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State of the City Food System Report

Mbale



AfriFOODlinks



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A stall in Mbale city central market displaying food of different varieties
Photo: ZIV photographer
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LINCS Value Framework



	<p>Learning</p> <p>The project stresses the value of experiential learning and that multiple ways of knowing are welcomed, deemed of equal value, and can be connected to enhance understanding. "NEA ONNIM NO SUA A, OHU" - "He who does not know can know from learning"</p>	<p>Inclusivity</p> <p>and deliberate engagement and empowerment of communities will enhance their agency and participation in decision-making for a people-centred and informed research, policy and practice. "FUNFUNEFU-DENKYEMFUNEFU" - "Unity in diversity"</p>	<p>Novelty</p> <p>represents the embracing of the new or unexpected, which necessarily requires diverse expertise, skills and perspectives. It includes the dismantling of inappropriate systems in favour of traditional or indigenous practices. "UAC NKANEA" - "UAC lights" symbolises technological advancement.</p>	<p>Collaboration</p> <p>To successfully ensure transdisciplinary work, societal actors must be continuously engaged to co-define the research objectives and questions, and to continuously contribute to meaning-making with the researcher as the research progresses. "BOA ME NA ME MMOA WO" - "HELP ME AND LET ME HELP YOU".</p>	<p>Sustainability</p> <p>is articulated both as the overarching global imperative to ensure economic, environmental and social wellbeing, and as the ethos that every project intervention must aim to become self-sustaining. "SANKOFA" - The backwards turning bird symbolises returning while looking forward</p>
<p>How does this deliverable contribute to each of the values?</p>	<p>This has involved a deep learning process connecting food systems understanding to urban systems understandings</p>	<p>The report entailed less engagement and a surface review but consultations with diverse stakeholders will now take place</p>	<p>This is one of the first reviews to connect urban systems and food systems knowledge and to assess the food system of a city as embedded in both the urban, the policy and the infrastructural contexts</p>	<p>This work involved convening different food systems knowledge specialists. More collaborative work will commence with this report service as the site of conversation</p>	<p>This report serves a key sustainability position. The wealth (per a broad definition) of society is embedded how society functions and that is embedded in context and the environment. The intersections between these sphere also needs mediation and governance. This report seeks to understand this process as a primary entry point to ongoing food system engagement.</p>
<p>How did you practice this value in this deliverable?</p>	<p>Through the initial brief and active engagement through the development of the report.</p>	<p>This process built the foundation for more inclusive conversations with diverse actors who impact the food system across the city</p>	<p>This report is novel and pushed researchers to engage diverse systems at the urban scale – food, urban, governance, health, policy, politics, etc.</p>	<p>This report was collaborative in terms of how it brought researchers together. However, it is a key tool upon which collaborative processes are now built</p>	<p>This report sought to offer greater understanding about the intersections of the three spheres and how these are mediated through the sphere, who governs these processes and how these enable or constrain outcomes.</p>



2. Executive Summary

2.1. Introduction

Urbanization in Africa is changing food systems in cities, posing challenges for their governance. This Food systems research conducted in Mbale city, was commissioned by AfriFOODlinks, an EU funded project that aims to improve food and nutrition security, while delivering positive outcomes for climate and the environment, and building social and ecological resilience. The AfriFOODlinks project focuses on promoting sustainable diets, transforming food environments, fostering inclusive governance, and supporting agri-food businesses. The starting point is the project Theory of Change (ToC) that seeks to address the systemic underpinnings of food insecurity and environmental impact, to lead to real food system transformation. The project proposes that infrastructure investment, social and cultural preference and, business innovation, are three drivers of food environment form, function and dynamics and is guided by the LINCS (Learning, Inclusivity, Novelty, Collaboration, and Sustainability) value framework.

The need for the Mbale city food systems research arose from: i) the lack of information on the state of the food and urban systems, ii) the desire to address the systemic causes of food insecurity and environmental impact and, iii) the desire to generate action-oriented knowledge and evidence base. The purpose of the research is to generate scientific evidence to inform actions geared towards transforming urban food systems in such a manner that tackles the systemic foundations of food insecurity and environmental impact. Specifically, the research sought to:

- Generate new urban food systems knowledge,
- Contribute to development of urban food system researcher network,
- Construct positions on multi-level governance, agri-food system entrepreneurship and innovation Urban food environments and
- To actively engage government actors while creating a project feedback mechanism.
- Main concepts: Food systems, Food sovereignty and sustainable cities

2.2. Methodology

Qualitative research methods were used to collect data through focus group discussions, interviews, field observations, and document reviews. Data collection focused on food systems stakeholders, food system governance process, entrepreneurial innovations and the food environment. The **data analysis** used an inductive approach to: a) describe food system stakeholders, their activities, challenges, opportunities, innovations, gaps in the food environment, linkages from production through trade up to consumption and, context of service delivery to the food system; b) process the data around the four main research components of the city food system: i) food system activities - supply, trade, distribution, consumption, ii) food system support services – inputs supply, extension services, transportation, business development, among others, iii) the roles of the stakeholders and their knowledge and experience of food system policies and institutions and, iv) the food environment, both natural and physical.



2.3. Key findings

2.3.1. State of Mbale city

- Mbale city is the fourth largest and one of the fastest-growing secondary cities in Uganda.
- The city has a strategic location with direct access to Kenya and other surrounding districts of the Eastern region of Uganda, and is a regional trade, investment and administrative hub.
- Mbale City, formed by annexing seven sub-counties and two town councils, encompasses 2,435 hectares, primarily of rural areas and only 4% area currently designated as urban.
- Mbale city has a well-established governance structure with a central administration at city level, subdivided in the Industrial and Northern divisions.
- With a population of 364,100 (61% in northern and 39% in industrial divisions) and a density of 534 persons per square km, Mbale city faces significant population pressure.
- Although economic infrastructure in the central business district such as roads, water, electricity, telecommunication networks is good and facilitates business, poverty levels are still high among the residents of the city, especially those in the annexed sub-counties who do not enjoy such infrastructure. The city still lacks the capacity to develop the much-needed basic infrastructure in the rural parts.
- Agriculture is the primary source of livelihood for 81% of the city population supported by a warm, humid climate with bimodal rainfall, fertile soils and ecological diversity. Continuous soil degradation and climate changes effects poses challenges to sustained productivity.
- Food supply in Mbale city is generally good, relatively cheap, with good amounts of local foods preferred by the community but food and nutrition security are still a concern for the poorer residents.
- Factors affecting the food environment in Mbale city making access to and utilisation of food a critical issue include: i) structural factors - food availability, cost, quality and market conditions; ii) human factors - convenience, desirability, accessibility and affordability; iii) population growth coupled with increasing dependence by city dwellers on markets for food; iv) poverty - linked to the large city informal sector from which residents earn low income, leading to dietary diversity and vulnerability and; poor food safety practices, among others.
- Mbale city's food and nutrition security initiatives focus on **training, partnerships, and policy** development.

2.3.2. Mbale city food systems baseline information

- There are three categories of the city food system stakeholders: a) the **value chain actors** who carry out inter-dependent activities which ensure flow of food products and money, b) the **value chain supporters** who provide various support services to ensure proper functioning of the food value chains and, c) the public and private institutions which coordinate and regulate the city food system.
- The regulatory environment includes national and local laws, policies, and regulations.
- The food economy in Mbale city is dualistic, with formal and informal sectors.
- Mbale city possesses various **food system assets and infrastructure such as** land for cultivation, rivers for irrigation, food processing firms, service providers and food system support organizations that **could support** food production, processing, and distribution and contribute to the city's economic development.

The current status of these assets and infrastructure however, may not have the capacity to support food system transformation. Farming infrastructure is dominated by subsistence farmers using low external inputs; only the central market is well developed but all the remaining eight markets are not developed and infrastructure is in a poor state; only about 50% of the city residents have access to piped water; electricity supply is unsteady and power outages are common; waste management in the city is still very poor; consumer infrastructure and awareness is still limited with consumers having limited knowledge of prices, seasonality, nutrition, sourcing and processing of food products, quality of food, the extent of food safety risk and limited feedback mechanisms and; food systems multi-stakeholder platforms supported by NGOs which provide information on food related issues and brings together all food stakeholders, is just emerging.

- Moreover, the food system assets and infrastructure do not take circular food economy issues into consideration.
- **Mbale city urban development challenges:** The city lacks a comprehensive physical plan and struggles with a growing population, inadequate infrastructure, environmental management issues, rapid expansion of slums, high unemployment, and a large informal sector. Land tenure issues further complicate development efforts.
- **Mbale city responses to development challenges:** Mbale city's development plan has prioritized the following strategies in response; i) improving post-harvest handling, storage, and processing of agricultural products to enhance market access and competitiveness. ii) increasing access to financial resources for agriculture, strengthening business development services, and establishing waste management sites for solid and other wastes, iii) organizing farmers into cooperatives, iv) enhancing access to agricultural extension services, v) developing comprehensive water catchment plans, vi) improving road infrastructure, and vii) implementing skilling and entrepreneurship programs for youth.

2.3.3. Mbale city multi-stakeholder food governance and processes

- Food system governance in Mbale city involves various public and private actors, though not well coordinated. It is understood to be the responsibility of city authorities.
- Modes and practices of food governance include implementing national level policies and procedures, licensing, enforcing regulations and laws, as well as collaboration with NGOs which is a new thing.
- **Challenges** to Mbale city food system governance include limited local revenue collection, insufficient central government cash transfers, staff shortages, and limited availability of land.
- **Opportunities** for improved food system governance include: i) the elevation to city status positions the city for direct funding allocation from central government for food system service delivery; ii) annexed sub-counties provide adequate space for development; iii) the presence of NGOs interested in supporting the city's food system and; iv) lack of a comprehensive physical plan present an opportunity to include food system transformation and circular food economy issues during its development.
- **Threats** to the city food system governance include: i) limited financial decentralisation, ii) encumbrances of city land and, iii) contradictory guidelines and directive regarding budget allocation for annexed sub-counties and national programs which have to be implemented outside administrative levels such as the Parish Development model.

2.3.4. Mbale city food systems entrepreneurial innovations and context

- **The Mbale city food system** hosts a varied network of food system actors engaged in a highly competitive context with small margins for each of them. Food system actors innovate by engaging in overlapping roles for their own survival. They form SACCOS to mobilise savings and extra capital, and join business development organisations for business development support.
- The **viability** of the food economy for smallholder farmers is questionable due to challenges of limited support and low prices, leading to low incomes, as well as the fact that other downstream value chain actors extract margins high enough for viability of their businesses, though with varying levels of profitability in a year, due to seasonality and market dynamics.
- **Mbale city** faces challenges in the agri-food economy which include:
 - Climate change effects and soil degradation due to poor farming practices.
 - Poor/limited infrastructure such as roads, piped water, sewerage management, electricity coverage, food storage infrastructure and telecommunication network.
 - Social economic challenges such as inadequate financing of the city operations, translating into inadequate service provision such as extension services and waste management.
 - Other challenges include poor management of food trade and structure, numerous middlemen dictating market prices reducing profitability for farmers and traders, poor access to and utilisation of agri-inputs, production challenges such as fake inputs, distribution challenges such as poor road networks, food handling and safety challenges.
- **Positive trends** in the agri-food system economy include; adoption of improved agricultural technologies, increasing awareness on food safety issues, and efforts to enhance standards through training and indigenous knowledge incorporation
- **Negative trends** in the agri food systems economy include; youth migration from farming, distribution challenges, and changing consumption patterns towards street food and food safety concerns.
- Stakeholder collaboration and transformative actions are needed to address challenges.

2.3.5. Mbale city food environment

- The food environment in Mbale city is characterized by availability, accessibility, affordability, and quality challenges.
- Food availability in Mbale city is sustained through sourcing internally and externally however, poor farming practices and inadequate infrastructure hinder efficiency, leading to significant food waste and losses, particularly during seasons of abundance.
- Food accessibility in Mbale city is generally good, with markets and vendors serving residents with fresh foods, but issues like overcrowding and unhygienic conditions affect access.
- Food quality and safety in Mbale city is of concern due to issues such as poor handling, storage, and hygiene practices and inadequate inspection capacity by the city authorities.
- Food affordability in Mbale city is reasonable during harvests but high prices outside harvests and rising transport costs impact affordability, hindering access to diverse food options.
- Majority of the city residents eat local food, in forms that are culturally appropriate to them.
- Urban and environmental planning plays a role in the food environment in Mbale city. The Central Business District has a well-developed central market and infrastructure which promotes formal food distribution and trade while outside the CBD, markets are underdeveloped and infrastructure is poor with prevalence of slums, resulting in food access challenges.

- Mbale city lacks a comprehensive environmental plan that takes into consideration the food environment. This has led to issues such as inadequate waste management.
- The natural food environment in Mbale city is impacted by climate change, poor farming practices, and land degradation.
- The built-in food environment includes markets, institutions, and food processing industries. These are impacted by challenges such as deterioration and overcrowding in the central market leading to some retailers moving onto the streets
- Opportunities to address food environment limitations include strategic investment prioritization to take advantage of abundant natural resources, the city's strategic position as a trade hub, the presence of various markets, though needing upgrading, capable governance, existing policies, and infrastructure improvements and the presence of multi-stakeholder platforms dedicated to addressing food system challenges.

2.4. Conclusions and recommendations

Mbale city has the potential to realise a sustainable, inclusive, competitive and resilient food system because it has relatively good conditions for agricultural production, it is a regional hub and is working in partnership with stakeholders who are interested in transforming the food system but faces challenges related to poverty, infrastructure, and governance. The city however, faces various challenges in terms of limited financial decentralisation, contradictory national guidelines for food system projects, lack of a vision for a circular food economy, as well as food accessibility, safety quality challenges that need addressing. We therefore, recommend that:

- 1) the city and food system stakeholders prioritise investment in **only few strategic value chains**, for example, matooke, herbs, fresh fruits and vegetables, for upgrade so that they are rendered more efficient, productive and job creating. The learning from such initiatives can then be used throughout the food system.
- 2) the city, **fight for its right to financial decentralisation**, through the network of Uganda Local Government Association (ULGA), so that it can attract funds to develop the city food system. In the meantime, the city should engage in raising funds off-budget for specific projects, with a clear participatory system of management
- 3) the city leadership develops a vision for **urban agriculture**, with a clear urban agriculture policy, with priorities for integration in a comprehensive physical plan.
- 4) the city uses the of the emerging food system multi-stakeholder platforms to develop clear strategies for **integrating food system and circular food economy issues**, especially infrastructure improvements.
- 5) the city should invest in developing the Good food council and parliament into a **multi-stakeholder food system governance structure** through capacity building - to engage in food system analysis, advocacy, tune their minds to food system and circular economy perspectives and, undertake their role to sustain food system transformation activities.
- 6) the city sustainable development strategies focus **on improving market conditions, infrastructure**, storage facilities and food safety, to ensure a reliable and efficient food supply.

- 7) the city applies a balanced approach that recognises and regulates **the informal food sector** while maintaining standards in the formal sector by fast tracking the development of Mbale business hub.
- 8) City leadership use the recent increment of agricultural extension budget for the city by central government to develop and implement a good **urban farming concept that embraces sustainable city food system and circular economy**. It should be accompanied by city staff training.
- 9) the city authorities engage stakeholders to enhance **consumer education** to address the major food safety challenges.
- 10) food system stakeholders under AfriFOODlinks project could engage in experiments to **encourage primary processing in the rural areas**, to reduce nutrient extraction and transition towards a circular economy.
- 11) AfriFOODlinks could use same schools targeted for awareness on dietary diversity to educate young people on **garbage sorting and training in conservation farming methods** such as agro-ecology.
- 12) the city and project stakeholders look for ways of attracting investment in **organic agro-input development**, in partnership with organisations like PELUM, AFSA and NOGAMU, already trying it out.
- 13) the project engages food system stakeholders to solve the problem of **garbage collection, processing and management**, for a more sustainable food system and to promote a circular food economy.
- 14) when the city gets to complete central market and upgrade the secondary markets, it will be important to plan for **appropriate food preparation facilities**, with **clean energy sources**, for the ladies who prepare food in the markets, in order to promote inclusivity of women MSMEs in a clean environment.
- 15) The city needs to urgently plan for and implement an upgrade exercise for the city abattoir, in order to mitigate the glaring food safety risks and make good use of the resource. Integrated in such a plan for the abattoir upgrade should be biogas production from cow dung.

Acronyms and abbreviations

ABD	African Development Bank
AFSUN	African Food Security Urban Network
ARIN	Academia and Research Institutions Network for scaling nutrition
BDO	Business Development Organisation
BDS	Business Development Services
BCU	Bugisu Cooperative Union
CAADP	Comprehensive Africa Agriculture Development Programme
CBD	Central Business District
CONSENT	Consumer Education Trust of Uganda
FANTA	Food and Nutritional Technical Assistance methodology
FAO	Food and Agricultural Organisation of the UN
FFV	Fresh Fruits and Vegetables
FGD	Focus Group Discussions
FRA	The Food Rights Alliance
GAIN	Global Alliance for Improved Nutrition
GDP	Gross Domestic Product
GFC	Good Food Council of Mbale city
GFP	Good Food Parliament of Mbale city
GVC	Global Value Chains
HDDS	Household Dietary Diversity Score
ICT	Information Communication Technology
ICLEI	Local government for sustainability organisation
IDI	In-Depth Interview
ISCC	Implementation Steering Coordination Committee of Uganda
IPC	Infection Prevention and Control
JWP-EEG	Joint Work Program for Equitable Economic Growth in cities
KII	Key Informant Interview
LINCS	Learning, Inclusivity, Novelty, Collaboration and Sustainability - value framework
MAAIF	Ministry of Agriculture Animal Industry and Fisheries of Uganda
MATIP	Markets and Agricultural Trade Improvement Programme

MCFSP	Mbale City Food Systems Platform
MIAMA	Mbale Industrial Area Millers' Association
MoLG	Ministry of Local Government of Uganda
MSMEs	Micro, Small and Medium Enterprises
MSNTCC	Multi-Sectoral Nutrition Technical Coordination Committee
MSP	Multi-Stakeholder Platform
MWE	Ministry of Water and Environment of Uganda
NAP	National Agriculture Policy of Uganda
NCC	Nutrition Coordination Committee of Uganda
NDP III	National Development Plan
NGO	Non-Governmental Organisations
NAADS	National Agricultural Advisory Services of Uganda
NEMA	National Environment Management Authority of Uganda
NNF	National Nutrition Forum
NPA	National Planning Authority of Uganda
NWSC	National Water and Sewerage Company
OPM	Office of the Prime Minister of Uganda
OWC	Operation Wealth Creation
OSBP	One Stop Border Post
PDM	Parish Development Model of Uganda
PCCN	Policy Coordination Committee on Nutrition of Uganda
RUFS	The Resilient Urban Food Systems project of Uganda
SUN	Scaling Up Nutrition program of the AU
SACCO	Savings and Credit Cooperative
UBOS	Uganda Bureau of Statistics
UNBS	Uganda National Bureau of Standards
UNCDF	United Nations Capital Development
UN DESA	Department of Economic and Social Affairs of the UN
UNEP	United Nations Environment Program
WHO	World Health Organization of the UN
UIA	Uganda Investment Authority
UMEME	National power distribution company of Uganda
UNFP	Uganda Food and Nutrition Policy
UNHS	Uganda National Household Survey
UNNAP	Uganda National Nutrition Action Plan
UNRA	Uganda National Road Authority
UNUP	Uganda National Urban Policy
VC	Value Chain



3. Section 1: Introduction

3.1. Institutional arrangements for commissioning the research

This State of the City Food System (SoCFS) Report for Mbale is a result of a research study which was commissioned by AfriFOODlinks, an EU funded project that aims to improve food and nutrition security, while delivering positive outcomes for climate and the environment, and building social and ecological resilience in 65+ Cities in Africa and Europe. The project focuses on five African "Hub Cities" namely; Cape Town, Tunis, Kisumu, Mbale and Ouagadougou; 15 "Sharing Cities" including: Windhoek, Lusaka, Quelimane, Arusha, Antananarivo, Bukavu, Tamale, Dakar, Chefchouen, Niamey, and Bruges, Montpellier, Lisbon and Milan (Figure 1), as well as 45+ network cities. Coordinated by ICLEI Africa, the project gathers 35 partners across the African and European continents. AfriFOODlinks is also a partner of the Millan Urban Food Policy Pact (MUFPP), a global commitment of mayors who consider food as an entry point for the sustainable development of growing cities. They voluntarily commit to act, through innovative urban food policies to transform their urban food systems (MUFPP, 2024). In Uganda, the AfriFOODlinks project is coordinated by Rikolto, one of the partner Non-Governmental Organisations (NGO), working for food system transformation in Mbale city. Rikolto is implementing the project in partnership with Mbale city authorities.

