COUNTY GOVERNMENT OF KISUMU

KISUMU COUNTY FOOD SYSTEM STRATEGY

2023 - 2027

KENYA VISION 2030

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FOREWARD

It is exciting to present the Kisumu County Food System Strategy 2023-2027. This is a product of efforts and synergies from various stakeholders whose common goal is to implement the provisions of the third Kisumu County Integrated Development Plan 2023-2027 (CIDP III). It is envisaged that this document will be critical in integrating the efforts of all other stakeholders in contributing towards a sustainable food system.

Food System is a county, national and international agenda. The National Food and Nutrition Security Policy of 2011 together with its implementation framework of 2017-2022 is aligned to this Strategy. It directs governments, both county and national levels to work toward ensuring that all Kenyans, at all times have access to safe, healthy food, water in sufficient quantity and quality to satisfy their nutritional needs for optimal health. At the international arena, the aspiration of this strategy is addressed by the Sustainable Development Goals (SDGs) by the year 2030.

This Food System Strategy has captured 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 and parts of the broader economic, societal and natural environments in which they are embedded.

In addition, the strategy has identified the critical sub-systems in Kisumu County including the farming system, waste management system, input supply system and how they interact with other key systems such as energy, trade, infrastructure and health.

As of today, Kisumu County has a population of about 1.1million people and this population is growing exponentially based on births and immigrations from other counties in the Lake Region Economic Bloc (LREB) and the rest of East Africa. The rapid urbanization of the City of Kisumu presents a huge challenge on feeding this growing population. This Strategy acknowledges our obligation as the County Government of Kisumu to ensure that our residents and visitors access adequate, safe, quality, nutritious and affordable food now and in the future.

As outlined in my manifesto 2022-2027, my government is committed to increase efficiency of the operations of the markets, enhance food production and shall ensure the delivery of this strategy and in particular support all the interests working within the food system for sustainability.

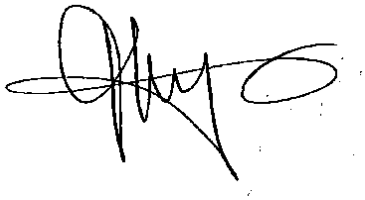
H.E. Prof. Peter Anyang' Nyong'o, EGH
Governor, Kisumu County

PREFACE

Kisumu County becomes the second devolved unit in Kenya after Nairobi City County to develop a County Food System Strategy towards the implementation of the Sessional Paper Number 1 of 2012 on the National Food and Nutrition Security Policy. The policy puts emphasis on the promotion of sustainable food production systems, support for safe effective food storage, processing and preservation. It also supports investment in infrastructure, income generating activities, water harvesting, promotion of safe practices in food production, encouragement of monitoring of food consumption, dietary indicators, strengthening of nutrition surveillance and implementation of effective food relief and safety-nets.

The Kisumu County Food System Strategy 2023-2027 has been developed in the context of rapid population growth, urbanization, growing wealth, changing consumption patterns, globalization, climate change and the depletion of natural resources. The expected developments in this food systems strategy are programmed to yield results in Food System Governance; Production, Post-harvest handing and Value Addition; Infrastructure Development; Market access and ICT; Nutrition, food safety and Health; Mainstreaming cross-cutting issues (Climate Change, Food loss, Food waste and Gender) within Kisumu County.

This document lays out the strategies and frameworks that will be implemented by the County Government, stakeholders and development partners to address the gaps in the food system. It assures the present and future residents of Kisumu County of consistent and adequate amounts of safe, affordable, accessible and nutritious food.



County Executive Committee Member,
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County Government of Kisumu

ACKNOWLEDGEMENT

This Strategy was developed with the generous support of our two key development partners namely Food and Agriculture Organization of the United Nations (FAO) under the *Integrated Actions for Innovative Food System Actions across Rural Urban Communities Project* and Practical Action under the Change Ambition – *"Farming that Works"* and who provided financial and technical resources. Further, we greatly appreciate the technical contribution of Maseno University in the development of this strategy.

We also express gratitude to the Departments of Agriculture, Fisheries, Livestock Development and Irrigation; Water, Environment, Natural Resources and Climate Change; Medical Services, Health and Sanitation; Lands, Physical and Urban Planning; Infrastructure, Energy and public works; for their input in the development of the strategy.

The Technical Working Group (TWG) remained very dedicated to the development of this strategy. The implementation plan of the Strategy was refined by the secretariat with the active participation from the Food Liaison Advisory Group (FLACK) which is a multisectoral platform that brings together the County Government of Kisumu, state and non-state actors.

The strategy is based largely on the study on *Rapid Urban Food System Appraisal, Kisumu, Kenya* carried out under the *Integrated Actions for Innovative Food System Actions across Rural Urban Communities Project* funded by FAO. It provided an assessment of the City of Kisumu within the context of Kisumu County CIDP III (2023- 2027) and prioritized value chains of dairy, poultry, African leafy vegetables, fruits (Watermelon and bananas), fish and groundnuts through a stakeholder consultative process.

In the process of developing the strategy valuable comments and suggestions from stakeholders, role players and special interest groups during public participation have been integrated. We remain hugely indebted to these persons and institutions for working hard to ensure that this Strategy comes to fruition.

Dr. Gregory Ganda
County Executive Committee Member
Department of Medical Services, Public Health and Sanitation
County Government of Kisumu

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ACRONYMS AND ABBREVIATONS

AFCTA	African Continental Free Trade Area
ASAL	Arid and Semi-Arid Lands
ATVETs	Agricultural Technical Vocational Education Training Centers
BPR	Business Process Re-Engineering
CGK	County Government of Kisumu
CIDP	County Integrated Development Plan
ECD	Early Childhood Education Department
E-NIMES	Electronic National Integrated Monitoring and Evaluation System
ETR	End Term Review
FAO	Food and Agriculture Organization of the United Nations
FLACK	Food Liaison Advisory Council- Kisumu
GHG	Green House Gas
GMO	Genetically Modified Organism
ICESCR	International Convention on Economic Social and Cultural Rights
ICT	Information Communication Technology
KCAIS	Kisumu County Agriculture Information System
KNBS	Kenya National Bureau Statistics
KRA	Key Result Area
L/H/M	Low/High/Medium
LoA	Letter of Agreement
LREB	Lake Region Economic Bloc
M & E	Monitoring and Evaluation
MCA	Member of County Assembly
MDACs	Ministries Departments Agencies and Counties
MEAL	Monitoring, Evaluation and Learning
Mn	Million
MoH	Ministry of Health
MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
MTPs	Medium Term Plans

MTR	Mid Term Review
NIMES	National Integrated Monitoring and Evaluation System
NT	National Treasury
PE	Personal Emoluments
PESTEL	Political, Economic, Social, Technological, Environmental and Legal
RUFSAT	Rapid Urban Food System Appraisal Tool
UNICEF	United Nations International Children Education Fund
VC	Value Chain
VIRED	Victoria Institute for Research on Environment and Development
YPARD	Young Professional for Agricultural Development
WHO	World Health Organization

EXECUTIVE SUMMARY

Kisumu County hosts the third largest city in Kenya and has a population estimated at 1,155,574 people (Kenya National Bureau Statistics [KNBS], 2019) consisting 560,942 males and 594,609 females. This figure is projected to increase to 1,290,016 in 2025 and 1,329,805 in 2027 respectively. It is therefore envisioned that this projected population growth will exert pressure on agricultural production towards food and nutrition secure households.

In as much as Kisumu County has favorable climatic conditions that supports agricultural production, several institutional and infrastructural challenges still derail the food system making it a food deficient County. Key challenges highlighted in the Strategy are: weak institutional and food system governance, low production, underdeveloped post-harvest handling and value addition, poor infrastructure system, poor access to markets, Information and Communication Technology (ICT) and food safety. Cross cutting challenges of climate change, food loss and waste management, social protection, environmental protection, cultural and social mainstreaming among others have equally been identified as constraints that must be addressed in designing a sustainable food system.

The Strategy identifies six key thematic areas geared towards supporting the food system by strengthening the Food system governance, Production, Post-harvest handling and value addition, Infrastructure development; Market access and ICT; Nutrition, food safety and health and mainstreaming Cross Cutting issues. To achieve the above, the following broad objectives have been identified towards realizing the intended outcome of a sustainable food system: -

i) To formulate appropriate regulatory instruments that supports implementation of the policies;
ii) To strengthen production, post-harvest-handling and value addition of all agricultural produce;
iii) To develop, improve and expand basic physical structures, network and facilities that support sustainable food systems;
iv) To enhance reliable agri-food market access and market information;
v) To guide and enhance access to healthy, nutritious and safe food in Kisumu County;
vi) To attain consistent food and nutrition security for county residents while safeguarding the commercial interests and mainstreaming cross-cutting issues.

The preparation of the Strategy was guided by the assessment carried out using the Rapid Urban Food System Assessment Tool (RUFSAT), SDGs, Constitution of Kenya 2010, Kenya Vision 2030, National Food and Nutrition Security Policy-2011, Water Act 2016, Kenya Environment, Sanitation and Hygiene Policy 2016-2030, Migratory and Invasive Pests and Weeds Management Strategy (2022-2027) and the Agriculture Sector Transformation and Growth Strategy among others. Other relevant County instruments that guided the process include; County Government Acts No 17 of 2012, Kisumu County Governor's Manifesto 2022-2027, Kisumu County Crops Act 2019, Kisumu County Climate Change Act 2020, Kisumu County Health Act, Kisumu County Environmental Health and Sanitation Act 2022, Kisumu County Nutrition Action Plan 2021-2023, Kisumu County Regularization of Land development Act 2022 among others.

The Strategy is organized into five chapters; Introduction about Kisumu County in terms of demographics and agricultural production; The Situational analysis which covers the environmental scan and strategic issues; The vision, mission, core values, thematic areas, strategic objectives and strategies; The County Government organogram, financial resources, business process re-engineering, risk analysis and mitigation measures; Monitoring, evaluation and learning with the implementation matrices and risks analysis captured as annexes.

To successfully implement the Strategy, the County Government of Kisumu together with key partners will require resources of about Kshs 4.85 Billion for the 5-year period.

CHAPTER ONE: INTRODUCTION

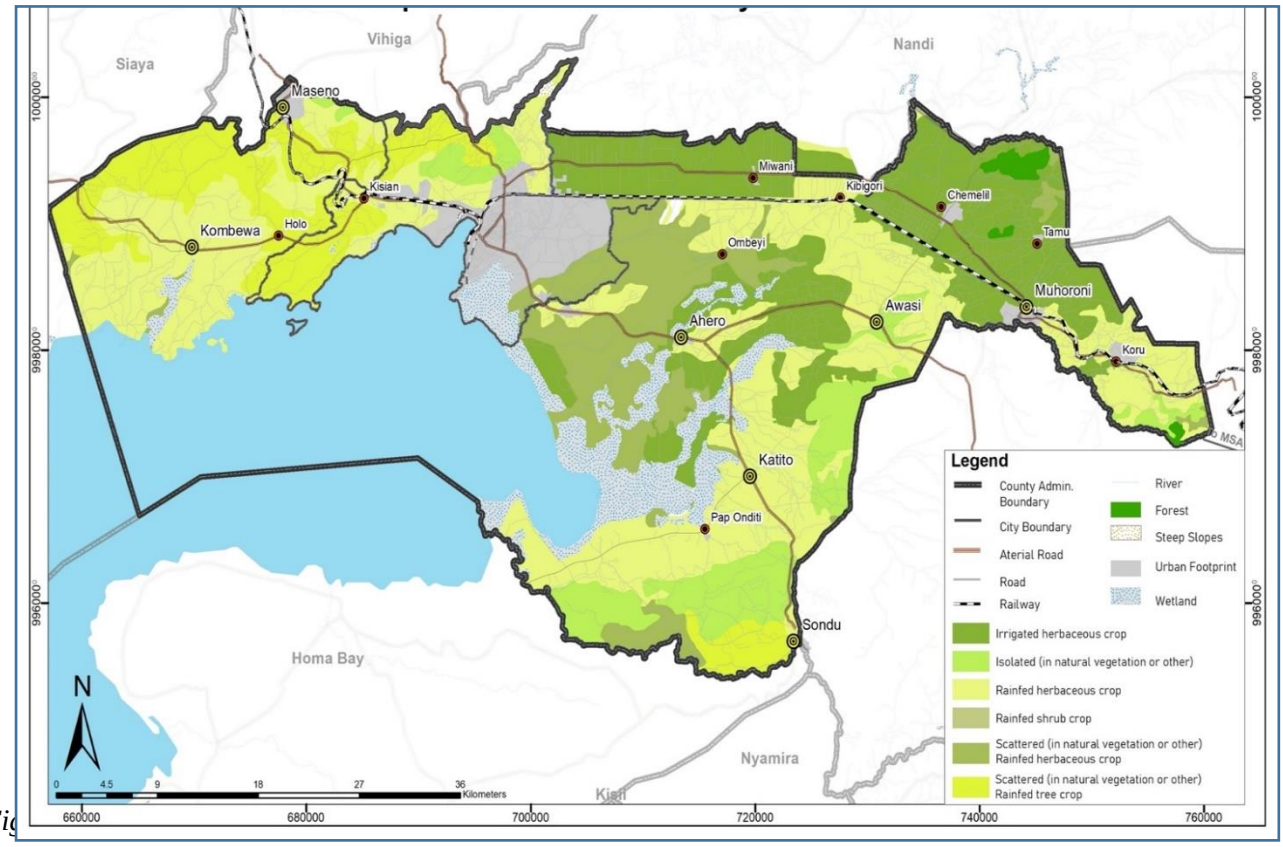
This chapter provides a brief background of the Kisumu County, food system, general trends of the agricultural sub-sector both globally and nationally and the organizational roles of the county vis-à-vis national development agenda, regional and international framework.

1.1 Background

1.1.1 Kisumu County

Kisumu County is located on the banks of Lake Victoria in Kenya. Kisumu has one of Kenya's highest poverty levels (est. 48%)[1]; severe shortages in housing, water, sanitation, and inadequate solid waste disposal have slowed development, and the disease burden (untreated HIV/AIDS, malaria and other infectious diseases) is very high.

City of Kisumu, the headquarters of Kisumu County started as a trading center where foods from the region were traded and distributed more widely. Over 60% of the city population lives in peri-urban settings[2] practicing unregulated, subsistence-level urban agriculture, thereby silting the lake and deforesting the surrounding hills. Yet the city is undergoing resurgence in regional trade and tourism, and is working to improve its production and its infrastructural capacity with an eye toward regaining its footing as an investment and tourist destination.



Fig

Agro-processing activities in Kisumu County includes refined sugar, frozen fish, textiles, beer, sisal fiber, ethanol, and molasses. There exists room for expansion of agri-food system activities in banking, insurance,

[1] Government of Kenya 2020 Comprehensive Poverty Report. KNBS Nairobi

[2] UN Habitat 2005: Situation Analysis of Informal Settlements in Kisumu. Nairobi

internet technology, and telecommunications. Plans for improving rail and air access have been budgeted for at the national level, and will, along with the revival of the ferry service, enhance opportunities for agriculture as well as convenient business access to Uganda and Tanzania.

Kisumu has encountered many food-system shifts, from the depletion of a key protein resource in the lake, as a result of the introduction of the Nile Perch [Ogutu, 1990], to more recent ecological challenges driven by increased effluent and agricultural run-off into the lake and the increase in water hyacinth (Battersby, 2019). The land-based resource has also seen significant change where traditional and more localized crops have been replaced with cash crops such as sugar.

In the Constitution of Kenya 2010 Agriculture is a devolved function. Kisumu County is expected to set up institutional structures to operationalize this at the County level. This is an ongoing process with budgetary considerations and staffing requirements. The effectiveness will need to be determined to position the county institutions in the food strategy development, implementation, monitoring and evaluation.

The Kisumu County Food System Strategy is a blue print that is domiciled within the County Government. The Constitution of Kenya 2010 in Article 174 on Devolution states that: *the foremost responsibility of both levels of government is to provide for the well-being of citizen through the equitable and accountable provision of services*. The following are the devolved functions which in one way or another impact on the food system: -

1) Agriculture, including crop and animal husbandry, livestock sale yards, county abattoirs (slaughterhouses), plant and animal disease control, and fisheries.
2) County health services, including, in particular – county health facilities and pharmacies, ambulance services, promotion of primary health care, licensing and control of undertakings that sell food to the public, veterinary services (excluding regulation of the profession which is a national government function), cemeteries, funeral parlours and crematoria, and refuse removal, refuse dumps and solid waste disposal.
3) Control of air pollution, noise pollution, other public nuisances, and outdoor advertising.
4) Cultural activities, public entertainment and public amenities, including – betting, casinos and other forms of gambling, racing, liquor licensing, cinemas, video shows and hiring, libraries, museums, sports and cultural activities and facilities, and county parks, beaches and recreation facilities.
5) County transport, including – County roads (Class D, E and Unclassified Roads), street lighting, traffic and parking, public road transport, and ferries and harbours (excluding the regulation of international and national shipping and matters related thereto).
6) Animal control and welfare, including – licensing of dogs, and facilities for the accommodation, care, and burial of animals.
7) Trade development and regulation, including – markets, trade licences (excluding regulation of professions), fair trading practices, local tourism, and cooperative societies.
8) County planning and development, including – statistics, land survey and mapping, boundaries and fencing, housing, and electricity and gas reticulation and energy regulation.
9) Education – only pre-primary education (ECD), village polytechnics, home craft centres and childcare facilities.
10) Implementation of specific national government policies on natural resources and environmental conservation, including soil and water conservation, and forestry.
11) County public works and services, including – storm water management systems in built-up areas, and water and sanitation services.
12) Firefighting services and disaster management.
13) Control of drugs and pornography.

14) Ensuring and coordinating the participation of communities and locations in governance at the local level and assisting communities and locations to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level. (Constitution of Kenya, 2010).

1.1.2 Climate and Physiography

The climate of the County is generally warm with minimal monthly variation in temperatures between 23^0C and 33^0C throughout the year. The rainfall is determined by a modified equatorial climate characterized by long rains (March to May) and short rains (September to November). The average annual rainfall varies from 1000-1800mm during the long rains and 450-600mm during the short rains (County Government of Kisumu [CGK]. 2018). The Climate has been going through variability that is creating hazards in the County. Since most of the food production is based on rain fed agriculture these variabilities have great negative effects.

1.1.3 Relief and Drainage

The county's topography is characterized by Kano-Plains which is a flat stretch lying on the floor of the Nyanza Rift system, the Nyabondo Plateau and the over-hanging huge granite rocks at Riat hills, Maseno and Seme areas. The county is endowed with the second largest freshwater lake in the world; L. Victoria with two major rivers- Nyando and Sondu-Miriu and seven permanent rivers, Awach-Kano, Oroba/Ombeyi, Kibos, Awach-Seme, Kisian, and Mugruk, in its catchment. This creates potential for irrigation which has not been fully tapped. Altitudes vary from 1144 metres on the plains to 1525 metres in the Maseno and Lower Nyakach areas, strongly influencing rainfall and temperatures in the County[3].

The main agro-ecological zones (AEZ) in Kisumu County (Table 1.1) falls under Lower Midland Zones (LM) ranging from LM1 to LM4 with pockets of upper midland zones which have a high agricultural potential,[4] The County has potential for producing various food crops in these zones.

