustainable food and land use transformation matters for Kenya as evidence indicates that Kenya is increasingly becoming food insecure amid other food systems concerns. Agriculture policy and implementation in Kenya is a devolved function; hence, there is a need to work closely with the county governments and county-level stakeholders to articulate food systems interventions.

Agricultural extension policy revolves around the main goals of increasing productivity and income growth, especially for smallholders, enhanced food security and equity, and emphasis on irrigation to introduce stability in agricultural production. Despite the county being guided by the National Agricultural Sector Extension Policy (NASEP) and the ASTGS, there is evidence of a policy vacuum in the provision of extension services. The unstable policy framework has led to many challenges and obstacles to the realisation of a relevant, innovative, efficient and cost-effective extension system in the country.

The National frontline extension staff: farmer ratio in Kenya is about 1:2000 against the internationally recommended ratio of 1:400. This limits access to extension services (Kenya Soil Health Consortium, 2014). There is a need to recruit more extension staff and better use of ICT to improve access to extension services. Farmers, public and private sector extension agents, researchers and journalists all need to improve their knowledge and skills on soil health. Besides providing advice, skills and knowledge to increase agricultural productivity, capacity development can help them take advantage of market opportunities, adapt to climate change, forge new partnerships and learn how to make the best use of information and communication technologies (ICTs) that can ultimately lead to improving the sustainability of Kenya's food system.

Access to regenerative inputs is a big challenge. Input (fertilisers, pesticides, fungicides, etc.) supply is a multi-dimensional factor at the national and local levels. It is critical to support private sector outreach plans to enable them to access farmers easily and cost-effectively.

Among the key issues on the Government of Kenya's (GOK) priorities is transforming food systems to ensure food and nutritional security for the population. Kenya's food and nutritional insecurity situation has pushed food imports to a record high. Persistent Drought, low productivity, and limitations in processing capabilities in the food sector to meet the diverse needs of consumers are among the reasons for this high food import bill. The challenges in food systems, if not dealt with, could derail the progress Kenya has made in delivering a sustainable food and land use system, as well as other socioeconomic gains that have been made. The complexity of the challenges in Kenya's food system requires partnerships and collaboration between relevant stakeholders.

Kenya's food system is being undermined by the challenges facing how land is utilised, that is the nature of the land use systems, degradation, soil erosion, and pollution. Land degradation manifests itself in many ways, including unsustainable loss of vegetation, loss of edible or palatable grasses by livestock, increasing incidences of aridity, increasing scarcity of water sources, shrubs in areas that were predominantly rich in pastures, gullies, thin and stony soils and invasion of invasive species that lead to food and water insecurity. These components do not act separately but are intrinsically linked to each other and may act as mutual supporters and accelerators of the degradation process (Mulinge *et al.,* 2016). As degradation continues, it becomes increasingly difficult and costly to rehabilitate and restore affected lands to their original state.

Food systems in Kenya are not sustainable in their current status; they rank as a major contributor to national carbon emissions and continue to contribute to the loss of biodiversity. A study by Masumi (2020) on several high-impact threats to biodiversity was linked either directly or indirectly to agricultural activities, of which crop farming was most prominent.

Kenya is stepping up its Nationally Determined Contribution (NDC) ambition by committing to reduce its greenhouse gas emissions by 32 per cent by 2030 while bearing 21 per cent of the costs, an increase from its original NDC. One way it will accomplish this is through Climate Smart Agricultural practices that include improved livestock management systems to reduce methane emissions. According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), agriculture was the leading source of GHG emissions in Kenya in 2013, contributing 62.8% of total emissions; therefore, regenerative agriculture requires a multi-pronged approach with improvements in on-farm energy efficiency and reductions in GHG emissions, together with actions that promote long-term net carbon storage on farms. Kenya has committed to improving the nutrition status of its citizens and one of the indicators that are being tracked, as set out in the World Health Assembly 2025, is the prevalence of stunting of under five children. The country recorded significant progress in reducing the prevalence of stunting (too short for their age), underweight (too thin for their age) and wasting (too thin for their height) from 35,16,7 per cent to 26,11, and 4 respectively percent respectively for the period 2009-2014 but overweight and obesity was on the increase (KDHS, 2014). The indicators have improved significantly to 18, 10, and 5 percent respectively according to KDHS, 2022. Three per cent of children underage overweight.

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT

REPUBLIC OF KENYA

FOOD SYSTEMS IN KENYA

Kenya Food Systems and Land Use
Action Plan (2024-2030)
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2. FOOD SYSTEMS IN KENYA

2.1. Food supply sub-system in Kenya

2.1.1. Farming

Crop production in the county has been fluctuating over the years. This could be mainly due to unpredictable weather patterns, the area planted, poor soil health, and the use of different seeds. The country needs to analyse priority crop value chains to provide baseline information that is later applied in the food system program. The analysis should cover production trends, the area cultivated, economic returns, value addition capacity, and marketing systems. Dairy is practised under different production systems, which include intensive, semi-intensive, and extensive (free-range) systems in Kenya.

2.1.2. Logistics

Food transport and logistics systems in Kenya, as well as unsustainable consumer behaviour, have continuously contributed to increased food insecurity. Most post-harvest losses are experienced at selling points due to inadequate production handling facilities. About 30-40% of locally-grown crops each season are lost or wasted due to inefficiencies in the supply chain (CGIAR, 2019). We have excess food wasted in some areas while in other areas it is affected by accessibility.

2.1.3. Processing

According to UNEP's Food Waste Index Report, 2021, every Kenyan throws away an average of 99 kilograms of food every year, amounting to about 5.25 million tons of food (UNEP, 2021). Half of the losses occur at post-harvest and processing levels. The reasons include delays in getting the food to market due to poor physical infrastructure, inadequate storage facilities and limited value addition. Other losses occur when crops are destroyed in the field before even making it to the market or when crops are harvested and then get spoiled on the way to market. With processing, there will be more opportunities for different gender groups, given the wide range of activities required to convert fresh produce into processed products.

2.1.4. Retailing

Food safety needs to be ensured by protecting the food supply from all types of hazards that may occur during all stages of food production, including primary production, harvesting, processing, transporting, retailing, distributing, preparing, storing, and consumption (GoK, 2021).

Distribution is the process where, once the food is edible, it is transported and distributed to the necessary retail or supplier. One of the biggest challenges almost every wholesale food distributor faces, is keeping the freshness and certain shelf life alive. Perishable foods are crucial to handle; they need to move through the centre and be delivered as quickly as possible to maintain freshness and maximum shelf life.

2.1.5. Consumption

Kenyans' food calories (90%) supply is based on just four crops: maize, wheat, beans, and potato. Maize, especially grown from hybrid varieties, accounts for about 65% of the staple diet. This is followed by wheat contributing 17% and beans at 9%. Kenya imports most of **its** wheat and rice (Mohajan, 2014). Their increasing importance to the national food supply is a good indicator that Food Sovereignty needs to be considered as an important policy issue since the Food import burden further balloons exponentially when rainfall seasons fail. The narrowing of dietary choices can be attributed to a rise in industrial agriculture, eroding memory and planting of traditional indigenous crops, and food poverty.

The over-reliance on maize has contributed significantly to malnutrition due to micronutrient deficiencies in Kenya (Khamila *et al.,* 2020). The main forms of micronutrient deficiencies in Kenya include vitamin A, iron, folate, vitamin B12, iodine and zinc deficiencies (KDHS, 2014). A micronutrient survey in the country revealed that the prevalence of Vitamin A deficiency among preschool children was 52.6%; Iron deficiency was at 36.1% among pregnant women and 21.8% among under-five children; Zinc deficiency was at 83.3% in pregnant women and 82.3% in non-pregnant women; Folate deficiency was at 32.1% in pregnant women and 30.9% in non-pregnant women (KNBS, 2013).

Milk and its related products registered the highest per capita consumption in Kenya last year, followed by maize, wheat and vegetables, giving a glimpse of the typical household dinner table. A Food Balance Sheet (FBS) by the Kenya National Bureau of Statistics (KNBS 2017) shows that milk and related products had a per capita consumption of 93.3 kilogrammes in 2018, followed by maize and maize products (69.5kg), wheat products (41.3kg) and vegetables at 32.6kg. Data from the Kenya National Bureau of Statistics shows that food imports both for household consumption and processed food have been on a rising trend. Between 2017 and 2021, imported foods for household consumption rose by 23.2 percent from Kshs. 185.4 to Kshs. 228.4 (KNBS, 2021).

2.2. Food supply sub-system in Kenya

2.2.1. Biodiversity and land use

Biodiversity and land use are intricately linked, with human activities directly impacting the diversity of life on Earth. Biodiversity plays a crucial role in providing essential ecosystem services, but rapid urbanisation, deforestation, agriculture, and industrialization have led to habitat destruction and biodiversity loss. Sustainable land management practices, urban planning, protected areas, community involvement, and government policies are essential for conserving biodiversity and balancing human development with biodiversity preservation.

Conserving biodiversity protects ecosystems and supports human well-being by ensuring access to clean water, food, and a stable climate. Biodiversity conservation is a shared responsibility, and international cooperation is vital to address global challenges. The degradation and conversion of forests to alternative land uses, such as agriculture, is one of the leading causes of biodiversity loss in the country. To date, the single greatest cause of species endangerment has been habitat loss, primarily driven by agricultural expansion.

The expansion of cultivation in many parts of Kenya has changed the land cover to a more agroecosystem and less cover of natural vegetation (Maitima *et al*.,2009). These changes are fuelled by a growing demand for agricultural products that are necessary to improve food security and generate income not only for the rural low-income communities but also for the large-scale investors in the commercial farming sector. Food production in Kenya, for example, is reported to have increased steadily between 1980 and 1990. However, because of the population increase, the food supply in calories per head fell slightly during that period. Historically, humans have increased agricultural outputs mainly by bringing more land into production (Lambin *et al.,* 2003).