The AfriFOODlinks project aims to improve food and nutrition security, as well as urban sustainability in African cities by:

1. Applying an urban food systems lens to promote shifts to healthy, sustainable diets;
2. Transforming urban food environments through real-world socio-technical experiments;
3. Promoting inclusive multi-actor food system governance and;
4. Accelerating inclusive and innovative, women- and youth-led agri-food businesses.

AfriFOODlinks is underpinned by systems thinking, notably that by understanding the causal relationships between elements in a system, we understand the overarching system behaviours, at which we target our interventions. By implication, AfriFOODlinks engages a value framework that reinforces the practices of Learning, Inclusivity, Novelty, Collaboration and Sustainability (LINCS) across project activities. AfriFOODlinks invests in direct food system change in the Hub Cities while engaging in a mutual-learning journey together with the sharing and network Cities. It is against this background that AfriFOODlinks commissioned this food system research in Mbale city, aimed at establishing the state of the Mbale city food system. The assignment was carried out by a team of two consultants, from ZIV AGRI CONSULT, both experienced in food systems analysis.

From the theory of change, AfriFOODlinks aims to address the systemic underpinnings of food and nutrition insecurity, and environmental impact, to lead to real transformation. AfriFOODlinks views urban food environments as the key arena for improving nutrition and reducing environmental impact in African cities. This is because food environments are where residents make the choices about the food they eat and it is where the food security priorities of food availability, access, agency, utilization and stability manifest. AfriFOODlinks proposes three drivers of food environment form, function and dynamics. These are: infrastructure investment, social and cultural preference and, business innovation (Figure 1).

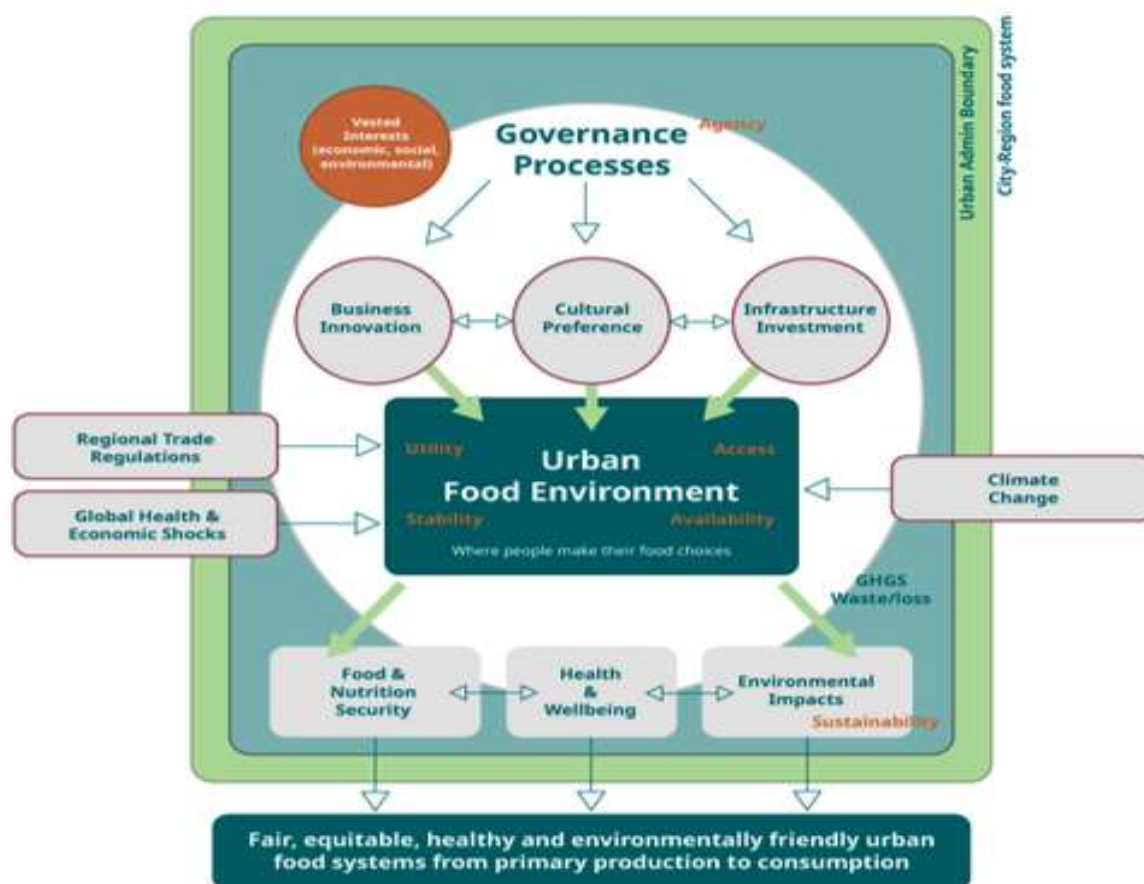


Figure 1: AfriFOODlinks project Theory of Change and mode of operating
 Source: Background document of the AfriFOODlinks project

3.2. Relevance of the research

Africa aspires to transform itself into a global power house as expressed in its Agenda 2063: “We aspire that by 2063, Africa shall be a prosperous continent, with the means and resources to drive its own development, and where: i) African people have a high standard of living, and quality of life, sound health and well-being; ii) Well-educated citizens and skills revolution underpinned by science, technology and innovation for a knowledge society; iii) Cities and other settlements are hubs of cultural and economic activities, with modernized infrastructure, and people have access to all the basic necessities of life including shelter, water, sanitation, energy, public transport and Information Communication Technology (ICT); Economies are structurally transformed to create shared growth, decent jobs and economic opportunities for all...”

There is a misconception that Africa is predominantly rural, with smallholders (Escudero and Forster, 2014), whose production supports local food systems feeding small urban centres (Battersby and Watson, 2018; Crush and Frayne, 2010). The colonial, post-independence and later liberalised governance approaches to urban management saw food as a rural issue, resulting in an agrarian-oriented approach to food governance (Haysom, Battersby and Park-Ross, 2020). Urban areas have little or no direct policy-directed mandate requiring urban food system governance (Haysom, 2015). Cities might have policies and mandates to manage components of the urban food system, such as informal food vending (Duminy, 2018) and waste management or public health (Smit, 2016). Engagement in urban food system governance however, is limited. According to AU (2014), food system policy and management in most African countries, is the responsibility of provincial or national governments, clearly evident in the Malabo Declaration and

the Comprehensive Africa Agriculture Development Programme (CAADP). This national scale responsibility for food security and wider food systems governance is further reinforced by donor agendas (See Smit, 2016).

Africa, however, is urbanising at a rapid rate (Pieterse and Parnell, 2014). The nature and form of this urbanisation differs across countries and regions (Pieterse, Parnell and Haysom, 2018; UN-DESA, 2019). As Africa urbanises and African cities, as well as, their food systems change as a result, governing these food systems increasingly have become an urban challenge. As urbanisation progresses, poverty and inequality become key determinants of how food systems evolve to serve the city residents. An African Food Security Urban Network (AFSUN) survey that used the Food and Nutritional Technical Assistance (FANTA) methodologies to assess the state of food security (Coates et al., 2007) in predominantly poor areas in 11 Cities in nine Southern Africa countries, found high levels of urban food insecurity. The main findings were: i) high levels of food insecurity overall (at 76%); ii) significant variation across all measures of food insecurity and consumption and; iii) The vast majority of poor urban households reviewed purchased their food. These findings imply that local conditions, household income levels and the cost of food are key food security determinants (Crush and Frayne, 2010).

The need for this study therefore, arose because of desire to: generate information on the SoCFS for Mbale, address the systemic causes of food insecurity and environmental impact, generate action-oriented knowledge and evidence base necessary for resilient urban food systems in African cities and, share lessons among a network of researchers on urban food systems.

3.3. Objectives of the Mbale city food systems research

Aware of the huge food system challenges facing African cities, AfriFOODlinks project made a strategic choice to conduct this ground-breaking research in Mbale city in order to establish levers for food system learning, in collaboration with other stakeholders. The purpose of the research is to generate scientific evidence to inform actions geared towards transforming urban food systems in such a manner that tackles the systemic foundations of food insecurity and environmental impact. The four specific objectives of the study are to:

- 1) Support the generation of new and path-leading urban food systems knowledge;
- 2) Actively contribute to development of urban food system researcher network in partner African cities;
- 3) Engage other AfriFOODlinks project work packages towards constructing positions on multi-level governance, agri-food system entrepreneurship and innovation and urban food environments;
- 4) Actively engage government actors in such a manner that creates a project feedback mechanism.

3.4. Conceptual framing of the Mbale city food systems analysis

In this study, we integrated three concepts. First, *food systems*, which is the main sensitizing concept. FAO describes a food system as “encompassing a range of actors and their inter-linked value-adding activities in connection with the aggregation, processing, 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 (FAO 2014). Sub-systems of the food system include input supply, farming and waste management, in interaction with energy, health and trade. Sustainability of food systems is critical, leading to food and nutrition security for all, while preserving and potentially enhancing the social, economic and environmental base for food and nutrition security for future generations. This

necessitates food systems transformation, so that they become more productive, inclusive, environmentally sustainable and resilient, while producing healthy and nutritious diets for all.

Second, is the concept of *food sovereignty* which, according to the Nyeleni Declaration, 2007, values the following:

- The rights of peoples to healthy and culturally appropriate food produced through ecologically sound methods,
- Producer rights to use and manage their land, territories, waters, seeds, livestock and biodiversity and to define their own food and agriculture systems,
- Local food producers, distributors and consumers, in the development and implementation of food system policies, and not corporations and,
- Freedom from oppression and equality between men and women, peoples, racial groups, social classes and generations.

Third, the concept of *sustainable cities* which are those that are: a) **environmentally sustainable** in terms of cleanliness and efficiency; b) **resilient to social, economic, and natural shocks**, for instance climate change; c) **inclusive** of all dimensions of society and all groups of people, in their markets, service delivery and their development and; d) **are competitive** – able to sustain productivity and employment generation for all their members (World Bank, 2022).

In order to streamline analysis while integrating the above concepts, the Ziv team applied the conceptual framework and method for national and territorial assessment, that evaluates the food value chain actors and supporters, their activities regarding value chain functioning, their interactions, the policy / institutional environments directly influencing their behaviour, as well as the social, economic and the natural environment they are embedded in (David-Benz *et al.*, 2022). Inherent in the framework is the concept of a circular city economy which aims for resilience, climate action and biodiversity conservation while offering tools for inclusivity and socio-economic development. The framework highlights long term drivers that determine the behaviour of actors and supporters, thereby generating impacts in different dimensions, which in turn, influence drivers via a number of feedback loops (Figure 2).

3.5. Linking the conceptual framework with food systems analysis

The framework emphasizes the important linkage between production and delivery, and consumption environments via value chain activities and processes, behind which are biophysical, territorial, infrastructure and governance drivers, leading to environmental, territorial, socio-economic and food security impacts, among others. Application of the framework starts with food system stakeholder analysis, their activities, roles, relationships, processes and how they behave in the various types of environment, in order to shape the functioning of the food system. Throughout our analysis, we have highlighted circularity issues according to the FAO definition a circular economy. “A circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimizing the generation of waste” (FAO, 2024). The food system analysis sought to ground recommendations for food system transformation in deep understanding of underlying food system issues in Mbale city by:

- Scrutinizing the key food system stakeholders, the roles they play now and how to enhance their contribution to food system transformation.
- Establishing baseline information on key aspects of the city food system.
- Highlighting key economy circularity issues.
- Highlighting entrepreneurial innovations.
- Revealing the unseen aspects of the city food system

This analysis forms the foundation of food system transformation, through identification of leverage points along and around food value chains, food environment, food system challenges, as well as strategies and activities for improving food system outputs and outcomes. By so doing, both competitiveness of and benefits from the food system to all stakeholders, are enhanced, thereby creating job opportunities that accommodate new entrants, such as the youth, women and other vulnerable groups, through self-employment and employment by others.

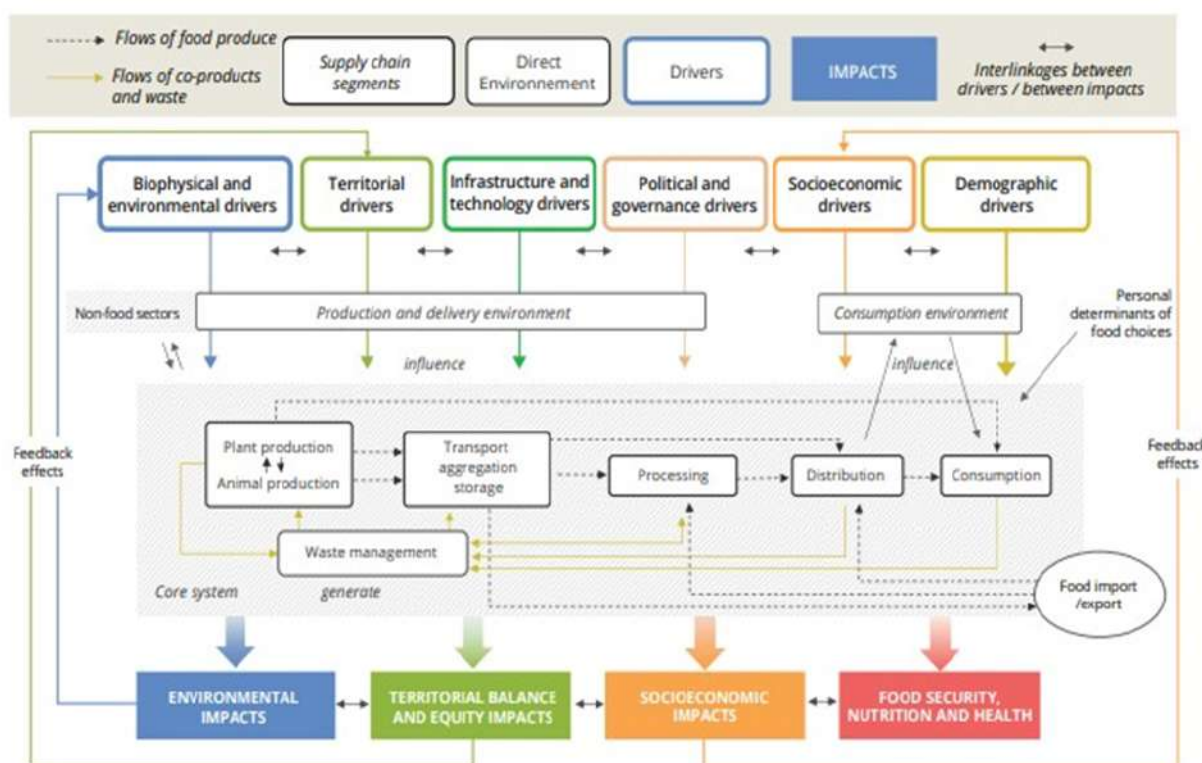


Figure 2. Analytical representation of the food system

Source: David-Benz H., Sirdey N., Deshons A., Orbell C. & Herlant P. (2022). Conceptual framework and method for national and territorial assessment.

3.6. Scope of work

The food system analysis focused on data collection from key Mbale city food system stakeholders selected in consultation with Rikolto. The criteria for stakeholder sampling focused on typical stages of a value chain, including the actors, supporters, institutions, as well as drivers of the whole system. The analysis describes Value Chain (VC) actors and their activities from production, through post-harvest handling, to trade, and the VC supporters from input supply to Business Development Services (BDS) delivery, among others. Data that gives indications to types of horizontal and vertical linkages among, and the role of, food system stakeholders, were also analysed. Challenges faced by the city food system, opportunities for improvement, indications of entrepreneurial innovations and gaps in the food environment, were highlighted.

In the following section, we present the methodology used to collect and analyse the data, followed by a description of Mbale city in section three. Section four discusses the Mbale city food systems baseline information while section five presents the multi-stakeholder food system governance structure and process. They are followed by the food systems innovations in the entrepreneurial and business context in section six. Section seven describes the Mbale city food environment, followed by the unseen aspects of the city food system. In the last section of the report, we draw some conclusions and make recommendations to AfriFOODlinks for transforming the Mbale city food system.



Mbale city food system actors at work
Photo: ZIV photographer

4. Section 2: Methodology

The city food system analysis was conducted in a participatory, professional and ethical manner, with sensitivity to issues of rights, gender and culture of all the stakeholders. Anonymity and confidentiality of individual informants was protected to the extent required by the laws of Uganda. Since AfriFOODlinks already selected the target city, the selection approach described below is for the different categories of respondents within Mbale city.

Primary and secondary qualitative data were collected through participatory approaches like Focus Group Discussions (FGDs), In-Depth Interviews (IDIs), Key Informant Interviews (KIIs), field observations and review of food system related literature at project, Mbale city, national, East African, African and international levels. These techniques were employed in order to allow for triangulation of data gathered. At least one participatory approach was applied to each category of stakeholders in order to gain concrete, contextual and in-depth knowledge about the state and functioning of the Mbale city food system, the issues and challenges it faces and possibilities for transformation.

Although the Terms of Reference (ToR) for this research emphasized the use secondary information through literature review, this was not appropriate for the Mbale SoCFS research because the city is very young, only two years old. Both scientific and grey literature on Mbale city is rather scanty, making engagement with the wider literature quite challenging. Even the few literature sources available on Mbale covers the period when it was still a municipality. The Mbale SoCFS research therefore, necessitated a different approach, through interactions during interviews with a wide range of food system stakeholders. Clearly elaborated interview guides, based on key questions in the ToR and sub-questions generated from consultants' experience, and customized to specific roles of the stakeholders were, used to generate state of the art data, for the Mbale SoCFS research.

4.1. Food system analysis design

The food system analysis was designed to be participatory and inclusive, iterative and reflexive, and based on contemporary thinking about food systems, in view of utilising the research as part of the AfriFOODlinks tool for mobilising various stakeholders to learn together about their own food systems with the aim of transforming it. It was participatory and inclusive through ensuring the involvement of the different stakeholder categories. It was iterative and reflexive to ensure rigour in the generation of evidence on Mbale as a city, the current SoCFS, the food environment, the food system governance and innovations in the food system business context. The design was underpinned by the conceptual framework and method for national and territorial assessment of food systems (David-Benz, *et al.*, 2022) that enables a comprehensive analysis, considering the flow of food, co-products and waste, the direct food environment, drivers and impact of the food system, as well as inter-linkages between them.