Table 1.1: Agro-ecological zones (AEZ) in Kisumu County

Agro-ecological zones (AEZ)	Altitude (m)	Annual Mean Temperatures	Annual Average Rainfall	60% Reliability of rainfall (mm)	
				Long rains	Short rains
UM1		19.7-21.00C	1050-1400mm.		
UM2					
UM3		20.2-20.80C	1050-1400mm		
Lower Midlands (LM1)	1300- 1500	21.8-20.9°C	1500-1900 mm		
Lower Midlands (LM2)	1,337 -1,457	22.3-21.5°C	1400 -1600 mm		
Lower Midlands (LM3)	1160 - 1350	22.7-22.0°C.	1020-1390 mm	250-350	250 - 350
Lower Midlands (LM4)	1160 - 1280	22.7-22.3°C	890-1020 mm	220-350	250 -350

Source: *Government of Kenya (GoK, 2017)*

1.1.4 Soils

The County is mainly dominated by sandy and clay soils (Figure 1.1). In the Kano Plains, (a topographical zone lying in the floor of the rift valley) the dark-brown and grey soils are poorly drained, and usually very deep and firm. The black cotton soils constitute more than 70% of all soil types found in Kisumu County. These soils

[3] County Government of Kisumu 2018. County Integrated Development Plan 2018-2022

[4] Jaetzold et al., 2010. Farm Management Handbook Of Kenya VOL. II. Available at: https://edepot.wur.nl/480234

enable the production of commercial crops such as rice, horticulture and sugarcane but are very difficult to manage because of susceptibility to water logging in rainy season and cracking up in dry season.[5]

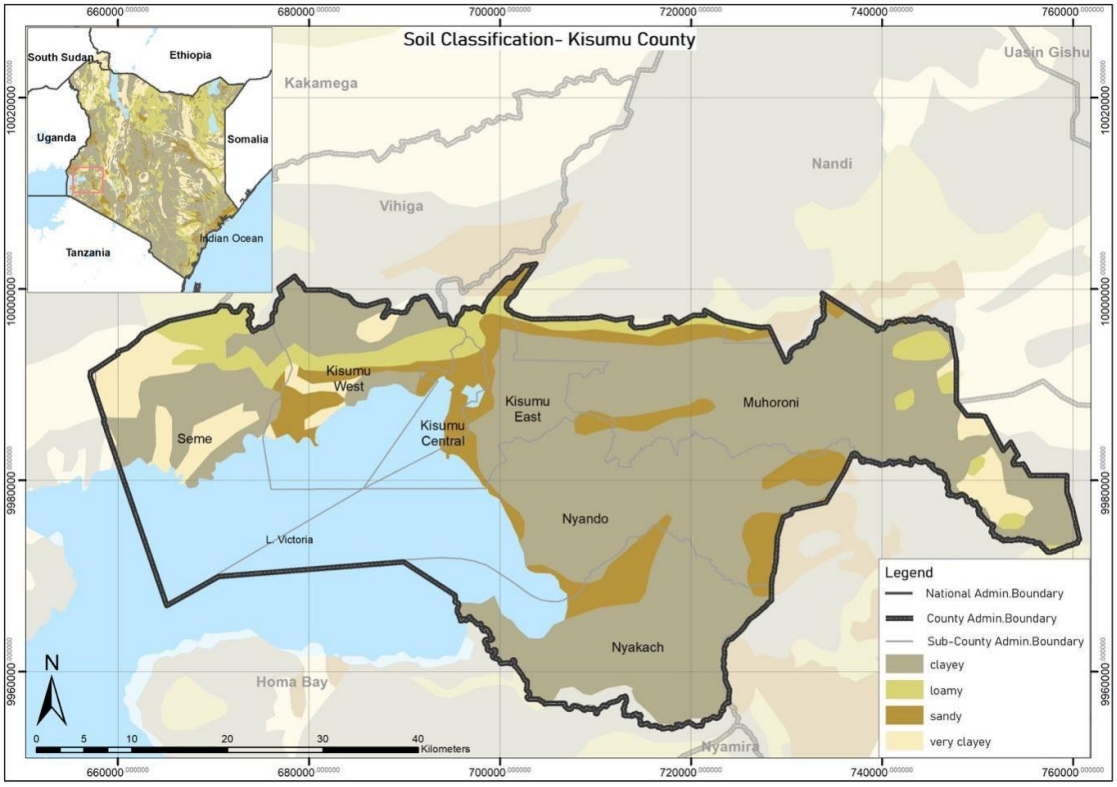


Fig 1.2: Kisumu County Soil types

1.1.5 Population

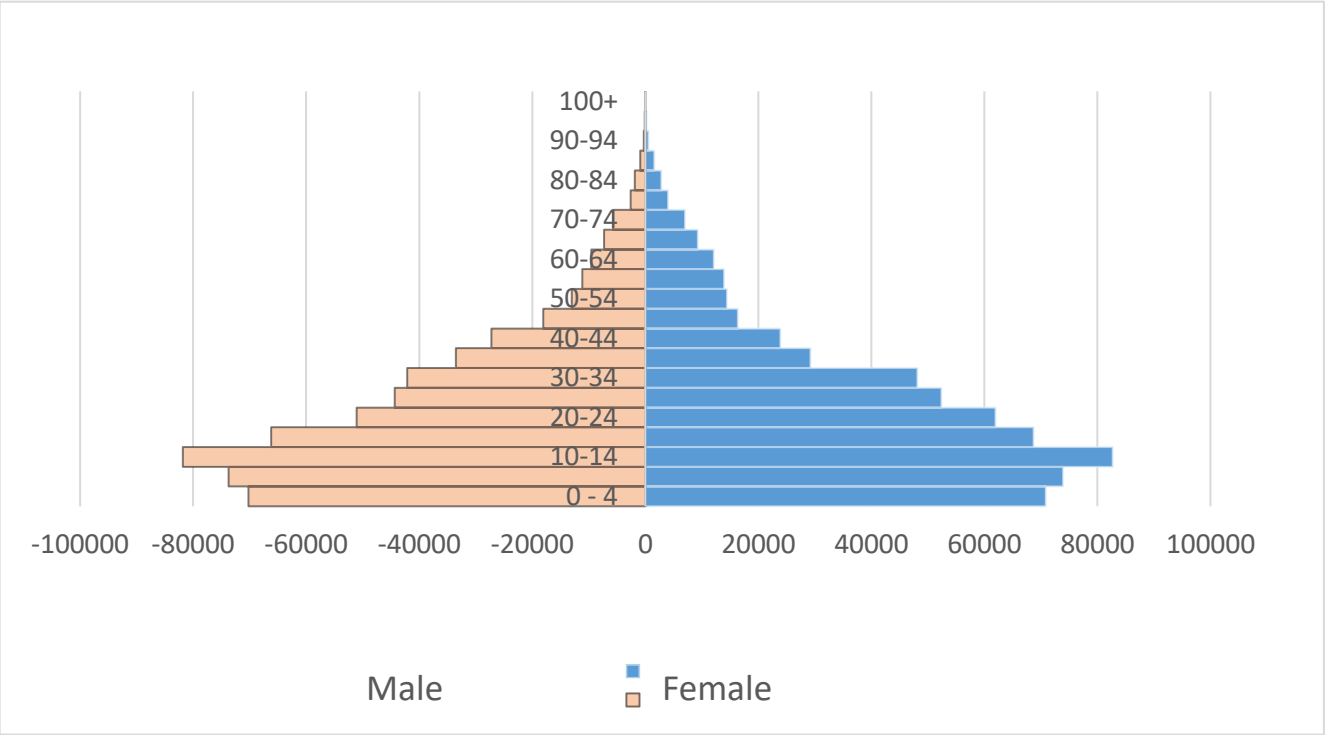
The population of Kisumu County is presented in Table 1.2. Half the population of Kisumu County lives in Kisumu City. With the upgrading of a number of urban centres (Ahero, Awasi, and Maseno) the county is going to be mainly urban. This has great implications for the food system in the County.

Table 1.2: County Population Distribution

ADMIN UNIT	SEX				LAND AREA	DENSITY
	TOTAL	MALE	FEMALE	HOUSE HOLDS	Sq Km	P/Sq Km
KISUMU	**1,155,574**	**560,942**	**594,609**	**300,745**	**2,085.4**	**554**
KISUMU CITY	567,963	278,156	289,975	160,135		
KISUMU EAST	220,997	108,304	112,689	61,871	141.6	1,560
KISUMU CENTRAL	174,145	84,155	89,985	52,331	36.8	4,737
KISUMU WEST	172,821	85,697	87,121	45,933	209.0	827
KISUMU RURAL	587,611	278,156	289,795	140,610		
SEME	121,667	57,658	64,007	29,404	267.7	454
MUHORONI	154,116	76,770	77,345	37,193	657.5	234
NYANDO	161,508	77,121	84,380	38,460	446.1	362
NYAKACH	150,320	71,237	79,082	35,553	326.7	460

Source: Kenya Population Census and Household Survey 2019

[5] County Government of Kisumu 2018. County Integrated Development Plan 2018-2022


100+
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40000
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80000
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Male
Female

1.2 Food Systems Approach

Food systems (FS) encompass 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 food system is composed of sub-systems (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.).[6] As we look at the food system in Kisumu, we need to take into consideration the totality of the parameters including the population demographics, economic patterns and structuring, urban growth and environmental consideration (Fig 1.2).

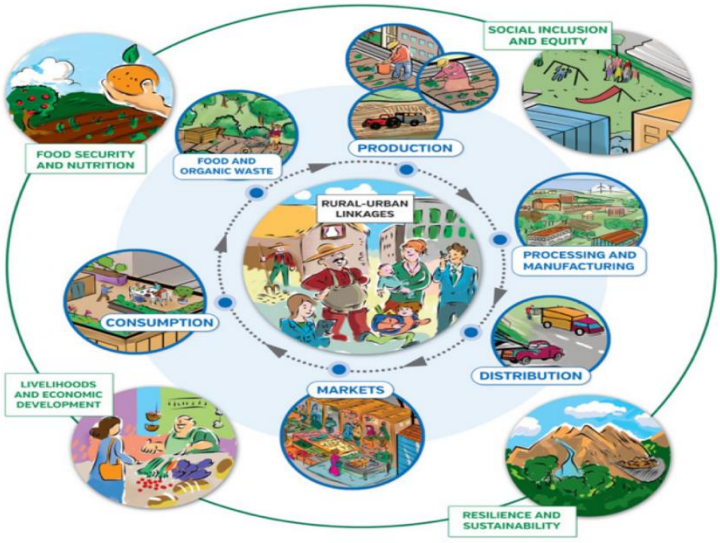


Fig 1.3: Components of the Food System

A study by Opiyo and Agong (2019)[7] found that Kisumu County food system comprises both the formal and informal systems that operate as one system. The two components of this wider food system are used strategically by consumers to access affordable nutritious foods but it is the informal

Why a food system approach?

The food system therefore includes not only the basic elements of how we get our food from farm to fork, but also all of the processes and infrastructure involved in feeding a population. Systems can also exist within systems, for example, farming systems, agricultural ecosystems, economic systems, and social systems and within those are further subsets of water systems, energy systems, financing systems, marketing systems, policy systems, culinary systems, and so on. Since 2015, Sustainable Development Goals (SDGs) era, food system is seen from the lens of sustainable development which emphasizes food and nutrition security and therefore, a sustainable food system is food 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 (FAO, 2018).

It must therefore fulfill the following:

- 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 *(environmental sustainability)*

The complexity of food systems requires a more holistic and coordinated approach. Many foods security and nutrition challenges are complex problems whose solutions are contested and which transcend disciplinary, divisional, and institutional boundaries. A food systems approach is a way of thinking and doing that considers the food system in its totality, taking into account all the elements, their relationships and related effects. It is not confined to one single sector, sub-system (e.g., value chain, market) or discipline, and thus broadens the framing and analysis of a particular issue as the primary; source of food. (extract from FAO, 2018)

[6] FAO, 2018: Sustainable Food Systems: Concept and Framework.

[7] Opiyo and Agong 2019: Nexus between Urban Food System and Other Urban Systems: Exploring Opportunities for Improving Food Security in Kisumu, Kenya**.** *Social and Economic Geography*, 2020, Vol. 5, No. 1, 20-28 Available online at http://pubs.sciepub.com/seg/5/1/4

economy that is proactively enabling access to affordable essential foods. They observed emergence of interesting value patterns where some traders import fish (an essential protein source) from China to sell to local markets, while local fish from Lake Victoria is sold for a higher price in Nairobi. There exists a clear tension between enabling access to essential proteins and somewhat privileged views of local food systems. This is different for vegetables which is a major food commodity in Kisumu where artisanal production takes place in small farms along the railway riparian land in Obunga and the wetlands in Nyando, Namthoe and Nyalenda areas. There is some irrigation, but most of the water used for irrigation in the areas are sometimes contaminated by discharges of untreated waste, industrial effluent and run-off from drainages. Untreated or inadequately treated municipal sewage is a major source of groundwater and surface water pollution in the slums of Obunga and Nyalenda. Soil and water pollution impact on food safety which represents an important threat to human health.[8] The potential for irrigated agriculture is yet to be fully exploited. There is little evidence of Government support to enable farmers use the streams, rivers and Lake Victoria for irrigation.[9]

1.3 Global, Regional and National Development Trends Impacting on the Food System

This strategy has been developed within the context of current trends in the global, regional and national development issues and how they impact of the Food System in Kisumu County.

1.3.1 Genetically Modified Organisms

Genetically Modified Organisms (GMO) for various cash and food crops have been designated for mass production for their higher productivity and yields. These have been accepted in other countries and prohibited in some at the international Arena. There has also been intense debate locally for the lifting of the total ban on GMO with the proponents' citing crops like cotton that can help household income and allow Kenya to compete in the agricultural global market (Njoroge, 2022). However, the government of Kenya reconsidered the adoption of biotechnology to bolster its food production after reviewing various experts and technical reports by authoritative bodies such as National Biosafety Authority (NBA), World Health Organization (WHO), US food and drug administration (FDA) and the European food safety authority (EFSA)[10]

1.3.2 Climate Change

The world is increasingly experiencing adverse effects of climate change resulting to food scarcity globally. This is becoming a problem and affecting production of foods as it leads to human movement and cuts off distribution channels. Regionally, in the Horn of Africa and also locally in Kenya, there is an increasing frequency of failed rains which has reduced yields considerably and massive crop failure. On the other hand, globally, the food system is the single largest producer of GHGs which have a negative effect on the climate. Therefore food systems are caught in the nexus of being both drivers and victims of climate change.

The Climate has been going through variability that is creating hazards in the County. Since most of the food production is based on rainfed agriculture these variabilities have great negative effects (See Fig 7 below)

[8] VIRED, 2019: Food and Nutrition Baseline Survey Report- Kisumu. Women Food Entrepreneurship (WFE) in Kenya and Burkina Faso Building Inclusive Business Models for Food Security in the City Slums of Kisumu and Ouagadougou.
[9] Onyango G. M., Abel B. O.. & Obange N. 2022. Kisumu Rapid Urban Food System Assessment, FAO, Kisumu.
[10] Alliance for Science. 2023: *Kenya approves GMOs after 10-year ban*. Retrieved from https://allianceforscience.org/blog/2022/10/kenya-approves-gmos-after-10-year

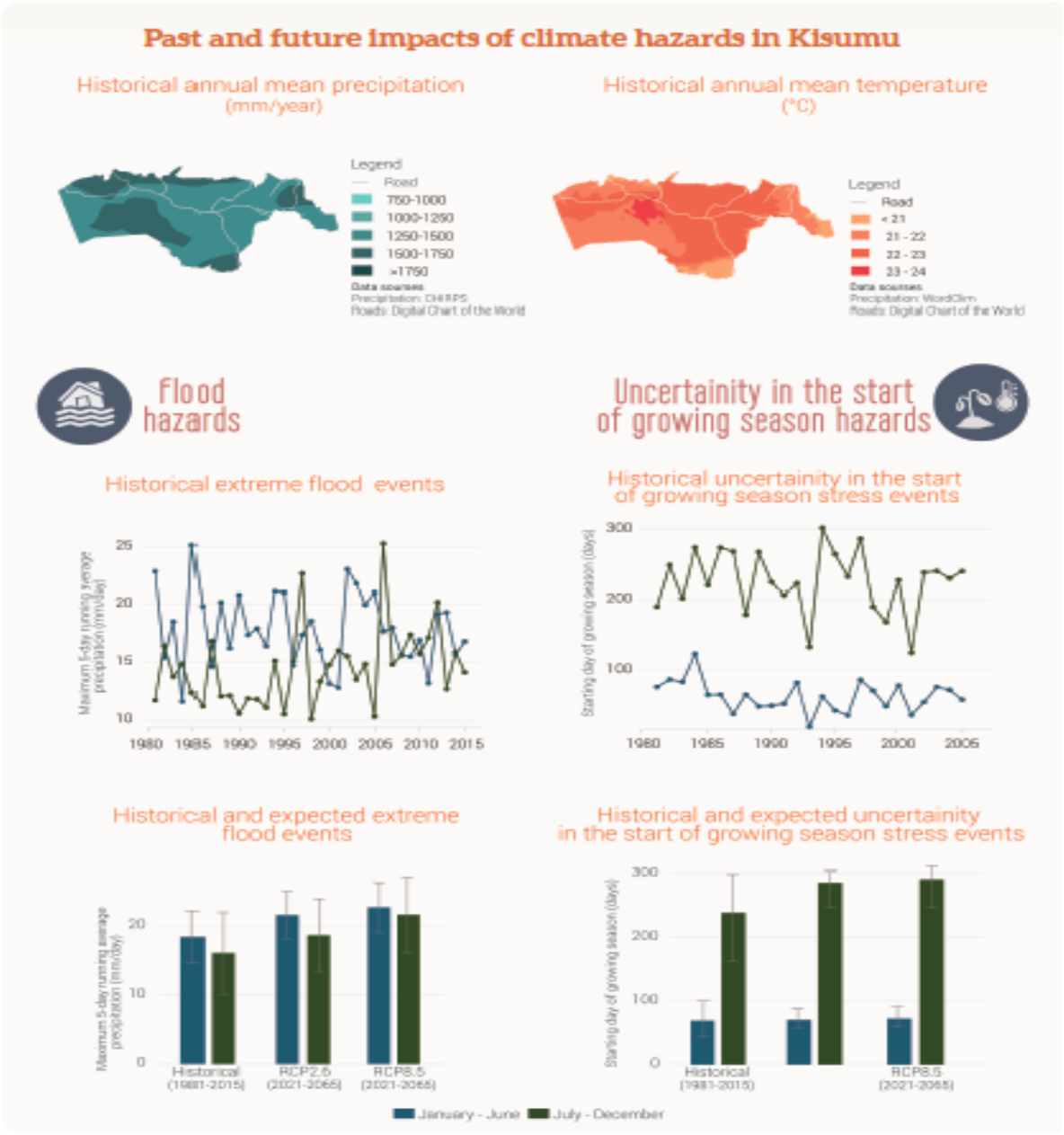


Fig 1.4: Climate Impact (MoALF 2017)

1.3.3 African Continental Free Trade Area

The African Continental Free Trade Area (ACFTA) is a flagship project of AU-Agenda 2063. This agreement promises broader and deeper economic integration and would attract investment, boost trade, provide better jobs, reduce poverty, and increase shared prosperity in Africa. One of the key flagship areas is food production and nutrition.

1.3.4 World Conflicts

Instability in African countries and beyond occasioned by wars, political and social economic factors and other nations across the globe has affected the world in terms of energy prices, food production and distribution. This has resulted into high inflation rates affecting import and export markets for Kenya.

1.3.5 Water towers

Majority of the Western Kenya Counties and the Arid and Semi-Arid Lands (ASAL) counties have forest cover of less than 1%. This has affected rainfall and crop production. The National Government has prioritized the planting of 5 billion trees with the hope of stimulating stable rains overtime.[11]

1.3.6 Pandemics and Endemics

Pandemics and endemics such as HIV/AIDs and Covid-19 affected world food production and distribution thereby causing inflation of food prices which resulted to millions of hunger-stricken people in the developing world which is highly dependent on food imports. It also affected trades, income generation and enhanced economic inequality.[12]

1.3.7 Taxation

Taxation in Kenya is anchored in Article 209 of the Constitution which empowers the national government to impose income tax, value-added tax, excise duty, customs duties and other duties on imports and exports, as well as any other tax which may be provided for through an act of parliament or county assembly.

Compared to other African countries, Kenya's tax to GDP ratio was lower (15.3%) in 2020 compared to the other 31 African countries (16%)[13]. However, Kenya ranks third in Africa in regards to individual tax compared to profit taxes from corporations. The individual tax contributes 30% of total tax revenue while tax from businesses contributes 11.8 per cent.[14] According to the Institute of the Certified Public Accountants of Kenya, the high-income tax is as a result of the high dependency on income tax. Although the number of tax payers have been on the rise, the number is still very low to spread out the tax burden evenly. According to the auditor general report of 2020, the country was unable to meet its tax collection target which then translates to the services that were budgeted for but they were not delivered to the public.

Multiple taxation has been a concern for most tax payers in Kenya, whereby, individuals and business are required to pay taxes to different government agencies or levels of government on the same income or transaction. To address the issue of multiple taxation, the Kenyan government has been working to streamline tax administration and eliminate duplication of tax 2020, the government introduced the Tax Procedures Act, which aims to simplify tax compliance procedures and reduce the administrative burden on taxpayers. Additionally, the government has been working with county governments to harmonize their tax systems and reduce overlapping taxes.

1.3.8 Subsidies

Agricultural inputs such as fertilizers have been experiencing price fluctuations thus affecting the cost of food production. The County Government of Kisumu provisions on fertilizer subsidy has been inadequate.