2.2.2. Climate Change

Factors contributing to food insecurity in Kenya include climate change and variability, declining crop productivity, income poverty, unsustainable farming practices, and the rising cost of inputs. Additionally, over two-thirds of Kenya's landmass is classified as arid or semi-arid, increasing exposure to climate-related risks. Analysis of long-term climate data shows that average annual temperatures have risen by about 1.0°C since 1960 and are projected to increase by 1.0-2.8°C and 1.3-4.6°C by the 2060s and 2090s, respectively (NCCAP, 2012). Precipitation in Kenya has generally remained the same in recent decades, with only a slight decrease experienced, likely due to a reduction in precipitation during extended rain periods. Agricultural production will be substantially affected by the expected changes in rainfall patterns, temperature rise and occurrence of extreme weather events due to the excessive rain-fed dependence of the sector.

Risks posed by climate change, particularly the impacts on marginalised and poor communities, further expose the linkages between climate change, environmental and land degradation, gender and other social inequalities. The awareness and use of knowledge and innovations that indigenous communities bring to climate response will be key in promoting sustainable, low-cost, local and effective change in building a transformed food system. The infusion of traditional knowledge with 'modern' technologies in the transformation of food systems, as well as climate action, is critical. It guarantees that traditional resources, ideas, goals and aspirations are recognised in the design of programs and projects. Capitalising on traditional knowledge can lead to initiatives that are cost-effective, participatory and sustainable.

Increasing climate change as an environmental driver will further impact agricultural productivity through an erratic climate that compromises the sustainability of crops and livestock reducing, food production and leading to food insecurity (Ayah, *et al.,* 2013; Kabubo, *et al.,* 2018). The environmentally mediated socioeconomic impacts further increase the overall vulnerability of the agricultural communities to disaster risks associated with the environment and other drivers (Otieno & Godfrey, 2020). Therefore, the need for deliberate efforts to integrate climate change mitigation with agricultural practices alongside climate change adaptation activities for enhanced food Increasing cases of Drought-induced food insecurity have been documented with at least 2,147,889 Kenyans in need of immediate food assistance in the year 2021 (NDMA 2021) even as increasing cases of obesity have been observed with a prevalence rate of 60.3% among urban residents and 19.5% among rural residents.

2.2.3. Pollution and waste management

Intake of fruits and vegetables in Kenya is below recommended levels (Van der Lans *et al.,*2013). Fruits and vegetables are not only nutritious for humans; bacteria and other foodborne pathogens also thrive on these foods, making them important sources of foodborne illness. Foodborne diseases (FBDs) are responsible for a significant proportion of illness and death worldwide. In Kenya, contaminated food is a likely contributor to recent cholera outbreaks. Several recent studies have examined the biological contamination of vegetables in Kenya. In a 2011 study, mean faecal coliform counts in kale sampled from peri-urban farms serving the Nairobi area ranged from 1.6 to 4 times international standards for irrigation water (Kutto *et al.,*2011).

Application of both animal manure and contaminated irrigation water contributed to the contamination of crops. Even higher levels of faecal bacteria were found on kale purchased from Nairobi markets, ranging from 5 times the standard at high-end speciality shops to 120 times the standard at one wet market. Contamination was significantly lower at supermarkets and speciality shops than in informal markets, where the use of contaminated water for washing kale was also documented. While contamination with faecal coliform indicates that food has been in contact with human or animal faeces, this does not necessarily imply the presence of disease-causing organisms. The same study tested for one such organism, Salmonella, and found it present in one of 23 samples of water used to wash kale at informal markets and one in 23 samples of kale at the same markets (4.3%). However, while all market actors have important roles to play in improving food safety, the role of the government is essential for providing a legal and regulatory framework, building capacity among market actors and laboratories to achieve and monitor compliance with standards, and providing information to consumers through certification and early warning systems.

2.3. Health sub-system

2.3.1. Prevention

Currently, there is a shift in balance on the major causes of mortality in health. Non-communicable diseases are becoming the major cause of mortality in Kenya. The Kenya Health Sector Strategic Plan and the Kenya National Food and Nutrition Security Policy outline "to halt and reverse the rising trends of non-communicable diseases as one of the objectives". Towards these efforts, National guidelines for Healthy Diet and Physical Activity have been developed, and now other efforts are being put in place to achieve this which include:
Reviewing, developing, and implementing comprehensive strategies and guidelines for prevention, management, and control of diet-related **n**on-communicable diseases (NCDs).

I. Capacity building for service providers on prevention, management, and control of diet-related NCDs.
II. Create public awareness about the importance of prevention, management, and control of diet-related NCDs using the national ACSM.
III. Strengthen coordination mechanisms for healthy diet and lifestyle programs at the national and county levels.
IV. Strengthen monitoring and evaluation systems for diet-related NCDs with an expected outcome to improve, prevent, manage and control diet-related NCDs.

2.3.2. Care and wellness

The care and wellness sector is a recognized sector in the country. The health and wellness and nutrition sector consists of three sub-sectors, one of which is wellness, nutrition, and school feeding. In Kenya, the Fitness and Wellness industry hit 5 billion in 2019, according to the Spa and Wellness Association of Africa. A market research and analytics firm, Euromonitor International, reveals that the Health and Wellness Tourism in Kenya recorded value growth of 9 per cent in 2018 to reach sales of Sh2.5 billion.

2.3.3. Food Safety

A survey conducted by the Consumer Grassroots Association (CGA) in 2021 in Nairobi, Kajiado, and Kirinyaga showed that most consumers were concerned about the safety of their food, with 55% indicating that they were very worried about the current food safety situation, 33% were slightly worried and 12% were not worried at all. This shows the level of concern amongst consumers, translating to about 9 out of 10 consumers expressing concern. The major food safety concerns identified by the consumers were pesticide use/misuse (87%), lack of proper sanitation at the market (60%), contamination during transportation (37%) and contamination during preparation (30%). Food safety is central to public health and improved livelihoods through trade

facilitation and sustainable development. Access to safe food is a fundamental right as prescribed in Article 43, as read with Article 46 of the Constitution of Kenya. Food safety needs to be ensured by protecting the food supply from all types of hazards that may occur during all stages of food production, including primary production, harvesting, processing, transporting, retailing, distributing, preparing, storing and consumption (GoK, 2021). This policy envisages an effective and efficient food safety system aimed at securing access to safe and quality food for all, thus reducing morbidity and mortality rates arising from food-borne illnesses/diseases and facilitating trade.

2.4. Social-economic and Political Sub-System

2.4.1. Media

The media has an extremely important role to play in informing citizens on the issues of nutrition and influencing nutrition decisions and choices. The media can be a greater influencer in terms of advocating the importance of good nutrition and its benefits. It can act as a catalyst in advocating for appropriate health and nutrition behaviour by influencing families and communities to dispel myths and taboos related to nutrition and changing behaviour. It can also help the public to adopt positive practices that promote nutrition. Media assists in disseminating updated scientific information on nutrition and health-related issues to the public and informs about nutrition and health programmes. In Kenya, the role of the media in influencing policy decisions on health and nutrition is very important (Mong'ou, 2015). Through the media, the public is sensitised on good nutrition, malnutrition cases, benefits of eating locally produced nutritious foods, exclusive breastfeeding and baby-friendly facilities, among other issues.

2.4.2. Education and Culture

Traditional ethnic groups in Kenya are unlikely to eat a healthy and diversified diet due to many individual and environmental factors, which may result in poor health status. Therefore, the determinants of eating behaviour need to be identified before any public health action. A study was conducted in Western Kenya by Penafiel (2022) to investigate the barriers and cues to action toward eating a healthy diet containing a variety of foods, including indigenous food species. It found that healthy eating concepts are known; however, several taboos that restrict food consumption reduce local diet quality in terms of diversity. Nutrition education is a cue to action. They identified several individual and environmental determinants of eating behaviour in the studied communities. They, therefore, concluded that public health action should focus on supporting healthy eating behaviours and refining some taboos' beliefs. Lack of knowledge on the nutritional value, preparation, and use of some of these foods has hindered their adoption among some pastoral communities (Muthoni, 2020). Also, some cultural beliefs and taboos have prevented members of households, mostly women and children, from consuming certain nutritious foods and even seeking medical care, further predisposing them to malnutrition.

2.4.3. Policy Regulations and Governance

A review of the policy, legal, regulatory, and institutional framework shows that many policy documents have been developed over the three decades (Appendix 1). However, policy gaps still exist in the agricultural policies and legislation, as highlighted in the Participatory Ecological Land Use Management (PELUM) Association 2015 Report.

2.4.4. Access and Affordability

In Kenya, food availability has, over time, been understood in terms of cereal supply and food security in terms of having enough maize. Per capita food availability has declined by more than 10% over the last three decades, while per capita consumption of maize has increased by 3% per annum (National Food and Nutrition Policy, 2011). Maize is one of the staple foods in Kenya and is consumed in different forms by approximately 96% of the population (Olumeh, *et al.,*2018). Food security, therefore, encompasses the availability of adequate quantities of diverse food commodities such as other cereals (apart from maize), fruits, vegetables and animal products.

2.5. Food system and land use critical gaps and challenges

The Kenyan Food system is marred by challenges that include rural-to-urban migration of energetic and potentially food-producing populations, high poverty levels among smallholder food producers that may not afford farm inputs, socioeconomic inequalities, and cheap food imports at the expense of local production (Saifullah *et al.,*2022).

There is a need to have a food system that ensures food security, makes optimal use of natural and human resources, is culturally acceptable and accessible, climate-friendly, environmentally sound, economically fair and viable, and provides the population with nutritionally adequate, safe, healthy and affordable food for present and future generations. Therefore, the need to design and implement appropriate policies to improve the economic, environmental, and social sustainability of the current food consumption patterns in Kenya must be considered.