In line with a participatory and inclusive approach, the study used a purposive stratified sampling approach that took account of: (i) all aspects of the city, (ii) food system stakeholders including value chain actors, supporters and regulators. Consequently, the sample of interviewees comprised stakeholders from the various departments of Mbale city, input suppliers, producers, processors, aggregators/traders, market vendors, NGOs, agri-food business organisations, city dwellers – both high-end and low-end, hotels and restaurants, vulnerable groups of city residents – women and youth. Interviews with each of these stakeholders were important for analysing the structure, functionality and issues within the Mbale city food system.

Continuous improvement of the process and outputs of the research was assured at the following two levels:

- Every morning, following each data collection day, the consultants met the research assistants, to review progress, establish information gaps and agree on how to address them.

- Rikolto AfriFOODlinks coordinator and the consultants held a total of three review and reflection meetings, which were helpful in shaping the direction and scope of the food system analysis.
- The Rikolto AfriFOODlinks coordinator, AfriFOODlinks reviewers and the city food system stakeholders, provided feedback on the draft inception report.

4.2. Targeting

The preliminary document review, exchanges with Rikolto and listening in on AfriFOODlinks conference of the network of researchers, guided identification of the city food systems stakeholders that defined the sampling frame. The targeting of stakeholders included individual or groups of actors, and supporters, purposively selected, based on the consultant's understanding of the TOR, specifically the following key aspects:

- Individuals and groups from each stakeholder category - selection process considered male and female youth, well-off and poor, educated and uneducated, as well as vulnerable stakeholders and those who are not vulnerable.
- Indicative sub-sectors important for the Mbale city food system namely: maize, meat, and Fresh Fruits and Vegetables (FFV) which are important for city residents, and, stakeholder associations and interest groups.

The consultants collected data from 12 focus groups of representative value chain actors of about 10 10 each, making 120 people; 32 representatives of value chain supporters and 12 key informants, engaging with and considered to be knowledgeable about Mbale food system. The consultants generated data, with the involvement of 164 respondents.

4.3. Data collection process and output

ZIV consultants developed interview guides for each method of data collection. An outline of topics relevant to the assignment objectives was developed to guide literature review. Interview question guides for KII, IDIs and FGD were designed with open questions customized to each type of respondent, in order to ensure collection of relevant information. In addition to the question guides, ZIV research assistants used probing questioning techniques to seek clarification where necessary. Some key questions regarding food system functioning and challenges were posed to all stakeholder categories, with the aim of using the various techniques of data collection to triangulate key data.

4.4. Data collection methods and tools

In order to collect data that can provide answers to the city food system questions, ZIV team used KIIs, IDIs and FGDs interview guides for primary data collection and a document checklist for literature review (Table 1). Data collection tools were customized to the objectives of the food systems analysis. The interview guides were adapted according to specific roles of interviewees in the city food system.

Desk review: Key documents were reviewed at the preparatory stage to facilitate tool development and report writing, in order to respond to key food systems analysis questions. All the documents reviewed are listed in the reference list. The documents were selected purposively based on key questions agreed upon with AfriFOODlinks. Documents internal to AfriFOODlinks were obtained from the Mbale city

AfriFOODlinks coordinator. Other documents were retrieved from the websites of the relevant sources, as well as through google scholar.

Table 1. Summary of Data Collection Methods, Tools, Target Respondents/Sources and Sample Sizes

Data Collection Methods	Data Collection Tools	Target Respondents/ Sources	Sample Sizes		
Document Review (98)	A document checklist	Selected project, city and national policy documents AfriFOODlinks project documents National government laws, regulations and policy documents and plans Internal documents of project partners (Rikolto, ICLEI) East African Community food systems related African Union food systems related documents Documents from international organisations	Journal articles = 28		
			Reports = 33		
			Policies, law and strategies, programs - 41		
FGD (12)	FGD guide	Representative groups of value chain actors	Industrial	Northern	City
		Women / farmer groups	1	2	
		Youth / farmer groups	1	2	
		Urban poor	1	2	
		City farmer association			1
		City traders association			1
IDIs (32)	IDI guide	Representatives of value chain supporters			
		Input sellers	1	2	
		Whole sale buyers	1	2	
		Produce processors	1	2	
		Retail traders (Super markets/market vendors, ..)	3	6	
		Consumers/Food processors (hotels, road side, ..)	3	3	3
		Finance institutions			2
		Business development service providers			3
KII (12)	KII guide	City Mayor and technical staff			8
		NGO Representatives			
		AVSI			1
		RUFS			1
		Technoserve			1
		Rikolto			1

Notes: Both the youth and women groups included farmers, although the main activity of the groups was not farming but rather they main activities in the city.

The review covered both scientific and grey literature on food systems in Mbale city. Search engines including Google scholar, PubMed, Science Direct, as well as websites of Springer, Frontiers, CGIAR CG Space, John Wiley, among others, were used. Ugandan University research websites including Makerere, Kyambogo and Kampala International, as well as websites of government and international institutions involved with food systems, for instance; the Food and Agricultural Organisation (FAO), World Bank, World Health Organization (WHO), USAID/ Feed the Future, Global Alliance for Improved Nutrition, Food systems Dash Board, UNEP, were also visited.

The literature search was guided by key words such as: food system related policies / strategies, urban food systems environment, food economy, food systems governance, among others. Priority was given to more recent literature published in the past ten years (2013 to 2023). Of the documents retrieved (over 600), 98 were found to be relevant to the study. Of these, journal articles were twenty-eight (28), reports were twenty-nine (29) and policies, laws, regulations and strategies, constituted the remaining forty-one (41).

4.5. Data quality control and field work management

- a) **Data collection process:** All data collection tools were prepared in English and translated into Luganda and Lumasaba, for those who do not feel comfortable to respond in English. Interviews were conducted face-to-face, by well trained, qualified and multi-lingual research assistants, in English, Luganda and Lumasaba, using the interview guides at venues selected by the participants. Participants were encouraged however, to use their local languages whenever they did not feel comfortable to express themselves in English.
- b) **Collaboration with AfriFOODlinks Coordinator:** In order to ensure high response rate and successful tracing of food system stakeholders, the AfriFOODlinks Coordinator provided the contacts of some of the stakeholders, and supported the ZIV team to identify a city guide, who made the appointments ahead of the interview date. The city guide facilitated the mobilization of the interviewees.
- c) **Quality control for interviews:** Supervision of data collection by the research assistants was done by the two ZIV consultants in order to ensure adherence to the food system analysis protocol and verification of data quality. In addition to this, re-interviews on specific questions were done on phone with selected interviewees to seek clarification and fill in gaps, the day following the interview, in order to verify specific aspects of the data collected, where necessary.

4.6. Ethical considerations

ZIV Consultant developed and utilized approaches that addressed security and ethical concerns including informed consent, confidentiality of data source generated and an introduction to research back, objectives and why the stakeholder was selected. Both the informed consent statement and the research introductory letter, signed by AfriFOODlinks coordinator was given to all interview participants on first contact. Before each interview, the enumerators read to the interviewee the informed consent statement, seeking their consent prior to the interviews. Each interview is free to decline the interview, or interrupt it, if during the interview they change their mind.

4.7. Data analysis

The food system analysis used an inductive approach to organise the data around the four main study questions on: i) food system activities - supply, trade, distribution, consumption ii) food system support services – inputs supply, extension services, among others, iii) the roles of the stakeholders and their knowledge and experience of food system policies and institutions, iv) the food environment – natural; and physical. In addition, it used a concept/theory-informed analysis (abductive) that is based on the conceptual framework and method for national and territorial food system assessment (David-Benz, 2022). It also integrates principles of a circular economy of rethink, regenerate, reduce, reuse and recover (ICLEI, 2024). This approach helped to frame data analysis around key aspects of an ideal city food system, the challenges being faced by the Mbale city food system and levers for transformation.

4.8. Data verification and output

Following data analysis and preparation of a draft report, three levels of input was obtained into the report. Comments were obtained from Rikolto staff, a panel of AfriFOODlinks reviewers and most importantly,

from city food system stakeholders, in an input gathering, data verification and report dissemination workshop. During the workshop, the long version of the executive summary report was presented, followed by group discussions on all sections of the report.

4.9. Methodological limitations

There were difficulties in making prior appointments for data collection and the days allocated for data collection were very few. Furthermore, some interviewees were not able to keep the appointments and some of them had only half an hour, due to other competing priorities related to their work. These limitations were addressed through: (i) walking into offices and requesting participants for a little of their time, (ii) sharpening the focus of each interview based on the role of the individual or group of participants, (iii) follow up of appointments by Ziv consultants after initial contact by city guide and, (iv) employing more research assistants than planned.

5. Section 3: State of Mbale City

The city profile is presented under five aspects; the spatial and temporal context, history, administrative structure, Demographic characteristics, Natural Endowments and Social-economic infrastructure. Figure 3 presents the area and actual location of Mbale city in Uganda and East Africa.



Figure 3: Map of Uganda Showing the Location of Mbale City

5.1. Spatial and temporal context of the city

Mbale city is located at 34° 10' East of the prime meridian and 1° 03' North of the Equator, near the foot of Mt Elgon, an extinct volcano, 4,321 meters (m) high. Mbale is in Eastern Uganda, 256 Kilometres (Km) from Kampala via Tororo and 220 Km via Tirinyi. The city is about 51 Km from the Malaba and 69 Km from Busia One Stop Border Posts (OSBP), respectively, and 54 Km from Lwakhakha border, both between Uganda and Kenya. This location of Mbale city, with multiple and direct access to Kenya, makes it a strategic and an attractive business hub in the region, for facilitating trade links and investment (UN Habitat, 2011). Mbale is bordered by Tororo District in the south, Manafwa District in the south-east, Sironko District in the north-east, Kumi District in the north, Budaka District in the north-west, and Butaleja District in the south-west (Figure 2).

5.1.1. The History of Mbale city

The name Mbale is derived from the local native Lugisu word “*kamabale*”, which means ‘stones. The city and surrounding areas have many different types of stones which are used for construction of houses and roads. Mbale developed as a commercial centre for Arab slave traders, Indians who came to construct the railway line in 1896, and later attracting Indian traders. Eventually, Mbale became the Government’s administrative centre for the eastern region. The city emerged at the beginning of the 20th century in 1903, when Semei Kakungulu, a Muganda chief and an ally in the British Military and colonial campaigns, was instructed by his bosses to transfer the regional headquarters from Budaka in the then Bukedi district, farther east, to the current Mbale District. Before that, by the end of 19th century in 1900, the area known today as Mbale was not inhabited and comprised of grasslands, forests and swamps (Mbale City, 2020).

According to Mbale City (2020), “Mbale was gazetted as a regional centre in 1906, and by 1951, the town had built modern Offices on plot 62-68, on what is now called Republic Street. Mbale was the first town to be granted Official status as a municipal council on the 1st March, 1962. For 58 years, from 1962 to 2020, Mbale has been a municipality. The current Mbale city, the fourth largest town in the country, was among the cities created on July 1st, 2020”. The city serves as the capital of Mbale district and is now a regional business hub. Since 2020, the city is making strides as it transitions from municipality to city status. There has been some improvements of infrastructure in the city in The Central Business District (CBD) and the high-end residential area (senior quarters), is involved in partnerships with NGOs to improve its food system, and more importantly, the city recently (April, 2023) signed the Milan Urban Food Policy Pact (MUFPP). By signing the MUFPP, Mbale city voluntarily commits itself to: improve its governance for effective action, promote sustainable diets and nutrition, promote urban farming for food production, support improved food supply and distribution and; work with stakeholder to curb food loss and waste.

5.1.2. Area coverage and current administrative structure

Mbale city covers a geographical area of 2,435 hectares (UN Habitat, 2011). The city has been established by annexing seven sub-counties Namanyonyi, Mutoto, Namabasa, Bukonde, Nakaloke, Lwaso and Bukasakya, as well as two town councils of Nakaloke and Nauyo-Bugema. These were added to what was then known as Mbale Municipality. All the annexed sub-counties are mostly rural with smallholder farmers, implying that about 85% of the city is devoted to subsistence farming while about 4% is the urban area. The remaining 11 % is covered by forest and wetlands (pers comm. political leaders). Important to note that the annexed areas, are beginning to urbanize due to the spill over effects of the growth and development of the municipality over time, however, they are not yet up to the standards of a city. The city is now sub-divided into two divisions which are substantive body corporate Local Government Councils - Industrial and Northern, with 58 wards and 389 Cells, listed in Annex (A1).

5.1.3. Climate, soils, vegetation and agricultural environment

Mbale is characterized by comparatively small seasonal variations in temperature, humidity and wind throughout the year. The climate is, generally warm and humid, influenced by its proximity to the equator and its position at the foot of Wanale Ridge. Mbale receives relief rainfall that is distributed ranging between 1250 mm and 1750 mm per year. The rainfall pattern is of bi-modal distribution with the rainy peaks from mid-March to mid-May (long rains) and from September till early October (short rains). The dry season stretches from January to March/April and June to August. The rainfall peaks vary considerably from one year to another. During the intervening dry periods light showers or even heavy rainstorms can be experienced, resulting into a relatively favourable distribution of rainfall throughout the year, sufficient to sustain growth of annual and perennial crops.

Mbale is dominated by Gneiss-Granulite complex with some quaternary sediment soils. These soils are in the last stages of tropical weathering and their volcanic nature renders them fertile for support of plant life, especially for the upper planes. Some of the soils are influenced by the Mount (Mt.) Elgon volcanic rocks and the soils on the slopes of Mt. Elgon, mainly classified as Acrisols, Ferralsols, Nitisols and Luvisols. These soils are relatively young and fertile with high concentration of calcium, sodium, and potassium. Consequently, land use planning has incorporated arable farming. There has been a continual depreciation in plant nutrients resulting in soil degradation and lowering of productivity in areas under continued cultivation. The basement complex is firm and stable rendering it ideal for the development of housing for high density settlement although now, only a small part of the city is developed presenting a modified vegetation cover with limited traces of natural vegetation (Mbale city, 2020).

Mbale experiences a humid tropical climate, with a relatively consistent average temperature of 23.0 °C throughout the year. The temperature tends to be warmer in lower elevation of the sub-region, for instance Mbale city, compared to the higher elevation areas near Mt. Elgon. Mbale city lies at the foot of the Wanale ridge which is part of the Mt. Elgon range. The soils within the city are predominantly clay loam, receiving water and nutrient flow from the higher parts of the sub-region. A combination of these soils, suitable temperatures and the three rivers, mentioned above, which drain the city, makes Mbale city suitable for agriculture. Crops, commonly grown in Mbale city include bananas, maize, beans, sweet potatoes, horticultural crops, and Irish potatoes.

5.1.4. Water resources and drainage

The city is drained from east to west by three major rivers that have their sources on Wanale Ridge. River Nashibiso and its tributary Napwoli drain the southern part of the town, bound by an extensive forest reserve. River Nabiyonga and its major tributary Namatsio drain across the northern area of the town. Several primary and secondary drains have been developed to originate from within the town area and drain into these rivers. Both rivers and their tributaries, drain into River Namatala that forms the Northwest boundary of Mbale city (Mbale city, 2020).

5.1.5. Land use

Mbale city is surrounded by a rich agricultural hinterland which serves as a food basket for local and foreign markets. Agriculture as a land use type is associated with the rural part of the city (the annexed sub-counties), especially in Northern city Division where rice fields have been established in the wetlands, and in other areas within the city where subsistence agriculture is practiced. The north-eastern part of the city however, experiences dry spells. The typical crops grown in the city include rice, maize, potatoes, cassava, groundnuts, beans, greens among others. The city is prone to environmental degradation, with the entire area at high risk. Crop pests and disease incidences pose significant risks to agricultural areas. Moreover, the lowland area along Budaka is highly susceptible to flooding (CultivAid, 2021).

An important part of the city is being used to establish industries, especially considering the role of Mbale as a regional commercial and administrative centre. The Industrial division of the city has been developed commercial processing of agricultural produce, light engineering work and warehousing. The notable ones are; Kyagalanyi Coffee Ltd, Bugisu Cooperative Union Coffee Mills, Mountain Harvest Coffee factory, Mbale Soap Works, Kathiawar Engineering Works (KEWs), Ntake Bakery Ltd, Uganda Trade and Industrial Enterprises, Mt. Elgon Millers, Manufacturing and Assembling plants in Sino-Uganda-Mbale Industrial Park, among others.

5.1.6. Demographic, religious and cultural context in relationship with food

Considering culture as attitudes and behaviour characteristics of a social group, demographic and religious context are both important in shaping the cultural context within which food is produced and consumed in the city. The population size of Mbale Ccty is 364,100 (53% female and 47% male). Northern division hosts 61% of the city population, predominantly engaged in subsistence agriculture, while Industrial Division hosts the remaining 39%, engaged in various types of industrial activities. An estimated 50% of the city population is the youth (pers. comm. city technical staff). The average household size is 4.4 persons per household in 2014 with 108,813 households (UBOS, 2018). The city population is multi-ethnic comprising, among others of the basoga, bagwere, baganda, banyankole, itesots, langi and the bagisu or bamasaba which is the main ethnic group. The main languages spoken is Lumasaba and Luganda.

Majority of the households (95%) are Christian, implying few restrictions on food production, trade and consumption (pers comm. city guide). Polygamy is common but children belonging to different mothers, usually live in different households. This practice has resulted in relatively large families, from 4.16 children per household, translating to eight to 15 children per household head (Akoyi, 2017). While such households have more labour for food production, they also have many more children to feed, and they incur many other costs related to child welfare. Although women and children contribute more to food production, the men who control most of the productive resources, especially land and money, sometimes sell the bulk of the food, leaving women and children food insecure (MWE, 2019).

The land population density is 534 persons per square Km, an indicator of high population pressure, and is correlated with the subsistence nature of food production, on small plots. A big part of the population (81%) derives their livelihood from agriculture, 4.5% from formal employment, and 3.9% from various economic activities (business, cottage industry and property income). The remaining 10.6% of the city population depend on family, organisational and other support (Mbale city, 2020). A combination of the demographic characteristics, relatively fertile soils and adequate rainfall, assures enough supply of a variety of food to the city population at affordable prices.

Although city residents consume a wide variety of food, the Bagisu are particularly attached to a local delicacy of matooke and *malewa* (young bamboo shoots) because they believe in the legend that the first Mugisu man, Masaba, emerged from a cave on the slopes of Mt. Elgon where he fed only on '*Malewa*', which grows there wildly and widely. This belief is also linked to food production practices which worsen landslide occurrences in Mt. Elgon. The Bagisu believe that whenever they are faced with danger, especially natural disaster, they should move upwards, on the higher parts of the mountain, where Masaba dwelt (pers comm. cultural leader). As more people move higher up, they cultivate more fragile land that exacerbates landslide occurrences.

Another important aspect of culture in Bugisu, intricately linked to food is the circumcision ceremony, for young men called *Imbalu*, which is held once every two years (even years) soon after the main harvesting season. The *Imbalu*, is an initiation ceremony of teenage boys into manhood. It is a big feast for the whole community – eating and drinking together, as they mark an important transition in the life of young men. Traditionally, *Imbalu* involved dancing around the whole region, led by the young men and escorted by the young women of the village. This goes on for months, with a lot of eating and feasting by the community including preparation of local brew, the *malwa*, traditional alcoholic brew from finger millet (African Bible University, 2019). Traditional food is prepared and shared by the whole community as they witness the

young men dancing, weeks ahead of their circumcision. The ceremony used to take place once every year, but this was changed by the Bagisu elders, as copying mechanism in this modern age where the young men are in school, and food is becoming scarce.