1.4 Kisumu County Development Framework

The Strategic Plan is developed in recognition of the national, regional and international agenda on food and nutrition security. Kenya has placed food and nutrition security high on its national, regional, and international agenda, recognizing the importance of ensuring that all its citizens have access to safe, nutritious, and sufficient

[11] Special Presidential Forestry and Rangeland Restoration Program 2023
[12] Global Network Against Food Crisis 2022: Global Report on Food Crisis. Food Security Information Network
[13] Organization for Economic Cooperation and Development 2020: Economic Outlook 2018 - https://www.oecd.org/economy/outlook/economic-outlook-november-2018/
[14] *ibid*

food. The Strategic Plan aligns itself to these agendas which are informed and influenced by need of sustainable development and also provides as a reference to its implementation and operation.

Here are some of the key initiatives and policies that impact on food and nutrition security:

County Agenda

- Kisumu County Enterprise Fund 2015.Section II (4) of The Act provides for mechanisms for supporting Agri-enterprises and their value chains for production of food
- Kisumu County Climate Change Act, 2020.Part II, Section 6 and 9 of the ACT provides for supporting interventions that link good agricultural practices with responsible climate change action.
- The Kisumu County Women, Youth and PWD Fund Act, 2015.Part II (8) and Part III (Section 10) provides for targeted support to farmers and vulnerable groups through access to loans for business development

National Agenda

- Constitution of Kenya – *Article 43 (1) (c)* of the Constitution of Kenya states clearly that every Kenyan has the right to be free from hunger and to have adequate food of acceptable quality.
- Kenya Vision 2030 - This is Kenya's long-term development blueprint that seeks to transform Kenya into a newly industrializing, middle-income country by 2030. It includes a focus on food security and nutrition as one of its key pillars.
- Agriculture Sector Transformation and Growth Strategy 2019-2029 - This strategy aims to transform Kenya's agriculture sector by increasing productivity, creating jobs, and enhancing food and nutrition security.
- The National Food and Nutrition Security Policy (NFNSP) - This policy provides the framework for addressing food and nutrition security in Kenya, and aims to ensure that all Kenyans have access to safe and nutritious food at all times.
- Warehouse Receipt System Act No. 8, 2019 - The Act establishes the Warehouse Receipt System Council mandated to establish and maintain a warehouse receipts system that contributes towards structured trading in agricultural commodities.
- Agricultural Sector Transformation and Growth Strategy 2019 -2029 - The strategy seeks to transform the agriculture sector in order to achieve food security, improve income, lower cost of food, and increase employment particularly for farmers, women and youth.
- Medium and Small Enterprise Act 55 of 2012 - PART III, Section 31 provides for a mechanism for targeted Government support to medium and small enterprises. It also provides for promotion of market systems development and supporting innovation by the SMEs
- Technical and Vocational Education and Training Act 2013 **-.**Part III (7) defines processes for skills enhancement through the setup of special schools and Vocational Training Centers.

Regional Agenda

- East African Community (EAC) - Kenya is a member of the EAC, which has a food and nutrition security strategy that aims to enhance food security and nutrition among its member states.
- Comprehensive Africa Agriculture Development Programme (CAADP) - Kenya is a signatory to the CAADP, which is a framework for boosting agricultural productivity and promoting food security in Africa.

- African Union Agenda 2063 – Kenya is a signatory to this strategy which seeks to harness the continental endowments embodied in its people, culture, history and natural resources, geopolitical position to effect equitable and people centered growth and development
-

International Agenda

- United Nations Sustainable Development Goals (SDGs) - Kenya is committed to achieving the SDGs, including SDG 2, which aims to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- Scaling up Nutrition (SUN) Movement - Kenya is a member of the SUN Movement, which is a global initiative to combat malnutrition in all its forms.

CHAPTER TWO: SITUATION ANALYSIS

2.1 Environmental Scan

The environmental scan provides an assessment of the Internal Environment for Kisumu County food system strategy through the SWOT and External Environment through the P-PESTEL Analysis. An assessment of the Stakeholders is also undertaken to allow for appreciation of the players who affect the performance in implementing the Food Strategy.

2.1.1 Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

The analysis of the structure of the implementing institution of this strategy, FLACK, enables us to examine the strengths, weaknesses, opportunities and threats that will determine its capacity to execute the strategy.

The internal environment (strengths and weaknesses) addresses the following:

Skills: These are the capabilities and expertise of an organization's workforce, such as technical skills, leadership abilities, and communication skills.

Systems: These are the processes, procedures, and policies that an organization uses to operate, such as inventory management, quality control, and customer service.

Structure: This refers to the organizational structure, including the hierarchy, roles, and responsibilities of employees, and how they are organized.

Strategy: This is the plan an organization uses to achieve its goals, such as expanding into new markets, increasing sales, or improving efficiency.

Shared values: This refers to the culture, beliefs, and principles that guide an organization's behavior, such as customer focus, innovation, or sustainability.

The external environment addresses the opportunities and threats which is further assessed by the P-PESTEL (Table 2.1).

Table 2.1: SWOT Analysis of Kisumu County Food System

STRENGTHS		WEAKNESSES
• **Diversity of stakeholders brings in skills and capacities**	SKILLS	• Diverse stakeholders create competition as members focus on personal interest
• **Rules and regulations that guide the food systems** • **Political goodwill**	SYSTEMS	• Limited monitoring and evaluation systems • Five year electoral cycles
• **Recognition of FLACK within the County Government System** • **Joint Leadership of FLACK by County and Private sector**	STRUCTURE	• Non-formalization of FLACK • Inadequate financial support
• **Sharing of experiences between actors** • **Wide pool of Volunteer workers**	STRATEGY	• Limited access to real time data
• **All are players in the food system**	SHARED VALUES	• Fluid operational environment

OPPORTUNITIES	THREATS
• **Capacity to leverage national and global institutions based on the membership to implement projects** • **Contract farming able to support growth of Value Chain actors** • **Policies and regulations that would support growth** • **Availability of mobile and internet connectivity** • **Climate and weather data available (National and open source)** • **Existence of broadcast media for information sharing**	• New platforms operating in the region may draw membership from food system • External conflicts • Climate change affecting production • Community perception on types of food production • Inadequate information by advocacy, media and lobby groups • Global pandemics and endemics • Inadequate mobile network and internet connectivity in rural areas

2.1.2 P-PESTEL

The P-PESTEL analysis enables Kisumu County/FLACK to focus on the environment in which it operates and appreciate the factors that will determine how it operates and its successes. The analysis is anchored on the RUFSAT study.

2.1.2.1 Policy Framework

Institutional arrangement refers to coordination mechanisms with a set of rules or agreements among producers that govern joint activities to purchase inputs or deliver produce to clients through transaction costs and risks minimizing arrangements. They are the policies, systems, and processes that organizations use to legislate, plan and manage their activities efficiently and to effectively coordinate with others in order to fulfill their mandate.[15] Institutional arrangements are also defined as governance structures in which members of a society individually or collectively cooperate and/or compete.[16]

The coordination of Food System activities in Kisumu County is presently domiciled within the Department of Agriculture with cross linkages to other sector Departments like Health, Water Environment and Natural Resources and Trade among others through County Coordination mechanisms. Implementation of food security programs require multi-sectoral and multi-dimensional interventions.

Even though these structures exist, they are not effectively coordinated. Consequently, there are gaps in the implementation of food system policies and programs at the County. There is therefore need to strengthen linkages that will enhance institutional efficiency. The linkages are essential for multi-sectoral participation as well as for tracking information from policy making to implementation and beneficiary levels. These structures currently end at the County level hence leaving critical gaps at the Village and ward level (Figure 2.1).

[15] Williamson, O. 1998: "Transaction costs economics: how it works; where it is headed." De Economist 146(1): 23-58.
[16] Saleth, R. M., & Dinar, A. (2004). The Institutional Economics of Water: A Cross-Country Analysis of Institutions and Performance. Chetenham: Edward Elgar.Satterthwaite D., McGranahan G. and Tacoli C. (2020) Urbanization and its implications for food and farming. Phil. Trans. R. Soc. B (2010) 365, 2809–2820 doi:10.1098/rstb.2010.0136

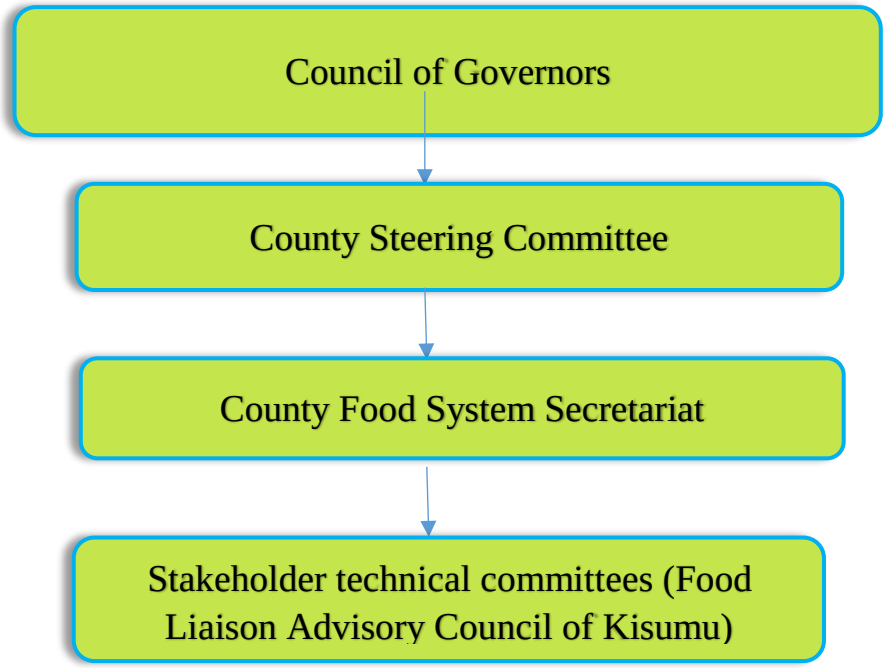


Fig 2.1: Governance structure of the Kisumu County Food System Strategy

The following are some of the key institutions that are actively engaged in food systems governance within Kisumu County:

- State Department of Agriculture-Policy and institutional support
- State Department of Fisheries -Policy development and development support
- National Cereals and Produce Board-food storage and security
- National Irrigation Board-policy and strategy development and support for irrigation
- Kenya Agriculture and Livestock Research Organization-Policy research
- Lake Basin Development Authority-policy, strategy and development support
- Sugar Research-Technology research
- Sugar Board-Policy development and control
- County Department of Agriculture-strategy development and implementation
- FAO-Agri-food system policy development, technical and capacity development support
- Plan Kenya-Agriculture innovation, nutrition and development support
- World Vision -Agriculture innovation, nutrition and development support
- VIRED- Agriculture innovation, Environment management and development support

The County is mainstreaming national legislation and policies to support the food system in the County. However, given the large number of players in the sector there are conflicting interest in implementation of policies/regulations.

2.1.2.2 Political Environment

Food system actor linkages are defined by value chain governance architecture which is the "authority and power relationships that determine how financial, material and human resources are allocated and flow within

a chain".[17] Governance defines the structure of relationships and coordination mechanisms that exist between transacting partners across time and space of a given value chain[18]. It refers to the inter-firm relationships and institutional mechanisms through which non-market coordination of activities, the setting and enforcement of product and process parameters to be met by actors in the chain take place.[19] More often than not, institutional food buyers in Kenya play an important role in setting and enforcing private standards and rules of engagement with the producers because of the (perceived) risk of producer failure.[20] These parameters are also set and enforced by government and international agencies concerned with quality standards or labour and environmental standards.[21] The capacity to balance the different "political" interests at local, national and global level will impact on the success of the strategy implementation.

2.1.2.3 Economic Status

a) Transaction Flows within the food system

Kisumu City's chain governance typifies Kenya's domestic traditional food system characterized by spot market transactions that require no codifications and low capabilities of suppliers[22].The value chains are dominated by spot market governance arrangements, where wholesalers play lead firms by setting prices and quantities traded in the food markets. Figure 2.1 presents vegetable flows in Kisumu City.

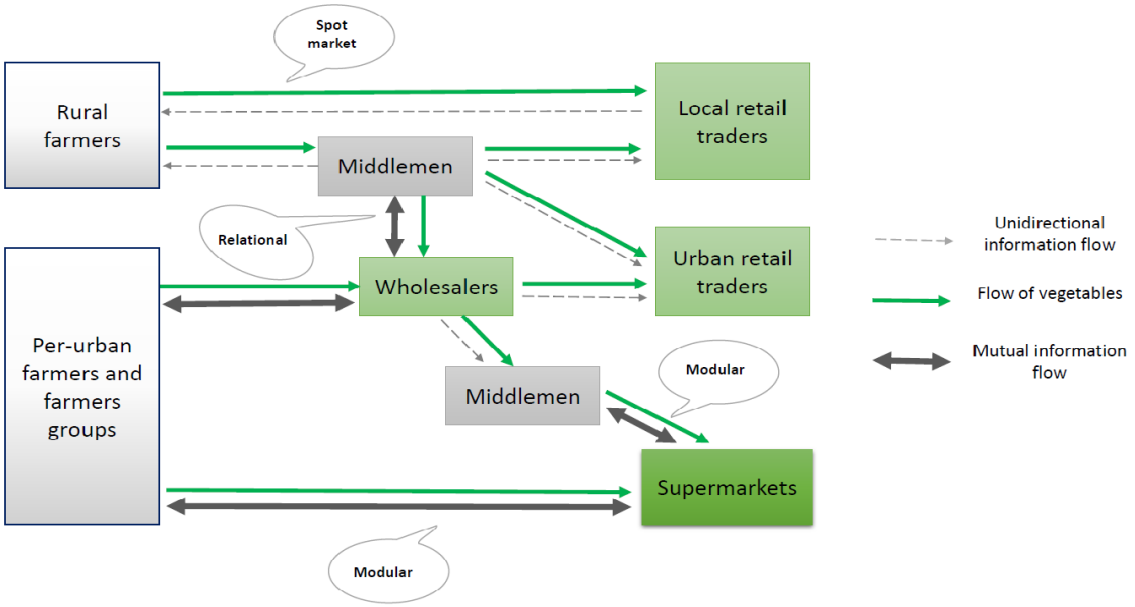


Fig 2.2: Example of a Value chain governance for vegetable in Kisumu city
(Source: Adapted from Abel (2019).

[17] Gereffi, G. 1994: The organization of buyer-driven global commodity chains: how US retailers shape overseas production networks, in Gereffi, G. and Korzeniewicz, M. (Eds *Commodity Chains and Global Capitalism*, Greenwood Press, Westport, CT, 95-122. p. 97.
[18] Gereffi, G., Sturgion, T. & Humphrey, J. (2005). The Governance of Global Value Chain. Review of International Political Economy. 12(1):78–104-78–104
[19] Humphrey, J & Schmitz, H. (2001). Governance in global value chains, *IDS Bulletin*, 32(3), 19-29.
[20] Abel B. O., (2019). Emergent Value Chains for African Indigenous Vegetables and Food Security; Participation of Smallholders in Kenya. *Verlag Dr. med. Köster* (2019). Berlin, Germany.
[21] Humphrey & Schmitz, 2001: *op cit*
[22] Abel, 2019: *op cit*

b) Producers' Organizations

While contract farming is an institutional arrangement initiated by the processor/marketing firm as a tool to reduce costs in its sourcing transactions, farmers themselves can choose another arrangement to give them more control over the processing and marketing of their products.[23] Often, the alternative arrangement is the Producers' Organization (POs) which is a legal economic member-based organization created by producers to provide services that support the members' farming and marketing activities. They are distinguished from a farmers' organization such as farmers' union that is usually an advocacy organization. A major distinction can be made among POs into cooperatives and bargaining associations. Although both are membership-based service providers, a cooperative usually is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise, while the association should not be seen as a firm itself but as an economic interest organization.[24]

In reality, however, this distinction is not clear-cut, with associations often taking up different economic functions. Active cooperatives in Kisumu County are mainly found in dairy and rice sub-sectors. For dairy, they include Seme dairy cooperatives in Seme Sub- County, Seke farmers dairy cooperative in Kisumu West, Kajulu Dairy cooperative in Kisumu East and Ahero farmers dairy cooperatives in Nyando while Ahero and West Kano rice schemes are found in Muhoroni and Nyando sub-counties respectively.[25] However, majority of farmers in Kisumu County belong to associations especially in the rice and sugarcane growing schemes.[26] In Kisumu County, the County Government through the Kisumu Rice stakeholder's forum registered a Sacco to assist rice farmers within schemes as part of the initial plan, in the management of finances identified as one of the major causes of paralysis in this sector.[27]

It is thus observed that various producers are struggling to stay in business because of high cost of production. They thus increase prices for commodities for consumers. There is inadequate resource allocation in the agricultural sector by the County thus constraining growth in the sector. On the other hand inadequate programs on livelihood recovery, rehabilitation and restoration reduces resilience of value chain actors.

2.1.2.4 Socio-Cultural Issues

The Meal culture of the County is changing. This is driven by rising food prices, proliferation of street food, fast food chains and supermarket food.

[23] Eaton, D., G. Meijerink, J. Bijman. 2008. Understanding institutional arrangements: Fresh Fruits and Vegetable value chains in East Africa. Markets, Chains and Sustainable Development Strategy and Policy Paper, no.XX. Stichting DLO: Wageningen. Available at: http://www.boci.wur.nl/UK/Publications/

[24] International Cooperative Alliances, 2019: Available at: https://www.ica.coop/en/newsroom/news/international-day-cooperatives-2019

[25] County Government of Kisumu. 2020. Department of Agriculture News briefs. Available at https://coutygovernmentofkisumu.co.ke.

[26] Apindi O. B., Langat, J.K., & Bet, H. 2015: Determinants of Small-holder Farmers Extent of Market Participation; Case of Rice Marketing in Ahero Irrigation Scheme, Kenya. Journal of Economics and Sustainable Development: Vol.6, No.2, 2015

[27] County Government of Kisumu 2019: *Annual Development Plan.* Kisumu: Government Printers.

Rising population in the urban areas is exerting pressure on the overall urban food supply. However, the smaller household sizes results in less demand at the household level. The growing population has led to expansion of housing into production areas like Chiga, Muhoroni, Ahero, Katito, Maseno, Korando, Kanyawegi and Dago.
In summary

- Consumers are adopting new food tastes that requires new approaches in food production
- Cultural beliefs on food types that women/children can eat and this limits access to some foods.
- Increasing demand of food to urban areas.
- Rural culture is influenced by urban practices creating needs that may not be met in the rural areas.

2.1.2.5 Technological Innovations in the food system

A look at some technological innovations gives a glimpse of the potential within the County.

a) Digital Platforms

A number of firms are setting up business in Kenya and Kisumu in particular to provide online markets in the urban food systems. The following examples give a picture of this dynamic sector.

- ***Jumia Foods*** enables consumers to order for ready to eat food online and have it delivered to them. This is based on a platform that links the selected restaurants and mobile phone systems to facilitate ordering for the goods, payment and tracking delivery.
- ***Glovo*** operates like Jumia but also includes green groceries working with the local supermarkets.
- ***Wefarm*** is a platform that provides information to farmers and allows for interaction between farmers to share challenges and best practices.
- ***Twiga*** is building an alternative system that aims to generate the same results as the modernization of retail in the more developed markets, by leveraging technology and the ubiquity of mobile phones, combined with modern distribution and logistics to aggregate consumer demand and start building more efficient supply chains.

b) Packaging

The most far- reaching policy action innovation has been the banning of ***single use plastic bags*** by the National Government. Kenya's decision to ban single use plastic products in all protected areas — beaches, national parks, conservation areas and forests — took effect on June 5th 2019. The ban comes just two years after the country banned the use of polythene carrier bags aimed to benefit public health, biodiversity, tourism and agriculture. Kenya's August 2017 ban on the production, sale and use of plastics carrier bags was considered one of strictest in the world. The penalty is up to four years in prison or a fine of Ksh4 million ($40,000). This has impacted not only in solid waste management but also in how the food is packaged and transported. A number of suppliers are now also using paper-bags and recyclable plastics for packaging food stuff providing healthier handling.[28] Milk products are packed in recyclable plastics and metal containers and bottles.

c) Social Enterprise Model (Chicken)

Chicken production has tended to be small scale and un-coordinated. An innovator has positioned itself as a social enterprise empowering women and youths through chicken business through demonstration, support and information through technology. Its unique value chain One-Stop Shop model addresses the farmer's needs by providing all products and services under one roof. It sells high quality chicks, feeds, and medication; offer trainings and capacity building on poultry management, and provide 24-hour veterinary extension services. The chicks sold to farmers once mature, are bought back from the farmer, processed and it sells the meat and eggs in its butcheries and restaurants that specialize in various tasty chicken meals.