Several policies were looked at and analysed (Annex 1), and it can be seen that there have been numerous policies, strategies and programmes to improve food and nutrition security and reduce land degradation. However, it is also apparent from analysis that the country hasn't been able to achieve a sustainable food system or food and nutrition security. For example, arable land per capita and cereal production have been declining, as seen in Figure 1 below. Some of the gaps in Kenya's journey to achieving a sustainable food system are that the country continues to import food, and the trend is rising; land loss continues unabated. In 2014, it was estimated that 22 % of the Kenyan land area has degraded between 1982 and 2006, including 31 % of croplands, 46 % of forested land, 42 % of shrub lands, and 18 % of grasslands undermines the capacity of land to produce adequate food. Addressing land degradation requires involving all the relevant sectors and institutions. In addition, it is noteworthy that the percentage age of children who are stunted, wasting, or overweight has gone down overall in the last three decades in Kenya.

However, there are concerns that over 18% of children under age five are stunted, or too short for their age (a sign of chronic under-nutrition); 5% are wasted (too thin for their height), which is a sign of acute under-nutrition, while 3% are overweight, which is a sign of over nutrition and 10% are underweight, or too thin for their age (KDHS 2022).

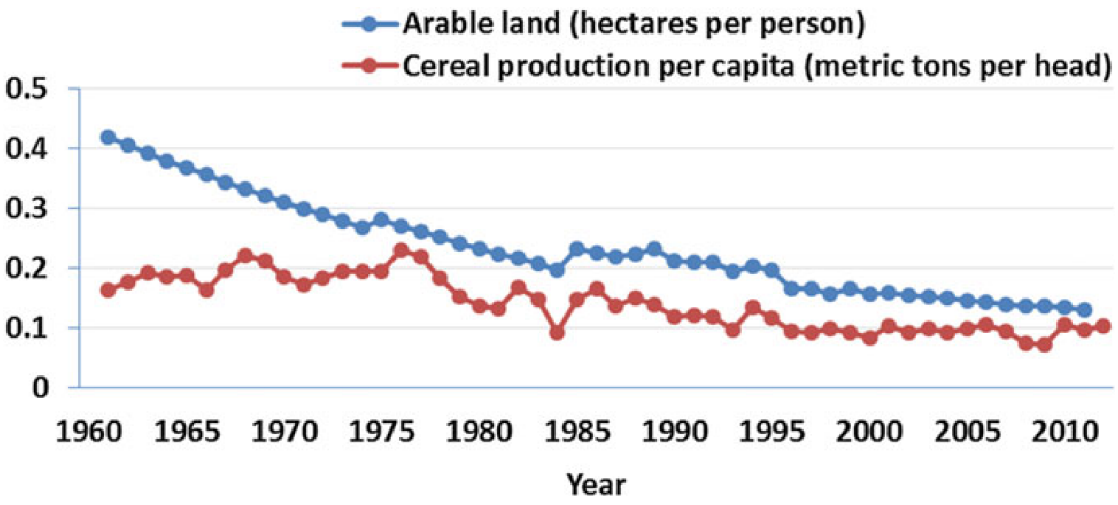


FIGURE 2: ARABLE LAND AND CEREAL PRODUCTION PER CAPITA

METHODOLOGY

3. METHODOLOGY

Following some information and stakeholder scoping activities in Kenya and building on the interest expressed by the government of Kenya to being part of the *Just Rural Transition Initiative* for a sustainable food systems transformation in the country, The FOLU coalition partners in Kenya (AGRA, GAIN, and WRI Africa) had a proposal to bring together stakeholders in food, land use systems and related sectors to catalyse the development of a platform in the country that will facilitate collaboration and action towards a food systems and land use transformation agenda.

The development of the Kenya Food Systems and Land Use Action Plan 2024-2030 was conducted through an inclusive and consultative process. The formulation of the action plan involved a series of discussions and dialogues on food systems in Kenya, engaging various stakeholder groups and encompassing all counties and regional economic blocs in the country. These dialogues aimed to translate conversations into actionable plans that can be effectively monitored. A team of experts comprising sector ministries, research institutions, and development partners, including FOLU Kenya was assembled to lead this process, a team of experts was assembled, comprising representatives from **t**he initial step involved identifying the challenges present in the food and land use sector in Kenya and creating a road map for the development of the action plan. Guided by a consultant, the team conducted a thorough literature review of relevant policies, strategies, and legislation impacting food systems and land use in Kenya.

A Draft of the action plan was reviewed by the task team and received input from key stakeholders in the food and land use sector. Subsequently, the first Draft of the action plan was developed and subjected to face-to-face workshops with major stakeholders to gather further input and refinement.

After improving the draft, it was presented to FOLU Kenya coalition partners and the Council of Governors to obtain additional input. Public consultations were conducted in all counties through the six regional economic blocs, involving the active participation of key players in the food system and land use sector. Feedback and comments received during these consultations were carefully considered and integrated into the Draft action plan.
The draft strategy was presented to the critical industry stakeholders and underwent a second task team review, and their feedback was incorporated into the final Draft of the action plan. The final Draft was then subjected to a national stakeholder validation process for adoption.

Before its adoption as the Kenya Food Systems and Land Use Action Plan 2024-2030, the draft action plan received input from the Government of Kenya under the office and leadership of the Chief Cabinet Secretary/Cabinet Secretary of the Ministry for Agriculture and Livestock Development. Their input contributed to the finalisation of the action plan.

SOLUTIONS TO FOOD AND LAND USE CHALLENGES

4. SOLUTIONS TO FOOD AND LAND USE CHALLENGES

4.1. Food System and Land Use Solutions

It is apparent that Kenya's current food systems and consumer's food environment do not promote healthy diets. Latest data (KDHS, 2022) show that 18% of children under age five are stunted or too short for their age, which is a sign of chronic undernutrition, while 5% of children under age 5 are wasted (too thin for their height), which is a sign of acute undernutrition, while 3% of children under age five are overweight, which is a sign of overnutrition. 10% of children are underweight or too thin for their age.

It is also notable that, while the prevalence of stunting has decreased markedly since 1993 (40%), with the greatest decrease of 35% recorded between 2008 and 2009 and 2022 (18%), changes in the prevalence of wasting and overweight have been small. There are also wide variations across counties, with the highest rates of stunting being recorded in Kilifi County (37%), West Pokot County (34%) and Samburu County (31%) while the lowest is reported in Kisumu County (9%).

Food and Land Use Coalition (FOLU) proposes a reform agenda for food systems centred around ten critical transitions. These actionable solutions are intended to support progress towards the Sustainable Development Goals (SDGs) and the Paris Climate Agreement 2015, which will help mitigate the negative effects of climate change, safeguard biodiversity, ensure healthier diets for all, drastically improve food security and create more inclusive rural economies. However, in Kenya, the theory of change is grounded on an elaborate learning and influencing agenda that is aimed at increasing private sector engagement in the transformation of food systems, bridging the gender and youth gaps, promoting sustainable technologies for productivity and related value chain processes, and in addressing challenges of climate change and ecosystem degradation.

4.1.1. Healthy Diets

The national diets need to converge towards local variations of the human health diet, i.e. a predominantly plant-based diet that includes more protective foods (fruits, vegetables, and whole grains), a diverse protein supply, and reduced consumption of sugar, salt, and highly processed foods. As a result, consumers will enjoy a broader range of high-quality, nutritious, and affordable foods. To meet the healthy diet objective, the national and county governments should establish and promote human health dietary standards through repurposed agricultural subsidies, targeted public food procurement, taxes, and regulations on unhealthy food.

4.1.2. Productive and Regenerative Agriculture

Agricultural systems that are both productive and regenerative will combine traditional techniques, such as crop rotation, controlled livestock grazing systems, and agroforestry, with advanced precision farming technologies which support more judicious use of inputs including land, water, and synthetic and bio-based fertilisers and pesticides.

Regenerative agriculture requires active soil management to improve soils, invigorate soil ecosystems, and reduce erosion to minimal levels. There is a growing amount of evidence that shows increasing inputs of organic matter (through plants and other organic materials) and reducing soil disturbance can act together to promote improvements in soil structure and increase the activity of soil biology.

4.1.3. Protecting and Restoring Nature

Nature must be protected and restored. This requires an end to the conversion of forests and other natural ecosystems and massive investment in restoration at scale. The government is committed to the afforestation program and is planting 15 billion seedlings of various types of trees, including fruit trees, by 2032.

The current initiatives and interventions mainly focus on the public sector and related stakeholders, which, on its own, is unlikely to resolve the issues of creating a sustainable food and land use system for the country. Therefore, a broader focus and thinking is needed to include a wider stakeholder base, such as the private sector.

4.1.4. A Healthy and Productive Ocean

Sustainable fishing and aquaculture can deliver an increased supply of ocean and lake proteins, reducing demand for land and supporting healthier and more diverse diets. This is only possible if essential habitats (estuaries, lakes, wetlands, mangrove forests, and coral reefs) are protected and restored and if nutrient and plastic pollution are curbed. Kenya's national commitment to the blue economy has been demonstrated through the creation of the Ministry of Mining, Blue Economy, and Maritime Affairs. Some of its mandates are to coordinate blue economy initiatives to harness the untapped potential of the Indian Ocean and coasts for food security, job creation, and economic growth. Some of the objectives of the ministry are to improve the management of both offshore and inshore fisheries and to provide a framework for supporting the development of smallholder aquaculture and priority fisheries value chains for small-scale artisanal fishers for nutrition and food security, environmentally sound development, and resilience building to climate change.

4.1.5. Diversity and Protein Supply

The rapid development of diversified protein sources would complement the national transition to healthy diets. Diversification of human protein supply falls into four main categories: aquatic, plant-based, insect-based, and laboratory-cultured.

The government should also make a bold commitment to increase research and development spending on alternative proteins (especially those with large benefits for lower-income consumers) and ensure that the resulting intellectual property remains in the public domain.