5.2. Mbale city governance structure

In Uganda, decentralization and local governments are provided for in the constitution and is further consolidated in the Local Governments Act 1997. While in urban settings, there are city, municipal, division/town, ward and cell councils, in rural areas, there are districts, counties (without a council), sub-county, and parish and village councils (Figure 4). Mbale city Council has a well-established Governance structure which manages the day-to-day activities of the city. There are two functional administrative levels, the city and the Division Council, under the leadership of elected political leaders. While governance and policy direction are managed by the political leaders, policy implementation is the responsibility the technical staff of the city.

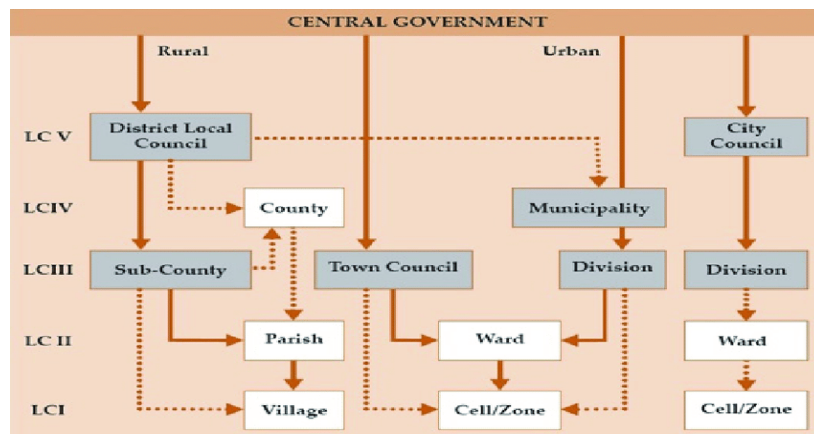


Figure 4: Typology of Uganda local government governance structure
Source: Mbale city strategic plan

The city political leadership is headed by the City Mayor, who forms the Executive Council, from the 27 council members elected to represent various constituencies at the city level. The council elects the Speaker who leads the city legislative assembly. The mayor nominates four members of the Executive for approval by majority council members, to become secretaries to the different Sectoral Committees, namely; Finance and Administration, Social Services, Works, and Gender and Community Development.

Technical staff are recruited to the city administration to support the political leadership in implementing the city programs. This administrative structure is headed by the city Clerk, who also doubles as the advisor to the city Council on legal, technical and administrative matters. The city Clerk is the Chief Executive and Accounting Officer of the city Council. He is also the supervisor of Council staff who are deployed in the two divisions of the city. Each division is headed by a Senior Assistant city Clerk who also chairs the Division Technical Planning Committee Meetings. To enable coordinated policy implementation, the technical team is organized into city departments including headed by department heads; city and General Management, Public Health, Engineering, Audit, Finance and Planning, Production and Marketing, Education Sector and Community Based Services. These departments are managed by different Heads of Departments. They do the implementation and monitoring of departmental activities and give reports to the Accounting Officer who is the Town Clerk.

5.3. Overarching economy of the city

The economy of Mbale city reflects the Ugandan economy. Uganda's food system involves a significant proportion of its population, with 72% engaged in agricultural activities, most of them smallholder farmers (World Bank, 2022). Despite the heavy dependence of small-scale, informal actors in the food system and the economy however, participants often do not receive fair economic returns. Moreover, the food system is experiencing changes at food production, processing, packaging, and marketing levels, driven by factors such as growing urbanization and increasing disposable incomes, liberalisation of prices and trade among others (FAO 2023).

With a population of about 364,100 people, Mbale is the fourth largest and one of the fastest growing secondary cities in Uganda. Mbale city is a major business gateway for the districts in Eastern Uganda in terms of trade (Mbale city, 2020). Furthermore, the city's proximity to Kenya also provides it with opportunities for various economic activities and trans-border trade (Cities Alliance, 2020). Although economic infrastructure in the Central Business District (CBD) in terms of roads, water, electricity, telecommunication networks, among others, is good and facilitates business, poverty levels are still high among the residents of the city, especially those in the annexed sub-counties who do not enjoy such infrastructure. The city still lacks the capacity to develop the much-needed basic infrastructure in the recently annexed rural sub-counties (pers. comm. city political leaders).

5.4. Mbale city infrastructure

The city has a fairly good infrastructure in terms of roads, markets, industrial park, linkage with the national water and sewerage system, connection to electricity grid, telecommunication, among others. This is especially in the Central Business District and senior quarters (the high-end residential area). **This** road network benefited from the World Bank funded support to Municipality Infrastructure Development Program (MIDP) just at the time it was declared a city (Mbale City, 2020). In a span of five years, the city increased its road network from 51 Km in 2015 to 375 Km in June, 2020 out of which 40.5 Km is paved, 23.1 Km is gravel and 311.4 Km is earth (Mbale City, 2020). Besides constructing new roads, some old city roads were rehabilitated including Republic Street, Pallisa Road, Mugishu Hill Road and Nabuyonga rise, which link the city to neighbouring towns such as Nakaloke, Kamonkoli, Namanyonyi, and Bukasakya, all of which are entry points for food from rural areas into the city. The Uganda National Road Authority (UNRA), has also tarmacked the Mbale city – Lwakhakha road that links Mbale city to Kenya via the Lwakhakha Border. Despite these investments however, roads in the rural parts of Mbale and general road maintenance in the city remain important challenges, mainly due to limited financial resources (Mbale City, 2020).

5.4.1. Modern market and food storage

Using funds from the African Development Bank (ADB), the Government of Uganda built and modernised Mbale central market, with the aim of promoting mostly the marketing of agricultural produce and other merchandise as well (ADB, 2023). The new market which was commissioned in 2014 currently hosts 3,760 vendors but is facing numerous problems of poor garbage management, limited food storage space, general dis-organisation of the market, with some vendors selling in the corridors and leakages. These problems have led many vendors to abandon the market, with some of them moving to sell mostly food on the verandas of the market, mentioning low revenue from sales because many customers fear to buy food from such a flooded market, with poor food safety and shopping conditions. (pers. comm. Central market vendors; The Independent, 2023). All these challenges impact negatively on availability of food to consumers. Despite the challenges experienced by market vendors, street vendors are being urged by the city authority to leave the streets and operate from the market (The New Vision, 2020). Overall, Mbale has insufficient food storage facilities and the only food bank in Mbale is located outside the city (Watuleke, 2015).

5.4.2. The Mbale industrial park

The city also has an Industrial Park located in Doko on the Mbale -Trinyi Road. The Sino-Uganda Mbale Industrial Park sits on a 2.51 square Km land and hosts 13 large scale Chinese enterprises worth \$160m (The New Vision, 2020). According to the Uganda Investment Authority (UIA – 2018) the Mbale Industrial Park was planned for processing of grain, especially wheat, fruits, dairy and coffee, however, most of the industries located there currently are engaged in non- agricultural related activities such as glass, textile and garments, electrical cables, household detergents, televisions and phones, led bulbs. The establishment of the park also has attracted several businesses in its vicinity such as hotels, as well as other grain and coffee milling businesses, for instance, Mt Elgon millers that process wheat (New Vision 2020). Although the Park developer marketed ambitious goals in terms of total planned investments (US\$ 600M), export volumes (US\$ 400M) and job creation (12,000 jobs), these targets are yet to be met (UIA, 2018).

5.4.3. Electricity and water

Electricity in Mbale city and its surrounding is supplied by the national power distribution company (UMEME). According to UMEME (2020) there has been increased demand for electricity in recent years, following the establishment of the Sino-Uganda industrial park and some industries therein. Demand for electricity which previously grew by one percent per annum, jumped by five percent in 2019 alone, above the 61MW mark. As a result of the growing demand for electricity, UMEME is currently upgrading its electricity network in Mbale city (UMEME, 2023). UMEME has also constructed the new Siti II hydro power plant to provide sufficient and stable power to the industrial park (UMEME, 2020).

On the one hand, other industries, residences and commercial centres surrounding the industrial park, have also benefited from the increased and more stable power supply. On the other hand, Mbale city still experiences rampant electricity outages within the CBD that affect businesses negatively (The Daily Monitor, 2023). The water coverage supplied by National Water and Sewerage Company (NWSC) in terms of piping is fair with 70% of the city residents having access to piped water but coverage in city slum areas is quite low. Moreover, water supply is limited. The city also has several protected springs that provide clean water to residents to supplement piped water. The water supply in the city, however, especially in the higher parts of the city, in the annexed sub-counties, is affected by the low water table, limited water supply, the mountainous terrain which require more powerful pumps and the high cost of piped water (Mbale city, 2020).

5.5. Mbale City Food and Nutrition Security

Food security is a state where “all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2023). This definition highlights: the physical availability of food, economic and physical access to food, food utilization and stability of the other three dimensions over time. Like many cities in developing countries, population growth in Mbale has made access to food a critical issue since a sizeable proportion of the population depends on the market for their food. Even though supply of food in Mbale city is good and food is relatively cheap, compared to other cities in the country, the food environment in this city is affected by structural factors such as food availability, cost, quality, market conditions and human factors such as convenience, desirability, accessibility and affordability. All these factors are interlinked with food from harvest, market sources, wild foods and transfers and they have an impact on food and nutrition security.

In its projected acute food insecurity and malnutrition analysis of 2020-2021, the Infection Prevention and Control (IPC) classifies the food and nutrition security status of Mbale city to be in a crisis phase, with only 45% of Mbale city residents being food and nutrition secure, 40% of the residents are food stressed while the remaining 15% are experiencing food crisis. Most of the affected people in the city were the poorest households who had lost or mismanaged their livelihoods, especially by selling productive assets like land to buy *boda bodas*, which does not generate much in some areas. Others include those who had lost their employment, their secondary sources of income and households relying on the informal sector for a livelihood. (IPC, 2020). Another factor that contributed to the high food and nutrition insecurity levels in

Mbale city was the Covid-19 restrictions and its secondary effects, especially loss of employment and its consequent negative effects on income generation. Other factors included high fuel prices that led to increased food prices, climate change effects and low consumption of diverse foods (FEWSNET, 2021).

Some categories of household members are more prone to malnutrition than others, for several reasons: women more than men since they often sacrifice their foods for other household members; children under five, mainly because some parents who produce a diversity of food, sell most of it for cash but cannot afford to buy back the variety; school going children in the city because some of them go to school without breakfast and without cash to buy food, those with cash spend on unhealthy food (mainly *mandazis*); low income and vulnerable people such as the elderly, the urban poor and street children; adolescent girls more than boys because the girls become selective on what they consume (pers. Comm. city health officer). Other causes of food and nutrition security include the high consumption of staple foods such as maize (posho), rice, beans, and matooke by city residents, which could lead to nutrition deficiencies (Mackay, 2019). There is a direct correlation between consumption of less nutritious staple foods in Uganda with stunting and wasting in children (Amaral, *et al*, 2018). Malnutrition is less among male youth compared to the female and to other vulnerable groups because many of them work and can afford a variety of food, purchased at various intervals during the day.

5.5.1. Current food and nutrition security responses at national level

The main food and nutrition responses are in form of laws, policies and plans which are designed at national level but with prescription of local government mandate in their implementation. The starting point for Uganda's response for improving food and nutrition security is the 1995 Constitution that recognizes food and nutrition security as a fundamental right. Consequently, the laws, policies, standards, regulations and strategies outlined in tables 3 to 6 below, constitute the responses made by government.

Through its Vision 2040, Uganda aims to achieve 80% food security and 75% of nutrition security across all age groups and geographical locations by 2025 (NPA, 2018). To achieve this, Uganda has undertaken through its third National Development Plan (NDP III) and the third Agriculture Sector Strategic Plan (2020/21– 2024/25) to promote agro-industrialization programs intended to increase commercialization and competitiveness of Ugandan agricultural products and value addition through agro processing so as to increase export value of selected agricultural commodities (coffee, dairy, fish, livestock and a range of staple crops). Furthermore, through the implementation of the National Agriculture Policy (NAP), 2013, government hopes to ensure household and national food and nutrition security for all Ugandans through promotion of agricultural enterprises that generate regular incomes to support food purchases, encouraging the production and consumption of nutritious foods, including indigenous foods, the adoption of mixed enterprises to support household food and income needs, the provision of appropriate storage facilities to improve post-harvest management of food, adoption of appropriate food production practices and development of regional markets for locally produced food products. According to the National Planning Authority (NPA) however, the implementation of this policy, however, is weak (NPA, 2018).

Uganda has also developed the second Uganda National Nutrition Action Plan, 20/21-24/25 (UNNAP II) that targets children under five, school age children, adolescents, pregnant and lactating mothers and vulnerable groups to: improve their nutrition; increase their access to and utilization of nutrition-specific services and; strengthening the enabling environment for scaling up nutrition-specific and nutrition-sensitive services, all of which converge at national level in the National Nutrition Forum (NNF). Table 2 summarises the NNAP II nine-level implementation framework that starts at the national level to regional, districts and Cities down to the municipalities and parishes/wards (OPM, 2020). In addition, the following networks exist under the Scaling Up Nutrition (SUN) arrangements, at the country level: SUN Development Partner Group (DPG) Network; SUN Civil Society Organization (CSO) Network; SUN Business Network (SBN) and; SUN Academia and Research Institutions Network (ARIN).

Table 2: The Implementation and Coordination Framework of Uganda National Nutrition Action Plan

Number	Coordination levels (National)
	The National Nutrition Forum (NNF)
	Policy Coordination Committee on Nutrition (PCCN)
	Implementation Steering Coordination Committee (ISCC)
	Multi-Sectoral Nutrition Technical Coordination Committee (MSNTCC).
	Ministries, Departments and Agencies (MDA) Nutrition Coordination Committee (NCC).
	Regional, city and district NCCs
	City division NCCs
	Municipal NCCs and regional city division NCCs
	Municipal division NCCs and sub county/town council NCCs
	Parish and ward NCCs

Source: Uganda National Nutrition Action Plan II 2020/21-2024/25 (OPM, 2020)

5.5.2. Current food and nutrition security responses at Mbale city level

Although the UNNAP II implementation and coordination structures exist at Mbale city level, their functionality is constrained by limited understanding of the roles of the various structures by the technical staff of the city, as well as limited specific budgets for their operationalization (Namagumya, *et al*, 2021). These challenges notwithstanding, several activities to promote food and nutrition security have already been undertaken by the city's production and marketing department such as trainings in food production, management, value addition and marketing, yield enhancing and agro-industrialization based technologies; post-harvest handling, sustainable land management; profiling of service providers along the value chain, farmer groups and institutions and; capacity building of farmers in food safety skills, supported by private partners programs such as RIKOLTO's food smart city project (Mbale city, 2022).

The city is also in the process of passing an ordinance on food safety aiming to streamline the work of all stakeholders in the food system to be a city where safe food is consumed (pers. Comm. Elgon FM). The city has also invested in partnership with NGOs such as Rikolto and RUFs to promote food and nutrition safety in Mbale city (pers comm Rikolto, RUFs). Some of their activities include a training of market vendors in food safety in 2022, setting up agribusiness incubators in the horticultural sector for the youth, encouraging sustainable rice production through increasing market access for farmers by establishing village stores, organizing collective sales and other initiatives and; facilitating the formation of the Mbale city food platform aiming to 'identify and prioritize actions needed to empower small holder farmers with skills on sustainable agriculture' (SLU, 2022). RUFs interventions in Mbale city focus on assessing key vulnerabilities to urban food systems; facilitating a process of coming to agreement on the key priority areas and/or policies or actions; supporting decision-makers to develop evidence-based policies and activities SLU (2022).

5.6. State of nutrition transition

Nutritional transitions involve a shift from diets rich in complex carbohydrates and nutritionally dense foods, to foods that are more processed, less nutrient-dense, and high in fat, salt and sugar (Mackay, 2019). Urban centres in Uganda are amid a nutrition transition characterized by changes in diets from a traditional less processed, plant-based diets to a more 'Western dietary pattern' consisting of high intake of more refined foods, such as red and processed meats, sugar, fats and oils, refined carbohydrates and low fibre intake (Auma *et al*, 2019). On a positive note, Mackay (2019) revealed the dominance of more traditional diets in Mbale city, with major sources of foods for city residents remaining largely local markets and neighbourhood shops and consumption of staple foods such as maize meal (posho), rice, beans, matooke,

vegetables and sugar which is less suggestive of a theorized nutrition transition in urban settings. The use of supermarkets as a source of food is limited to specific items and like other studies conducted in Kampala that suggest its use as a source of food is not as advanced as in other African cities (Mackay, 2022). The only suggestion of a transition to processed foods was the tendency to eat out in restaurants and consume street/snack food common among young single males and University students. They consume mainly street fried foods such as *rolex*, vegetables and fried chicken which are cheap and high calorie, for purposes of convenience, sociability and to avoid cooking (Mackay, 2022).

5.6.1. Nutritional deficiencies

The World Health Organization defines nutritional deficiency as “insufficiency of essential nutrients or impaired nutrient utilization” (WHO, 2023). City residents on average, consume staples, vegetables, spices, sugar, oils and fats. Products such as milk, fruits, meat, fish and pulses are consumed in reduced amounts according to the Uganda National Household Survey (UNHS) conducted by UBOS. Findings reported in the first UNNAP I (2011-2016) indicate that Ugandans consume monotonous and unvaried diets, which frequently cause micronutrient deficiencies. The findings confirm that the diet of Ugandans is poorly diversified with the contribution of staples (cereals, roots and tubers) forming half of the diet at 55 percent. At the aggregated average, majority of households in Mbale city have low or medium dietary diversity (Household Dietary Diversity Score - HDDS score 4). The food groups consumed consist predominantly of cereals (largely maize), roots, tubers and other staples (largely matooke), legumes (largely beans), and sugar at these low and medium categories (Mackay *et al.*, 2022).

5.6.2. Vulnerable groups

According to UNNAP II, nutritionally vulnerable groups in Uganda include young children, women of reproductive age, expectant and lactating mothers, school going children, persons with low incomes and refugees. Poverty and low incomes also increase vulnerability to nutrition in Uganda (FAO, 2023). In Mbale district, an estimated population of 12,000 people live in informal settlements of Namakwekwe, Nabuyonga, Nkoma Namatala, Mooni / Mukhubu and the contemplated population constitutes majorly women, girls and the youth who are generally vulnerable especially when food and water is scarce. Mbale city has a large informal sector and few opportunities for formal employment, a situation which makes people in such situation, vulnerable to food access and dietary deficiencies, especially since financial resources are a key determinant (Mackay, 2019).

Categories of vulnerable people include the unemployed, self-employed and the underemployed. Single young men in Mbale city were the most vulnerable to food and nutrition insecurity because they had unstable incomes, few or no assets, no or limited access to land, less rural support and even in cases where land was available, lacked the financial means to develop it (Mackay, 2019). Furthermore, Mbale district has frequently been exposed to landslides leaving communities devastated and, in many cases, internally displaced, a situation which affects the city as well. Such communities and those facing food insecurity or extreme poverty, at times access food assistance programs provided by the government, NGOs, or community-based organizations. Besides these groups, some school children and the informal businesses trying to make a living can also be considered vulnerable due to their dependence on external support.

5.7. Food and nutrition system challenges faced in the city

At production level, the food and nutrition system challenges in Mbale city include heavy dependence on rain fed agriculture, which limits production of food to the vagaries of seasonality. Yet, due to climate change extreme circumstances such as flooding and landslides that destroy food crops are increasing, leaving the city vulnerable to food insecurity. Other challenges, especially limited use of improved

technology such as seeds and fertilizers combined with low soil fertility is contributing to low yields. There are other land related issues including lack of land ownership by women who are the main food producers, by youth, land fragmentation and land wrangles in general. Poor agronomic practices, poor quality of agricultural inputs and reckless application of agro-chemicals, lead to food safety, health risks and environmental degradation. In addition, limited value addition capacity, low prices for farmers' produce and poor techniques of post-harvest handling of food affect food quality and safety. All these factors have a negative impact on the city's food and nutrition situation (Mbale city, 2020).