[28] The East African 8th June 2020.

This is a model that can be replicated amongst farmers of indigenous chicken. Buy back, processing and sell to consumers. Expensive single business permit. Each outlet treated as a separate entity. Waste disposal is a challenge-high cost. Treatment of animal droppings is a process with cost elements, used to make manure-less demanding technologically

d) Fish Cage Farming

Fish production from the Kenya section of Lake Victoria has seen a steady decline over the years. A few entrepreneurs have taken advantage of this gap and began active production of *fish in ponds and Cage farming* ***(Figure 2.2).***

Fig 2.3: Cage farming on Lake Victoria

Dwindling fish stock in the lake has seen the rise of fish cage farming. This allows for use of fish feed, continuous flow of tilapia fish for the market, employment for management of the cages. In the beginning, fish cage culture presented itself as a new socioeconomic frontier with good prospects for income in Lake Victoria, besides conserving declining wild fish stocks.

However, KMFRI, observes that the rising fish cage culture as forms of investments leads to environmental degradation besides threatening natural fish production in the lake. The farming leads to changes in water quality. There are also territorial conflicts with the Beach Management Units including use of landing routes.

e) Vegetable Production

Vegetable production at the micro-homestead level is also picking up, especially in the built- up areas of Kisumu County. Due to the little space that the urban farmers have they have adopted technologies that allow them to produce vegetable. This is being driven by the County Government of Kisumu Department of Agriculture[29] as part of transforming urban agriculture through technology and innovation County Extension Officers have been working with farmers to train and implement this innovation. Some of the urban agriculture technology demonstrations the extension officers have promoted include irrigation farms in Nam Thowe, the storied micro/sack garden, conical gardens, the keyhole garden, hydroponics, the moist bed and hanging gardens (Figure 2.3). Such gardens can be used to grow kales, spinach, onions, coriander, traditional green leafy vegetables and cherry tomatoes.

[29] County Government of Kisumu. 2020. Department of Agriculture News briefs. Available at https://coutygovernmentofkisumu.co.ke.

Fig 2.4: Vegetable Gardens

It is therefore noted that

- Vegetable Value Chain (VC) actors are adopting appropriate technologies that enhance production and reduce costs.
- ICT provides a platform for educating farmers on vegetable production (e.g. Shamba Shape Up).
- Inadequate communication network among stakeholders may reduce adoption of technology.

2.1.2.6 Environmental and waste management framework

The following National and Kisumu County specific policies guide waste management in the food systems:

- **Environmental Sanitation and Hygiene Policy (KESHP 2016-2030):** provides broad guidelines to both state and non-state actors to work towards universal access to improved sanitation and a clean and healthy environment for all by 2030. The Policy promotes the adoption of low-cost technologies in peri-urban and slum areas.
- **Kisumu County Solid Waste Management Act, 2020:** Implementation of section 2 (g) of the Fourth Schedule on refuse removal and disposal in relation to solid waste management and for connected purposes.
- **County Environmental Health and Sanitation Bill (2016):** guides County Governments on how to develop county level legislation that ensures the effective delivery and regulation of sanitation services and environmental health standards across all counties.
- **Urban Sanitation Guidelines (draft) (2019):** provide recommendations for the provision of sanitation technologies and services implemented in urban areas. County governments should facilitate the selection of appropriate technologies and regulate pit emptying services.
- **Kisumu County Environmental Sanitation and Hygiene Policy (2018**): recognizes a range of sanitation and emptying options; however, it does not include quality standards. The Act, provides quality standards for the provision of sanitation technologies and services. The development of environmental management framework at the County level is still a work in progress as the County strengthens its institutional structures. This includes having the manpower in place and adequate budgetary provisions to implement the policies and programs.

However, it is noted that

- Agri-waste is being used as input in production of other goods.
- There is low diversity in methods of environmental control.
- Emerging pests and diseases are a threat to food production. This may be occasioned by accidental introduction of new and exotic pests.

2.1.2.7 Legal Framework

A number of legislation/regulation control activities in the food system. An assessment is made of the key legislative instruments in use.

Vision 2030

Vision 2030 is the country's development blueprint with the aim of transforming the country into an industrialized middle-income country by 2030, with a GDP growth rate of 10% per annum.[30] The Vision identifies challenges for the agriculture sector and the necessary strategies to address those challenges. Some of the relevant challenges to food system include low productivity, market access and value addition, whereas the proposed solutions include increasing market access through value addition by processing, packaging and branding; reforming institutions in the sector (e.g., cooperatives, regulatory bodies, research institutions) to facilitate growth; provision of widely accessible inputs and services to farmers (fertilizer cost reduction, irrigation, seed improvement). An important reform proposed in the Vision was to harmonize or review the multiple laws and policies that overlap or create ambiguities in the agriculture sector. The Vision 2030 has to a great extent guided the Kisumu County Integrated Development Plans.[31] It would be important the extent of domestication of the Vision 2030 in food systems in Kisumu

Agriculture Sector Development Strategy (ASDS) 2009-2020

The strategic thrust of ASDS is on increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises; and sustainable development and management of the key factors of production. Important strategic interventions proposed to address issues and challenges along the value chains are legal, regulatory and institutional reforms; improvement of agribusiness and market access; strengthening of research and extension; sustainable land use and crop development; access to affordable inputs and credit to farmers; institutional efficiency and effectiveness in service delivery. The development of the ASDS is also aligned with the country's commitment to the Comprehensive Africa Agriculture Development Programme (CAADP) an agricultural policy framework initiated by AU NEPAD in 2002. The ASDS (2009-2020) consolidated multiple legislations in the agriculture sector and enacted several pieces of legislation into law; Agriculture, Fisheries and Food Authority (AFFA) Act (2013), the Crops Act (2013) and the Kenya Agricultural and Livestock Research Act (2013). How well this strategy has been incorporated in Kisumu County is not clear and needs a deeper analysis based on discussion with policy implementers at the County.

The Crops Act, 2013

This Act has consolidated and repealed pieces of legislation that created crop specific institutions and instead created eight directorates such as the Horticultural Crops Directorate (HCD). The Directorate is responsible for developing, promoting and organizing the production and marketing of horticultural produce.[32] A commodities fund was created under Article 9 (1) of the Act to provide access to affordable credit for farmers for farm inputs and farming operations. Operationalizing this Act at the County level is critical in establishing units that will deliver on National food strategies.

Kenya Agricultural and Livestock Research Act 2013

The Act is aimed at coordinating and regulating agricultural research in Kenya especially in crops, livestock, genetic resources and biotechnology. Former agricultural institutions were streamlined and transformed into 18 new thematic research institutes, all under the control of the Kenya Agricultural and Livestock Research

[30] Government of Kenya (2008) Vision 2030. Government Printer, Nairobi
[31] County Government of Kisumu (2018) Kisumu County Integrated Development Plan.. CGoK, Kisumu.
[32] Government of Kenya (2013) Government of Kenya (20) Crops Act (2013). Government Printer, Nairobi

Organization (KALRO). Under KALRO, the Horticultural Research Institute was established in 2014 and mandated to conduct research in horticultural crops, including vegetables, flowers, fruits, and garlic, mushrooms and chilies. KALRO has a research station in Kisumu. There is need to have Key Informant Interview (KII) with the team at this station to assess their local impact in the performance of food system.

National Horticultural Policy 2012

The policy provides the overarching policy direction and outlines key interventions on the horticulture sub-sector in Kenya. Specific interventions are highlighted in the Horticultural Sector Strategic Plan 2012-2020, where the emphasis is on the smallholder farmers' integration into domestic value chains. Specific objectives related to food systems are;

- To improve access to planting materials by enhancing the capacity of public research institutions through increased funding, partnerships and collaboration with regional and international research institutions.
- Facilitating smallholders' transition towards commercial production is on the agricultural development agenda in Kenya, with the National Accelerated Agricultural Inputs Access Programme (NAAIAP) and Agricultural Credit and Financial Services Access
- For farmer advisory services, the national and county governments seek collaborative farmer extension service provision anchored on the National Agriculture Sector Extension Policy (NASEP). It is expected that through this approach, the government should facilitate the formation and strengthening of producer business groups and commodity associations to enhance technology transfer and marketing of produce. The government extension service provision approach remains demand-driven extension and the policy emphasizes farmer to demand such services.
- Promote value addition and increase domestic trade

The Kisumu County Crop Agriculture Act, 2019:

Section 3 (1) of the Act set the overriding objective of this Act to provide a comprehensive, harmonized, efficient and effective legal and regulatory framework for development and regulation of crop agriculture in Kisumu County. Section 3 (3) tries to harmonize conflicting policy directives by emphasizing that "whenever there is a conflict between this Act and any other written law, having a bearing on achievement of the overriding objective of this Act, the provisions of this Act shall prevail".

In Section 7 (a), (b) and (c) the county government intend to support food system by facilitating marketing and distribution of scheduled crops through monitoring and dissemination of market information, including identification of the local supply-demand situation, domestic market matching and overseas market intelligence and promotion activities on scheduled crops; promote the establishment of wholesale markets in identified major centers of the county; promote the establishment of agricultural produce collection centers in viable areas to serve as buying stations of farm products, packaging houses, pick-up; points and meeting places of farmers' and growers' cooperatives.

The County Government Act, 2012

Under the Constitution of Kenya 2010, all markets are managed by respective county governments. The Department of Trade in County Government are responsible for appointing market management committees comprising representatives from county governments and traders drawn from different market segments. Such committees are responsible for setting market levies, and market rules and regulations to guide the conduct of traders in the markets. County market authorities are also responsible for providing water and sanitation facilities, allocation of trading stalls or spaces, provision storage facilities, securities and maintenance of cleanliness.

Food Safety and Quality Management policies

Food quality and safety are the totality of characteristics of the food products that bear on their ability to satisfy all legal, customer and consumer requirements[33]. Whereas food quality includes all product attributes that influence its value to consumers, food safety includes all measures intended to protect human health and therefore food quality is not synonymous with food safety[34]. The national food safety and quality system in Kenya is managed by various statutory government agencies under different ministries aimed at promoting public health, and protecting the consumers against health hazards, and enhancing economic development.[35]

Although Kenya lacks a defined and published policy on food safety as part of a wider National Food and Nutrition Policy[36], there exists food laws designed to protect the consumers. Food safety control agencies operate under the Ministries of Trade, Industrialization, Public Health and Sanitation, Livestock, Fisheries Development, and Agriculture. The legal and policy framework of these agencies and the implementing mechanisms for the laws is documented by FAO[37]. The agencies include Kenya Bureau of Standards (KEBS), Kenya Agricultural Research Institute (KARI), Kenya Plant Health Inspectorate Services (KEPHIS), Department of Public Health (DPH), Weights and Measures Department (WMD), Government Chemist's Department, Department of Veterinary Services (DVS), Kenya Dairy Board (KDB), and Horticultural Crops Development Authority (HCDA), among others.

The functions of these agencies include sensitization and implementation of codes of hygiene and agricultural practices by stakeholders throughout the food chain (FAO, 2005). Despite these, Kenya (Kisumu included) experiences major problems of non-compliance with basic food safety and agricultural health practices in local markets. The compliance to the set regulation among informal sector (SME and food vendors) in Kisumu who are the major supplier of food products to the domestic markets is still very low since they operate in disregard of food safety and quality controls.[38].

It is important to note the following issues:

- Horticulture has potential in Kisumu which has not been fully developed.
- County is developing legislation to operationalize Food Systems at the County level
- Data protection systems are being developed
- Youth in the County are perceived to have low interest in agriculture.
- Some milk vendors use unethical methods to increase profit (e.g. adding water, flour into milk, antibiotics in poultry etc.)) which can be curbed using legislation

[33] Will M and D Guenther. 2007. Food Quality and Safety Standards as required by EU Law and the Private Industry with special Reference to MEDA Countries' Exports of Fresh and Processed Fruits and Vegetables, Herbs and Spices. A Practitioners' Reference Book, 2nd Edition. GTZ – Division 45.

[34] Nelson M.B. 2005. International Rules, Food Safety and the Poor Developing Country Livestock Producer, Pro-Poor Livestock Policy Initiative Working Paper No. 5. FAO, Rome.

[35] FAO, 2005: The Stae of Food Insecurity in the World. Rome

[36] World Bank (2005). The Role of Standards under Kenya's Export Strategy Contribution to the Kenya Diagnostic Trade and Integration Study. World Bank.

[37] FAO, 2005: *op cit*

[38] World Bank, 2005: *op cit*

2.2 Stakeholder Analysis

The Food and Agriculture Organization (FAO) is supporting the County Government of Kisumu (CGK) in food system planning as part of the *Integrated Actions for Innovative Food Systems Actions across Rural Urban Communities Project*. The Project was launched on 30th May 2019 at an inception workshop involving diverse food system stakeholders. The launch brought together over 70 food system stakeholders representing different County government departments (agriculture, health, trade, environment, urban planning), research, academia, civil society, UN agencies, Faith based Organizations, regulators, state agencies and the private sector. These have been constituted into the Food Liaison Advisory Group bringing in a diversity of players with capacity to implement the various components of this strategy.

An assessment and analysis of the stakeholders is provided in Table 2.3 below and it allows for appreciation of the role and responsibilities of the stakeholders and how they impact on the interventions of in the Food System.

Table 2.2: Analysis of Food System Stakeholder in Kisumu County

Name of Stakeholder	Role in food System	Expectation of County Government of Kisumu from Stakeholder	Expectations of Stakeholder from County Government of Kisumu
CGK Agriculture, fisheries, livestock development and Irrigation	Monitoring and evaluation of food system projects Capacity building on best practices in Agriculture.	• Quality assurance • Increase area under irrigated agriculture through infrastructure development • Harness and management of water for food production- L. Victoria. • Food safety along fish landing sites, marketing and processing • Safeguarding human health and ensuring safety of food of animal origin and Food safety • Promote food systems production, nutrition and human ecology	• Enforce food safety standards • Inclusive synergies within the food system
CGK Medical Services, Public health and sanitation	Health, sanitation and Nutrition capacity building	• Public health and nutrition through quality control and awareness creation • Clinical and community nutrition awareness and capacity development programmes	• Data on food system • Standards and operating procedures for food handlers and operators • Utilization of food to avoid malnutrition and minimization of wastage • Feeding patterns • Food wastage and post-harvest losses and Safety issues
CGK-Lands, Housing, Physical and Urban Development and City of Kisumu- Planning department	Prepare County Spatial and Development Plans that encourages agricultural production	• Stakeholder involvement in the Implementation of the project • Awareness creation on planning and support vibrant resilient friendly environment	• Collaboration of activities • Policy and regulation formulation and

	Ensure all Land Uses are equally represented when planning is undertaken		awareness creation on food systems
CGK-Public Service, County administration and participatory development department	Information and communication dissemination	• Awareness creation and information dissemination to the community	• Joint implementation of projects • Networking
CGK-Business cooperatives and marketing	Capacity building	• Support in value addition and marketing of farmers produce and traders	• Integration of county policies and legislation
CGK- Water, Environment, climate change and natural resources	Conservation, stewardship and climate action Natural resource management Solid waste management	• Reforestation for water catchment protection • Landscape restoration and fertility management • Conservation of biodiversity • Promote sustainable production systems and climate change adaptation measures and awareness • Integration of solid waste management practices along the food system	• Collaboration of activities • Joint implementation and research on projects • Networking • Reduction of food waste • Promotion of organic manure uptake • Composting
Kenya Bureau of Standards (KEBS)	Food safety Certification	• Ensures food product compliance to the required standards	• Policy formulation and awareness creation
National Environment Management Authority (NEMA)	Environmental impact management and assessment of food production	• Improves environmental safety for food production	• Policy formulation and implementation of environment policies.
Beach management unit (BMU)	Production	• Fish production coordination along the beach	• Safeguarding the lake resource to enhance production
Kenya red cross society- western Kenya region	Strategic strengthening of food security systems-capacity building, disaster risk management	• Disaster risk reduction • Health, nutrition and social services	• Post-harvest handling • Value chain • Farmer capacity in modern agronomic practices
VIRED international	Research and development – food production and nutrition	• Agronomy, IPM and environmental management with women food entrepreneurs	• Enabling policy • Adequate funding • Strong linkages-committed membership

International center for tropical agriculture (CIAT)	Research and development Capacity building	• Research on different thematic areas to inform on policy decisions such as on value chain analysis, food systems, natural resource management.	• Data sharing • Food loss an waster – post-harvest • Consumer awareness on nutritious diets • Environment aspects incorporated within the food system
FAO	Help build a food-secure county, free of hunger and malnutrition through capacity development; agri-food system policy support; knowledge generation.	• Bringing together innovative International best practices and global standards with national and regional expertise. • Capacity building and empowerment of food system actors. • Policy support and strengthening food governance.	• Youth participation • Production and food markets. • Enabling environment for policy support. • Coordination of interventions. • Ensure sustainability of interventions
Practical action	Capacity development	• Work with youth and small holder farmers on agroecology	• Youth participation-production and food markets
Young Christian youth group	Capacity development and protection	• Empowerment of vulnerable groups	• Coordination and integration to ongoing local details
CARITAS	Capacity development	• Works closely with the most poor and vulnerable population in the urban and peri-urban, rural and marginalized	• Food production, nutrition, environmentally friendly agriculture
UNICEF	Capacity development	• Nutrition awareness – especially for children and women	• Food system that incorporates children's issues
Jubilee Chicken dealers	Producer/Trader	• Provide a conducive environment	• Finance • Capacity development
Local farmers	Food production	• Provide a quality, sufficient, safe and healthy food	• Production • Enhancement of technologies in horticultural production
SIMBA Corporation	Service provider	• Ease of doing business	• Policy development • Infrastructure development • provide food to customers
Pioneer Fish farm	Producer	• Provide a conducive environment	• Production of fish and trainer of upcoming fish farmers

SABEAT consultants	Research and capacity development	• Policy • Budgetary allocations	• Value chain analysis within the food system
Chicken basket	Producers	• Enabling policy that will create conducive environment for business	• Poultry production and transport
SEKE farmers coop	Processors	• Financial access	• Milk aggregation and value addition and selling
Maseno University	Research, Capacity building, Technology generation Spatial planning	• Policy • Budgetary allocations	• Support through spatial analysis to inform on decision making • Training on spatial analysis through outreach services • Dissemination of research outcomes through outreach
Jaramogi Oginga Odinga University of Science and Technology (JOOUST)	Research on food related issues- value chain analysis, business development	• Policy • Budgetary allocations	• Dissemination of research outcomes through outreach
Young Christian youth group	Capacity development and protection	• Policy	• Empowerment of vulnerable groups
City of Kisumu urban areas association (CKUAA)	Advocacy and Lobbying	• Policy	• Enhance advocacy and lobbying
Schools	Education and training	• Enable a conducive learning environment	• Education and training
KCB Group PLC	Financing Knowledge management and transformative partnerships	• Conducive environment	• Data analytics • Financial appraisal • Project management and M&E • Capacity building-training • Research • Real estate financing
KEPHIS	Regulation Research and development	• Policy • Budgetary allocation	• Seed inspection and phytosanitary • Quality assurance of input and produce
KIRDI	Research and development – Food division	• Policy • Budgetary allocation	• Food safety

			• Food technology (Technical assistance to enterprises)
Kenya veterinary board (KVB)	Veterinary services	• Policy • Budgetary allocation	• Regulation of veterinary services and input standards
KEMFRI	-Research and innovations in Fisheries	• Policy • Budgetary allocation	• Improve food security and nutrition
AFA- Horticultural crops directorate	Food safety sensitization	• Policy • Budgetary allocation	• Technical regulation and compliance on food safety
Mazingira Institute	Research and development on urban food systems	• Policy • Budgetary allocation	• Research
URAIA	Civic education and advocacy	• Collaboration and partnership	• Capacity building and education
Kenya red cross society- western Kenya region	Strategic strengthening of food security systems- capacity building, disaster risk management	• Collaboration and partnership	• Disaster risk reduction • Health, nutrition and social services
Practical Action	Capacity development	• Collaboration and partnership	• Work with youth and small holder farmers on agroecology
Water Resource Authority (WRA)	Regulation and management of water resources	• Policy	• Regulation and compliance water storage and flood control strategies
Aquaculture Association of Kenya (AAK)	Capacity building	• Bulk acquisition of farm inputs • Advocacy on sustainable aquaculture enterprise	• Monitoring and evaluation
Young Professionals for Agricultural Development (YPARD-Kenya)	Promote agribusiness among young people	• E-Information exchange and connection related to funding, jobs, study and resources • Policy engagements	• Monitoring and evaluation • Partnership opportunities
Kenya Poultry Farmers limited	Capacity development	• Access to farm inputs and markets	• Provision of extension services

2.3 Strategic Issues

Providing sustenance to all human beings is one of the major challenges within the Kisumu food system. Nonetheless, key predicaments emerge simultaneously as an inevitable consequence of the growing food industry.