4.1.6. Reducing Food Loss and Waste

Food loss and waste (FLW) currently represent a pressing challenge in the design of sustainable food systems. FLW negatively impacts food security and nutrition and significantly contributes to greenhouse gas (GHG) emissions, environmental pollution, degradation of natural ecosystems, and biodiversity loss, and represents a waste of resources used in food production. According to FAO 2023, it is estimated that up to 37 percent of Kenya's food is lost after it has left the farm and before consumers buy it. To ameliorate the state of food loss and waste in Kenya, smart and targeted investment in improving the nature and state of food production, harvesting, handling, aggregation, distribution, processing, and marketing could go a long way in improving the sustainability of the country's food system. Secondly, collaboration and partnerships of all stakeholders along the food supply chain are essential to reduce food loss and waste.

4.1.7. Local Loops and Linkages

This transition sets out the opportunity to strengthen and scale efficient and sustainable local food economies in towns and cities. It is critical to build local loops and linkages so that urban waste, for example, streams back into the food system, and this will offer the possibility of lowering the environmental cost when paired with sustainable production practices. Private investors should be provided an enabling environment to invest in emerging technologies to close the food system loop.

4.1.8. Harnessing the Digital Revolution

Digitization of food and land use systems is occurring through resource mapping, disease tracking, gene-editing techniques, precision farming, and logistics and digital marketing tools, enabling producers and consumers to make better, more informed choices and to connect to the value chain rapidly and efficiently that can attract new ideas and energies that are represented by the youth and women. The growth of digital technology and digital tools in agriculture in the past decade has been phenomenal. However, this technological growth can play an increasingly important role in agricultural research for development. For example, Kenya has launched a digital-for-agriculture (D4Ag) project targeting to register 1.4 million farming households online and 2,300 agro-dealers to supply farm inputs to growers by 2023. Kenya Agricultural Livestock Research Organization (KALRO) has three e-agricultural platforms, including the Kenya

Agricultural Observation Platform (KAOP) website and 30 mobile apps covering 30 value chains. However, such technologies and tools often classify small farmholders as similar entities. In addition, in Kenya and Rwanda, core agriculture actors, such as women and minority communities, are often excluded from digital agricultural solutions (Muthoni,2023).

There is a need for the government to open access to public sector data (e.g. on national land registries, fisheries, agriculture, soil health, etc.) and regulate and incentivize the private sector to provide open-source data where appropriate.

4.1.9. Stronger Rural Livelihoods

Underlying all ten critical transitions is a vision of rural areas transformed into places of hope and opportunity, where thriving communities can adapt to new challenges, protect and regenerate natural capital and invest in a better future. Smallholder farmers represent the majority of food producers in all the counties in Kenya, yet they are often at risk of suffering yield gaps and not achieving their production potential.

Stronger rural livelihoods can be achieved if the national and county governments establish public-private- partnerships to train a new generation of young farmer entrepreneurs over the next decade.

4.1.10. Gender and Demography

Women and youth can be enormously powerful in shaping food and land use systems, thanks to their central role in agriculture and in decisions concerning nutrition, health, and family planning. Making sure youth and women have equal access to resources, such as land, labour, water, credit, and other services, should be central to policies concerning the ten critical transitions, including accelerating the demographic transition to a replacement rate of fertility in all countries.

Women account for nearly half the workforce within the agricultural sector in low- and middle-income countries (LMICs) and are involved in various activities across agricultural value chains. From providing inputs and services such as traders or extension agents to farm-level work, women are deeply engaged in agricultural systems, generating income and employment and ensuring their households´ and community food security (Kimani,2022). Despite their essential contribution to the agricultural sector in Kenya, women typically have limited access to resources such as land, farm inputs, education, financial services, and technologies needed to maintain viable agricultural activities and decent income opportunities in the sector.

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT

REPUBLIC OF KENYA

EVIDENCE-BASED PRIORITIES FOR THE CRITICAL TRANSITIONS IN KENYA

5. EVIDENCE-BASED PRIORITIES FOR THE CRITICAL TRANSITIONS IN KENYA

5.1. Background

Kenya has registered growth in gross domestic product (GDP) over the last two decades. However, achieving food security remains an enormous challenge, with the country ranked 94th out of 122, with the hunger level categorised as serious in the 2022 Global Hunger Index.
There are many causes of food and nutrition insecurity in the country. They are complex and multidimensional and include:

- rapid population growth.
- rapid urbanisation.
- poverty and low incomes (low effective demand).
- high costs of production, including high input prices.
- underinvestment in rural infrastructure (rural roads, irrigated agriculture).
- agriculture and related services.
- increasing use and demand for agricultural land for real estate development.
- increased post-harvest losses.
- land degradation and biodiversity loss.
- climate change/ variability and poor markets and market access.

Currently, the main challenge for the agricultural sector in Kenya is to provide enough food, in quantity and quality, to meet the nutritional needs of a growing population and to conserve natural resources for future generations.

There is a need to have a food system that ensures food security, makes optimal use of natural and human resources, is culturally acceptable and accessible, climate-friendly, environmentally sound, economically fair and viable, and provides the population with nutritionally adequate, safe, healthy and affordable food for present and future generations. Therefore, the need to design and implement appropriate policies to improve the economic, environmental and social sustainability of the current food consumption patterns in Kenya cannot be overemphasised.

Food production has shown mixed performance in the last few years. Maize production, the staple food for the country, declined by 12.8 percent from 42.1 million bags in 2020 to 36.7 million bags in 2021. Milk production, another important food commodity in the country, increased by 26.6 percent from 688.3 million litres in 2020 to 801.9 million litres. Meanwhile, the production of sorghum (a Drought-tolerant crop) declined by 57.1 per cent, while that of Irish potatoes increased by 10.5 per cent. The production of rice has performed better, with production more than doubling (an increase of 129 per cent) from 81,198,000 tonnes in 2017 to

186,000 tonnes in 2021. Table 1 below shows the production of a few food commodities in the country (KNBS, 2021). Overall, the value of marketed agricultural production increased by 43 per cent from Kshs. 505.3 billion in 2002 to Kshs. 527.0 billion in 2021. To assist in ameliorating this situation, a Food Systems and Land Use Action Plan with a number of result areas is proposed.

5.2. Sustainable consumption and healthy diets

5.2.1. GOAL

Access to adequate, nutrition-diversified, safe and affordable food for all Kenyans.

5.2.2. Strategic Objectives

Promote production, consumption, preservation and trade of diversified and nutrition-adequate diets (especially plant-rich diets): This result area aims to enhance the preservation and consumption of diversified and adequate diets for Kenyans. It will provide opportunities for training, facilitation, and supporting efforts towards encouraging stakeholders dealing with various food value chains to increase productivity, preservation, trading and consumption of diversified and nutritious foods.

Focus on the implementation of a coherent, conducive legal, regulatory, and institutional framework for plant seeds, animal breeds, and fingerlings production, multiplication, distribution, and marketing of the outputs: This result area will focus on addressing the barriers that hinder the implementation of the relevant policies whose objective is the development of sustained consumption and healthy diets. The aim is to work towards identifying and removing barriers that hinder faster, focused, effective and efficient implementation of the identified and policy interventions in sustainable food systems. The implementation should be done in phases (short, medium and long term).

Scale-up programs to promote and facilitate fortification, or bio-fortification of widely consumed staple food: This result area focuses on promoting and scaling up food fortification and ensuring that the foods are available in the markets. In addition, it aims to expand fortification programmes where there are needs. The result area will also aim towards improving the quality and compliance of national food fortification programmes and initiatives. In addition, the relevant authorities will ensure appropriate measures are taken to monitor, measure, and sustain the fortification and bio-fortification programmes and ensure that the most vulnerable communities are reached.

Promote the utilisation and consumption of forgotten/orphan/indigenous foods: This result area will focus on promoting the utilisation and consumption of indigenous, traditional and orphan crops. Many of these previously neglected and underutilised crops hold benefits for sustainable agriculture: they are often low-input, pest-resistant, and climate-resilient. There have been ongoing efforts to inventory the traditional foods, focusing on traditional vegetables[1]. The significance of neglected vegetables and grains was officially recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), adding these to its list of 210 protected vegetables. There is a need to intensify these efforts, in addition to promoting the consumption of these forgotten/orphan/indigenous foods. The beginning point is identifying the factors that may actively promote or discourage the consumption of the foods. This should be followed up with the rigorous promotion of the foods, engaging in capacity enhancement forums and developing information, education and communication (IEC) materials and advocacy including using the local FM Radio and TV stations. In doing this, there can be collaborations with partners, including the National Museums of Kenya, national research institutes, farmer associations, women's empowerment groups, and many others who have helped to document cultivation practices, collect nutritional information (for example, Kenya Food Composition Tables 2018, published by FAO), share recipes, and engage the public in awareness campaigns.

Review and implement micronutrient, healthy diet guidelines, and strategies: This result area will focus on the review and implementation of micronutrient, healthy diet guidelines, and strategies to ensure they are in tandem with the current needs. The country developed the National Guidelines for Healthy Diets and Physical Activity in 2017. These guidelines aim to promote healthy eating and active living as preventive measures that can help reduce the double burden of malnutrition, as well as diet and physical inactivity related to non-communicable diseases (NCDs). There is a need to implement these guidelines and review where necessary.

Harmonise inter-county taxes and other levies to enable easy food movement: County governments in Kenya levy cess and taxes as food is moved from one county to the next. The rates are different and can change over time, which has a critical bearing on the cost of food. Harmonising these cess and taxes and reducing the number of points collected can go a long way in reducing the cost of food in the country.

[1] These crops include, but not limited to, cereals, mainly millets and sorghums; pulses, mainly cowpeas, pigeon peas, etc; roots and tuber crops such as cassava, sweet potatoes and arrow roots and leafy vegetables such as cowpeas, amaranths, jute marrow, black nightshades among others

5.3. Sustainable Agriculture (Productive and Regenerative Agriculture)

5.3.1. GOAL

Contributes to sustainable and sufficient production and food supply systems.