In downstream stages of the food value chain, Mbale city, like in other Ugandan cities, has challenges related to how food is transported, sorted, processed, and marketed. Most food value chains are characterized by malpractices and poor sanitation due to lack of awareness and poor market infrastructure necessary for food safety. This creates a high risk of food safety, especially fruits and vegetables, being contaminated with germs, chemicals and other physical matter that renders food unsafe for consumption. Food handling and therefore, quality in Mbale city is also affected by poor balance of power between traders who control the market and famers who supply the food. As traders strive to compete against each other or hoard produce to drive the prices high, they engage in poor handling, transportation and storage of food. Absence of pack houses for FFV processing and a general inadequate infrastructure such as poor road networks to the rural food supply area, disruptions in electricity, inadequate water supply and poor food storage infrastructure, especially in the markets all negatively affects food quality and hence the city food and nutrition situation.

Stakeholders have a divided opinion on the issue of consumer awareness of food safety risks. While a city official contends that awareness among consumers, of food safety risks is very low, CONSENT affirms that consumer awareness has increased greatly due to sensation efforts by the AfrFOODlinks partner. The challenge remains low consumer purchasing power which indicates a trade-off between food quality and affordability, on the one hand. On the other hand, even when consumers are aware of the risks, low risk alternatives are not easy to come by. Generally, the lower income consumers find difficulties in buying enough good quality food for the family while the higher income consumers tend to be selective in their purchase of food and individually devise various means of solving the problems.

“Having observed the reckless spraying of tomatoes with fungicide at Mbale central market to prevent rotting, I decided to be responsible for buying tomatoes for my family and not my wife. From the tomato whole sale areas, I choose tomatoes which are half ripe and can stay in store before use for at least 2 weeks. By the time the tomatoes are ripe, the chemical has waned”
NGO staff in Mbale



The nagging issue of poor food handling
Photo: ZIV photographer
November, 2023

6. Section 4: Mbale City food system baseline information

This section documents the baseline situation of key aspects of the Mbale city food system early in the AfriFOODlinks project, as an input into other tasks of project and the foundation of future progress monitoring. It includes food system stakeholders, the regulatory environment, the food economy, food system assets, food safety, food infrastructure, interventions and the challenges faced. Policies and institutions which are also important components of the food system are described under section 5 of the report. To streamline analysis of baseline data, ZIV consultants prioritised the Maize, FFV, and meat value chains, as the most important for ones for Mbale city food system. These are examples used to gain a deeper understanding of value chain functioning as the core of the food system. Data collection on food system drivers, impacts and groups of food system stakeholders however, engaged a broad range of stakeholders, regardless of the value chain.

6.1. Food systems stakeholders

Food system stakeholders comprise of actors, supporters and institutions which are embedded within the economic, social and the natural environments, playing different roles at various stages of the value chain. They focus on specific value chains within a food system, while engaging in processes of interactions with each other, according to their roles of innovations within the food system (Table 3). The value chain concept has been identified as a good instrument for characterizing food systems (Gereffi et al, 2005).

Table 3: An overview of Mbale city food system stakeholders

Stakeholder	Description of activities and role in the city food system
Individual stakeholders	
Agro-input dealers	Are both wholesalers and retailers who source and distribute inputs for production, storage and preservation, within the food system.
Smallholder farmers	Are individual producers engaged in agriculture, raising plants and animals for food or raw material, determine 90% of the outcome of what they produce depending on the production practices they employ to produce safe or unsafe food products and whether they engage in sustainable production or not, are at the upstream end of the food value chain, producing for own consumption and for sale to other food system actors.
Vendors	Ensure that food and associated services are available to consumers. They have the power to catalyse collective action to incentivize healthy, sustainable and nutritious food consumption in cities through; co-creating innovative inclusive business models for the distribution and retailing of quality food, professionalising farmer organizations and increase market inclusion.
Consumers	Exert effective demand for food products by purchasing the food they need. A transparent food system makes it easier for consumers to make a sustainable choice. Consumers have a great influence towards a holistic integrated implementation of sustainable patterns of food consumption and production”, by demanding a more sustainable and equitable agri-food systems.
Farmer organizations / groups	
BYEFFE foods company Limited.	A group of youth who came together in 2014 to produce and process pumpkin aiming to improve nutrition of pregnant mothers and children; they mobilize out growers and offer them extension services.
Biodiversity/organic farming group	A farmer group Miale Community Garden, in Mooni village, 4 Km from Mbale that promotes organic farming through a demonstration garden and training other farmers, according to the Slow Food Philosophy.

Bugisu Cooperative Union (BCU)	Is one of the oldest Cooperative societies in the country, bringing together Coffee farmers, helps in coffee quality control, primary processing and collective marketing. Although coffee production is done individually.
Business Development Organizations (BDO)	
Mbale Industrial Area Millers' Association (MIAMA)	An association of 77 mill operators with 92 mills, mostly involved in milling maize, rice, cassava flour, millet. They also have a SACCO for supporting members with – www.Ftfugandaiam.org ; MIAMA supports its members to trade efficiently, attain bigger market share, credit through its SACCO, has linked its members to SITOOWA an online platform that connects farmers, manufacturers, distributors, and producers to potential buyers (Feed the Future Uganda inclusive Markets, 2023).
Neighbourhood Food Store Mbale	A store primarily engaged in wholesaling and retailing a general range of food products
Market traders' associations at Mbale Central market and other secondary markets	Brings together market vendors in order that they may join hands to solve some of the problems they face in their business. It is also a platform for a common voice to engage the city officials when demanding for their rights or pressing for a solution to a specific problem.
Food transporters association	Brings together food transporters in a Savings and Credit Cooperative Society (SACCO) which supports members in savings mobilization and lending to each other to grow their businesses. The SACCO also helps members with linkages to business deals and collective bargaining.
Market committees: at central and the secondary markets	Coordinate market running, provide a platform for food exchange and facilitate the distribution of food from producers to consumers by various vendors. For the secondary markets, the associated committees are smaller than the one in the central market
Several NGOs supporting food system transformation around the city	
i) Rikolto	Rikolto is testing a model to incentivize access to safe, sustainable food for urban dwellers in traditional markets, using interventions to drive change in three food system pillars: sustainable food production in partnership with FFV producers around Mbale city, inclusive markets that deliver benefits for farmers, food vendors and consumers in partnership with market vendors, and an enabling environment that creates the conditions for the model to be scaled up in more markets in partnership with the Good Food council.
ii) The Resilient Urban Food Systems project (RUFUS Uganda)	RUFUS Uganda initiated the formation of a Multi-Stakeholder Platform (MSP) called Mbale city Food Systems Platform (MCFSP), bringing together all food system stakeholders to prioritize and initiate processes and activities which promote sustainable horticultural production through financial resource mobilization, farmer training, institutional capacity building, environmental protection, partnerships and networking, research and knowledge generation, as well as gender inclusiveness.
iii) The Food Rights Alliance (FRA), a partner of Rikolto, member Good Food Council (GFC)	FRA is a Ugandan organization that fights inequality to champion the sustainable end of hunger and bring about sustainable access to and consumption of adequate, safe and nutritious food for all, through advocacy for the widespread adoption of 'a World Free from Hunger' in Uganda.
iv) Consumer Education Trust of Uganda (CONSENT), a partner of Rikolto, member of the GFC	CONSENT strives for a socially informed, equitable and just society through empowering consumers, promoting of ethical practices among businesses and engaging policymakers to enact pro-people policies. It implements projects on – consumer education, food and agriculture, trade and economics, utilities and services, health and environment, by engaging in research and building partnerships with various stakeholders.
SHONA	A partner to Rikolto, promoting innovative, inclusive and circular food businesses contributing to food security. Such include women and youth led businesses. SHONA in partnership with CONSENT, FRA and Rikolto, have set up the GFC and GFP – a food system MSP.
Technoserve	Facilitating Business development services

Regulatory Bodies	
The Uganda National Bureau of Standards (UNBS)	The Mbale city office of UNBS is responsible for fulfilling the mandate of: i) Formulation and promotion of the use of standards; ii) Enforcing standards in protection of public health and safety and the environment against dangerous and sub-standard products; iii) Ensuring fairness in trade and precision in industry through reliable measurement systems; and iv) Strengthening the economy of Uganda by assuring the quality of locally manufactured products to enhance the competitiveness of exports in regional and international markets, for the whole of Eastern Uganda.
Mbale City Council Authorities	
Mbale City Council	The city council is comprised of elected political leaders whose role is to give policy direction to the city. They oversee the implementation of government programs at city level, according to their mandate. Examples of programs are: PDM, the MATIP program, among others. They are mandated to make ordinances in all matters affecting the city including its food system. For instance, the council is currently being supported by Rikolto to develop an ordinance on food safety (Rikolto, 2023). For implementation, they are supported by a technical team organised in key departments, listed below:
The Mbale city administration	Headed by the city town Clerk, the administration avails a functional and supportive infrastructure, such as water, electricity, roads, markets, among others, which are pivotal for the processing, distribution and storage of food. The administration coordinates all departments of the city, described under this section.
Agriculture and Production Department	Headed by the city Production Officer, the department coordinates the implementation of government policies and programs on food production and extension services, including: monitoring the use and management of food production facilities, monitoring and detecting threats to food production such as pests, diseases and vermin and ensuring their control, identifying and promoting appropriate food technologies and best practices, identifying and informing farmers about potential market for farm produce, identifying and implementing measures to prevent and or contain food shortages, among others.
Physical planning	Headed by the Senior principal Economic Planner, the department is responsible for ensuring that the city's physical spaces are well planned to improve the physical and socio- economic welfare of the city dwellers. It has a vision "to attain orderly, progressive, sustainable urban and rural development as a framework for industrialization; provision of social and physical infrastructure, agriculture modernization and poverty eradication".
Health	Headed by the city health officer - ensures that sanitary conditions are present in rental homes, neighbourhoods, schools, markets, restaurants, hotels and other public or private locations.
Community development	Headed by a community development officer - promotes participation of communities in development initiatives implemented by the city, for instance the PDM.
Trade, industry and investment	Headed by the city commercial officer, the department is responsible overseeing implementation of policies and strategies to promote trade, industry, tourism, wildlife and cooperative services in the city; transforming homesteads from subsistence to market-oriented farming; licensing of trade within the city, developing cooperatives and offering other trade development services. The department also works with UNBS to determine quality standards and brands of agricultural produce. It also oversees the Mbale city central market.
The Mbale City Central Market Master	Appointed by the city authority and supervises the central market and activities of market vendors to ensure smooth running of the market, implements laws and ordinances that affect the market and its operations. S/he, collects taxes, market dues and seasonal fees from market vendors; ensures quality control of foods sold in the market and their conformity to the guidelines developed for the markets; assigns stalls to market vendors; is custodian to documents of market policies and procedures; maintains a clean and attractive market and enforces penalties on

	vendors whose stalls are left dirty. S/he also develops and prepares emergency plans addressing accidents, injuries or fire out breaks (MOLG, 2020).
Market management committees for central and secondary markets	Elected by the market vendors, the committees handle day to day market issues such as electricity and water supply, garbage disposal, as well as security in the market.
The Natural Resource management department	Headed by the city natural resources officer, the department is responsible for implementing the council's policies, aimed at conservation, sustainable use of natural resources, proper sanitation and environmental management.
Institutions: Schools, hospitals and prisons	These are big institutions in the social sector that consume large quantities of food. Some schools and the prisons produce and process their own food. Most however, buy directly from farmers or traders. Some even produce their own. Hospitals always buy food and prisons solely produce their own food.
Food Manufacturers/ Catering Service Providers	
Hotels, Restaurants and outside catering services	This category of stakeholders are food retailers. They are a potential market for large volumes of food products at wholesale prices. They usually require various food safety or quality certifications. Producers are usually required to meet specific guidelines for product handling, packaging and labelling. Examples in Mbale are: Mbale Resort, Rocy Hotel, Elgon Palace, Mt. Elgon, Sunset hotel, Wash and wills, Cosmo, hot soup, among others.
City Food Street Vendors	Street food vendors serve a big proportion of the city population because they avail meals at affordable prices to low-income consumers. Vendors, therefore, have the power to catalyse collective action to incentivize healthy, sustainable and nutritious food consumption in cities if supported to co-create innovative inclusive business models for food retailing. In Mbale city, examples are food vendors in corridors behind republic street and market street.
Media organizations	
Elgon FM; Step radio	The media plays an increasingly vital role in driving widespread change in diverse aspects of the food industry through promoting food systems innovations according to their technical, discursive and social variables that influence urban lifestyles and approaches in food production and consumption. The radios also expose malpractices by various food system stakeholders, especially reckless use of agro-chemicals. They also raise awareness among the population on sustainable food system practices. Elgon and Step radios are some of the active media companies in Mbale city.
Central Government Ministries	
Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), of Trade and Industry, (MoT) of Cooperatives and Marketing (MCM), of Health	These Ministries develop national policies and regulations and prescribe the mandate of the local governments in the implementation in order to create an enabling environment for the sustainable growth and development of food system businesses. Examples of the policy directions include provision of extension services, food safety, livestock disease control directives, among others. In Mbale city, all these ministries are represented by local government officers of the city government.
Urban poor	
Slum dwellers	The slum dwellers are an important group of consumers of food in the city. They are many and have effective demand for low priced food on the streets. They are mostly in slums around the eight secondary markets around the city.

Source: Author's compilation based on primary data and literature review

6.2. Value chain actors

Value chain actors operate within the chain, exchanging goods and money. They engage in various inter-dependent value adding activities and processes at each node of the chain, in some hierarchy among themselves (Vermeulen, *et al*, 2008; Akoyi, 2017).

6.2.1. Production stage and environment

The key actors dominating the production stage in Mbale city are smallholder farmers in the rural sub-counties recently annexed as part of the city, as well as those in the seven districts of the Mt. Elgon sub-region. They produce food and supply other value chain actors in and outside the city. Most of them produce coffee, inter-cropped with bananas, Irish potatoes, beans, fruits and vegetables, among others, suitable for the coffee-banana agro-ecological zone, on plots of 0.5 to 2.5 ha. While most farmers within the city produce individually, those in the rural parts of the city have organized themselves in farmer groups to champion specific interests. For instance, Byeffe Foods Company Limited, a youth farmer group, promoting pumpkin production and processing, with 5000 farmers. Other farming activities in the city take place along the banks of river Namatala (Nalumansi, 2022).

Due to population pressure coupled with the cultural land inheritance practices which require fathers to divide family land among sons of the family, land fragmentation has worsened over generations. This has led to small pieces of land available to families, as well as a general scarcity of land. It is reflection of what happens nationally. In Mbale sub-region, farmers maintain their plot sizes by acquiring other pieces of land elsewhere in addition to inherited plots, with some having up to 6 plots. Acquisition of extra plots is only possible for better off farmers. For the rest, economies of scale are eroded and they eventually look for other off-farm livelihood sources (Akoyi and Maertens, 2018; Cultivaid, 2021; Naklezi, 2017). Most of the land in Mbale city is customarily owned implying that the land may not be titled, with less tenure security. Government only recently tried to improve tenure security of slum dwellers, by recognising their land rights issuing them land titles (Global Land Tool Network, 2022).

Public in Mbale city too is limited but some improvements were made recently, when in 2015, Government allocated Mbale city 400 out of the 520 hectares of the Watoto forest reserve, held under the National Forestry Authority (NFA) since the colonial days. This land will now be used for expansion of the Mbale city (InfoNile, 2021), though it is not yet clear how the city authorities plan to utilize this land. In general, however, land use planning for food production around the city is inadequate, with food production taking place in wetlands (for instance rice) and fishponds competing for space with infrastructure such as schools (PML Daily, 2022). Consequently, Mbale city authorities are encouraging residents to carry out backyard farming, evidenced by several backyard gardens observed around the city (Mackay, 2022). Majority of the city leaders however, wish to hold on to the agricultural production as an important part of the city (pers. comm GFC).

The smallholder farmers engage in predominantly subsistence agriculture, using rudimentary tools, mainly the hand hoe and family labour (Cultivaid, 2021; Mackay, 2022). Most of them grapple with poor methods of farming, poor access to markets for their produce, poor quality of seeds, poor preservation method, counterfeit agro-chemical inputs and recklessly applying them. Farmers' hopes for safer fertiliser alternatives were dashed when the Mbale compost plant, set up in 2010 by the National Environment Management Authority (NEMA), Makerere University, National Agricultural Advisory Services (NAADS), and the World Bank to process solid waste into organic fertiliser, was abandoned due to poor management. With the bi-modal rainfall pattern and relatively good soils, Mbale city has a conducive environment for food production although in the recent past, farmers have experienced many disruptions of the normal rainfall patterns due to climate change (Cultivaid, 2021). Consequently, farmers in Mbale are increasingly

embracing ground water irrigation (New vision, 2023). Soil fertility has also greatly reduced and yet there are no efforts in ecosystem restoration.

Activities at this stage do not reflect any thoughts or move towards a circular economy. We did not come across stakeholders practicing or thinking about agricultural production methods that consider regeneration of resources, for instance sustainable agriculture, agro-ecology, organic agriculture, among others. Instead natural resources are utilised for food production, using unsustainable production methods which pollute soils and water, and food either consumed or supplied to other actors in the city but nothing comes back.

6.2.2. Aggregation, trading and processing

There are two categories of value chain actors at this stage, with overlapping roles. First are the rural traders, brokers and company agents. These are many, running small enterprises with turn-over ranging from UGX 10 to 20 million. Commonly referred to as middlemen, they are mostly unregistered and unregulated. They buy food products from the farm gate and sell to bulkers and/or processors/exporters. When they buy fresh produce, especially FFV, they engage in primary processing (sorting, washing and cleaning), before onward selling to market vendors and other traders in the city. Some of the middlemen are stationed on farms and / or collection centres in the rural areas.

Second are the aggregators / bulkers / wholesalers / processors, who in the case of FFV, are mostly market vendors combining the three roles and retailing within markets as well. They also engage in some processing. In the case of maize and other grains, millers dominate this stage. They have both stores and processing plants. According to the millers' association leaders however, processors usually avoid stocking big volumes due to the risk of spoilage in storage. Instead, they link their purchases to orders of cleaned and milled grain products (pers. Comm. MIAMA leaders). Some processors, provide processing services to other food system actors. The bulkers/millers are usually larger in size, buying mostly from the middlemen and export mostly to buyers in Kenya. They vary in size, with turn over ranging from UGX 10 million to UGX 200 million. These are mostly based in the Industrial division of Mbale city. All actors at this stage take food as raw materials from farms but are not engaged in processing some of the waste into other products for use on the farms. In areas of production, processing mills are non-existent.

6.2.3. Distribution and export stage

Distribution of food in Mbale city targets both the city and export markets. For the local city markets, market vendors, wholesalers and millers, as well as food manufacturers (hotels, restaurants and street food vendors) are the main actors. They carry out secondary processing, through further cleaning, sorting, further, drying, packaging and distributing to various outlets within the city. Mbale city central market, is the main point of food distribution to city residents (pers. Comm. Market vendor). Most vendors in the smaller secondary markets around the city also source their foods from wholesalers in the central market. They are mostly MSMEs whose turnover is about UGX 10 to 50 million. Other actors at this level include small grocery shop owners who sell mostly dry rations and FFV kiosk owners selling fruits and vegetables on the roadside. These types of SMEs are much smaller, with turnover of about UGX one to five million.