2.3.1 Food system governance

Weak adherence to established governance structures, poor organizational skills and inadequate financial

management skills remains a key challenge. Weak value systems make people prone to management malpractices including corruption.

Limited budgetary allocation by the County Government to food system sectors would require that strategy implementation diversify sources of funding to facilitate the implementation of activities.

2.3.2 Production, Post-harvest Management and Value addition

- *African leafy vegetables (ALVs)* are the only food commodity produced in Kisumu County that dominate in the Kisumu urban food system. The bulk of ALVs are produced in Nyando, and Muhoroni sub-counties as well as peri-urban areas in Kisumu East under irrigation system ensuring near constant supply throughout the year. However, the value chain is dominated by intermediaries thereby suppresses farmer value capture along the value chains. The low value addition along the value chains limited employment opportunities and farmer upgrading into higher margin urban markets
- *Indigenous chickens* constitute an estimated 87% of the total poultry in Kisumu County, which translates to 200,000 birds. The poultry value chain is quite dynamic with the sub-sector driven by the food-shed in rural areas. The effect of GoK restrictions on importation of egg has created a fertile market for informal trade routes from Uganda. The Kenyan sources on the other hand are struggling to grow to meet the local egg and poultry market creating a lot of potential for investment in the poultry value chain
- *Availability of arable land:* Awareness creation on land tenure and land lease models of ownership to be enhanced so as to promote innovative farming practices for optimal land use. Partnerships within levels of government and other stakeholders to create and implement initiatives that review land use and encourage agricultural practices.
- *Food Supply:* Food supply chains in Kisumu show a large variation in terms of size, geographical distribution, degree of licensing, relative rewards and quality perceptions. Most of the food sheds are outside the county and thus the production and costs are determined externally
- *Quality:* Poor quality vegetables such as tomatoes due to poor varieties that have short shelf life. Pest and diseases, poor handling and rain damage that lead to physical losses and quality deterioration. Variability in terms of sizes, color and level of maturity determines market prices.
- *Inconsistent supply:* Fluctuation in supply between dry and rainy seasons also result in price fluctuation. Inconsistent supply of required volume due to different supply sources, pest and diseases and varying quality is a consistent challenge coupled with use of non-standardized units of measure including *turbo* extensions in sacks. The inconsistent fish supply from the lake has created a niche market for imported fish from China
- *Standards and hygiene:* The issues here are the use of wooden packaging that bruises tomato instead of the polystyrene boxes, untidy vegetables and fruits due to chemical spray or mud, lack of water in most of wet markets. Adulteration of milk is a major challenge in the Kisumu urban food system. The widespread adulteration and contamination of milk by traders either for financial gain or through inappropriate handling or storage raises a number of concerns. It is a matter of fraud with relatively limited health concerns especially when adulterants like water, sugar, and margarine or wheat flour are used to increase volume and density.
- *Selection by customers:* Customers handle the food when buying and due to the nature of display/packaging there is quite some spoilage.

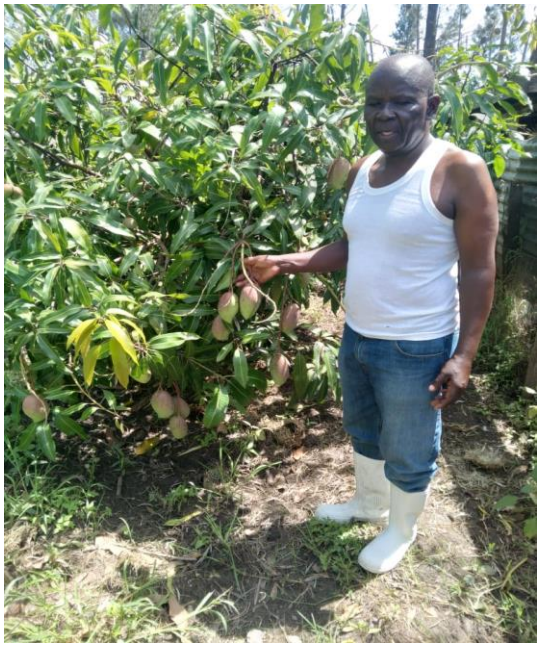


Fig 2.5: Fruit Famer

2.3.3 Infrastructure Development

Desilting of Nyamasaria River and Nam Thowe leading to flow of plastics in the Lake Victoria has been identified as an intervention that is leading to negative impact on the environment although reducing flooding within the city.

Water and Sanitation facilities are being set up in new markets to improve the operation environments. Such markets include Dunga Fish Market, the reconstructed Kibuye market, Chega, Otonglo and Dago.
The Cold storage facilities in Jubilee Market and Osiri are due for rehabilitation to enhance management of fish products whereas a Tomato processing plant has been set upon Kabonyo by the County Government. Access to irrigation water in Kano should also enhance production of vegetables.
The transportation system has been integral in the development of markets in Kisumu. The major markets are located along/off the main highways. Kibuye and Kondele on Kakamega road. Nyamasaria, Jubilee and Oile on Nairobi Roadroad, Bandani, Riat, Kisian and Ojola on Busia Road, road, Obambo on Bondo road, Chiga on Kibos road, Dago and Kiboswa on Nyahera road and Mamboleo on Miwani road. On the other hand, bituminization of the road to Dunga has opened up the area local fish tourism. Tuk-Tuks and motorbikes in transport have further strengthened the transport system in transporting foods to different markets even in locations where cars would not easily access such as in the informal settlements.

The lower- level markets in the residential estates have attempted to enhance their visibility by maximizing access. Those markets that did not have this component factored in their design have tended to collapse. Cases in point are Manyatta, Migosi and K'Owino World Bank II projects developed in the 70s.

All the markets are accessible by taxis and public transport. For the local markets, people have to walk a short distance to get to the market from the public transport terminus. Kisumu does not have a formal public transport system so the informal "matatus' (mini buses) provides this service.

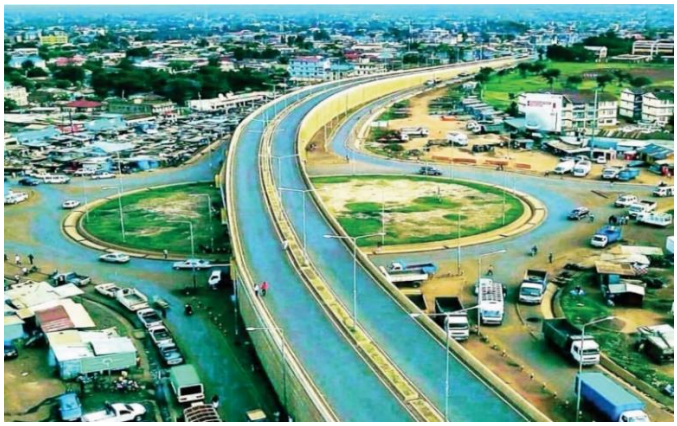


Fig 2.6: Aerial view of Kondele Roundabout

2.3.4 Market Access and ICT

Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. These services involve the planning, organizing, directing and handling of agricultural produce in such a way as to satisfy all value chain actors (farmers, intermediaries and consumers). Agricultural markets are at the heart of the development process. Food and agriculture markets expand consumers' choices and create incentives for farmers. Well-functioning markets and trade enable the optimal allocation of resources, diffuse knowledge and technologies, and provide avenues that link agriculture with other sectors of the economy.

Fig 2.7:Open Air Market

2.3.5 Nutrition, Food Safety and Health

Food safety is a way of life; it is how you store, handle, [and] distribute product to avoid any contamination or risk to the product/ingredients. All things related to the growing, harvest, production, and handling of foods and beverages that will not cause acute or chronic illness in humans or animals (Figure 2.4). Food safety is a scientific discipline describing the safe processes and practices to grow, harvest, store, transport, handle, prepare, and serve food and food ingredients to prevent food-borne illness.

Kenya is faced with the triple burden of malnutrition, characterized by under nutrition and over nutrition with an increase of non-communicable diseases without significant change in overweight. Out of 7.22 million children under 5 years nearly 1.8 million are stunted (26%), 290,000 are wasted (4%) and 794,200 (11%) are

underweight.[39] Despite the improvements in undernutrition in Kisumu County, the quality of diet among women and children's is still poor with less than half (44%) receiving a minimum acceptable diet according to WHO/UNICEF standards.[4041] This would explain the fact that the county still experiences a high number of women with HB (<11.5 mg/dl), 35.6% of pregnant women attending ANC are anaemic.[42] It is further revealed that more than 80% of the children in Kisumu County consume a diet deficient of iron rich foods.

In Kisumu County malnutrition has undergone a gradual reduction between 2011 and 2014.Stunting has decreased from 33.1% to 18%, wasting from 4.6% to 0.8% and underweight 17.3% to 7% while overweight has increased from 4% to 6% among children under 5 years Multiple indicator cluster survey.[43] Despite the improvement in nutrition status in Kisumu, the informal settlements in Kisumu still experience high prevalence of Severe Acute Malnutrition which significantly contributes to a substantial proportion of under-five mortality.[44]

Fig 2.8: Nutritious Foods

[39] Government of Kenya 2014: Kenya Demographic and Health Survey. Government Printer, Nairobi
[40] WHO/UNICEF 2017: Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP)
[41] Kenya National Bureau of Statistics [KNBS]. 2016 Economic Survey. Nairobi, Kenya
[42] The Kisumu County Nutrition Action Plan 2021-2023
[43] Kenya National Bureau of Statistics, 2011: Statistical Abstract
[44] Akelo V, Oele E., Agaya J. and Onyango D (2021). Catalysing Data-to-Action in Western Kenya: A Case Study from the Child Health and Mortality Prevention Surveillance Network Authors

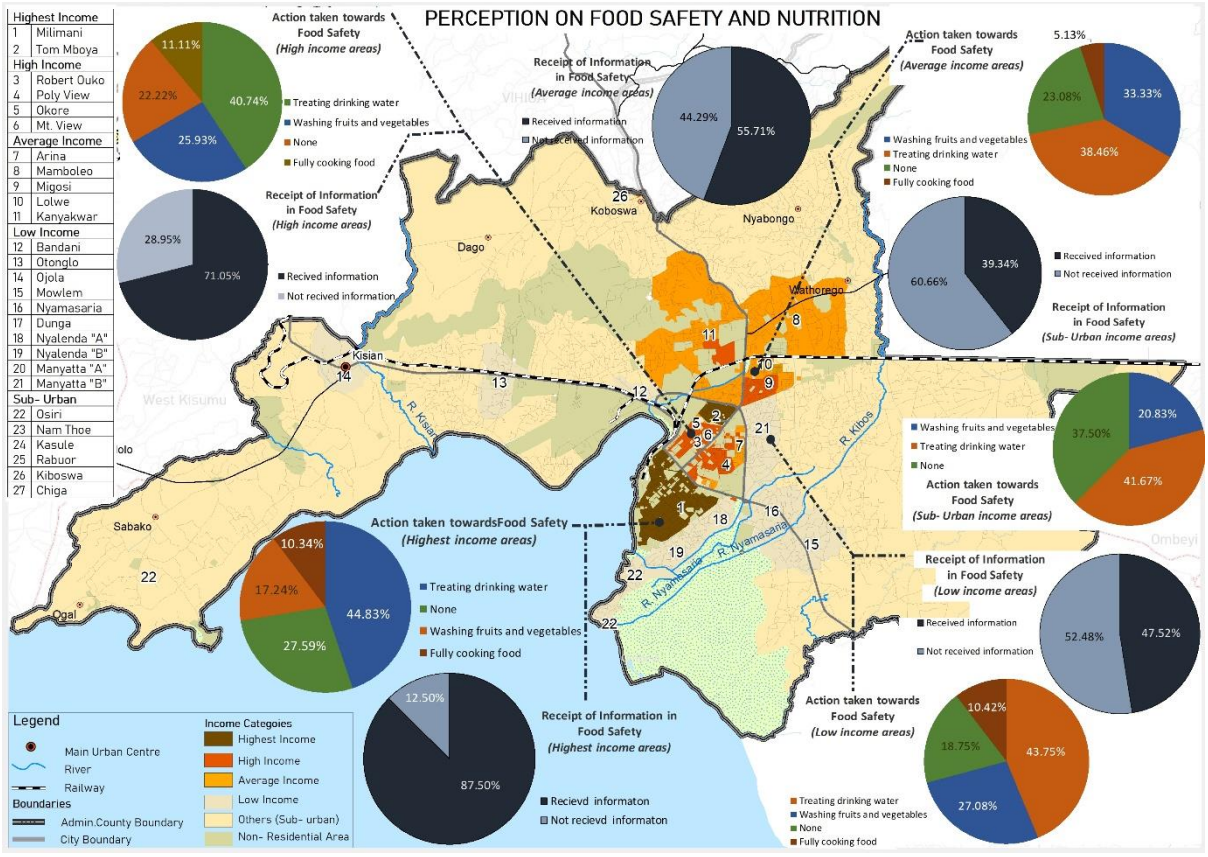


Fig 2.4: Perception on Food Safety and Nutrition (Kisumu RUFSAT 2022)

Wrong practices such as use of harmful chemicals to hasten crop production, to increase shelf life of raw foods can result in speeding up of crop growth eventually consuming crops with no nutrients and ingesting of toxins. There is need to support all actors along the food system value chain with various incentives from subsidies.

2.3.6 Cross-cutting issues

There are many challenges within the food system that cut across a variety of topics and have a key influence on different aspects of it, such as policies, agricultural sectors and markets. Additionally, there are many different disciplines linked to the food system in general (e.g., economical, health, agricultural, political, etc.).

2.3.6.1 Food Loss and Food Waste

Food waste refers to the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers (SOFA, 2019) while Food Loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retailers, food service providers and consumers (SOFA, 2019). Food loss and waste reduction should be seen as a means toward achieving other objectives, including improving food security and nutrition, the formulation of effective policies toward food loss and waste reduction requires comprehensive information as to how much and where – both geographically and along the supply chain – various foods are lost or wasted (https://www.fao.org/platform-food-loss-waste/en/).

Food wastage at household level is occasioned by food thrown away because some members of household never finish their meals. Such left overs are thrown into household trash and disposed of by road-sides, open spaces or used to feed animals such as pigs. In supermarkets, food loss is minimal because of their innovation of

processing such foodstuffs to be sold at their eateries which is not available in permanent and temporary wet markets.

Food loss in the supermarkets, permanent and temporary wet markets is because some foods expire due to low customer turnout, short shelf life especially perishables or too much heat and poor food preservation especially vegetable and fresh fruits and sometimes poor storage and packaging facilities.

Overproduction, mass consumption and unsustainable food practices are the root massive amounts of discarded food within the food system. Food loss and food waste increase the use of water, land and energy to the extent that it damages our biodiversity. Moreover, excessive production and food wastage influence the financial side of the food system as it requires more money to sustain the market demands.it is critical that every actor along the food system takes part in tackling food waste and food loss issues.

2.3.6.2 Climate Change

Climate Change refers to long term shifts in temperatures and weather patterns. Green House Gas (GHG) emission cause high temperatures and the changes in the climatic weather patterns. Various types of agricultural practices are dependent on the weather and with the erratic weather patterns it is causing a huge strain within the food system. Despite the decreased food supply due to climate change the demand for food increases due to the growing population and the resultant is high food prices and thereafter a need for mass food supply at higher costs resulting to water strain, land and energy misuse. There is need thus to adopt various adaptive and mitigative measures to stop this vicious cycle to essential services support.

2.3.6.3 Gender Mainstreaming

Gender mainstreaming accelerates the realization of gender equality, fairness between men and women, non-discrimination and fundamental rights within Kisumu County. It is conceived as a tool to ensure political and social economic integration, accelerate mainstreaming of Special Interest Groups (SIGs) issues, increase awareness on the crucial role it plays in the food system. The Constitution of Kenya 2010 creates a platform for gender equality and nondiscrimination it highlights such principles as equality, equity, inclusiveness and non-discrimination. These principles provide an anchorage for gender equality. Further, Article 27 (1) provides that every person is equal before the law and has the right to equal protection and benefit; Article 27 (3) provides that women and men have the right to equal treatment including the right to equal opportunities in political, social, economic and cultural spheres.

2.3.6.4 Youth and Employment in Food System

In Kisumu County, the high level of youth unemployment stems from various factors, among them; limited job opportunities and where such opportunities exist, the youth lack requisite skills. Additionally, high rural-urban migration has seen growth of population in urban areas without a corresponding expansion and creation of jobs in the industrial and service sectors to absorb the expanding workforce. Growing the service and industrial sector requires a robust agricultural sector which in turn needs a skilled and knowledgeable workforce with the correct aptitude towards work. Enhanced investments are needed in the food system for youth in both rural and urban areas to bridge the employment gap.[45]

[45] County Government of Kisumu 2023: Kisumu County Integrated Development Plan. CGoK, Kisumu

2.3.6.5 Social Protection and Senior Citizen's affair

In Kenya, Social Protection (SP) has been defined as policies and actions, including legislative measures, which seek to:

- Enhance the capacity and opportunities for the poor and vulnerable to improve and sustain their livelihoods and welfare
- Enable income-earners and their dependants to maintain a reasonable level of income through decent work
- Ensure access to affordable health care, social security and social assistance.

The overall objective of Social Protection is to ensure that all Kenyans live in dignity and exploit their human capabilities for their own social and economic development. Current delivery instruments of SP within the social assistance, social security and social health insurance sectors include Cash Transfers, Food Distribution, School Based Feeding Programmes, Social Health Insurance, Retirement benefits, Price Subsidies, Public Works and Microfinance amongst others.[46]

In Kisumu County there are two programs that are being implemented. They include; the cash transfer program, which supports; 15,961 older persons, 1,179 Persons with severe disability, 12,289 Orphans and Vulnerable Children. The other program is the Kenya Social Economic Inclusion Program (KSEIP) which covers Kisumu West and Nyando Sub counties and supports a total of 1,500 households collectively.[47]

2.3.6.5 People Living with disabilities (PLWDs)

The National census 2019 conducted Kisumu County had a total of 39,868 Persons with Disabilities in which Males were 16,311 and Females 23,557 spread across the seven sub counties. Majority of the Population presenting with disability were of the Visual domain (17606) and this was evident across all the age groups, followed by physical/mobility (16,196), Hearing (7291), other cognition (7922), Self-care (4288) and Speech (3409). The age group that is mostly affected by disability is the 55+ due to the onset of old age.[48]

[46] *National Social Protection Secretariat Service Delivery Charter 2013*
[47] For details see https://www.socialprotection.or.ke/projects/kenya-social-and-economic-inclusion-project-kseip
[48] County Government of Kisumu 2023: *op cit*

CHAPTER THREE: STRATEGIC MODEL

3.1 Vision Statement, Mission Statement and Core Values

This section covers vision statement, mission statement and core values of Kisumu count in respect to food safety.

3.1.1 Vision Statement

An innovative and sustainable food system in Kisumu County

3.1.2 Mission Statement

To support a sustainable food system through integrated actions in a favorable policy environment.

3.1.3 Goal

To promote efficient food system and equitable access to healthy food while promoting environmental and economic benefits in Kisumu County.

3.1.4 Core Values

(a) *Ensuring justice and equity*

Transparency and accountability along the entire value chain are secured thanks to improved information flows and end of bad practices. The necessary information and tools are provided for consumers to make conscious, healthy, and responsible choices, building trust between consumers and producers.

(b) *Increased transparency and accountability*

Justice and equity are promoted at every step of the production and distribution process. Decent work is assured all along the value chain, for both enterprise owners and employees. Women, young generations and other marginalized groups are valued and engaged.

(c) *Fair and Inclusive Governance*

Inclusive governance of food systems guarantees small-scale producers' access to land, freshwater and marine resources, regardless of gender, race or age, current and future generations. Such governance promotes co-responsibility of all local stakeholders through community-based, bottom-up, ecosystem-based, and adaptive management.