5.3.2. Strategic Objectives

Review and implement a SMART fertiliser Subsidy Programme to make it more focused, cost-effective and efficient: One of the biggest debates, which has dominated agricultural budgets in many African countries, including Kenya, is looking for the most effective way to raise land productivity. Lagging productivity growth is attributed to the levels of modern input use, especially fertiliser. Kenya has introduced a fertiliser subsidy with the aim of improving crop production. However, there are criticisms on whether the current subsidy programme is achieving the desired results. This result area, therefore, aims to enhance the efficiency and effectiveness of the current fertiliser subsidy program. The proposal will include borrowing examples from some of the existing government programs such as the SMART, a program which links farmers, financial institutions, and service providers (agro-vets and private extension providers, artisans, etc.) through an e-voucher debit card which has a saving and withdrawal wallet. Farmers can use the e-voucher to procure fertilisers and other inputs and services. The subsidy programme could have insurance embedded in the e-voucher debit card; allowing the farmers to build resilience once they experience a disaster such as Drought, flooding, or disease and pest infestation. Having a subsidy through an e-voucher system will provide more flexibility and enable the farmers to achieve multiple goals whose outcome is improved productivity, more incomes, a sustainable food system and better livelihoods.

Promote sustainable practices in agricultural production; good soil health, biodiversity, and better choices of land use options: This result area emphasises the importance of engaging in sustainable agriculture and land use practices in transforming agriculture and agribusiness and aims to encourage farmers to test their soils to understand the nutrients levels in the soils. It also aims to support stakeholders in developing and engaging in innovative solutions, adopting modern technologies and practices that ensure the maintenance of good soil health, biodiversity, and better choices of land use options. These practices include but are not limited to crop rotation and embracing diversity, planting cover crops and perennials, conservation agriculture that minimises or eliminates tillage, application of integrated pest management (IPM), integrating livestock, crops, and trees (adopting agroforestry practices) and managing whole systems and landscapes.

Climate-proofing food production and land use systems through climate-smart agriculture practices and insurance: This will aim to achieve three outcomes simultaneously:

I. Increased food productivity, improved nutrition and boosted incomes.
II. Enhanced resilience by reducing vulnerability to Drought, pests, diseases and other climate-related risks and shocks; and improved capacity to adapt and grow in the face of longer-term stresses like shortened seasons and erratic weather patterns.
III. Pursue lower emissions for each calorie or kilo of food produced, avoid conversion of forests agricultural land and encourage carbon sequestration farming technologies, e.g. conservation agriculture.

Promote the use of diversified extension systems/approaches (individual/household, village-based, groups, farming systems, farmer-field schools, meetings, field days, demonstrations, support to groups, use of private and other extension service providers, etc.)
This key result area aims at ensuring that all stakeholders in the food and land use can receive the appropriate technical messages from the extension agents. The Food Agriculture Organization recommends a ratio of 1:400 (extension officers to farmers), which is difficult to achieve in Kenya given the small number of public extension officers currently in employment. This calls for more innovative ways of ensuring stakeholders receive timely and appropriate messages to enhance their productivity. Therefore, implementing a multi-pronged extension model that includes public and private extension provisions and diversified extension systems/approaches (individual/household, village-based advisor model, farming Systems, farmer-field schools, meetings, field days, demonstrations, support to groups, public barazas, etc.) would be appropriate.

5.4. Sustainable Agriculture (Productive and Regenerative Agriculture)

5.4.1. GOAL

Contributes to integrated natural resource management and biodiversity restoration.

5.4.2. Strategic Objectives

Promote the implementation of a coherent, conducive legal, regulatory, and institutional framework for natural resources and strengthening land tenure and governance: This result area will focus on addressing the barriers that hinder the implementation of the relevant policy documents whose objective is the development of sustained protection and restoration of natural resource management, land use integration on food systems. The aim is to work towards identifying and removing barriers that hinder faster, focused, effective and efficient implementation of the identified and policy interventions in the protection and restoration of

natural resource management, land use, and strengthening land tenure and governance. The implementation should be undertaken in a phased approach (short, medium and long term).

Map land use potential for alternative land uses and relook at the land tenure system (Long-term): This result area is aimed at assessing present and future land use needs and evaluating the land's availability to meet them. The land tenure system and governance should also ensure that the most appropriate use of the land is identified, and it also provides for identifying and resolving conflicts among competing uses and needs. The resulting area also aims at achieving land degradation neutrality as well as the integration of ecosystems and biodiversity values into national and local planning.

Boost nature-positive production: The resulting area aims to reconcile the need for the production system to meet the demands of growing populations and rising prosperity with the necessity of restoring the environment, improving soil quality, conserving biodiversity, and sustainably managing land, water and other natural resources. The strategy is to protect, manage and restore ecosystems: to "produce more from less" and set aside some land and water for nature. The aim is also to advance ecosystem restoration efforts through agroforestry, reforestation, afforestation, soil and water conservation, protection of water bodies, desilting and healing degraded lands to bring more area under productive agricultural use and ensure sustainable use of our natural resources. Efforts should be enhanced to sustainably manage the landscape through restoration practices to reduce emissions associated with degradation and enhance carbon storage potential. Continuous monitoring of carbon stock is also important to estimate net carbon storage and sequestration.

Promotion of blue economy: The blue economy entails traditional ocean activities such as fisheries, tourism and maritime transport. Fishing is effective in addressing food and nutritional security in Kenya mainly in the inland lake and the Indian Ocean. In addition, aquaculture is projected to continue to grow rapidly and, if done sustainably, can serve as a major food source and a cornerstone of the blue economy. Tourism, particularly nature-based tourism, also provides an important pathway towards the sustainable development of marine and coastal ecosystems. Coastal tourism is a key source of livelihood and food security in the country. The key result area aims to facilitate sustainable management and development of fishery resources, aquaculture and the blue economy for accelerated socio-economic development. To meet the objectives of the strategy, marine spatial planning, which integrates ecological, social and economic objectives, will be key, as well as the involvement of the public and private sectors as sources of financing.

Promote an integrated approach to natural resource management: Integrated natural resource management is a conscious process of incorporating multiple aspects of natural resource use into a sustainable management system to meet explicit production goals of farmers and other uses. The resulting area aims to impact biodiversity through the protection of small but important critical habitats, reduce pressure on the ecosystem and increase biodiversity in the on-farm environment. One of the interventions to promote natural resource management is to reduce encroachment for agricultural production. The government should also aim to increase biodiversity in the agricultural landscape through soil fertility replenishment. This will enhance biodiversity by increasing heterogeneity in the landscape, leading to increased above and below-ground biodiversity. Increased heterogeneity in the landscape creates more niches and increases habitats for different species.

Undertake capacity building for communities to enable them to manage land use effectively: In Kenya, it is argued that the failure to develop the capacities of individual land users for problem-solving is the root cause of this problem. It is also important to note that effective management of land users through community capacity building (CCB) is the single most important entry point in this endeavour. Therefore, land users need to have capacity in all land management issues, which can include better agronomic practices, sustainable rangeland management practices, financial management, dispute resolution and documentation.

5.5. Food Loss and waste (FLW)

5.5.1. GOAL

Contributes to sustained reduction of food loss and waste

5.5.2. Strategic Objectives

Invest more in nutrition education and create SMART regulations for food safety without overburdening businesses, at both national and county levels: This result area is aimed at aligning existing food safety policy and legal frameworks in the counties and national government, implementing the current food safety needs and align food control regulatory framework in the country. This will include enhancing food surveillance and inspection services.

Review and harmonise the current laws and regulations to address emerging challenges pertaining to food safety and provide for functional responsibilities along the food value chain at both national and county levels: This result area is aimed at aligning existing food safety policy and legal frameworks in the counties and national government, implementing the current food safety needs and aligning food control regulatory framework to regional and international agreements.

To develop and maintain modern physical market infrastructure (assembly or wholesale markets, retail markets, rural markets), install/equip market with cold storage spaces, cleaning, sorting and grading sheds, value addition and processing facilities) for efficient marketing of agricultural produce: The current marketing infrastructure across the country is dilapidated, poorly designed and lacks the required facilities and amenities such as value addition facilities, storage facilities, water supply, electricity, and ICT facilities. This key result area aims at creating a sustainable, safe and enabling environment for both food suppliers and consumers. This will include the development of standards and designs and the formulation of procedures for the improvement and maintenance of market infrastructure.

Undertake sensitisation and awareness creation activities on FLW: This will involve the development of Information, Education and Communications (IEC) to sensitise citizens on the nature, extent and effects of FLW and what can be done to reduce the negative impacts.

Implement actions to reduce waste and losses in production and post-harvest operations and undertake sensitisation and awareness creation activities on FLW: This key result area aims to work with stakeholders to reduce losses and waste during production and postharvest. It will involve training and capacity enhancement for the stakeholders. This will involve the development of Information, Education and Communications (IEC) to sensitise citizens on the nature, extent and effects of FLW and what can be done to reduce the negative impacts.

Facilitate compliance to Enhance compliance with set standards agricultural and food produce and products standards: This result area aims at promoting the adoption of standards through awareness creation and capacity building of value chain actors and undertaking surveillance to enforce compliance.

Enhance the capacity of surveillance institutions at National and County levels to enforce compliance to standards: This result area aims at increasing, upgrading and modernising physical facilities and technological infrastructure for sampling and testing, developing structures for enhancing coordination among the regulating agencies and capacity building of inspectors and graders in sampling, testing and reporting and develop and implement traceability systems for agricultural produce and products.

Harmonise and strengthen inter-agency efforts in food safety and quality control and monitoring to minimise overlaps and inter-agency conflicts: This result area aims at harmonising inter-agency efforts and minimising inter-agency conflicts and overlaps and ensuring seamless compliance with food safety standards.