According to Mackay *et al.* (2017), more than 85% of households in Mbale city source their food from traditional marketplaces and less than 24% use supermarkets, only sporadically and for specific products. Many households often receive food transfer from rural based relatives. Most family members eat their main meal at home and only few of them can afford to eat in restaurants occasionally. Students however, and poor sections of city residents, snack on cheap energy-dense street food. Over 50% of households in Mbale have been involved in agriculture in either rural or urban area, during the year. Such farming activities by city residents is a strategy for food security for the salaried and longer-term city residents, and the urban elite to have food access.

Hotels and restaurants are important for the distribution of ready-to-eat food for the high-end consumers such as tourists, civil servants and better off business people. These are bigger MSMEs in the formal food economy, with an estimated turn over range of UGX five to 10 million. A specific category of food distributors are the ladies who supply cooked food to market vendors in the restaurant section of the market. They prepare their food on the veranda of the central market, in conditions which are disorganised, unprotected and unhygienic. Market managers reported that the reason why they are cooking in such places is because they use firewood and charcoal and yet the market restaurant was designed for the use of clean energy sources (pers. Comm. city technical staff; market committee member).

Equally important however are street food vendors from the poorer residential areas, who sell food mostly in the evenings, to low-income city consumers. They do not have designated places to sell their food but occupy public spaces within the city, on the road pavements of Mbale city streets and in the corridors in-between commercial buildings. The demand for street food is high because its price is low, partly because most street vendors do not pay dues for the spaces they occupy. Moreover, it is also convenient to some categories of city residents, such as students and industrial workers. (pers. Comm. Street food vendor). Street food vending businesses are MSMEs with an estimated turnover of UGX 500,000 to two million. They are seen mostly as an income inequality issue and has raised some contentions in the recent past. On the one hand, the street food vendors contend that their businesses thrive because they (the vendors) can offer cheaper ready to eat food to poorer sections of the city population, and the city therefore, is obliged to provide a place for their operations. On the other hand, the city authorities consider these places illegal for vending food and should be removed. Members of the GFC believe street food vending is a big gap in food governance in the city.

Regarding food exports, we observed an interesting situation in the rural parts of the city, of Kenyan traders coming to buy FFVs directly at the farm gate. The contact between Kenyan traders and the farmers is usually facilitated either by local businessmen or the farmers from whom they have purchased before. Such transactions happen in very short food value chains. Political leaders at the city government consider this situation an important business opportunity for growth and development of the city. Overall, while activities at this stage are interesting in terms of revenue from business, they also generate huge amounts of food waste and contribute to food loss, without any thoughts on how to reduce the was and / or recycle some aspects of the waste.

6.3. Value chain supporters

Value chain supporters operate outside the food value chains by providing various services to chain actors to facilitate value chain functioning (Vermeulen, et al, 2008). They agro-input dealers, transporters, extension workers and other BDS providers.

6.3.1. Input supply

The most important inputs required for food production are seeds, feeds, pesticides, herbicides, fertilisers and veterinary drugs. Key value chain supporters are the *Agro-input dealers*, owning shops in Mbale Industrial division under sole proprietorship. They are mostly educated young people because MAAIF has set a condition that requires such dealers to have at least the Uganda ordinary level certificate. They also must sit an examination, to test their understanding of the use and dangers of agro-chemicals, before they can get an operational licence. Examples of such shops in Mbale city are Christ the King agro dealers Uganda Ltd., Nsanvu agro farmers Ltd, among others. Agro-input dealers sell mostly inorganic agro-chemicals for use in crop production. During interviews, the dealers reported that whenever farmers come to buy the chemicals, they provide explanations on the proper use of the specific chemicals purchased. In

some cases, the dealers also provide credit to enable the farmers to obtain the agro-chemicals in time for the production season, allowing them to pay for the inputs after harvest (pers. Comm. Agro-input dealer).

The input dealers admit however, that the application of agro-chemicals, especially on FFVs are done recklessly, with farmers reporting over dosage due to the false belief that their crops perform better when over-dosed. This is common practice especially among tomato farmers and traders who spray fungicides on the day of harvest and on tomatoes which may remain unsold in the market, believing that they are preserving the tomatoes. The agro-input dealers are aware of this problem, and they believe that the best way to tackle it is through sensitisation of farmers, explaining the link between reckless application of agro-chemicals, with health and environmental problems (pers. Comm. agro-input dealer Mbale city). Of all the agro-input supply shops visited within the industrial division of Mbale city, none is selling organic inputs. Interviews with farmers, indicated limited awareness regarding organic inputs. This is not surprising because organic input market in Uganda is grossly under-developed. Even availability of organic manure that farmers are aware of and wish to use is very low (Akoyi and Maertens, 2018).

In Mbale city, as in other districts in Uganda, inputs for livestock is handled differently. Livestock inputs are sold in veterinary pharmacies, owned by *veterinary doctors* under sole proprietorship. Common products sold are vaccines, and medicines against pests and diseases of poultry, cattle, and small ruminants, among others. The vet doctors work in collaboration with veterinary assistants trained at diploma level, particularly to offer veterinary extension services whenever livestock needs treatment or even insemination. In case of complications, they call the veterinary doctor to visit the specific farms and treat the animals. Livestock feeds are sold in feed shops, run by non-specialised shop attendants, who are usually trained by the feed manufacturing companies (pers. comm. City technical staff; ENABEL Uganda, 2022).

Although agro-input dealers are generally educated, are required to pass chemical input handling exams and claim to offer advice to farmers who buy from them, the reckless application of agro-chemical inputs is a danger to the health of consumers and the food system as a whole. In addition, we observed a serious problem with the disposal of agro-chemical containers (plastic and metallic), after using the products. While farmers claim they collect these in one place for safe disposal, containers can be seen floating in the drainages and mixed in the heaps of garbage around the city. This violates the waste reduction principle of a circular economy.

6.3.2. Finance service provision

Finance institutions are critical actors at this stage to avail the capital necessary to run various businesses along and round the value chain. In Mbale city, several banks and microfinance institutions of varying scope perform this role. There are international banks including Stanbic, Baroda, ABSA, among others; local banks, for instance Centenary and Housing finance and; micro-finance institutions, for example Pride Microfinance. All the finance institutions serve all value chain actors and supporters who need money to finance their operations. Demand for agricultural loans in Mbale city is high, since the city is agricultural. In general, however, upstream value chain actors (farmers) get much less loans than their downstream counterparts, mainly because smallholder agricultural production is very risky (pers. Comm. Microfinance staff).

The finance institutions have an integrated strategy to support vulnerable groups, especially women in addition to simple procedures of accessing funds. Most of them have specific loans for women market vendors in, Central, Soroti road, Namatala and Bugwere markets. To obtain a loan at Pride micro-finance, for instance, women need to present only their national and market identification documents (IDs). In supporting food system stakeholders, finance institutions face various challenges but all of them have mitigation measures in place. A big challenge is the diversion of money by borrowers to other social needs. With close post-disbursement monitoring however, this is problem is minimal. Unpredictable seasonal changes and agricultural price fluctuations sometimes pose difficulties in repayment, but this is mitigated by ensuring that all loans are insured. Electricity outages in Mbale city interrupts and increases the costs of food processing. To counter this problem, the banks have clean energy loans for those who can operate from their homes.

6.3.3. Transportation

Food transportation costs form an important proportion of food prices in Uganda, evidenced by the direct correlation between hikes in fuel and food prices. Key value chain supporters at this stage are *truck drivers and owners* who move food from production point to various chain actors for value addition, onward selling and consumption. Others are owners / riders of *boda boda*, *tuk tuks*, small vans or pickups. The *boda bodas* are particularly popular because they easily access different locations around the city. They are largely driven by young men, parked at stages with high numbers of potential customers such as markets, bus stations, busy intersections, hospitals, or supermarkets. (Courtright, 2021). An important observation is that after Covid-19 pandemic, more food distributors use *boda bodas* to deliver cooked food to consumers, than before the pandemic. Transportation businesses are categorized under Micro, Small and Medium Enterprises (MSMEs) with annual turnover of UGX five to 30 million, transporting about 10,000 to 15,000 MT in a month, on average. Transporters also engage in overlapping roles, doubling as traders, brokers and middlemen. This means they are both value chain actors and supporters.

Interviews with transporters revealed that while some of them specialize in transporting certain types of food products, most of them transport a wide range of food products including FFV products, processed foods, livestock/fish, as well as agro inputs. They reported that the peak period for their business is the main harvesting months of July to December. The food commodities transported originate from the rural areas of Mbale city, markets in the neighbourhood of the city, border points between Uganda and Kenya, as well as the neighbouring districts. Transporters consider their businesses profitable and reliable as a source of household income because it has adequate capital throughout the year and they are able to hike prices in the pretext of poor market conditions. While transporters hike transport costs during rainy seasons because the roads are bad, they also hike prices in the dry season due to food scarcity which translates into more hours spent in the field, gathering foodstuffs (pers. comm. transporters).

Transporters face many challenges which lead to food spoilage and food losses, including: i) a combination of long distances to farms and poor road network; ii) poor road and marketing infrastructure; iii) few storage facilities, mostly in poor conditions; iv) lack of refrigeration facilitates for perishable products; ; iii) seasonality / climate change effects: in the dry season fruits go bad very easily due to high temperatures and sometimes there is food scarcity; iv) socio-economic issues: most farmers have limited capital and cannot produce food in bulk, which means a transporter has to move from one farm to another, making it difficult and expensive to gather food products; v) political challenges: Sometimes local politicians do not like people from other places to buy from their voters so they try to sabotage the work of transporters. The farmers themselves, may not want to sell to outsiders. In some cases, transporters are even ambushed. These challenges experienced in providing transportation services is one the major ways in which material loops are kept open rather than closed. It extracts resources from rural areas without returning and generates a lot of waste and loss due to poor infrastructure and lack of appropriate storage facilities.

6.3.4. Agricultural extension services

Agricultural extension services encompass advice given to farmers with a focus on agronomic knowledge and skills to enable them increase food production and productivity to realize their socio-economic objectives. Key value chain supporters here are *agricultural extension workers* in the public and private sectors. Public extension workers work under NAADS and the Operation Wealth Creation (OWC) program, targeting mostly smallholder farmers, organized in groups. Overall, access to agricultural extension services is limited and farmers always have to pay for the services. Farmers linked to lending institutions, coffee companies and NGO supported projects receive extension support but most individual farmers do not access services. According to city political leaders, the establishment of Mbale city has resulted into some difficulties to continue offering extension services to annexed sub-counties because of limited funds.

Recently however, the city authority lobbied the central government for increased support to farmers in the city because the city wishes to retain and develop this unique aspect of Mbale city of agricultural production. The central government responded positively by increasing the budget for agricultural production in the city. Consequently, the city will be recruiting 6 more extension staff, to make a total of 18. This is good news for food system transformation in Mbale city. Extension workers however, face the big challenge of low effective demand, especially since government used to provide this service for free (pers. Comm. City politicians). Extension workers can be good channels for passing messages on practices that foster transition towards a circular economy. Unfortunately, most extension workers in the country have been trained on conventional methods of agricultural production, which is deeply rooted in linear, rather than circular economies. Coffee companies such as Mountain harvest that promotes organic agricultural production and Kyagalanyi coffee that promotes organic-inorganic combinations of agro-inputs have their own extension workers who are skilled in key aspects of sustainable agricultural production (Vanderhaegen, et al, 2018; Akoyi and Maertens, 2018).

6.3.5. Business development services

A Business Development Service can be defined as non-financial services and products, aimed at skill transfer, offered to entrepreneurs at various stages of their businesses, to support them to meet various business needs for business growth and development. Key supporters at this stage are NGOs and local consultants, paid by development projects to support farmers and other value chain SMEs in specific value chains. BDS providers support value chain actors in several technical areas: business analysis, business planning, and preparation for technical proposals for funding, business management coaching, mentorship on specific aspects of business, among others. Examples include: AVSI, - supporting farmers' access to micro irrigation schemes and training; Technoserve - training farmers in business planning; Rikolto - supporting various chain actors with coaching for business development and facilitating market linkages. Most BDOs, including SACCOS, farmer groups, traders and hotel owners' associations, among others, provide specific services to members, addressing common concerns and advocating for their rights to services from the city. Although these are channels through which principles of circularity can be applied in the specific interventions with value chain actors and supporters, BDS service providers do not put emphasis on it.

6.4. Food diversity, staples and access strategies

There was a consensus among all respondents that Mbale city and the Mt. Elgon sub-region in general, are well known for producing and selling a wide variety of foods, necessary for a nutritious and balanced diet (pers. Comm. City councillors). The foods mostly available to Mbale city residents are maize, matooke, beans, Irish potatoes, rice, onions potatoes and vegetables such as spinach, carrots, among others. Others include groundnuts, sorghum, millet, cotton, soya beans, sweet potatoes, sunflower, and rice (UIA, 2018). Mt. Elgon region is also the most important production area for Arabica coffee in Uganda and its consumption, to a reasonable degree. Fish and livestock production in the city and the sub-region however, is limited. While meat for city residents comes from the neighbouring districts of Soroti, Kumi and Tororo, fish is supplied from Busia and Jinja districts. A specialty for the Bagisu is *Malewa* (bamboo shoots), with cultural connotations tracing back to the first Mugisu known as Masaba who is believed to have fed on bamboo shoots, having emerged from a cave on the slopes of Mt Elgon (Mbale city website, 2020). The main staple foods for the city includes Matooke, Maize, beans and *Malewa* in peanut sauce (www.mbalecity.go.ug).

6.4.1. Typical food basket for different income categories

There is variation in the food basket among high- and low-income earners. On the one hand, high income earners tend to spend their income on higher value food products such as grains and cereals, roots and tubers, legumes, nuts, seeds, vegetables, fruits, meat and meat products, eggs, fish, milk and milk products oil/fats, sugar and coffee/tea (Mackay, *et al.*, 2023). These city residents are more food secure, often have stable employment and can engage in bulk purchasing from cheaper sources, then store it. Additionally, they maintain relationships with rural relatives through farming and direct food transfers, thereby benefiting from their natural and social capital in rural communities. On the other hand, majority of the average urban dwellers, including school children, eat maize meal, *matooke*, beans, some vegetables and fruits (Mackay, 2019). The very poor urban dwellers survive on street food, mostly Chapati mixed with eggs (*rolex*) or beans (*kikomando*) (Mackay, *et al.*, 2023). These less food secure individuals are mainly unemployed, cannot engage in bulk purchase of food and lack storage facilities for food.

6.4.2. Food access strategies of households

Food in Mbale city is generally accessed by purchase from the central and secondary markets of the city. Over 85% of households source their food from the city markets and less than 24% use supermarkets and even then, only sporadically and for specific products. A high number of city households (62%), wealthy and poor, receive food transfers from rural-based relatives and produce some food in their rural farmers (Mackay, 2019; Mackay *et al.*, 2017). Even those with kitchen gardens, producing herbs and vegetables and those with rural links however, are not able to be self-sufficient. City consumers affirm that the food access strategy of city households depends on their socio-economic status (Mackay *et al.* 2017). Households whose members (especially household head) have steady income, or established household asset base, rural land or rural connections, utilize these assets, to access food and are more food secure (pers. Comm. high end consumer). Kitchen gardens are also another source of food for the Mbale city dwellers where mostly vegetables and herbs are accessed (IPC, 2020). For low-income earners without rural connections, food is accessed by buying from the street food vendors, basically living from hand to mouth, depending fully on daily work opportunities (pers. Comm. low end food consumer).

6.5. Food systems assets

Baker (2016) defines food assets as “local food infrastructure that maintains food secure communities and regions, including farms, processing and distribution capacity, food enterprises, markets, retailers, community gardens and kitchens, student nutrition programs, emergency food distribution and community food organizations and centres”. The food system assets in Mbale city include land which is used for food production; rivers and lakes that provide water for irrigation; food processing plants, food system organizations and BDOs, working to improve the food system (Table 3).

6.5.1. Food systems organisations and processing firms

Food processors indicate that food processing firms in Mbale city consists mainly of millers of staple foods such as maize, rice, cassava and millet, among others (Table 2 above). They are mostly found in Mbale industrial division and belong to MIAMA, which provides various services to members. A company like Byeffe which is processing pumpkin, with a focus on nutrition of mothers and infants is new and innovative. Other important food processors in Mbale city include Mt Elgon millers, processing wheat and coffee processing firms, for instance Kyagalanyi coffee, Bugisu Cooperative Union, Mountain Harvest and Kawacom, among others, that carry out primary processing of Coffee. Important to note that about 95% of

the coffee produced in Mbale, Mt. Elgon region and Uganda, is for export and not for local consumption. In addition to processors, there are different categories of organizations that support the city food system in different ways (Table 3 above).

6.5.2. Local food production / harvest assets

Before Independence, Ugandan soils were considered so fertile that it did not require application of fertilizers (Chenery, 1960s), however, over time, there has been a general decline of soil fertility in the country. There are worrying trends of soil degradation due to nutrient depletion and population pressure, among other things (Tenywa et al 1999; Nkonya, 2004). In Mt. Elgon sub-region in particular, Baffes (2006) and Wang *et al* (2015) both confirm that coffee yields are below 30% due to unfavourable soil properties, among other things. The uniqueness of Mbale city in terms of food production assets is its strategic location at the foot of Mt. Elgon, which has adequate rainfall. Moreover, the topography of Mt. Elgon ranges allows continuous washing of significant volumes of soil nutrients down into the rural areas of Mbale city (Vanderhaegen, *et al.*, 2018). The city therefore, has got reasonably fertile agricultural land with volcanic soils, over 42 acres of natural forest and 26 acres of planted forest (Mbale city, 2020). The city also has several rivers criss-crossing the rural landscape, namely: Nashibiso, Nabiyonga and Namatala, which support food production. Although, with over 530 people per square Km Mbale is rather crowded, the relatively fertile soils still support food production but fertility is declining and discussions with stakeholders did not give any indications on soil conservation and restorative strategies.

6.6. Food safety

According to FAO, food safety refers to “handling, storing and preparing food to prevent infection and help to make sure that our food keeps enough nutrients for us to have a healthy diet”. The prevalence of foodborne diseases in Uganda stands at about 1.3 million annually, however, this accounts for only 14% of the treated cases, since many go unreported (FAO, 2022). An FGD with members of the Good Food Parliament (GFP) in Mbale city acknowledged the existence of many and serious food safety challenges due to poor handling of food at all stages of the value chains and among all food system stakeholders in Mbale city. Other authors have confirmed the existence of these challenges (pers. Comm. GFP member; Mackay, 2019; Awino 2020).

Poor food handling practices include: use of contaminated water (with *e.coli*, faecal matter and lead) by many farmers (about 64%) to irrigate vegetables; most (90%) spray crops recklessly, including dis-allowed ones, against pest and diseases; some farmers (24%) use contaminated water for washing FFVs after harvest, during transportation to market and at the market itself, some traders (9%) spray vegetables with carbamates, a group of fungicides (mancozeb, metiram, among others) to prevent rotting and; *boda boda* transportation of food to markets lead to spoilage; the long line of middle men who handle food increase food safety risks and; at the market, food is stored in unhygienic places. (pers. Comm. Rikolto; Rikolto, 2020b). This situation is confirmed by other authors who highlight food safety and quality issues in Mbale city (Mackay, 2019; Awino, 2020).

Other food handling practices include: the use of recycled plastic bottles picked from bins around the city for serving juice and milk, drying cassava on the ground, milking in chemical container, dirty food processing places (e.g rat infested bakeries), poor storage of dry foods in dirty small shops, placing FFV products on the ground while being sold, dirty road side vendors selling food, dirty landing site, dirty home kitchens, hot food sold in plastic, food produced close to protected water thus contaminating water, traders using sewage water to wash carrots on the way to the market, farmers using their feet in dirty gum boots to collect carrots in a heap, dirty and dis-organised city abattoir, among others (Rikolto, 2020b). The presence of microorganisms in poorly handled meat products – although the city veterinary (Vet) officer is supposed to check meat and stamp before selling, most butcherries sneak in uninspected meat, after the vet office has stamped the meat (pers. comm. UNBS, city technical staff).