(d) *Empowerment, creativity, and collaboration*

Small-scale producers are empowered so they become agents of change for the necessary transition to sustainable and fair food systems. Creativity and networking foster knowledge sharing, collective understanding, and mentorship needed to build a better future, leading to innovation, creativity, and social entrepreneurship.

(e) *Environmental Consideration*

Prevent pollution, encourage decarbonization and optimize resource use so that food production and consumption contribute to respecting the biophysical limits of our planet. Focus on utilization of renewable resources that reduce pressure on vegetation, high cost of electricity and reduction in entire environmental degradation. Attention to packaging materials helps in ensure the use of plastics in production, processing and transport operations is reduced.

3.2 Thematic Areas

In the preparation of the Kisumu Food system strategy, six key thematic areas were identified: --

- Food system governance
- Production, post-harvest handling and value addition

- Infrastructure development
- Market access and ICT
- Nutrition, food safety and health
- Mainstreaming cross- cutting issues (Climate Change, Food Waste, Loss management and Gender mainstreaming and social protection)

3.3 Strategic Objectives and Strategies

Strategic objectives and strategies are presented in Table 3.1. They are aligned to the various thematic areas to enable achievement of a sustainable food system

Table 3.1: Thematic areas, strategic objectives and strategy for food security of The County Government of Kisumu

Thematic areas	Strategic Objectives	Strategies
Food System Governance	To increase financial commitments towards policy implementation	Establishment of a Policy and Partnerships Resource Mobilization Committee
	To establish structures that foster stakeholder involvement and participation	Establishment of County Working Committees on Food System
	To strengthen sectoral coordination for effective food systems	Capacity building of existing Sectoral coordination teams
	Formulation of appropriate regulatory instruments that supports implementation of the policies	Development of relevant legislations on food issues
Production, Post- harvest Handling and Value addition	To Provide affordable quality inputs	Improve access to inputs through subsidy
	To Promote sustainable irrigation systems	Promote solar water pumping devices.
		Capacity building of irrigation water users.
	To Promote Regenerative Agriculture	Train farmer groups through farmer field and business schools, field visit, field days, demonstrations
	To enhance extension services provision	Recruitment of Extension staff.
		Enhanced collaboration through public private partnership
		Adoption of E –extension.
	To promote Capacity building of farmers	Training of farmers on production, post-harvest handling, value addition and waste management.

To Enhance proper product Packaging and branding	Training on proper product packaging and branding
	Linkage to service providers
To promote establishment of Cottage Industry	Establishment of cottage industry through linkage with other stakeholders.
	Linkage to capacity building and regulatory institutions e.g. KIRDI, KEBS, MSEA.
	Linkage to financial institutions.
To promote zoning of produce in markets	Sensitization of market actors on benefits of zoning.
	Demarcation of product areas in the markets.
To Promote aggregation activities	Identification of aggregation sites.
	To provide a fairly distributed Aggregation services
	Establishment of management committees.
To Promote urban and peri-urban agriculture	Adoption of designs in the urban planning development plan
	Training on urban and peri urban agriculture technology.
To Promote Climate Smart Agriculture and resilience adaptation	Training on climate smart agriculture technologies innovation and management practices.
	Promotion of agricultural biotechnology adoption.
	Promote sustainable irrigation systems e.g solar powered irrigation system.
To Reduce post-harvest losses along value chains.	Promote innovations and technologies.
	Increase value addition
	Improve post-harvest handling infrastructure.

Food Systems Infrastructural development	To develop, improve and expand basic physical structures, network and facilities that support sustainable food systems	To improve food retail markets to ensure they are safe and accessible
		To increase network of all-weather roads and integrate transportation on rail, air and water
		To promote production of affordable farm inputs and establishment of food processing plants
		To provide warehousing services for food retailers
		Construction of aggregation infrastructure.
		To establish Auction services for farmer, produce and markets
		To provide Cold storage services in strategic areas such as markets and entry/exit ports
		To improve access to Irrigation technology, Efficiency of operations and services
		Maintenance of the existing dams and water pans.
		Construction of new dams and water pans.
	To promote Physical market infrastructure	Improve market infrastructure with involvement of the private sector
		Planning for infrastructure improvement in the markets.
Market Access and ICT	To encourage Market digitalization	Facilitate/encourage market digitalization to improve efficiency of different marketing process.
	Access to market Information	Improve market intelligence, information and communication in agribusiness
	To Promote Market expansion	strengthening of farmer associations and cooperatives

		Formation and strengthening of one apex body at the county level associations and cooperatives (A cooperative union)
		Explore and expand to new export markets
Nutrition, food safety and health.	To promote behavioral practices related to dietary intake	Behavior changes in dietary intake
	To improve Consumer knowledge on healthy diets	Capacity building
	To reduce food contamination along the value chain	Food safety
	To improve on quality of meals in schools	Mainstreaming nutrition in schools
	To empower consumer on nutrition and food safety	Consumer information system/patterns
Cross-cutting issues	To promote climate change resilience	Adaptation and Mitigation
	To Increase knowledge on sustainable food waste and loss management	Recycling, Reduce and Reuse
	To Increase social protection of vulnerable community	Economic stimulus support
	To enhance disaster and emergency response mechanism	Enhanced information sharing
	To streamline and increase efficiency within the value chains	enhance digitization

CHAPTER FOUR: IMPLEMENTATION AND COORDINATION FRAMEWORK

4.1 County Government of Kisumu Structure

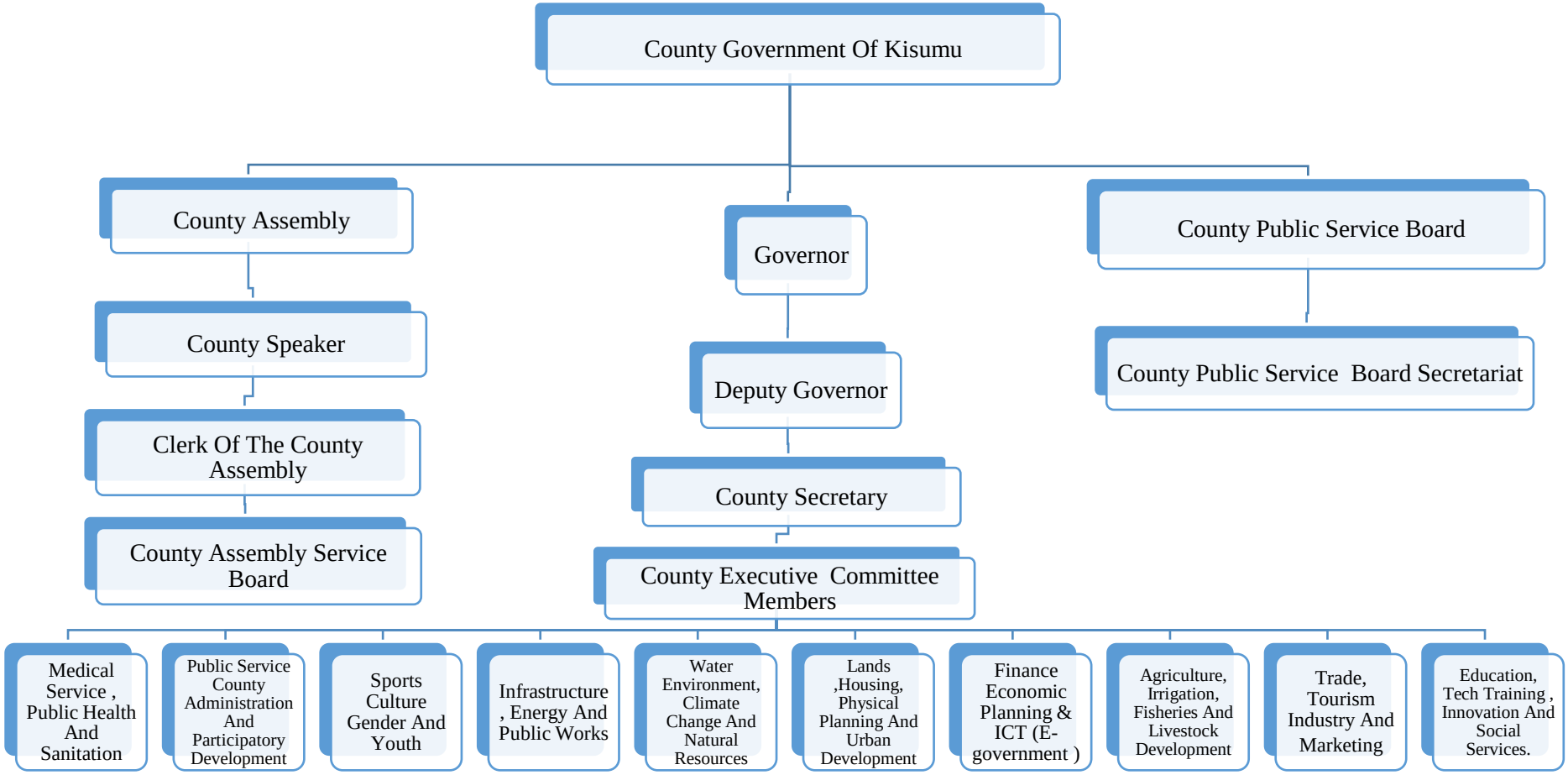
County Government of Kisumu has various administrative structures to ensure effective service delivery namely:

1) Public Service, County Administration, Participatory Development and Office of the Governor
2) Kisumu County Assembly
3) Kisumu County Public Service Board
4) City of Kisumu
5) Department of Finance, Economic Planning and ICT services
6) Department of Water, Environment, Climate Change & Natural Resources
7) Department of Medical services, Public Health and Sanitation
8) Department of Trade, Tourism, Industry and Marketing
9) Department of Sports, Culture, Gender & Youth Affairs
10) Department of Agriculture, Irrigation, Livestock and Fisheries
11) Department of Infrastructure, Energy & Public works
12) Department of Lands, Physical Planning, Housing and Urban Development
13) Education, Technology and Human Resource Development
14) Department of Education, Technical Training, Innovation and Social Services

4.2 Organogram of County Government of Kisumu

The organogram of county government of Kisumu is presented in Figure 4.1.

Fig 4.1 Organogram of the County Government of Kisumu



4.3 Financial Resources

4.3.1 Introduction

Financial allocations play a critical role to ensure proper budgetary allocations are put in place below are the Key Thematic areas and other relevant budget items

Table 4.1: Financial resource requirement of Kisumu County by key result area

Cost Area	Projected Resource Requirements (Ksh. Mn)					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
Food System Governance	29.89	42.58	30.2	22.04	17.65	**142.36**
Production, Post-harvest handling and value addition	183.08	363.08	123.08	123.08	123.08	**915.40**
Food Systems Infrastructural development	535.00	1015.00	595.00	505.00	310.00	**2,960.00**
Marketing access and ICT	27.00	22.00	30.00	17.00	17.00	**113.00**
Nutrition, food safety and health	56.21	76.11	77.46	52.42	46.58	**308.77**
Cross-cutting issues	80.00	95.00	76.00	79.00	76.00	**406.00**
Total	**911.18**	**1,613.77**	**931.74**	**798.54**	**590.31**	**4,845.54**

4.3.2 Resource Gaps.

With the development of the Kisumu Food system various resource gaps were identified. Their tabulation as presented in Table 4.4 will assist policy makers and economic planners to put appropriate measures during County Financial planning.

Table 4.2: Resource gaps of The County Government of Kisumu Food System

FY	Requirement (Ksh. Mn)	Estimated Resource Allocations (Ksh. Mn)	Variance (Ksh. Mn)
Year 1	**911.18**	24.76	888.72
Year 2	**1,613.77**	36.46	1,577.31
Year 3	**931.74**	37.21	894.53
Year 4	**798.54**	29.13	769.41
Year 5	**590.34**	47.24	543.10
Total	**4,845.50**	**174.8**	**4,670.70**

4.3.3 Resource Mobilization Strategies

- Collaboration with development partners with structured targeting
- Facilitating the County Resource Mobilization committees to achieve targets
- Mainstreaming of Food System Strategy in County Sectoral Plans to ensure integration in budgeting and resource allocation.

4.3.4 Resource management

To ensure prudent and efficient utilization of resources the following measures are to be implemented: -

- Work plans to guide operations of implementing units
- Performance contracts with all unit heads and appraisals of all staff
- Monitoring and evaluation systems mainstreamed in all units
- Audit of performance and resources

4.4 Business Process Re-Engineering

Kisumu County Food System Strategy (2023-2027) is the first such strategy in the County and as such will provide a baseline for successive business process Re-engineering (BPR).

4.5 Risk Analysis and Mitigation Measures

Table 4.4 shows an analysis of risks within the food system and the proposed mitigation measures to be adopted by various stakeholders along the various value chains.

Table 4.3: Risk analysis and mitigation of The County Government of Kisumu

	Risk and Description	Likelihood (L/H/M)	Impact (L/H/M)	Overall Risk Level (L/H/M)	Mitigation Measure (s)	Risk Owner*
Food system governance	Lack of political goodwill: For buying in the food strategy.	M	H	M	Sensitization of Cabinet	CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Political Instability: As a result of the Executive and Assembly not working in harmony	L	H	L	Adherence to governance structures. Consultation	County Executive County Assembly
	Conflict of laws: The strategy conflicting with other policy documents.	L	M	L	Harmonization with existing policy documents. Consultation with relevant stakeholders.	CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Uncoordinated multi-stakeholder platforms	H	H	H	Sensitization of various stakeholders	
Infrastructure Development	Inadequate resources	H	H	H	Stakeholder partnership	CECM-Infrastructure, energy and public works
	Uncoordinated multi-stakeholder platforms	M	L	M	Harmonizing the operations of stakeholder platforms	
	Non- adherence to set standards	H	H	H	Ensuring compliance of set standards	
	Inadequate stakeholder engagement	H	H	H	Stakeholder Consultation	

	Abandonment and waste of resources	M	M	M	Stakeholder consultation Awareness creation Capacity building	
Production Post-harvest Losses and value Addition	Change in tastes and preferences	M	H	M	Diversification of diets Value addition.	CECM-Agriculture, Irrigation, Livestock development and Fisheries. CECM- Medical services, public health and sanitation
	Climate Change	H	H	H	Use indigenous knowledge and technology. Early warning signs systems. Adoption of climate smart Agriculture.	CECM- Water, Environment, Natural resources and climate change CECM-Agriculture, Irrigation, Livestock development and Fisheries NEMA, KMET
	Diminishing land for agriculture	H	H	H	Adopt vertical farming technology. Embrace diversification in agriculture. Embrace intensification in agriculture.	CECM- Lands, Physical Planning, Housing and Urban development. CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Emerging and re-emerging pests and diseases	H	H	H	Early warning and disaster preparedness. Capacity building on integrated diseases and pest management.	CECM-Agriculture, Irrigation, Livestock development and Fisheries. CECM- Medical services, public health and sanitation.
Market Access and ICT	Disruption in distribution chains	M	H	M	More storage facilities e.g warehouses, cold storage.	CECM- Trade, tourism, industry and marketing

					Use of technology e.g drones for deliveries formalization of pop-up markets	
	Low uptake of ICT	M	M	M	Awareness creation Training	CECM- Finance, economic planning and ICT services.
	Inadequate resources	M	M	M	Resource Mobilization and partnerships	CECM- Public service, county administration and participatory development
	Reluctant members in joining and participation in the cooperatives and cooperative union	M	H	M	Effective capacity building and sensitization on cooperatives	CECM- Trade, tourism, industry and marketing
Nutrition, food safety and Health	Emerging health issues	H	H	H	Disaster preparedness.	CECM- Medical services, public health and sanitation
	Surge in non-communicable diseases	M	H	H	Sensitization Early screening	CECM- Medical services, public health and sanitation
	Low nutrition awareness	M	H	H	Nutrition Sensitization	CECM- Medical services, public health and sanitation CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Economic distress	H	H	H	Provision of social safety nets Provision of subsidies Sensitization on income generating activities	CECM- Finance, economic planning and ICT services

Cross-cutting issues	Climate change	H	H	H	Access to resources.	CECM- Water, Environment, Natural resources and climate change CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Food waste and loss	H	H	H	Sensitization and training Resources	CECM-Agriculture, Irrigation, Livestock development and Fisheries. CECM- Trade, tourism, industry and marketing CECM-Infrastructure, energy and public works
	Gender discrimination	M	M	H	Gender sensitization (inclusivity) Awareness creation Mainstreaming	CECM- Sports, culture, gender and youth affairs.
	Weak M& E systems in place	H	H	H	Capacity building	CECM- Finance, economic planning and ICT services CECM-Agriculture, Irrigation, Livestock development and Fisheries.
	Weak disaster preparedness and emergency response	H	H	H	Sufficient resource allocation to disaster response and preparedness teams.	CECM- Public service, county administration and participatory development

CHAPTER FIVE: MONITORING, EVALUATION AND LEARNING

5.1. Monitoring

Monitoring of the Food Systems strategy activities and results will be done through routine collection, collation, analysis, interpretation and dissemination of data using standardized tools and procedures. The frequency of monitoring the activities will be undertaken monthly, quarterly and annually as outlined in the reporting frequency in the results framework. Monitoring of implementation of programmes will focus on inputs and activities, whereas results monitoring will focus on outputs

The monitoring will be conducted through the following steps: Reference to the results framework, planning for monitoring, selection of monitoring tools and approaches, data collection and analysis, communication and reporting of findings to Kisumu County Director of Monitoring and Evaluation, A platform (Kisumu County agricultural information system – KCAIS) will be established where all the data collected is reported). The monitoring steps are elaborated below:

1. **Reference to the results framework:** The Implementation Matrix, Thematic areas and output indicators will be the main basis of monitoring. The monitoring activities and resources will hence ensure that data on priority indicators are available.
2. **Planning for monitoring:** This will include determination of which data will be collected, by when and how. The KCAISKCAIS link to the County Information System and population-based surveys. Key stakeholders at the county level for example the M&E will need to consult other County Departments during the planning stage. Resources should also be planned for including human and financial. At this point it is also important to consider how the collected data will be utilized.
3. **Selection and development of monitoring tools and approaches:** Quality data on the indicators in the results framework should be collected using appropriate tools and methods. The Technical Working Croup (TWG) will need to ensure various data collection tools e.g., for routine data and population-based surveys are up to date and relevant for the data collection methods. Development of guidelines and tools is critical and will be aligned to global standards. Joint programme monitoring by government officials and implementing partners will also be useful in establishing progress and providing a mechanism for feedback.
4. **Data collection and analysis:** Data collection will be based on the results framework indicators, cost, technical capacities and county level context. The data quality will be evaluated based on minimum criteria established in various guidelines before performing analysis. The data analysis methods should be aligned to the indicators, technical manuals and thresholds. Data analysis should take into consideration gender disaggregation, equity, spatial distribution and disability in as far as this is possible. The findings should be validated by the Technical Working Group (TWG) using agreed standards.
5. **Reporting and communication of findings:** Timely reports should be produced upon validation of findings. The findings should first be validated at the county level. For example, SMART survey reports should be finalized within 1 month of validating the findings. The reports should be submitted to the Director Monitoring and Evaluation domiciled within the Special Programmes Department. The reports should be uploaded onto the website and disseminated to the target audience e.g. Technical Forum members using other channels. To ensure improved uptake of findings, user friendly products such as short visual outlines will be produced and disseminated using effective channels of communication.
6. **Taking corrective action:** The evidence generated will inform the kind of corrective action to be taken by various programs and stakeholders to promote accountability and realization of results. Corrective actions may include the following:
    - Making changes to what is being done and how it is being done e.g., scale up and scale down of activities.
    - Allocating resources more appropriately to emerging needs.

- Building capacity on various technical areas.
- Re-orienting advocacy and policy influencing.

7. **Quarterly and Annual FLACK reviews:** The focus will be on the progress of activities, processes and outputs in the annual work plans. Stakeholders at the County are expected to conduct quarterly reviews using routine data, scorecards, field visits, implementation progress reports, technical working group coordination meetings feedback etc. The review meetings will have representation from various departments and stakeholders such as NGOs, academia etc. Review meetings will take place at county and sub county levels for learning exchange. Review reports outlining progress will be produced and corresponding recommendations implemented and follow up made.

5.2. Evaluation

Evaluation will provide credible evidence – based on information to help sectors continually improve its performance, learning and accountability. The main evaluation will be Quarterly evaluation, Mid Term Reviews (MTR) and End Term Reviews (ETR)

5.2.1 Evaluation steps:

During an evaluation process, the following seven steps will be followed:

1. Assess the utility, necessity and evaluability of the evaluation.
2. Plan and commission the evaluation – allocate responsibility and develop terms of reference (TORs).
3. Manage the inception phase – this should be implemented within 1 month. The evaluation team should provide a report outlining the revised work plan, understanding of the TOR and agreed evaluation methodology.
4. Data collection, analysis and validation of findings.
5. Disseminate and use evaluation findings – packaging of evaluation findings and using of strategic dissemination forums relevant to target audience to increase uptake of evaluation findings.
6. Prepare and track the implementation of evaluation recommendations.
7. Use evaluation for learning and accountability.