Develop an FLW protocol and capacity-build stakeholders on reducing food loss and waste: This result aims to train farmers on best practices for harvest and post-harvest handling and packaging. The government should develop a Food Loss and Waste accounting and reporting

protocol, which will provide guidelines for quantifying and reporting on the food and/or associated inedible parts removed from the food supply chain commonly referred to as “food loss and waste” (FLW). Using the protocol, the county governments can develop inventories of how much FLW is generated and where it goes.

5.6. Youth and Social Inclusion

5.6.1. GOAL

Contribute to sustainable food security, increased incomes, and economic development through gender, equity and social inclusion in the food system and land use.

5.6.2. Strategic Objectives

Strengthen youth and women's leadership, capacity development, and coordination in the food system: This result area aims to enhance the leadership and capacity of youth and women in the food and land use system. It focuses on providing training, mentorship, and networking opportunities for youth and women to develop their skills and knowledge. It also seeks to improve coordination among stakeholders, including government agencies, women and youth organisations, and private sector entities, to create a supportive ecosystem for women and youth in the sector.

Promote enhanced youth access to productive resources and inputs: This result area addresses the barriers that hinder youth from accessing productive resources such as land, water, credit, technology, and inputs. It seeks to improve youth's access to these resources through policy interventions, capacity building, and establishing linkages with relevant stakeholders.

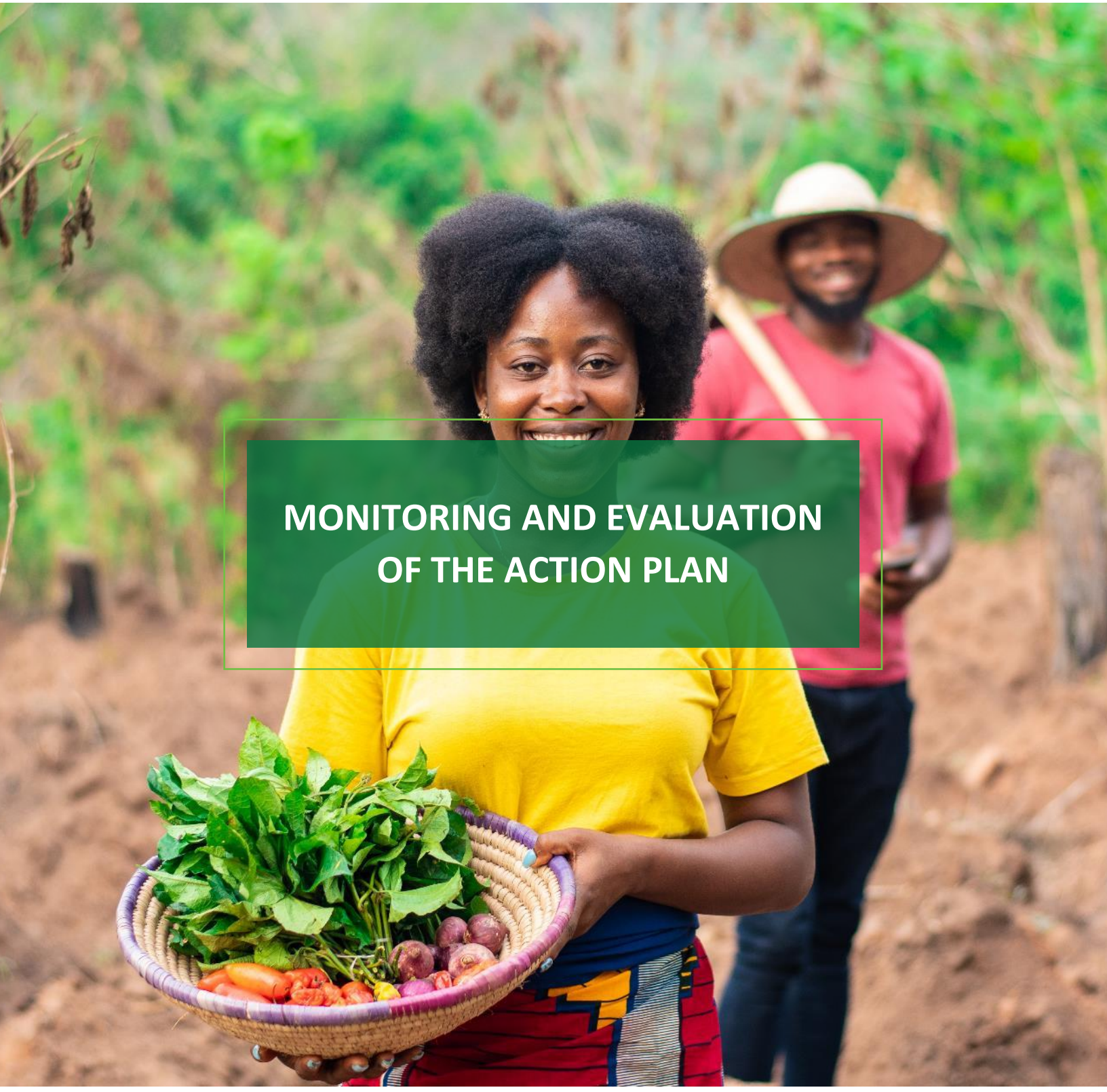
Promote access to markets and value addition for women/youth-led enterprises: This result area focuses on enhancing market access and value addition for women/youth-led enterprises. It aims to promote market linkages, facilitate the establishment of women/youth-led agribusiness incubation centres, and support value-addition activities to increase the profitability of women and youth enterprises.

Invest in capacity building for youth (particularly in agribusiness), producers (extension system), and women along the value chains and setting up clear contract enforcement mechanisms that protect small-scale farmers. This will be done through:
Providing better access to extension services and training; creating and improving structures of support for Youth in Agribusiness to tap into the knowledge of young farmers and agri-preneurs, supporting youth engagement in the policy-making process, investing in training on sustainable production harvesting and other post-harvest management techniques and converting of marketing cartels into commission agents and strengthening the role of women in food systems by addressing existing challenges such as low land ownership, minimal participation in decision making and food system governance.

Promote youth and women participation and entrepreneurship in the food and land use system: This result area aims to enhance youth engagement in agriculture and agribusiness by providing opportunities for skills development, access to finance and credit facilities, and supporting youth-led enterprises. It focuses on creating an enabling environment that encourages women/youth to view agriculture as a viable and profitable career option.

Promote women/youth-led food and land use research, innovation, and technology adoption: This result area emphasises the importance of research, innovation, and technology in transforming agriculture and agribusiness. It aims to support youth and women in developing innovative solutions, adopting modern technologies, and conducting research to address challenges in the sector. It also encourages partnerships between women/youth, research institutions, and private sector organisations.

Deliberate use of ICT in food systems will encourage youth participation: A sustainable food and land use system is not achievable if women and youth, who form a significant proportion of the population, are not meaningfully, actively and practically involved in food production. Ensuring that gender equity and social inclusion, including women's and youth empowerment, should be a major consideration in improving food and land systems. Therefore, emphasis should be laid on removing production bottlenecks and constraints that women and young farmers face, such as limited access to land (ownership/and or user rights), financial and extension services and failure to recognise and reward efforts of women and youth in food production.



MONITORING AND EVALUATION OF THE ACTION PLAN

6. MONITORING AND EVALUATION OF THE ACTION PLAN

Monitoring and evaluation are critical in supporting the successful transition to a sustainable food system and land use economy in Kenya. A clear monitoring and evaluation framework will lead to the effective utilisation of resources and a smooth implementation that is well-coordinated and impactful.

A comprehensive and coherent strategy framework will be developed to define the mission, vision, overall objectives, outputs, activities, and measurable indicators. This framework will serve as a guide for strategy implementation, monitoring, and evaluation. Each output will have specific key performance indicators (KPIs) contributing to the overall monitoring and evaluation framework.

Cost and Time Framework: In conjunction with the logical framework, a cost and time framework will be established. The cost framework will provide insights into the resources required for action plan implementation, aiding the government and other stakeholders in mobilising necessary resources.

Implementation Monitoring and Evaluation: The responsible implementing agencies will conduct regular monitoring and evaluation to assess the performance and achievement of defined outputs. Monitoring activities will occur quarterly, providing timely updates on progress. Additionally, an annual strategy evaluation will be conducted at the end of each year, providing a comprehensive assessment.

Multisectoral Monitoring and Evaluation Team: A multisectoral team consisting of representatives from participating partners will be formed to conduct the monitoring and evaluation activities. This collaborative approach will ensure a holistic assessment and incorporate diverse perspectives from relevant stakeholders.

6.1. Action Plan Review

The Action Plan will be reviewed each year during the annual evaluation of its implementation, considering the progress of its implementation, effectiveness, and emerging issues in the food and land use sector in Kenya and the region. During this review, strategic priorities for the upcoming year will be agreed upon and updated. The plan will have a mid-term review after the third year and a final review after the 7-year implementation period that will guide the next phase of the action plan.

COORDINATION OF THE ACTION PLAN

7. COORDINATION OF THE ACTION PLAN

The Ministry of Agriculture and Livestock Development will lead the implementation of this program. The other line ministries involved in the implementation are Environment and Natural Resources, Health, Water and Irrigation and Lands.

The 47 counties will also be key in the implementation. Most of the activities planned in this program fit very well within these ministries and the counties, but some activities cut across the ministries (especially institutional development interventions) that need to be implemented as a joint effort. However, a structure needs to be put in place that will bring all the implementers into a common ground modality for planning and implementation of interconnected activities. This initiative will be implemented with early actions for change, driving public and private dynamics to implement actions in a coordinated and complementary manner that will result in great economic, social, environmental and political benefits for the country.