To crown it all with scientific proof, Rikolto tested food remnants from several restaurants, immediately after it was eaten by consumers and found that all the samples were contaminated. To counter these challenges, the Mbale city authority is being supported by Rikolto to develop a food safety ordinance that will promote the proper handling of foodstuff by food vendors and other value chain actors (per. Comm. Rikolto). The UNBS has also opened a new testing laboratory in Mbale for Eastern region however, their focus is on processed food brought to them by manufacturers. Moreover, the office is responsible for the whole of Eastern Uganda and resources are too limited to monitor key aspects of city food (pers. Comm. UNBS Mbale staff). Consumer Education Trust (CONSENT), an AfriFOODLinks partner, has been supported by the FAO to engage city food system stakeholders in a dialogue on how to promote food safety and quality assurance countrywide (FAO, 2022). According to Namubiru et al, (2021), the food safety law in Uganda can no longer address the food safety challenges brought about by changes in technology, hence the need to amend it.

6.7. Food infrastructure and their spatio-temporal usage

In this section, we discuss food infrastructure as the basic facilities and system that serve the food system in Mbale city, along the stages of value chains and in the food environment, both in space and in time. The starting point, the farm infrastructure was already presented in section 6.2.1.

6.7.1. Markets

Mbale city has a modern central market, one of the biggest in the country, located on Naboa Road within its CBD. The UGX 26.9 billion complex was built under the Markets and Agricultural Trade Improvement Programme (MATIP) of the Ministry of Local Government (MoLG), using a loan from the ADB. The market was modernised with the aim of boosting the city economy through agricultural value chain support and employment creation within and outside the chains. Other markets serving the city are: Kikindu market in Namakwekwe, before IUIU, Bugwere market near Wash and Wills Hotel, Kumi road market on Kumi Road near the two Shell petrol stations opposite each other, Nylon market in Namatala, Busamaga market about 2 km behind high court, Nakaloke market after IUIU and past the Kapchorwa junction on Kumi Road and Nauyo Bugema market on Tororo Road after the forest. This makes a total of eight gazetted markets around the city. In addition, there is also a Juba stage market at the junction to Sebei, though not gazetted (pers. Comm. GFC members). Specific google satellite locations of these markets is presented in Figure A1 in annex.

These smaller markets outside the CBD are not well developed, and residents are concerned about their poor governance. Yet, the markets have the potential to organize business, create employment and generate taxes, among others (UNCDF, 2018). In addition to these established markets, there are other informal markets in the city such as Mooni, which have come up due to increasing population of the urban poor (Obua, 2017). The infrastructural needs of these informal markets such as sanitation, water and market stalls have not been addressed, mainly due to poor regulation and government failure to harness the energies of the low-income residents of the city. According to city political leaders, the city has ambitions to develop a business hub in order to involve the micro and small business as better, leaving room for better organisation of the city. With the support of Rikolto, the city has already acquired the land for the business hub.

6.7.2. Water

Safe drinking water considered part of food for human consumption plays a critical role in local economic development mainly in enabling citizens to live healthy lives (UNCDF, 2018; pers. Comm. city political leaders). Some residents in Mbale city (about 50%) have access to piped water provided by National water and Sewage Corporation (NWSC). This limited access to piped water is a result of poor infrastructure in the annexed sub-counties. Some informal settlements also have access to piped water due to support from development partners. Other sources of water include protected springs and wells (Mbale city 2020). The main challenge reported in accessing water is the seasonal variations which affect supply and push people into using contaminated water. Water in the city is a necessity for many business operations such as restaurants and small-scale industries (UNCDF, 2018).

6.7.3. Electricity and other energy sources

While a large proportion of the city residents (80%) are connected to the national electricity grid, many (66%) reported weekly outages yet, electricity is considered crucial for business operations and growth in informal settlements in Mbale city (UNCDF, 2018). Instability of power supply affects economic activities negatively by increasing operational costs through use of alternative fuel-based sources of energy (mainly generators), reducing working hours, discouraging customers, and under-employing labour. Key businesses that need electricity for lighting and energy include; shops, restaurants and milling, among others. The negative effect of power outages is heavier on MSMEs than on large entrepreneurs and corporations who may easily afford to run generators. In addition to power outages, street lighting in the city was also reported to be very poor especially in the neighbourhoods where marginalized groups live and where street vendors operate, leading to a feeling of insecurity. In the recent past, some city residents have installed solar lighting outside residences and business places, to improve their operations (per. Comm. traders; UNCDF, 2018).

6.7.4. Waste management

Interviews with city leaders revealed that waste collection and management in Mbale city is appalling. Key points at which waste is generated include City residences, markets, offices and institutions. The city markets are often congested and unhygienic, compelling some of the high-end hotels to source food from outside the city as expressed below.

“Navigating through the market is hard at times because it is very congested and the external hygiene is bad. You find many piles of rubbish with a very terrible smell, which is a turnoff”
City hotel owner

Discussions at the GFP revealed that the sewerage system is poorly managed, with several of them open and continuously polluting the city and endangering the lives of the city residents. Moreover, only part of the domestic waste goes through the NWSC. The city collects domestic and market waste using private garbage collectors, however, until recently, the city did not have a venue for waste treatment and processing. With support from the World Bank, the city has built a composite plant in Northern Division to handle the generated bio-degradable waste, turning it into composite manure that can be used to support urban farming activities (UNCDF 2018). The composite plant, however, cannot handle all the waste generated in the city because that transportation trucks are few and old, so the plant has been abandoned. Worse still, most city dwellers in informal settlements just burn their solid waste. The political leadership, however, has identified and prioritised collaboration with a private investor to process waste using the Black Soldier Fly (BSF) method. According to the city senior health inspector, work recently resumed on garbage processing.

6.7.5. Consumer infrastructure

Consumer infrastructure includes facilities which ease food access, as well as spaces and means of communication regarding food. It can be physical, digital or organizational structures (GAIN, 2023; Battersby, 2020). Although the infrastructure is available, its functioning is not so good. As a result, city consumers have limited knowledge of prices, seasonality, nutrition, sourcing and processing of food products. Furthermore, they also lack avenues to provide feedback to their suppliers (FAO, 2020). All this despite the increased road network from 51Km to 375Km from 2015 to 2020 and in addition to having a central market, it has developed several smaller markets in the suburbs and local stores that facilitate access to food by consumers (Mbale city 2020; Mackay, 2019). The city has a food system platform that provides information on food related issues and brings together all food stakeholders such as consumers, farmers and processors supported by several NGOs (SLU, 2022).

6.8. Food and nutrition system interventions in past decade

Mbale city is implementing programs, projects and plans at different levels, some of which are part of the national plans for which the city has local implementation mandate, while others are implemented in partnership with NGOs (Table 8).

Table 8: Mbale city interventions in food and nutrition system

Program / project / plan	Brief description
Multi-sectoral nutrition action plan 2020/2021 to	Aims to end hunger, achieve food security, and improve nutrition by 2030 through:

2024/2025 – established under UNAP II	increasing access to and utilizing nutrition-specific and nutrition-sensitive services by children under 5 years of age, adolescent girls, pregnant and lactating women and other vulnerable persons; strengthening the enabling environment for scaling up nutrition specific and nutrition sensitive interventions at all levels
National Development Plan III (2020/21 - 2024/25)	Aims to increased household incomes and improved quality of life of Ugandans”, with the theme of “Sustainable Industrialization for inclusive growth, employment and wealth creation
Micro, small and medium sized enterprises (MSMEs) Policy (2015-2025)	Has a mission to stimulate growth of sustainable MSMEs through enhanced BDS provision and the creation of a conducive policy, legal and institutional framework.
National Agriculture Policy 2013	Aims to achieve food and nutrition security and improve household incomes through coordinated interventions that focus on enhancing sustainable agricultural productivity and value addition; providing employment opportunities and promoting domestic and international trade.
Programs implemented in partnership with NGOs	
Rikolto in partnership with FRA and CONSENT	Aims to positively transform the food system landscape in Mbale city through: i) sustainable food production, ii) inclusive markets for farmers, food vendors and consumers, and iii) creating an enabling environment. Rikolto trained Mbale Market vendors on food safety, trained 863 urban and peri urban farmers in regenerative agriculture, coordinated the formation of Mbale City GFC and GFP and facilitates their regular meeting and follow up of food system issues.
RUFS	Under the sustainable horticultural production project, initiated the formation of Mbale city Food Systems Platform (MCFSP) that brings together players and stakeholders to prioritize Mbale’s food shed and use it as a tool to advocate for supportive policies and practices in the horticultural value chain (SLU, 2022).
Feed the Future - Inclusive Agricultural Markets (FtF-IAM), partner Anti-Counterfeit Network (ACN) Africa	Launched the “Fake is Fake” campaign in Mbale city, against counterfeit agricultural inputs. ACN is also piloting an in-person and online fakes desk protocol in the Elgon sub-region with multiple partners in order to ease reporting of counterfeit inputs; Sponsored a business development training program for 77 millers in Mbale city under their umbrella organization MIAMA.
AVSI	Skilling youth in Mbale city in Agri- entrepreneurship, organising competition among the youth, promoting agriculture in schools and supporting investment in agriculture.
Technoserve	Training youth of Mbale city in good agronomic practices, links them to markets and has conducted food safety training for proprietors of cottage industry.

6.8.1. City food and nutrition priorities

Mbale city has prioritised specific value chains with potential to stimulate growth in crop, livestock and fisheries sub-sectors, in which it will invest to facilitate economic growth. The city has also prioritised improvement of stock and quality of strategic infrastructure such as small-scale irrigation schemes for wetland alternative livelihoods, road infrastructure within the city and its suburbs to improve connectivity to production and marketing centres (Mbale city, 2020). The city has already acquired land for the establishment of a business hub, to promote small business (per comm. city political leaders). The city also plans to identify land for establishment and construction of standard public markets, roadside markets, as well as a sanitation land fill and waste recycling system (Mbale city 2020). These interventions will facilitate increased food production, distribution and access by city residents.

6.9. Urban development challenges and current responses

6.9.1. National level urban development challenges

Uganda, like many African countries, faces development challenges relating to food productivity, food insecurity, malnutrition, changes in food consumption patterns, food loss, wastage and safety, climate variability and environmental distress. Other challenges include poverty and inequality in accessing livelihood sources, as well as vulnerability to shocks and stresses. All these challenges have a negative influence on the food system. In addition, the presence of slums and informal settlements (27%), substandard housing conditions, a deteriorating urban environment, poor waste disposal - with 13% of urban population disposing waste in gardens, 19% in pits, 32% heaping it in drainages and streets and, the remaining 36% disposing waste in open dumpsites (Uganda FSS, 2021). Moreover, urban economies in Uganda are have a large informal sector, burgeoning urban population and high levels of unemployment. These challenges put a strain on the city infrastructure and service provision while at the same time pushing human settlements to encroach on agricultural land (Rukundo, 2021).

6.9.2. Mbale city development challenges

In addition to the above challenges which are also experienced in Mbale city, the city does not have a physical plan due to limited resources to come up with one (pers. Comm. city technical staff). The city is characterized by a growing population, lack of an integrated transport system, environmental management difficulties, rapid growth of slums and unplanned settlements, urban poverty, high level of unemployment, poor infrastructure for markets, water, housing and health services, severe challenges of crime, crowding, congestion and pollution. Mbale city has a large informal sector, with 40% of businesses operating on the streets and open spaces. The city's ability to develop is also hampered by a land tenure system that disfavours public land ownership characterized by unequal spatial distribution (Cities Alliance, 2020; Mbale city 2020).

6.9.3. Current responses

According to the city development plan (Mbale city, 2020), the city has prioritised: i) improvement of post-harvest handling of food, especially storage and processing of selected agricultural products, in order to promote market access and competitiveness of such products; ii) increasing access to financial resources for agricultural production and strengthen business development services; iii) improvement of waste management by building four waste management sites for both solid and other wastes; iv) organizing farmers into cooperatives at city level and strengthening agricultural extension services through better supervision and implementation of the Parish Development Model (PDM); v) developing a comprehensive, integrated water catchment plans for water resources within the city; vi) developing a safe, inclusive and sustainable road transport system and; vi) consolidating land for agriculture and offer certified skilling, entrepreneurship and business incubation for the youth (Mbale city, 2020).



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Incomplete market infrastructure poses risks to the food environment

Photo: ZIV photographer
November, 2023

7. Section 5: Mbale City Multi-Stakeholder Food Governance

7.1. Mbale city food system governance and processes

Food system governance is a collection of political, organisational and administrative processes, through which food system stakeholders express their interests, claim their rights and fulfil their obligations, mediate their differences and take decisions, which influence and shape production, distribution, processing and trade in food. As a result, it inevitably affects food availability, accessibility, utilization and supply stability (Smit, 2018; Van Bers et al, 2016). It provides a framework for managing the food system, mapping out decision makers, their authority and accountabilities. Food system governance in Mbale city is still inadequate because of limited coordination among a patch work of several agencies, public and private, formal and informal, scattered among various institutions and companies. Other authors confirm that the Mbale city food governance situation is similar to that of other African cities (Battersby and Watson, 2019; Smit, 2016).

7.1.1. Modes and practices of food system governance in Mbale city

The public governance system is the responsibility of Mbale city local authorities, as described in section 3.8 above. It consists of a team of elected council members who give policy direction and a team of technical staff who operate under various departments of the city. For specific technical responsibilities such as regulation of standards, the central government is involved in direct supervision, through regional offices. An example is the UNBS which have set up a food safety laboratory in Mbale to cover the Eastern region of the country. Other private food system stakeholders, for example NGOs implementing food system related programs or market vendors' associations trading in food products, also influence the food systems governance space in the city but they do so from outside the decision-making institutions (FAO, 2022; pers. Comm. BDO representatives). Key stakeholders and their roles are described in Table 3. Currently, therefore, one cannot talk of a functional multi-stakeholder governance system in Mbale city. This way of conducting food system governance is evidence of key stakeholders, especially city authorities working in a linear manner, rather than through a formal multi-stakeholder food system governance structure.

7.1.2. Historical shifts in food systems governance in the city

For years ago, Mbale city was initially a municipality. Although it was elevated to a city status and gazetted just like other secondary cities, it is still operating under the old governance structure, with limited extra budget to enable it take up its new responsibilities as a city (pers. comm. city technical staff; IGC, 2021). Revenue collected by the city is still low, and controlled by the central government in a way. Once collected, the revenue is first sent to the national treasury and then disbursed back to Mbale, with an additional amount that depends on how much is collected. The cycle of funds transfers is usually slow (Mbale city, 2020). This situation, combined with the fact that the city cannot raise extra funds for its budget support has led to a precarious situation of budget shortage. It also curtails the city's capacity to raise funds because it appears as though the city lacks financial independence. Extra funds can only be raised off-budget for specific projects but this too might create doubts in the minds of potential donors. The city council remains the main agency governing the food systems in Mbale city although some changes in its structure have been made to include the city's Nutrition Committee as mandated by the central government (OPM, 2020). Mbale city has also aligned its five-year development plan objectives with the NDP III, focusing on

promoting and sustaining selected priority sub-sectors within crop, livestock and fisheries, with primary growth potentials, using cluster management approach. NGO facilitated public-private-partnership governance structures for instance, the GFC and GFP have emerged.

Under the current decentralised system of governance in Uganda, policies, institutions and the general food system regulations are set at national level, with prescription of local government mandates, therein. This implies that the Mbale city authorities are mandated to implement, at city level, each of the national food related laws, policies and regulations (pers. comm. Rikolto).

7.1.3. Viability and efficacy of urban food systems governance in the city

Good food systems governance ‘facilitates equitable, coherent, coordinated, and transparent design and review of mechanisms and processes such as policies, legislation, planning, finances, monitoring and coordinated implementation’ (GAIN, 2020). The Mbale city food systems governance, like other urban governments in the country, is focussing on implementing national polices, for example, NDP III, the Uganda National Urban Policy (UNUP), the NAP, among others. UNUP provides for the establishment of a decision-making framework that allows for stakeholder participation in all aspects of development strategies (UNUP, 2017). Important food system Multi-Stakeholder Platforms (MSPs), namely, the GFC, the GFP and the Food System Platform, though still young, are seeds of what might become multi-stakeholder food system governance structure for Mbale city. These MSPs bring together food system stakeholders to deliberate on and inform the Mbale city on key priorities and possible actions that can transform the city food system (Rikolto, 2023; SLU, 2022). These platforms are highly appreciated by stakeholders in the food system as expressed below by a farmer association member.

“The Mbale food systems platforms have given farmers training in better urban farming practices. They took us for an exposure visit to Kampala Capital City Authority (KCCA) urban farmers and linked us to AGRO FORCE from the geography department of Makerere university which is helping to publish a book for us on urban farming methods of different plants from the nursery bed to harvest”
Member of a Farmers’ association in Namakwekwe

Although under NDP III, Mbale city has prioritised food production increment and agro-industrialization, incorporating all aspects of the city food system, will require their prioritisation at national level, and subsequent budget allocation for operationalization (FAO, 2022). Moreover, inadequate staffing and land counters progress towards a viable food governance system. Much of the public land in the city is affected by encumbrances such as encroachments, affecting the city authority’s capacity to utilize it (Mbale city, 2020; Auditor General Report, 2022).

The city’s ability to coordinate service delivery to the food system is affected by limited local revenue collection and insufficient central government cash transfers. This has led to tensions in the governance of markets even though the responsibilities are clearly divided between the city and market vendors. At the central market for instance, market vendors are dissatisfied with the inability of the city authority to manage garbage collection, while the city expects the market committees to play a role. At the market the market master, a staff of the city is responsible for supervision and management of the market, overseeing the activities of the market committee and the implementation of the local government market development and management activities. Whenever problems arise however, tensions emerge regarding the understanding of the issues and who should address them (Pers. Comm. Market master). Apparently, these tensions are not unique to Mbale city, as revealed by Young (2021), in his study of development, division and discontent in informal markets in Kampala.

The city council being the main food system agency that implements national policies at local level, will lead the transformation agenda and transition of the city economy to circularity through the food system, it will be

important they are able to put up financial contributions to match input by private partners. This should happen through off-budget fundraising for specific projects while at the same time fighting for more budget space from central government.

7.1.4. Urban food systems governance opportunities

There are several opportunities for improving the city food governance: i) The elevation of Mbale to a city status itself is an opportunity. Cities in Uganda have a direct charge on the consolidated fund with specific votes through which funds for services and infrastructure development are directly channelled, enabling them to plan for food system service delivery (pers. comm GFC member); ii) Physical expansion of Mbale city through annexation of seven sub-counties and two town Councils presents an opportunity in terms of a bigger physical area and markets for food in the city (Mbale city, 2020); iii) The presence of NGOs interested in supporting the city food system transformation: for example, Rikolto, RUFES, CONSENT, among others (Mbale city, 2020); iv) A combination of a young city without a comprehensive physical plan and with partnerships involving stakeholders interested in using food system transformation as an entry point for transition to a circular Mbale city economy, is an opportunity which can set a good start for the city.

7.1.5. Urban food systems governance threats

Limited autonomy: the unclear indication of financial autonomy that enables generation, raising and controlling own funds, means that the city has minimal capacity attract donor funding and initiate own programs or give substantive support to city partner programs by offering matching funds. This implies that Mbale is politically and administratively decentralised since it elects own local leaders and recruits own staff, respectively. When it comes to financial decentralisation, heavy dependence on the central government for funds makes the city more of the central government extension of (Sladoge, 2019). Yet, funds are the expression of city policies and programs in money terms.