5.3. Learning

Refers to the process through which information generated from M&E is reflected upon, and intentionally used to continuously improve a plan/strategy to achieve results. Learning will involve assessing what works well in a context or what does not work well, which aspects have more influence on the achievement of results and which strategies can be replicated.

Approaches to guide in learning:

1. Compare results across time to determine which ones contribute to achieving the set tasks and expected results.
2. Facilitation of levels of learning through formal or informal learning and reflection meetings of all stakeholders, by sharing learning experiences (positive and negative) with partners, communities and other stakeholders, in response to their needs:
   - Organize workshops to reflect on lessons learned and to exchange good practices e.g. Sub County meetings, which promote events for horizontal knowledge exchange by the counties.
   - Ride on community dialogue fora to share lessons learned and reflect on best practices
3. Documentation of processes and reports and appropriate storage of Monitoring Evaluation and Learning [MEAL] outputs to keep learning within the programs and sectors even in absence of the key staffs.
   - Filing Paper based report

- Majorly uploading soft copies (photos, videos) on the department website

4. Learning needs assessment and support
   - Mentoring of staff with a focus on specific issues or identified needs, help individuals reflect and question existing practice.
   - Training courses in response to feedback.
5. Development of innovative tools for MEAL
   - Online learning
6. Feedback mechanism

The lessons learnt from the strategy implementation will be incorporated during the review.

ANNEXES

Annex I: Implementation Matrix

1. THEMATIC AREA: FOOD SYSTEM GOVERNANCE																	
Key Result Area	**Strategic Objective**	**Strategy**	**Key activities**	**Expected Output**	**Output Indicators**	**Target for 5 yrs**	**TARGETS**					**BUDGET (Mn)**					**Responsibility**
							2023	**2024**	**2025**	**2026**	**2027**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	
Food System governance	To increase budgetary allocation towards policy implementation	Establishment of Policy and Partnerships	Formation of Policy and Partnerships for resource mobilization	Policy formulations and partnership framework	Number of policies/partnerships implemented/created	5	1	1	1	1	1	1.0	1.0	1.0	1.0	1.0	Dept of AILF, Legal Dept partners
		Increase budgetary allocation	Engage the Relevant Departments to increase annual budgetary allocation for policy implementation	Sensitization Meetings with CECMs and Budget Officers	Annual Work Plans with increased budgets for policy implementation	10	10	10	10	10	10	5.0	5.0	5.0	5.0	5.0	Dept of AILF, legal dept, partners
		Establishment of Resource Mobilization committee	Formation of Resource Mobilization committee	Increased resources for policy implementation	Amount of money mobilized for policy implementation Budgets approved	10	2	2	2	2	2	2.0	2.0	2.0	2.0	2.0	Dept of AILF, Dept of public participation partners
	To establish structures that foster stakeholder involvement	Committee Establishment of County Working Committees	Committee Sensitization of The Assembly and Relevant Committees	Number of MCAs sensitized	No, Trained	60	15	42	60	15	-	0.24	0.63	0.9	0.24	-	Dept of AILF, Legal Dept, partners

	and participation	on Food System														
			Establish ward and village food system committees	No. of committees established and operationalized at ward and village level	No. of committees trained and established	35	10	10	10	5	-	1.0	1.0	1.0	0.5	-	Dept of AILF, legal and partners
			Operationalize FLACK and CASSCOM and strengthening of MSN Coordination framework	FLACK and CASSCOM operational	FLACK and CASSCOM members appointed	10	3	3	3	3	3	2.0	2.0	2.0	2.0	2.0	Dept of AILF, Legal Dept, partners
			Training of the existing coordination team members	Members trained	No of members trained	250	100	80	60	60	50	4.0	3.0	3.0	3.0	2.0	Dept of AILF Legal Dept, partners
	To strengthen sectoral coordination for effective food systems	Capacity building of existing Sectoral coordination teams	Upscaling of inter-departmental coordination	Departmental coordination up scaled	Number of departments engaged	20	1	1	1	1	1	6.0	4.0	6.0	2.0	2.0	Dept of AILF, legal, partners
			Establish food system directorate	Food systems directorate established	No. of directorates	1	-	1	-	-	-	-	12.0	-	-	-	Dept of AILF Legal Dept, partners
			Strengthen market committees, trader associations,	Enhancing coordination	No. of food system action groups strengthened	320	40	120	80	80	40	0.65	1.95	1.3	1.3	0.65	Dept of AILF Legal Dept, partners

			collective action groups, CSOs														
			Utilize and make functional the Warehousing Receipt Act	Warehousing and receipt act functional	Operationalize ACT	100%	-	50%	-	50%	-	-	2.0	-	2.0	.	County Government of Kisumu
		Strengthening and formulation of digitization of revenue policies	Support legislation for digitization of revenue collection	Revenue collection digitized	No. of digital policies approved	1	-	1	-	-	-	-	5.0	-	-	-	Dept of AILF, legal dept and partners
	Formulation of appropriate regulatory instruments that supports implementation of the policies	Development of relevant legislations on food issues	Review existing legislations	Domesticated national legislations on food issues	No of policies approved by County Executive	5	1	1	1	1	1	2.0	2.0	2.0	2.0	2.0	Dept of AILF, Legal Dept, partners
			Formulate relevant County laws and plans on food system issues	Operationalized County legislations on food system	No of Bills passed by the County Assembly	2	1	0	1	0	0	5.0	0	5.0	0	0	Dept of AILF, Legal Dept, partners
			Harmonize existing legislations (inhibiting producers on market entry fee)	Favourable regulatory environment that supports markets	No. of regulations harmonized	5	1	1	1	1	1	1.0	1.0	1.0	1.0	1.0	Dept of AILF, legal dept, partners

2. THEMATIC AREA: PRODUCTION, POST-HARVEST HANDLING AND VALUE ADDITION

Key Result Area	Strategic Objective	Strategy	Key activities	Expected Output	Output Indicators	Target for 5 yrs	TARGETS					BUDGET (Mn)					Responsibility
							2023	2024	2025	2026	2027	Y1	Y2	Y3	Y4	Y5	
Production, Post-harvest handling and value addition	Promote affordable quality inputs	Improve access to inputs through subsidy	Implementing of E-Voucher subsidy system to farmers for farm inputs	Farmers using E-Voucher servicing systems to access inputs	No of farmers	50000	10000	10000	10000	10000	10000	30.0	30.0	30.0	30.0	30.0	County Govt. of Kisumu & partners
		Promote Regenerative Agriculture	Train farmers on Regenerative Agriculture that enhances soil health	Farmers trained	No. of farmers	20000	4000	4000	4000	4000	4000	5.0	5.0	5.0	5.0	5.0	County Govt. of Kisumu & partners
	To Promote sustainable irrigation system	Improve production	Promotion of solar water pumping devices	Solar water pumping devices promoted	No. of Solar water pumps promoted	50	10	10	10	10	10	1.5	1.5	1.5	1.5	1.5	County Govt. of Kisumu & partners
			Training of irrigation water users	Irrigation water users trained	No. of groups trained	20	4	4	4	4	4	1.5	1.5	1.5	1.5	1.5	County Govt. of Kisumu & partners
	To Enhance Extension service	Partnering with other organizations that support food security	Sensitization of potential partners on PPP	MOUs signed	No. of Partners working with community	20	4	4	4	4	4	8.0	8.0	8.0	8.0	8.0	County Govt. of Kisumu & partners
			Recruitment of Extension staff	Extension Staff recruited	No. of staff recruited	250	50	50	50	50	50	30	30	30	30	30	County Govt. of Kisumu & partners

			Adoption of an E-extension platforms	E-extension platforms adopted	No of e-extension platforms promoted and used	50	10	10	10	10	10	0.5	0.5	0.5	0.5	0.5	
	To promote Capacity building of farmers	Promotion of various agricultural technologies	Trainings Market Linkages Demonstrations	Adoption of Agricultural technologies, innovations and management practices	No. of farmers adopting new technologies	1500	300	300	300	300	300	1.5	1.5	1.5	1.5	1.5	County Govt. of Kisumu & partners
	To Enhance proper product Packaging and branding	Capacity building on proper product packaging and branding	Training on proper product packaging and linkage service providers	Value chain actors trained on proper product packaging	No. of value chain actors trained	500	100	100	100	100	100	1.0	1.0	1.0	1.0	1.0	County Govt. of Kisumu & partners
	To promote establishment of Cottage Industry	Increase capacity for cottage industry	Establishment of Cottage industry	Cottage industry established	No. of Businesses enterprises established	25	5	5	5	5	5	20.0	20.0	20.0	20.0	20.0	County Govt. of Kisumu & partners
	To promote Zoning of produce in markets	Zoning of produce in various markets	Demarcation of physical areas in the market by type of produce sold Sensitization of the market traders and other market actors on zoning	Markets zoned	No. of markets zoned in the market	20	4	4	4	4	4	0.08	0.08	0.08	0.08	0.08	County Govt. of Kisumu & partners

	To Promote Aggregation of products	Promotion of Incorporation of storage infrastructure	Awareness of aggregation infrastructure	Aggregation infrastructures adoption and awareness	No. of aggregation infrastructure adopted	10	2	2	2	2	2	60.0	60.0	60.0	60.0	60.0	County Govt. of Kisumu & partners
	To Promote Climate Smart Agricultural technologies and resilience adaptation	Promotion of climate smart technologies practices	Training on smart agriculture practices	Farmers trained	No. of farmers trained	20000	4000	4000	4000	4000	4000	5.0	5.0	5.0	5.0	5.0	County Govt. Kisumu & partners
		Promote Agricultural biotechnology	Sensitization and training on the biotechnology	Value chain actors sensitized	No of actors sensitized	100000	20000	20000	20000	20000	20000	10.0	10.0	10.0	10.0	10.0	County Govt. Kisumu & partners
		Sustainable Irrigation system adoption	Training and linking of farmers to irrigation technologies providers	Farmers trained and linked	No. of Farmers	5000	1000	1000	1000	1000	1000	5.0	5.0	5.0	5.0	5.0	County Govt. Kisumu & partners
	To Reduce post-harvest losses along value chains.	Training of producers on post-harvest loss and handling reduction technologies	Train on technologies that reduces food loses	Value chain actors trained	No of value chain actors trained	1000	250	250	250	250	250	3.0	3.0	3.0	3.0	3.0	County Government of Kisumu
		Adoption of innovations and technologies	Sensitization and training of value actors on bio digestion	Value chain actors trained	No. of value chain actors	5	1	1	1	1	1	1.0	1.0	1.0	1.0	1.0	County Government of Kisumu, Collaborative partners
3. THEMATIC AREA: FOOD SYSTEMS INFRASTRUCTURAL DEVELOPMENT																	

Key Result Area	Strategic Objective	Strategy	Key activities	Expected Output	Output Indicators	Target for 5 yrs	TARGETS					BUDGET (Mn)					Responsibility
							2023	2024	2025	2026	2027	Y1	Y2	Y3	Y4	Y5	
Food Systems Infrastructural development	To develop, improve and expand basic physical structures, network and facilities that support sustainable food systems	To improve food retail markets to ensure they are safe and accessible	Fencing of open-air markets	Public Markets fenced	No. of public markets fenced	20	4	4	4	4	4	10.0	10.0	10.0	10.0	10.0	County Government of Kisumu
			Mast Flood lights in the markets	Mast flood lights installed	No. of mast flood lights installed	50	10	10	10	10	10	20.0	20.0	20.0	20.0	20.0	County Government of Kisumu
			Construct modern water and sanitation facilities	Water and Sanitation facilities constructed	No. of water and sanitation facilities	50	10	10	10	10	10	10.0	10.0	10.0	10.0	10.0	County Government of Kisumu, Practical Action
			Construct modernized and customized Modernized Sheds and Food racks	Modern and customized sheds and Food racks constructed	No. of modern and customized sheds and racks constructed	50	10	10	10	10	10	5.0	5.0	5.0	5.0	5.0	County Government of Kisumu
		Improve market infrastructure with involvement of the private sector	Renovate existing market structures	Renovate at least one market per sub-county	No. of markets renovated and existing infrastructure improved	7	1	2	1	2	1	10.0	20.0	10.0	20.0	10.0	County government
		Build new market structures	Build three markets (Katito, Awasi, Seme)	Three modern markets construction	No. of markets constructed	3	1	1	1	-	-	100.0	100.0	100.0	-	-	Build three markets (Katito, Awasi, Seme)
		To increase network of all-weather roads and integrate	Upgrade 30 kms of rural access to roads to standard bitumen	Rural Access roads upgraded to	No. of Kilometers	30	8	7	5	5	5	30.0	30.0	30.0	30.0	30.0	KURA, KERRA, KENHA County Government of Kisumu

		transportation on rail, air and water		bitumen standards													
			Open rural access roads	Rural access roads opened	No. of Kilometers	75	15	15	15	15	15	25.0	25.0	25.0	25.0	25.0	KERRA, County Government of Kisumu
			Improve and maintain rural access roads to marram standards	Rural access roads maintained and improved to marram standards	No. of Kilometers	140	28	28	28	28	28	30.0	30.0	30.0	30.0	30.0	KERRA, County Government of Kisumu
		To reduce loss of quality and value of produce during transportation	Improving of Transport for agricultural produce	Mobilize resources for road maintenance through communities and government	No. of Kilometers	1000	200	200	200	200	200	100.0	100.0	100.0	100.0	100.0	KERRA, County Government of Kisumu
			Purchase and acquisition of well-equipped transport amenities with modern storage and handling facilities	Well-equipped transport amenities with modern storage and handling facilities purchased	Number of well-equipped transport amenities with modern storage and handling facilities purchased	125	25	25	25	25	25	100.0	100.0	100.0	100.0	100.0	Private Sector, County Government of Kisumu, National government
			Construct Cargo handling facility for food products at Kisumu International Airport and Kenya Railways corporation	Construct 2 100 tons Cargo handling facility at Kisumu International Airport and	No. cargo handling facility for food products constructed	2	0	1	-	1	-	-	100.0	-	100.0	-	County Government of Kisumu, KAA, HCDA

				Kenya Railways corporation constructed													
		To promote production of affordable farm inputs, construction of warehouses and establishment of food processing plants	Establish local assembly plants for farm machinery and equipment	Local assembly plant established	No. of plants established	1	-	-	1	-	-	-	-	100.0	-	-	County Government of Kisumu
			Construct food and livestock processing plants (rice, tomatoes, fruits)	Food and livestock processing plants constructed	No. of food and livestock processing plants	5	1	1	1	1	1	20.0	20.0	20.0	20.0	20.0	Private Sector, County Government of Kisumu
			Construct Urban based warehouses in partnership with Private sector players	Urban warehouses constructed	No. of warehouses	3	-	1	1	1	-	-	10.0	10.0	10.0	-	NCPB, Kenya Railways, County Government of Kisumu, Private Sector
			Construct rural based warehouses per sub county	Rural warehouses constructed	No. of rural warehouses	8	2	2	2	2	-	15.0	15.0	15.0	15.0	-	County Government of Kisumu, Private Sector, NCPB
		To provide a fairly distributed Farmer Aggregation services	Construct Farmer Aggregation centers in sub counties	Farmer aggregation centres constructed	No. of aggregation centers	8	2	2	1	2	1	20.0	20.0	10.0	20.0	10.0	Private Sector, County Government of Kisumu
		To establish Auction centres services for farmer, produce and markets	Construct Auction Centers in the major urban areas	Auction centres established	2 auction No of auction centres established in Kisumu	2	0	1	1	0	0	-	10.0	10.0	-	-	National Government, County Government, Private Sector

		To provide Cold storage services in strategic areas such as markets and entry/exit ports	Install Cold Storage facilities in the main markets	Cold storage facilities installed in the main markets	No. of cold storage facility established	5	1	1	1	1	1	20.0	20.0	20.0	20.0	20.0	Development Partners, CGK, Private Sectors
		To improve access to Irrigation technology, Efficiency of operations and services	Establish Irrigation Maintenance unit e.g., back hoer	Irrigation maintenance equipment established	Optimum use of the irrigation equipment in irrigation schemes in the county Percentage of irrigation services that uses the technology	3	-	1	1	1	-	-	50.0	50.0	50.0	-	CGK, National Irrigation Board
		Increase access to water	Construction and renovation of water harvesting technologies such as water pans, boreholes, roof catchment etc	Increased water harvesting within the county Water harvesting technologies constructed and renovated	No. of water pans constructed No. of water harvesting technologies employed	5	1	1	1	1	1	10.0	10.0	10.0	10.0	10.0	Dept of AL&F Department of Water and Irrigation
		Supplementary irrigation system	Construction of Water pans	Water pans constructed	No. of Water Pans	25	5	5	5	5	5	10.0	10.0	10.0	10.0	10.0	County Govt. of Kisumu & partners
4. THEMATIC AREA: MARKETING ACCESS AND ICT																	
Key Result Area	**Strategic Objective**	**Strategy**	**Key activities**	**Expected Output**	**Output Indicators**	**Target for 5yrs**	**TARGETS**					**BUDGET (Mn)**					**Responsibility**

							2023	2024	2025	2026	2027	Y1	Y2	Y3	Y4	Y5	
Marketing access and ICT	Market digitalization	Facilitate/encourage market digitalization to improve efficiency of different marketing process.	Sensitization of market actors on e-commerce and social media platforms	Parties have firsthand and reliable information on available ecommerce and social media platforms and how to use and manage them.	% of participants using social media and ecommerce platforms for agri-marketing purpose increased	25% (%change with 2022 as the base year)	5%	10%	15%	20%	25%	10.0	5.0	5.0	5.0	5.0	ecommerce companies, farmers, brokers, county departments, public representatives, fintech companies
			Partnering with existing and upcoming platforms	Established partnership with existing platforms and upcoming platforms	% Increase in the number of partnerships in every market	20%vincrease in every market (%change with 2022 as the base year)	4%	8%	12%	16%	20%	2.0	2.0	2.0	2.0	2.0	department of ICT, private sector, ecommerce companies
			Developing a county/regional marketing platform	Functioning app/ software	No. of Functioning marketing app/software developed and in use	1	-	-	1	-	-	-	-	3.0	-	-	department of ICT, private sector, ecommerce companies
			creation of mobile app for food traceability	Mobile food traceability app formed	Mobile app formed	1	-	-	1	-	-	-	-	5.0	-	-	Dept of AILF and partners
	Access to market Information	Improve market intelligence, information and communication in agribusiness	Set up a central repository to gather relevant, timely and accurate market information	An updated market information database dashboard	No. of Central repository identified for every market and market information	1	-	-	1	-	-	-	5.0	-	-	-	department of ICT, private sector, ecommerce companies

			(domestic, regional and international) for agribusiness		made available for stakeholders												
	Market expansion	Explore and expand to new export markets	Promote compliance with international standards e.g., through setting up and strengthening Centers of Excellence	Compliance with international standards	% increase in agricultural produce export	100%	20%	15%	20%	25%	20%	10.0	5.0	5.0	5.0	5.0	KEPHIS, KEBS, HCDA, county departments, private sector
		strengthening of farmer associations and cooperatives	strengthen existing association and cooperatives through capacity development on market expansion	Cooperatives sensitized	of cooperatives sensitized	20	4	4	4	4	4	5.0	5.0	5.0	5.0	5.0	Dept of AILF, Dept of cooperatives
		Formation and strengthening of 1 apex at the county level associations and cooperatives (A cooperative union)	Form a cooperative union	Functional cooperative union	of functional farmer associations and cooperatives joining the cooperative union	1	-	-	1	-	-	-	-	5.0	-	-	Dept of AILF, Dept of cooperatives

5. THEMATIC AREA: NUTRITION, FOOD SAFETY AND HEALTH

Key Result Area	**Strategic Objective**	**Strategy**	**Key activities**	**Expected Output**	**Output Indicators**	**Target for 5 Yrs**	**TARGETS**					**BUDGET (Mn)**					**Responsibility**
							2023	**2024**	**2025**	**2026**	**2027**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	