The coordination mechanism for implementing the Kenya Food System and Land Use Action Plan 2024-2030 involves effective collaboration among various stakeholders at the national and county levels. This coordination aims to ensure successful action plan implementation and achievement of the plan's objectives. Key components of the coordination mechanism include:

1. **National and County Government:** The national and county governments will play a crucial role in coordinating and implementing the action plan. Their responsibilities include providing leadership, policy guidance, and creating an enabling environment for the effective execution of the Action Plan. They are also responsible for mobilising resources, implementing risk mitigation measures, and facilitating inter-agency collaboration at both levels of government.

2. **Development Partners:** Development partners, including international organisations, donor agencies, and non-governmental organisations, have an important role to play in supporting the implementation of the action plan. Their involvement includes providing technical and financial assistance, capacity building, and sharing best practices. They contribute to resource mobilisation efforts and collaborate with national and county governments to ensure effective coordination and alignment of activities.

3. **Private Sector:** The private sector is a key stakeholder in implementing the Action Plan. Its involvement is crucial for fostering innovation, investment, and sustainable economic growth in the food system and land use sectors. The private sector's roles include supporting value chain development, promoting technology adoption, investing in research and development, and engaging in public-private partnerships. Their collaboration with the government and other stakeholders helps ensure the successful implementation of the strategy.

4. **Besides the national and county governments, development partners, and the private sector, various other stakeholders contribute to the coordination mechanism.** They include civil society organisations, learning and research institutions, farmer organisations, community groups, and consumers. Their roles encompass advocacy, knowledge sharing, community engagement, and promoting social inclusivity in decision-making processes.

The coordination of key industry stakeholders in strategy implementation is crucial for effectively executing the Action Plan. The specific roles of the mentioned stakeholders are summarised as follows:

1. **National and County Government:**
    - Providing leadership, policy guidance, and an enabling environment
    - Mobilising resources for strategy implementation
    - Implementing risk mitigation measures
    - Coordinating inter-agency collaboration at the national and county levels

2. **Development Partners:**
    - Providing technical and financial assistance
    - Supporting resource mobilisation efforts
    - Capacity building and knowledge sharing
    - Collaborating with governments and stakeholders for effective coordination

3. **Private Sector:**
    - Supporting value chain development
    - Promoting technology adoption and innovation
    - Investing in research and development
    - Engaging in public-private partnerships

Other stakeholders, including civil society organisations, research institutions, farmer organisations, community groups, and consumers, may contribute to:

- Advocacy and awareness raising
- Knowledge sharing and research
- Capacity building
- Community engagement and participation
- Promoting inclusivity in decision-making processes

By coordinating the efforts and roles of these stakeholders, the Action Plan will be implemented effectively, leading to the achievement of its objectives in the Kenya food system and land use sectors.

RESOURCE MOBILISATION

8. RESOURCE MOBILISATION

The National Government and FOLU partners will mobilise resources for the implementation of activities assigned to them. These resources will be sourced from the government's regular budgetary allocations, as well as national programs and budgets funded by development partners.

County governments will mobilise resources by incorporating the Strategy into their County Integrated Development Plans (CIDPs) and allocating budgets in annual work plans. They will also seek funding from donors for investments falling under their jurisdiction. The primary funding focus for both levels of government will be on creating an enabling environment and investing in public goods and services that improve marketing efficiency.

Private sector actors are expected to mobilise resources for investments along the marketing value chain through their regular budgeting cycles. Both the National and County governments will mobilise resources to coordinate strategy implementation through the coordinating structures. It is anticipated that development partners, FOLU Kenya coalition members, and non-governmental organisations will support both levels of government in facilitating coordination, monitoring, and evaluation (M&E) activities in the action plan.

8.1. Funding for the action plan Implementation

The estimated budget for the successful implementation of the action plan is approximately KES 52.70 billion, covering the entire 7-year action plan implementation period. The financial responsibility will be shared among various stakeholders, including the National Government, County Governments, development partners, private sector entities, FOLU Kenya coalition members, and beneficiaries. The Government of Kenya and FOLU partners are committed to ensuring the responsible and efficient utilization of public funds throughout the implementation period, to achieve all the desired objectives.

The resource requirements for the plan's implementation are summarised as follows in Table 3:

TABLE 3: THE RESOURCE REQUIREMENTS FOR THE PLAN'S IMPLEMENTATION

Critical Transition	Strategic Priorities		Estimated Cost in millions (Kshs.)
Healthy diets **Strategic Goal/Objective:** Access to adequate, nutrition-diversified, safe and affordable food for all Kenyans	**i.**	Develop and implement policies to foster food diversification and de-risking credit and insurance.	**1,000.00**
	ii.	Promote production, consumption, preservation and trade of diversified and nutrition-adequate diets (especially plant-rich diets).	**2,400.00**
	iii.	Focus on the implementation of a coherent, conducive legal, regulatory, and institutional framework for plant seeds, animal breeds, and fingerlings production, multiplication, distribution, and marketing of the outputs.	**1,200.00**
	iv.	Scale-up programs to promote and facilitate fortification, or bio-fortification of widely consumed staple food.	**1,700.00**
	v.	Promote the utilisation and consumption of forgotten/orphan/indigenous foods.	**1,200.00**
	vi.	Review and implement micronutrient, healthy diet guidelines, and strategies.	**1,500.00**
Sub-Total			**9,000.00**
Productive and regenerative agriculture **Strategic Goal/Objective:** Contributes to integrated natural resource management and biodiversity restoration	i.	Review and implement a SMART fertiliser Subsidy Programme to make it more focused, cost-effective and efficient.	**2,150.00**
	ii.	Promote sustainable practices in agricultural production, good soil health, biodiversity, and better land use options.	**2,400.00**
	iii.	Climate proofing food production and land use systems through climate change agriculture practices and insurance.	**2,200.00**
	iv.	Promoting the use of diversified extension systems (VBA, MOA).	**2,000.00**
Sub-Total			**8,750.00**
Protecting and Restoring Nature **Strategic Goal/Objective:**	i.	Promote implementation of a coherent, conducive legal, regulatory, and institutional framework for natural resources and strengthening land tenure and governance.	**1,300.00**
	ii.	Map land use potential for alternative land uses and relook at the land tenure system (long-term).	**2,400.00**

Promote implementation of a conducive policy and legal framework for natural resources and strengthening land tenure and governance	iii.	Boost nature-positive production.	**1,800.00**
	iv.	Promote an integrated approach to natural resource management.	**1,200.00**
	v.	Undertake capacity building for communities to enable them **to** manage land use effectively.	**2,200.00**
Sub-Total			**8,900.00**
Food Loss and Waste **Goal/Objective:** Contributes to sustained reduction **of** food loss and waste	i.	Invest more in nutrition education and create SMART regulations for food safety without overburdening businesses, at both national and county levels.	**1600.00**
	ii.	Review and harmonise the current laws and regulations to address emerging challenges of food safety and provide for functional responsibilities along the food value chain at both national and county levels.	**1400.00**
	iii.	To develop and maintain modern physical market infrastructure (assembly or wholesale markets, retail markets, rural markets). Install/equip market with cold storage spaces, cleaning, sorting and grading sheds, value addition and processing facilities) for efficient marketing of agricultural produce.	**2,400.00**
	iv.	Implement actions to reduce waste and losses in production and post-harvest operations.	**1,200.00**
	v.	Undertake sensitisation and awareness creation activities on FLW.	**1,200.00**
	vi.	Implement actions to reduce waste and losses in production and post-harvest operations and undertake sensitisation and awareness creation activities on FLW.	**1,000.00**
	vii.	Facilitate compliance to enhance compliance with set agricultural, food produce, and products standards.	**800.00**
	viii.	Enhance the capacity of surveillance institutions at National and County levels to enforce compliance with standards.	**1400.00**
	ix.	Harmonise and strengthen inter-agency efforts in food safety and quality control and monitoring to minimise overlaps and inter-agency conflicts.	**700.00**
	x.	Develop an FLW protocol and capacity-build stakeholders on reducing food loss and waste.	**400.00**
Sub-Total			**12,100.00**

Gender and Social Inclusion **Goal/Objective:** Contribute to sustainable food security, increased incomes, and inclusive economic growth through gender youth and social inclusion in the food system and land use	i. Invest in capacity building for youth (particularly in agribusiness), producers (extension system), and women along the value chains and setting up clear contract enforcement mechanisms that protect small-scale farmers.	**1,375.00**
	ii. Promote youth and women participation and entrepreneurship in the food and land use system	**1,375.00**
	iii. Promote enhanced youth access to productive resources and inputs.	**1,500.00**
	iv. Promote women/youth-led food and land use research, innovation, and technology adoption.	**850.00**
	v. Promote access to markets and value addition for women/youth-led enterprises.	**850.00**
	vi. Strengthen youth and women leadership, capacity development, and coordination in the food system.	**750.00**
Sub-Total		**6,700.00**
Monitoring and evaluation	Monitoring and evaluation of the action plan.	3,250.00
Coordination of strategy implementation	Coordination meetings for the action plan implementation.	4,000.00
Total		**52,700.00**

Resource requirements for plans 2024 priority areas.

Critical Transition	Strategic Priorities	Estimated Cost in millions (Kshs.)
Healthy diets **Strategic Goal/Objective:** Access to adequate, nutrition-diversified, safe and affordable food for all Kenyans	• Scale-up programs to promote and facilitate fortification, or bio-fortification of widely consumed staple foods.	**400.00**
	• Review and implement micronutrient, healthy diet guidelines, and strategies.	**350.00**
Sub-Total		**750.00**
Productive and regenerative agriculture	• Review and implement a SMART fertiliser Subsidy Programme to make it more focused, cost-effective and efficient.	**450.00**

Strategic Goal/Objective: Contributes to integrated natural resource management and biodiversity restoration	• Promoting the use of diversified extension systems (VBA, MOA).	**400.00**
Sub-Total		**850.00**
Protecting and Restoring Nature **Strategic Goal/Objective:** Promote implementation of a conducive policy and legal framework for natural resources and strengthening land tenure and governance	• Promote an integrated approach to natural resource management.	**250.00**
	• Undertake capacity building for communities to enable them to manage land use effectively.	**250.00**
Sub-Total		**500.00**
Food Loss and Waste **Goal/Objective:** Contributes to sustained reduction of food loss and waste	• Undertake sensitisation and awareness creation activities on FLW.	**600.00**
	• Implement actions to reduce waste and losses in production and post-harvest operations and undertake sensitisation and awareness creation activities on FLW.	**200.00**
	• Develop an FLW protocol and capacity-build stakeholders on reducing food loss and waste.	**50.00**
Sub-Total		**850.00**
Gender and Social Inclusion **Goal/Objective:** Contribute to sustainable food security, increased incomes, and inclusive economic growth through gender, youth and social inclusion in the food system and land use	• Promote access to markets and value addition for women/youth-led enterprises.	**200.00**
	• Strengthen youth and women leadership, capacity development, and coordination in the food system.	**150.00**
	• Invest in capacity building for youth (particularly in agribusiness), for producers (extension system), and women along the value chains and setting up clear contract enforcement mechanisms that protect small-scale farmers.	**150.00**
Sub-Total		**500.00**
Monitoring and evaluation	Monitoring and evaluation of the action plan.	**100.00**
Coordination of strategy implementation	Coordination meetings for the action plan implementation.	**200.00**
Total		**1,600.00**

CONCLUSION

9. CONCLUSION

Achieving a sustainable food and land use system in the short, medium and long term is a challenging task that requires the concerted efforts of all stakeholders. Previous food security policies, programmes, projects, and initiatives have had mixed results. This has been further complicated by the changing climate characterised by Droughts that occur more regularly, floods, disease and pest infestation and deteriorating land resource base. These challenges call for innovation that deviates from the "business-as-usual" initiatives. Changing people's attitudes towards the way food is produced and consumed, taking steps to respond to climate change innovatively to climate change and adopting appropriate measures and technologies in food and land use will be critical.

A review of the legal, policy, regulatory and institutional Framework shows that the policy regime is not the challenge in Kenya. The challenge lies in the ineffective implementation of the relevant policies. One of the recommendations in this report, among others, is to ensure that the policy documents are implemented, monitored and evaluated. The Monitoring and Evaluation of the policy implementation should guide any policy revision. Once the implementation of the Action Plan has commenced, stakeholders should take a proactive approach to see what is working on the ground and what is not, where the gaps lie between policy intention and local-level implementation, and identify whether there are adjustments in the implementation arrangements that can be made to improve the performance of the policy or whether more substantive policy changes are needed. This way, the country will start seeing a positive change in achieving sustainable food and land use systems.

The Action Plan was developed through the efforts of governments, the private sector, and civil society. Its implementation is expected to achieve a sustainable food and land use system in Kenya that ensures sustainable food and nutrition security, creates employment, achieves healthy diets, and restores and protects critical ecosystems.

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11. APPENDICES

APPENDIX 1: LIST OF POLICIES AND OTHER STRATEGIC DOCUMENTS

1. Food Policy (Sessional Paper No. 4 of 1981);
2. National Food Policy (Sessional Paper 1 of 1994);
3. Poverty Reduction Strategy Paper, 2001;
4. Economic Recovery Strategy (ERS) for Wealth and Employment Creation, 2003 - 2007;
5. Kenya Rural Development Strategy (KRDS) 2002-2017;
6. Strategy for Revitalising Agriculture (SRA) 2004 – 2014;
7. Kenya Vision 2030 and the 1st, 2nd and 3rd) Medium Term Plans;
8. Domestication and ratification of the Millennium Development Goals (MDGs);
9. Domestication and ratification of the Sustainable Development Goals (SDGs);
10. Comprehensive African Agriculture Development Programme (CAADP) of NEPAD, 2002;
11. National Nutrition Policy 2008;
12. Food Security and Nutrition Policy (2011);
13. Agriculture Sector Development Strategy (ASDS) 2010-2020;
14. National Agribusiness Strategy – (2012);
15. National Food Safety Policy – 2013
16. Food Security Bill 2017;
17. Kenya Nutrition Action Plan – 2018-2022;
18. Agricultural Sector Transformation and Growth Strategy (ASTGS) – 2019-2029;
19. ASTGS National Agriculture Investment Plan (NAIP); and
20. National Food and Nutrition Security Policy Implementation Framework – 2017-2022.
21. National Agricultural Policy
22. National Livestock Policy Other policies and strategies that have been developed to address issues related to individual commodities such as:
23. National Root and Tuber Crops Development Strategy – 2019-2022
24. National Potato Strategy – 2016-2020

APPENDIX 2: LIST OF POLICIES AND OTHER STRATEGIC DOCUMENTS

1. In addition to policies that address food and nutrition specifically, Kenya has also developed policy documents and strategies to complement and support aspects that contribute to the achievement of a sustainable food system for the country. The documents include:
2. National Agricultural Soil Management Policy (NASMP)
3. Land Use Policy
4. National Irrigation Policy
5. National Forest Policy
6. Sessional Paper No 1 on KWS Policy
7. Range Management and Pastoralism Strategy – 2021-2031
8. Intergovernmental Authority on Development (IGAD) Regional Post Harvest Loss Management Strategy (IGAD-PHLMS)
9. National Climate Change Action Plan
10. National Climate Change Response Strategy (NCCRS)
11. **Kenya National Adaptation Plan 2015-2030**
12. National Determined Contribution, 2015
13. Youth Climate Action Strategy for Kenya (YCASK, 2021-2030),
14. National Agricultural Research System Policy (NARS) – 2021
15. National Agricultural Sector Extension Policy (NASEP) – June

APPENDIX 3: LEGISLATIVE SUPPORT TO BIG 4 ON FOOD AND NUTRITION SECURITY

1. Enact legislation to make soil liming mandatory
2. Enact legislation to cap the cost of leasing land- to attract private/foreign investors
3. Enact legislation to halt further subdivision of arable land
4. Enact Warehouse Receipt System Bill 2016
5. Enforce Fisheries Management and Development ACT
6. Enforcement of the Road legislation to eliminate multiple levies across counties
7. Food Security Bill, 2014
8. Legislation to stimulate water harvesting across the Country
9. Legislation on irrigated land for each constituency
10. Restoration of commodity levies to beef up commodity fund
11. Legislation on caged fish farming
12. Enforcement of Agriculture regulations - Crops (Tea, sugar, potatoes
13. Regulations on Commodity Levies (Sugar Regulations)

APPENDIX 4: LIST OF STAKEHOLDERS

1. Alliance for a Green Revolution in Africa (AGRA)
2. Global Alliance for Improved Nutrition (GAIN)
3. World Resources Institute (WRI)
4. Welthungerhilfe (WHH)
5. Food and Agriculture Organization (FAO)
6. Ministry of Agriculture & Livestock Development (MOALD)
7. Ministry of Lands & Physical Planning (MoLPP)
8. Ministry of Water and Irrigation (MoW&I)
9. Ministry of Health (MoH)University of Nairobi (UoN)
10. TEGEMEO Institute
11. Kenya National Farmers' Federation (KENAFF)
12. Kenya Forestry Research Institute (KEFRI)
13. African Conservation Tillage (ACT)
14. Agriculture Sector Network (ASNET)
15. Seed Trade Association of Kenya (STAK)
16. International Tree Foundation (ITF)
17. Kenya Private Sector Alliance (KEPSA)
18. Kenya Land Alliance (KLA)
19. Kenya Livestock Producers Association (KLPA)
20. Kenyan Youth Biodiversity Network (KYBN)
21. Micro-Enterprises Support Programme Trust - MESPT
22. National Potato Council of Kenya (NPCK)
23. Association of Women in Agriculture Kenya (AWAK)
24. One Tree Planted (OTP)
25. Participatory Ecological Land Use Management (PELUM)
26. Society of Crop Agribusiness Advisory (SoCAA)
27. The Organic Movement
28. County Executive Member Ministry of Agriculture Kisumu
29. HELLOTRACTOR
30. Kenya Agricultural and Livestock Research Organization (KALRO)
31. County Executive Member Ministry of Agriculture Kisii
32. County Executive Member Ministry of Agriculture Homabay
33. Transparency International (TI)
34. Agro dealers from Kisumu
35. Farmers from Kisumu and Homa Bay counties
36. County Executive Member Ministry of Agriculture Turkana
37. County Executive Member Ministry of Agriculture Elgeyo Marakwet
38. County Executive Member Ministry of Agriculture Uasin Gishu

39. County Executive Member Ministry of Agriculture Makueni
40. County Executive Member Ministry of Agriculture Machakos
41. County Executive Member Ministry of Agriculture Kitui
42. Rep of County Executive Member Ministry of Agriculture Kiambu
43. Rep County Executive Member Ministry of Agriculture Kirinyaga
44. County Executive Member Ministry of Agriculture Laikipia
45. County Executive Member Ministry of Roads Laikipia
46. Rep of County Executive Member Ministry of Agriculture Nyandarua
47. County Executive Member Ministry of Agriculture Mombasa
48. KEMRI Nutritionist Kilifi
49. Nutritionist Kilifi County
50. Fisheries Officer Mombasa County
51. Hand in Hand East Africa
52. CEO Decent Conservation
53. Rep of NEMA Mombasa
54. Chief Executive Officer Jumuia ya Kaunti Za Pwani
55. Tea Executive Sanica
56. Managing Director Mardin Group
57. Chairman CPF
58. Director Green Leaf
59. Chairman KAFOSA
60. Sub County Nutrition and Dietetics Coordinator Mombasa
61. Crops Officer Mombasa
62. Communication Officer Decent Conservation
63. Younger Farmer Mombasa
64. Fisheries Officer Mombasa
65. Young African Workers
66. Lecturer Technical University Mombasa
67. Community CBOs
68. AWAK IT Manager