Nutrition, food safety and health.	To improve behavioral practices related to dietary intake	Promoting behavior changes in dietary intake	Sensitize community on meal planning using effective communication channels	Improved knowledge on meal planning	No. of meal planning sessions conducted (120 sessions per sub county)	960	200	200	200	200	160	1.92	1.92	1.92	1.92	1.92	Director Agriculture and partners
			Sensitize community on food processing, preservation and storage technologies	Improved access of safe food	No. of sessions conducted (120 sessions per sub county)	960	200	200	200	200	160	1.92	1.92	1.92	1.92	1.92	Department of Director Agriculture and Health, partners
			Train community health volunteers on establishment of diverse food production and healthy diets.	Improved knowledge on diverse food production and consumption of healthy diets	No. of CHVs trained	2000	400	600	600	400	200	1.92	2.88	2.88	1.92	1.92	Department of Director Agriculture and health, partners
	To improve Consumer knowledge on healthy diets	Capacity building	Develop training modules for nutrition training for specific target audiences.	Training modules developed	No. of Nutrition education training module produced/developed	1	-	1	-	-	-	-	-	2.94	-	-	Department of Health/ Agriculture, partners
			Train County/Sub County ToTs on Agri-nutrition	Improved knowledge on Agri-nutrition among extension workers	No. of people trained	100	100	-	-	-	-	0.8	-	-	-	-	Department of Health/ Agriculture, partners
			Train the extension officers on Agri-nutrition	Improved knowledge on Agri-nutrition among	No. of extension officers trained	700	-	400	300	-	-	-	4.0	3.0	-	-	Department of Agriculture and health, partners

				extension workers													
			Establish and train community support groups on Agri-nutrition activities,	Enhanced knowledge on Agri-nutrition activities	No. of members of community support groups trained(500 per sub county)	3,500	700	700	700	700	700	7.2	7.2	7.2	7.2	7.2	Director Agriculture and partners, health
			Train value chain actor on HACCP	Enhanced capacity of value chain actor on HACCP	No. of value chain actors trained on HACCP	2000	200	1000	800	-	-	0.97	4.85	3.88	-	-	Director Department of Agriculture and Health, KEBS, Ministry of Agriculture and partners
			Conduct food demonstrations on utilization of diversified diets by age cohort.	Improved dietary/food diversity by age cohort	No of people trained within the community cohorts(500 per sub county	3500	700	700	700	700	700	7.2	7.2	7.2	7.2	7.2	Department of Agriculture and health, partners
			Train community support groups on IGAS and link them to productive livelihood-based sectors and financial institutions for support	Enhanced capacity of the community peer to peer support groups on IGAS and access to financial institutions for support	No. of community support group members trained and having access to financial institutions for support (500 per sub county)	3500	700	700	700	700	700	7.2	7.2	7.2	7.2	7.2	Department of Agriculture and Health, Director Social Protection, Youth Enterprise Funds, Women Enterprise Fund and partners Director Social Protection
	To reduce food contamination along the value chain	Improving food safety	Roll out the HACCP guideline along the value chain.	Encouraged use of HACCP guideline	No of sessions conducted	10	10	-	-	-	-	5.0	-	-	-	-	Dept of Public health and partners

			Establish a monitoring and evaluation frame work of the HACCP strategy.	M&E framework established	No. of M&E framework established	1	_	-	1	-	-	-	-	2.0	-	-	Need to have a general M&E for all sectors. Amend and/or delete
			Educate the community on food safety measures through the media.	Improved food safety measures among community members	No of media sessions conducted	20	4	4	4	4	4	0.4	0.4	0.4	0.4	0.4	Director Agriculture, health and partners
			Collaborate with Consumer Federation to educate the community on food safety and acceptable standards.	Improved knowledge on food safety and acceptable standards	No. of sessions conducted (120 sessions per sub county)	960	200	200	200	200	160	1.728	1.728	1.728	1.728	1.728	Director Agriculture, health and partners
			Educate the market Committees on food safety measures.	Improved knowledge of the market committees on food safety measures	No. of committees educated	8	2	2	2	2	-	1.0	1.0	1.0	1.0	-	Director Agriculture, health and partners
			Clean markets campaigns to motivate best practices.	Conduct market hygiene campaigns	No. of campaigns conducted	40	8	8	8	8	8	0.64	0.64	0.64	0.64	0.64	Director Agriculture and partners
			Sensitize on utilization and production of safe quality farm produce	Improved knowledge and practices on utilization and production of	No. of producers and consumers reached (500 per sub county)	4,000	500	1,000	1,000	1.500	-	0.96	7.2	7.2	3.84	0	Director Agriculture, health and partners

				safe quality farm produce													
			Sensitize food safety committee and law enforcement officers on food safety	Committee members and law enforcement officers sensitized on food safety	No of Committee members and law enforcement officers	120	-	120	-	-	-	-	0.6	-	-	-	Director Agriculture, health and partners
			Inspection of food vending premises to Enhanced adherence to the HACCP guidelines	Food vending premises inspected	No. of food vending premises identified and inspected	500	100	100	100	100	100	0.5	0.5	0.5	0.5	0.5	Public health
			Promote energy saving technologies for reduced health risks and hazard	Energy saving technology tech promoted	No. of actors adopting energy saving technology for reduced health risks and hazard (20 per ward)	700	-	300	300	100	-		3.5	3.5	1.0	-	Department of Industrialization and Green Energy, Department of Agriculture and partners
	To improve the quality of meals in schools	Mainstreaming nutrition education in schools	Sensitization of PTA/BOM on proper nutrition in schools	Improved school feeding program	No. of school PTA /BOM sensitized	64	30	34	-	-	-	0.9	1.02	-	-	-	Department of Education, Department of Health, Agriculture and partners Director Education
			Advocate for implementation of Agri smart	Improved food	No. of schools adopting the Agri smart technologies	160	-	80	80	-	-	-	6.4	6.4	-	-	Department of Director Agriculture and partners

			technologies in schools	availability in schools	(20 per sub county)												
	To empower consumer on nutrition and food safety	Implementing consumer information system/patterns	Develop consumer link and education platform for food diversity.	Availability of a link for consumers to access healthy diets and food diversity information	No. of consumer using the link	12000	2400	2400	2400	2400	2400	0.35	0.35	0.35	0.35	0.35	Director Health and partners
			Educate consumers on healthy diets through media	Improved consumer knowledge on healthy diets	No. of users reached	12000	2400	2400	2400	2400	2400	7.2	7.2	7.2	7.2	7.2	Director Health and partners
			Develop Information Education Communication, IECs material on healthy diets.	Improved consumer knowledge on healthy diets	IEC materials developed	12000	2400	2400	2400	2400	2400	1.2	1.2	1.2	1.2	1.2	Director Health and partners
			Awareness creation on emerging food production technologies eg GMO	Enhanced consumer knowledge on emerging food production technologies	No. of people sensitized on the emerging food production technologies	12000	24000	24000	24000	24000	24000	7.2	7.2	7.2	7.2	7.2	Director Health and partners
6. THEMATIC AREA: CROSS- CUTTING ISSUES																	
Key Result Area	**Strategic Objective**	**Strategy**	**Key activities**	**Expected Output**	**Output Indicators**	**Target for 5yrs**	**TARGETS**					**BUDGET (Mn)**					**Responsibility**
							2023	**2024**	**2025**	**2026**	**2027**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	

Climate Change	Climate Change mainstreaming	Enhance resilience	Capacity building on group dynamics, establishment and Facilitation of IWUAs	Increased food production within the county and Improved management of the irrigation schemes	No. of IWUAs trained	20	4	4	4	4	4	1.0	1.0	1.0	1.0	1.0	Dept of Climate Change, AL&F, partners, Dept of irrigation, water and climate change
			Training on efficient water use by IWUAs	Increased knowledge on proper water use	No. of IWUAs trained	20	4	4	4	4	4	1.0	1.0	1.0	1.0	1.0	Dept of irrigation, water and climate change
			Promotion of drought tolerant breeds/ seeds crops	Increased access to drought tolerant breeds through subsidy/E-voucher programs	No. of livestock acquired	700	100	200	100	200	100	3.0	6.0	3.0	6.0	3.0	Dept of AL&F partners
				Increased access to drought tolerant seeds	No. of seeds acquired in tons	20	5	5	5	5	5	6.0	6.0	6.0	6.0	6.0	Dept of AL&F partners
				Training on drought tolerant livestock breeds	No of farmer groups trained and sensitized	100	20	20	20	20	20	3.0	3.0	3.0	3.0	3.0	Dept of AL&F partners

				Training on drought tolerant crops	No of farmer groups trained and sensitized	100	20	20	20	20	20	2.0	2.0	2.0	2.0	2.0	Dept of agriculture
			sensitization on climate change in all sub counties	Increased public awareness on tree planting and tree seedling establishment	No of groups/CBOs people sensitized	10020	204	204	204	204	204	1.0	1.0	1.0	1.0	1.0	Dept of AL&F Partners
			Agro-forestry	Increased public awareness within various organizations	No of groups/CBOs /4K clubs/ schools, people sensitized	10020	204	20 4	20 4	20 4	20 4	1.0	1.0	1.0	1.0	1.0	Dept of AL&F
				Increased tree planting	No. of trees planted	35,000	7,000	7,000	7,000	7,000	7,000	1.0	1.0	1.0	1.0	1.0	Dept of AL&F partners
				Establishment and maintenance of tree nurseries	No. of tree nurseries established and maintained	40	8	8	8	8	8	16.0	16.0	16.0	16.0	16.0	Dept of Environment and climate change, dept of agriculture, partners
Food Loss and Waste	Increase knowledge on sustainable food waste and loss management	Recycling and Reuse	Sensitization on sustainable food waste and loss management	Increased public awareness and compliance	No. of groups/CBOspe ople sensitized	100	20600	20150	20150	20150	20150	1.0	1.0	1.0	1.0	1.0	Dept of AL&F
			Training on bio digestion, demonstration and its establishment	Increased public awareness and	No. of groups trained	50	10	10	10	10	10	3.0	3.0	3.0	3.0	3.0	Dept of Environment & partners

				Increase biogas usebio digestion													
		Reduce	Support establishment of village environmental protection and waste management groups and facilitation	Established community structures	No. of groups established	50	10	10	10	10	10	-2.0	2.0	2.0	2.0	2.0	Dept of Environment, AL&F, partners
			Training of village and ward environmental protection and waste management groups	Increased stakeholder involvement	No. of trained groups	35	7	7	7	7	7	23.0	23.0	23.0	23.0	23.0	Dept of Environment, AL&F, partners
					No of stakeholder involvement	1000	200	200	200	200	200	5.0	5.0	5.0	5.0	5.0	Dept of Environment, AL&F, partners
Social Protection	Increased social protection of vulnerable community	Economic stimulus support	Identification of vulnerable groups	Mapping and data collection	No. of groups mapped	50	10	10	10	10	10	1.0	1.0	1.0	1.0	1.0	Dept of Gender and social services
				Establishment of structures	No. of structure established	50	10	10	10	10	10	3.0	3.0	3.0	3.0	3.0	Dept of Gender and social services
				Formation of a demonstration program on effective climate smart practices among the VGs	No. of VGs, formed and trained	50	10	10	10	10	10	3.0	3.0	3.0	3.0	3.0	Dept of gender, agriculture, partners

			Grants issuance to increase social support	Establishment of a cash transfer data base or E-Voucher system for funds transfer to mapped VGs. (inputs) Collaboration with financial institutions of soft loan to farmers in established committees	% Amount disbursed No. of financial partnerships formed	100% 10	20% 2	20% 2	20% 2	20% 2	20% 2	4.0 1.0	4.0 1.0	4.0 1.0	4.0 1.0	4.0 1.0	Dept of Agriculture, Gender and social services
Disaster and Emergency management	increased disaster and emergency response mechanism	Enhanced information sharing	Develop reports and information sharing platform	Reports and information sharing platform developed	No. of reports and information sharing platform	16	3	3	3	3	4	1.0	1.0	1.0	1.0	1.0	Dept of AL&F, Dept of special programs, Dept of governance, Dept of Climate Change
Technology and Innovation	to streamline and increase efficiency within the value chains	enhance digitization	Establish a food system dashboard to track variations, data collection	no. of reports and formation of dashboard	dashboard formation	1	-	-	1	-	-	-	-	5.0	-	-	Dept of AL&F
			formation of an e-commerce platform to link value chain actors	E-commerce platform formation	E-commerce platform formed	1	-	-	1	-	-	-	-	5.0	-	-	Dept of AL&F
Monitoring and Evaluation	mainstream M& E	Enhanced M&E	Develop a log frame and maintain a food system database	Develop a log frame and maintain a food system database	No. of M&E data base formed	5	1	1	1	1	1	2.0	2.0	2.0	2.0	2.0	Dept of AL&F

Annex II: Outcome Performance Matrix

Key Result Area	Outcome	Key Performance Indicator	Baseline		Target	
			Value	**Year**	**Mid Term Period Target**	**End of Plan Period Target**
Food System Governance	Increased budgetary allocation	Amount in Kshs allocated.	300,000	2022	15,000,000	25,000,000
		Resource and Mobilization committee formed	0	2022	1	1
		No of MCAs sensitized	15	2022	60	60
	Stakeholders' involvement and participation structures established	Stakeholders' coordination structure operationalized	3	2022	3	3
	Sectoral Coordination strengthened	Sectoral Coordination members trained	48	2022	100	100
		Departmental Coordination mechanisms of food systems up-scaled	1	2022	4	4
	Regulatory instruents formulated	County legislation operationalized	3	2022	7	7
	Affordable quality inputs provided	Number of farmers accessing the subsidized inputs	10,000	2022	30,000	60,000

Production, Post-harvest handling and value addition	Irrigation system promoted	Number of dams and water pans constructed/rehabilitated	10	2022	20	35
		No. of solar water pumps promoted	30	2022	50	80
		No of working groups trained	10	2022	18	30
	Extension services through Public private partnership enhanced	Extension staff recruited	150	2022	250	400
		E –extension platforms adopted	5	2022	105	255
		Number of partners working with the communities reached	10	2022	18	30
		Number of Farmer groups trained	800	2022	1400	2300
	Proper packaging and branding of materials enhanced	Number of value chain actors trained	100	2022	300	600
	Cottage industries capacity increased	Number of businesses trained and linked	100	2022	300	600
	Zoning of markets achieved	Number of markets with zones specified	0	2022	8	20
		Number of aggregation infrastructure promoted	8	2022	12	18
	Transportation of Agricultural produce improved	Kilometers of roads maintained	200	2022	600	1200

	Urban and Peri Urban Agriculture promoted	Number of laws enacted	0	2022	1	1
	Climate smart Agriculture Technologies promoted	Number of farmers trained	10,000	2022	18,000	30,000
	Post harvesting losses and handling reduced along the value chain	Number of value chain actors trained on technologies that reduces food loss	2000	2022	2500	3250
Food Systems Infrastructural development	To improve food retail markets to ensure they are safe and accessible	20% of all markets fenced (44), flood lights put and sanitation facilities constructed	220 Markets Flood Lights Sanitation facilities	2022 2022 2022	20 25 25	20% (44) 50 50
	To increase network of all-weather roads and integrate transportation on rail, air and water	Open 70 kms of rural roads and upgrade 30kms of rural roads to bitumen standards	50kms of unopened roads 70kms of tarmac roads	2022 2022	35kms 20kms	70kms 30kms
	To promote production of affordable farm inputs and establishment of food processing	40% farm subsidy/inputs grants targeting 1000 farmers per sub-county	15 million	2022	500 per sub county (100 farmers per sub county per year)	1,000 per sub county (200 farmers per sub county per year)
	To provide warehousing services for food retailers	Establishment of 1 warehouse in each sub-county	3 warehouses/ 20 private	2022	4 warehouses (all sub-counties)	7 warehouses (all sub-counties)

	To provide a fairly distributed Farmer Aggregation services	2 farmer aggregation centres per sub-county	3 centres	2022	1 per sub-county	2 per sub-county (14)
	To establish Auction services for farmer, produce and markets	Establish an auction centre for the County	0	2022	1	1
	To provide Cold storage services in strategic areas such as markets and entry/exit ports	Install 5 cold storage facilities in key major markets	2 cold storage facilities	2022	2	5
	To improve access to Irrigation technology, Efficiency of operations and services	Purchase 3 wholesome irrigation maintenance equipment	Irrigation equipment obsolete	2022	2	3
Marketing access and ICT	Improved online agri-business marketing	Increase in gross profit margins from the online sales	*To Be determined through survey-KII, FGD*	2022	16% (%change with 2022 as the base year)	25% (%change with 2022 as the base year)
		Increase on average user &sub scribers on the platform	*To Be determined through survey-KII, FGD*	2022	16% (%change with 2022 as the base year)	25% (%change with 2022 as the base year)
	improved sustainable food supply and economic wellbeing of stakeholders	Increased trade in constructed markets	*To Be determined through survey-KII, FGD*	2022	*4markets*	*7markets*

	Increased tonnage in produce export. (inter-county and global)	Certification of produce in the global market	*To Be determined through survey-KII, FGD*	2022	*25% (%change with 2022 as the base year)*	*25% (% change with 2022 as the base year)*
Nutrition, food safety and health	Improved practices related to behavior changes in dietary intake	Proportion of consumers who report to have heard food processing, preservation and storage technologies Proportion of consumers who can cite a meal planning method	No data	2023	50%	100%
	Improved skills in nutrition sensitive services delivery	Proportion of staff trained on nutrition sensitive indicators	0	2023	50%	100%
	Ensure safe food products for human consumption	Percentage of market committees sensitized on food safety Percentage of technical staffs trained on HACCP guidelines	0	2023	50%	100%
	Improved Quality of School Meals	Percentage of PTA/BOM sensitized on optimal nutrition in schools	0	2023	50%	100%

Cross-cutting issues	Integrated Food loss and waste management	No. of community sensitized Uptake of the 3Rs	30%	5	50%	100%
	Water security	Construction of water pans and rehabilitation of existing ones	45%	5	70%	100%
	Streamlining of the various food system value chain	Increased digitization of the food system	5%	5	50%	100%
	Climate change resilience	Climate change mainstreaming	20%	5	70%	100%
	Gender mainstreaming	No. of community sensitized No. of community supported	10%	5	50%	100%
	Effective M &E	M&E platform for the various value chains	10%	5	70%	100%

Annex III: List of Technical Working Group Members

Category	Name of Participant	Name of Organization
County Government of Kisumu	Erick Abong'o Ogadho	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation.
	Sylvester Oketch	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	John Likoko Wanasunia	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation.
	Daniel Owino Wamunga	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Rose Achieng' Owenga	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Joel Brian Nakitari	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation.
	Brian Jeremiah Bodo	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Kevin Kanyuira	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Humphrey Nyaroche	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Peter Ogutu	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Edwin Guya Oyoo	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Thaddeus Ouko	Dep. of Agriculture, Fisheries, Livestock Development & Irrigation
	Jacqueline Mueni Katu	Dep. of Water, Environment, Natural Resources and Climate Change.
	Ludfine Kosome	Dep. of Water, Environment, Natural Resources and Climate Change
	Hazal Alai	Dep. of Water, Environment, Natural Resources and Climate Change
	Martina Rita Arina	Dep. of Lands, Physical Planning, Urban Development and Housing.
	Monica Oyanga	Dep. of Medical Services, Public Health and Sanitation

	Tabitha Oduor	County Attorney's office
	Caroline Agwanda	Dep. of Public Service, County Administration and Participatory Development.
	George Abwajo	Dep. of Public Service, County Administration and Participatory Development
	Emily Mikwa	Dep. of Finance, Economic Planning and ICT/e-Government
National Government (Research & Academia)	Prof. George Mark Onyango	Maseno University
	Dr. Daniel Ochieng Osewe	Maseno University
	Dr.Abel Otieno	Jaramogi Oginga Odinga University of Science & Technology.
	Hilda Nyaboke	Kenya Marine Fisheries Research Institute
Non-Governmental Organizations.	Rebeccah Wanjiru	Food and Agriculture Organization of the United Nations
	John Ogolla	Food and Agriculture Organization of the United Nations
	Winnie Yegon	Food and Agriculture Organization of the United Nations
	Jacob Wambaya	Practical Action
	Naman Ondego	Practical Action
	Rodgers Ochieng' Onyango	Save The Children
	Jenice Audi	Young Professionals for Agricultural Development (YPARD)
Consortium	Benjamin Ombuya Angir	Kilimo consultants
Community Based Organizations/Associations/Councils	Nixon Otieno Samba	City of Kisumu Urban Traders Association
Producer groups/CBOs	Caroline Okoth	Shinyolo Community Development.
	George Lawi	Aquaculture Association of Kenya
	Linda Ogweno	Youth Representative

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