Encroachment of city land: Mbale city faces numerous public land encumbrances such as encroachment of the land on which the city's defunct waste management plant stands. This is a threat to the city's food system governance and management, especially because it blocks investment that contribute significantly to the development of a circular food economy (Mbale city, 2020).

Contradictory guidelines and directives from the central Government ministries: Examples: i) the Parish Development Model (PDM) which is the main program through which government funds to transform agriculture and create wealth is accessed. The PDM however, is implemented at parish level, which is not an administrative unit (Auditor General, 2022); ii) Declaring a city status on Mbale, making administrative adjustments by annexing sub-counties and increasing staff levels but the budget for operationalisation lags behind (pers. comm. city technical staff). This trend has negative repercussions on the city's capacity to govern its food system.

7.2. Policies, institutions and regulation as instruments of transformation

All stakeholders, public or private are expected to operate within national frameworks. Several laws, policies, strategies and regulations have been developed by the government of Uganda, for various stages of the food value chain, as important food system governance instruments. Interviews with various food system stakeholders, as well as literature review, revealed the existence of many policies and regulations under various government institutions and how they enable or constrain food system activities. There are over 23 food and nutrition laws, 6 policies, 9 regulations, and several standards in place to ensure a healthy food

environment, however, there are many weaknesses and gaps in implementation. It is important to note that the general institutional framework in the country has for a long time encouraged development of the linear economy. This worsened with liberation of prices and trade. It means therefore, that the food system works the city has engaged into will be important in stimulating change in policy/institutional framing, as well as mindset, in favour of food system transformation and a circular food economy.

7.2.1. Food system laws for Uganda and Mbale city

A law is “the system of rules which a particular country or community recognizes as regulating the actions of its members and which it may enforce by the imposition of penalties” Dictionary (1989). In table 4, we present the main food system laws in place, and stakeholders’ perspectives on their effects on the city food system.



The towering city central market, a major food infrastructure development

Photo: ZIV photographer

November, 2023

Table 4: Laws governing national and Mbale food system environment

Laws	Food system aspect targeted	Regulatory environment effects on the City food system
Fish Act (1964); Fish Quality Assurance Rules (1998) - Assuring the quality of fish and fish products	Production and processing - Sustainability of fishing, fish production and quality in terms of, storage, processing and distribution of fish and fish products	Fish quality is generally well controlled especially after big losses in revenue by the East African countries due to EU ban on imports in 1997-1999.
The Food and Drug Act (1964) - is the fundamental law that governs food safety in Uganda.	Targets food safety along the various stages of the food value chains.	This law has not been amended to account for changes in technology, increasing food safety risks, related to agricultural practices and food handling throughout value chains.
Public Health Act (1964)	Empowers health workers to inspect public eating-houses to ensure health, hygiene and safety of the workers and clients.	Not well enforced – with many public eating places in appalling state of hygiene
Water Statute (1995)	The use, protection and management of water resources and supply; the constitution of water and sewerage authorities; and devolution of water supply and sewerage undertaking	Water supply and sewerage system not well managed. Mbale local leaders are complaining about open sewers around the city – endangering residents’ health. The NWSC is responding by upgrading the system.
National Environment Statute (1995)	Sustainable management of the environment; establishment of an Authority as a co-ordinating, monitoring and supervisory body, controlling pollution along value chains	Protects swamps from irresponsible rice production practices but without alternatives for the affected people. Vegetable production in polluted swamps continue
Agricultural Chemicals (Registration and Control) Statute (2006) – Assuring the registration of all imported chemicals and their safe use in the country	Input supply for food production, human health protection, environment production, waste management, food preservation, among others	Quality control is weak, too many confusing agro-chemicals from different manufacturers, fake chemicals, negatively affecting food production and reckless application of chemicals
The Animal diseases Act (1964); Cattle Traders Act (1964);	Movement of livestock, trade, quarantine, transportation of animals, distribution and marketing of livestock.	Weak enforcement – allowing illegal movements / trade of livestock without permits – endangering livestock and public health, spreading disease
Meat Inspection Code of Uganda (1973); The Public Health Act (Meat and Milk Rules); The Hides and Skins Act (1964) –	Assuring safe handling and quality of meat for human consumption Covers processing, transportation, distribution and marketing of meat and other livestock products.	Weak enforcement resulting into illegal movement and slaughtering of livestock, avoiding inspection even when animals are sick
The Veterinary Surgeons Act (1964)	Handling of sick animals - Assures veterinary practice by qualified persons –	Prevents sick animals from coming in the market – But enforcement is weak
Animal Feed Bill (2020)	Input supply - provides legislative framework for regulating the production, importation, exportation and marking of animal feeds.	Ensures quality control on animal feeds
Agricultural seeds and Plant Act, Cap 28	Input supply – seeds - provides for the promotion, regulation and control of plant breeding and variety release, multiplication, conditioning, marketing, importing and quality assurance of seeds and other planting materials	Focus is heavily on hybrid seeds - The widespread use of hybrid seeds is wiping out indigenous farmer-controlled seeds, contributing to seed insecurity
Plant protection and health Act (2015)	Protection of plants against pests, diseases and weeds, against introduction and spread of organisms that may harmful to Uganda's agriculture, environment and livelihood of people	Weak enforcement - Many people still move plant materials illegally, spreading many pests and diseases.
The Land Act (1998)	Production - provides for the tenure, ownership and management of land; Emphasises customary land rights and right of occupancy of tenants	Misinterpretation of right of occupancy and slow court processes have led to an explosion of land grabbing.
Uganda National Bureau of standards Act - Chapter 327 (1983)	All stages of value chain; Formulation and promotion of the use of standards in locally manufactured and imported consumables	Very limited focus on locally produced agricultural products; only processed foods and if the processors approach UNBS.
The Draft National Food and Drug Authority Act (2017)	Processing and consumption – broaden the regulatory scope of regulatory body to include control of the safety and quality of food, food, medical and veterinary devices, cosmetics and chemicals for public health use in addition to medicines	There are gaps in regulating food safety and quality but by 2020 the bill had not been passed because of objection by MAAIF regarding technical aspects of quality of Veterinary drugs and food
The Children Act Amendment Bill (2015)	All stages – provides for enhanced protection of children, especially regarding labour provision in agriculture	Weak enforcement; children still work, although they combine with school attendance; labour for agriculture is scarce and expensive.

The Food and Nutrition Act (2020)	All stages of value chain - provides for the implementation of a national food and nutrition programme	At national level the programs continue to raise awareness on importance of good nutrition and food security.
Uganda constitution 1995 Article XXII: Food Security and Nutrition -	Food production, storage and consumption - "The State shall ensure (i) people grow and store adequate food; (ii) establish national food reserves; and (iii) promote proper nutrition through mass education	Government encourages people to grow enough food, but most is sold – malnutrition still prevalent. no national food reserves. Nutrition campaigns have had a big impact in increasing consumption of some indigenous foods like millet

Source: Authors' compilation from the website of the responsible government institutions and summary of stakeholder views

7.2.2. Food system policies and institutions for Uganda and Mbale city

On the one hand, a policy is defined as “a course or principle of action adopted or proposed by an organization or individual” (Dictionary, 1989). On the other hand, institutions are the rules of the game in a society, determining the nature of interaction among people and structuring ways of motivating them in political, social, or economic arenas (North, 1990). Policies and institutions intertwine to establish regulatory environment in favour of or against the functioning of various aspects of the food system. A few notable policies / institutions, aspect targeted and effects on city food system are highlighted in Table 5.

Table 5: Policies / institutions regulating Mbale food system environment

Policies / Institutions	Food system aspect targeted	Regulatory environment effects on the City food system
<i>Macroeconomic policy from Ministry of Finance and Economic Planning (MFEP):</i> The overarching policy of liberalization of prices and markets	All value chain stages - produce bulking and storage, processing, distribution, transportation, trade and marketing and manufacturing	Enables free food business start-up and development by all types of food system stakeholders. Constrains the development of local foods due to competition from imported foods; unrealistically low food prices – not remunerative.
<i>The NAADS policy for extension provision; Operation Wealth Creation (OWC) -</i> Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	Production, harvest, post-harvest handling – assures delivery of technical agronomic advice to farmers	To a big extent, extension is privatized, and most farmers cannot afford, affecting production, especially women and youth OWC being in the army, has not blended well with the traditional extension workers Farmers do not like the use of the military to enforce food production standards.
National Agricultural Policy (NAP) 2013 - MAAIF	Production and post-harvest stages - Modernized agricultural practices; food and nutrition security	The implementation of this policy falls short in Mbale city where urban farmers, traders and urban dwellers still grapple with the challenges of food production and improper food storage systems (SLU News, 2022)
Uganda Food and Nutrition Policy (UFNP) 2003 - MAAIF	UNFP aims to ensure that food security and adequate nutrition for all the people in Uganda, for their health, social and economic well-being.	In Mbale there is a gap in achieving the UNFP objective especially for poor urban population, who may not access healthy and safe food.
National Health Policy (2010) – Ministry of Health (MoH)	Consumption - To attain a good standard of health for all people in Uganda in order to promote healthy and productive lives.	Health care in the country is very expensive and not well coordinated – forcing many people to resort to herbs and demand for indigenous foods is increasing e.g. <i>malewa</i> and herbs
Uganda School Health Policy (2021) - MoH	Consumption - A healthy school community for better education outcomes and national development; a school environment that protects learners and staff against injury or disease and promotes prevention activities and attitudes against known risk factors that might lead to future disease or disability.	Many farmers and processors in Mbale are supplying schools with food. Schools are big food consumers
The National Grain Trade Policy (2015) - MAAIF	Production, storage, processing and distributions – aims to transform the grain sector to ensure sustainable and accelerated growth in grain production, quality storage, value addition, and trade volumes	Although Mbale is not a big grain producer, it is big grain processors. Being a business hub in close proximity to Kenya, it offers high demand for grains

National Standards Quality Policy (2012) - MAAIF	Production, processing, trading - to develop a Standards development, Metrology, Conformity Assessment and Accreditation (SMCA) infrastructure that supports the production and consumption of quality goods and services	Although focus has been on agricultural products and certification is going on, the system does not seem to be very effective – evidenced by banning Ugandan eggs in Kenya (2021) and Ugandan Maize in Sudan and Kenya (2021) - leading to losses
Policy guideline on Infant and Young Child Feeding (IYCF) 2009 - MoH	Production, trading and consumption - Promote the effective management of malnourished, low birth weight infants and young children; support optimal feeding for infants and young children in emergencies / special circumstances, including infants unable to breastfeed and/or on replacement feeding	Information is passed to mothers during ante-natal clinics, for those mothers who make the effort to go to the health centres. One company – Byeffe, has started producing fortified pumpkin for children and pregnant mothers – this is innovative

Source: Authors' compilation based on Codex Alimentarius Commission 2005, government policy documents and stakeholder views on their effects.

7.2.3. Food system standards for Uganda and Mbale city

According to the Dictionary of Food and Nutrition, “food standard is a set of criteria that a food must meet if it is to be suitable for human consumption, such as source, composition, appearance, freshness, permissible additives, and maximum bacterial content”. Several food standards have been established at national level (Table 6).

Table 6: Food standards for Uganda and Mbale food system

Standard	Food system aspect targeted	Regulatory environment effects on the City food system
National Standardisation strategy 2019-2022	All aspects for the food system	Strategy expected to address economic, social and environment aspects of all activities contributing to GDP. Implementation is weak and farmers and traders have suffered from bans by Kenya and Sudan to import food from Uganda.
East Africa standards on Nutrition Labelling requirements (EAS 803: 2014)	Food trade	Provides for food labelling that is effective in providing nutrition information to support informed choices by consumers that does not provide false nutrition information. Not so effective because food products from cottage industries being marketed does not contain nutritional information – surveillance and implementation is weak.
Nutrient profile model for the WHO Africa region (2019)	Food trade and consumption	Developed by WHO in consultation with members states of Africa – it is a WHO support to control obesogenic food environments and promote healthy diets, the primary focus being to protect children from the marketing of unhealthy foods and non-alcoholic beverages. In urban centres in Uganda, including Mbale various types of energy drinks are targeting the youth
Infant formula standards (2007)	Processing, Trade and consumption of baby food	Guides manufacturers on the appropriate nutrient composition of baby food. Most formal companies producing baby food, comply with the standards. It has also incorporated local food products e.g. soja, silver fish, aflatoxin free groundnuts, among others.
ISO 17025 (Competence of Testing and Calibration for Laboratories)	Processing and trade	Enables laboratories to demonstrate that they operate competently and generate valid results, thereby promoting confidence in their work both nationally and around the world. There are few labs deemed to be competent and this has given rise to operations of private international labs in the country, with highly priced services.
ISO - 22000 – Food safety management system (2018)	All stages in the food chain and the whole food system	It outlines Food Safety Management Systems (FSMS) requirements for any organization in the food chain. Effect on food system will be positive on condition that that system If applied and monitored
ISO/TS22002-3-2011 (Pre-requisite program on food safety in farming)	Production, post-harvest handling, food environment	Specifies requirements and guidelines for the design, implementation, and documentation of prerequisite programmes (PRPs) that maintain a hygienic environment and assist in controlling food safety hazards in the food chain. Limited effects due to lack of awareness by most farmers, except those trained within Global Value Chains (GVCs)

ISO – 9001 (QMS Certification)	All aspects of the food system	ISO 9001 is a globally recognized standard for quality management. Its requirements define how to establish, implement, maintain, and continually improve a quality management system (QMS) – for all types of organisations including food system ones.
Private standards: mostly applicable to those farmers and stakeholders in GVCs, all present in Mbale city mostly in the coffee value chain		
Global GAP value chain	All aspects of the food system	A farm assurance program, translating consumer requirements into Good Agricultural Practice (GAP).
Fair Trade	All aspects of the food value chain	Gives assurance that products traded were produced and are traded in accordance with Fairtrade International's rigorous environmental, economic and social standards.
Organic	All aspects of the food value chain	Gives assurance that farmers and businesses have met strict standards for the growing, processing and handling of their products - means the product has 95 percent or more organic content. Organic production emphasizes natural processes and ingredients
Rain forest Alliance	All aspects of the food value chain	Gives assurance that the certified ingredient was produced using methods that support the three pillars of sustainability: social, economic, and environmental
Utz	All aspects of the food value chain	A label for sustainable farming prevalent in coffee and cocoa.

Source: Authors' compilation based on Codex Alimentarius Commission 2005 and policy documents of the government of Uganda.

7.2.4. Food system regulations for Uganda and Mbale city

A regulation is “a rule or directive made and maintained by an authority” (**Dictionary, 1989**). In Uganda, once a bill has been passed by parliament and it becomes an act, then the specific government ministries or regulatory bodies within the ministries concerned, operationalizes it by drafting policies and regulations. Key regulations in the food system in Uganda and Mbale city are presented in Table 7.

Table 7: Food system regulations for Uganda and Mbale city

Regulation	Food system aspect targeted	Regulatory environment effects on the City food system
The Uganda National Bureau of Standards certification regulations (1995);	Storage, processing, distribution, transportation, trade and marketing of food and other consumable products	Assuring the quality of locally manufactured products to enhance the competitiveness of exports; NGO supported farmer groups certify their products Enforcement is weak because UNBS expects that food manufacturers to go to them for certification. .
The Uganda National Bureau of Standards Import Inspection and Clearance (2003) -	Imported products including food products Ensuring fairness in trade and precision in industry	Weak enforcement, especially after goods have entered the country, one can find expired products on in shops or those which do not indicate expiry dates.
The weights and measures (sale and labelling of good) (Amendment) Rules (2020)	Trading and consumption – establish rules on sale of goods by net weight or measure or quantity; pre-packaged goods; grading of eggs offered for sale; declaration to be on every package – quantity, units used, metrological requirements; among others	This is a general problem in the country and in Mbale City – traders sometimes use faulty or tamper with scales. A potato trader indicated that they generally sell deceptive packaged potatoes (Lower number of Kgs) to buyers who do not seem familiar
The Food fortification Regulations 2005	Processing, trade and consumption - promotes the fortification of staple foodstuffs and other processed foodstuffs to address identified micronutrient deficiencies in accordance with national standards.	The national campaigns about deficiencies and solutions have boosted production and sale of fortified foodstuffs – common in Mbale are yellow fleshed potatoes.
Uganda communications (content) regulations of 2019	All stages on adverts on food technology, new products, etc – regulates content which goes to the public including Telecommunications, Broadcasting, radio communication, postal communications, data communication and infrastructure.	Radio and television communication is quite effective in informing and mobilising food system stakeholders, especially in rural areas and smaller cities like Mbale

Food and Drugs quality control (iodised salt) regulation 1997	Consumption - enabled the implementation of the Universal Salt Iodisation strategy, enforceable to date, ensuring that only iodized salt is recommended for human consumption	Consumers in Mbale are sure to find only iodised salt on the shelves of shops and supermarkets
National nutrition planning guidelines for Uganda, 2013	Production, trade and consumption - outlines principles, processes, stakeholders, and timelines involved in planning, as well as nutrition interventions that sectors and local governments can consider.	Mbale city is yet to apply the guidelines at the local level.
Presidential Initiative on Healthy Eating and Healthy Lifestyle (PIHEHL), 2019	Production, trade and consumption – aims to: Promote healthy eating and lifestyle practices in households and communities; Raise public awareness about malnutrition and its consequences; Advocate for engagement and involvement of public and private sectors, civil society	Is encouraging more production of FFV, especially for suitable areas like Mbale

Source: Authors' compilation based on Codex Alimentarius Commission 2005 and policy documents of the government of Uganda.

8. Section 6: Mbale City Food Systems Entrepreneurial Innovations

The food system being the backbone of the Ugandan and Mbale city economy, implies that any processes and organisational forms within the system that develops and nurtures business models that assure sustainable supply of safe, nutritious and culturally appropriate food to all categories of city residents and beyond, cannot be under-estimated. Entrepreneurial innovation in food system related businesses is very important for food system transformation and needs to consider the food economy and general context of the city.

8.1. The nature of the food economy

The food economy of Mbale city, itself a reflection of contemporary city economies in Africa, dualistic in nature with the formal food economy coexisting alongside the informal one (Cities Alliance, 2017). We discuss the nature of Mbale city food economy in terms of food production, food consumption, food related services and flow of money in the food business. On the one hand, the food economy in Mbale city has remained predominantly informal because the city is young, was practically formed by annexing rural sub-counties inhabited mostly by subsistence farmers (85%) (Mackay, 2019) and has limited budget for upgrading its status. On the other hand, the city has formal food markets comprised of planned markets and supermarkets. More than 85% of households in Mbale city source their food from traditional marketplaces and less than 24% use supermarkets and then only sporadically and for specific products (Mackay et al., 2022).

Despite the nature of the food economy of Mbale city, food supply in Mbale is known to surpass food demand, making the city an important regional business hub, supplying food to neighbouring districts and Kampala, neighbouring Kenya and even South Sudan (pers. Comm. city political leaders; NGO staff). The sub-region, being a leading Arabica coffee producer in the country, has some better off farmers, who invest part of their earnings into various aspects of the food economy in Mbale city.

8.1.1. Informal food economy in Mbale city

The informal food economy refers to food system which are generally unregulated, unincorporated, unregistered, not officially taxed and mostly carried out by specific private operators, namely: street vendors, small-scale food producers, kitchen garden owners, food transporters and community-based food networks (Courtright, 2021). These activities take place in informal food markets and roadside stalls around the city, where vendors sell fresh produce such as fruits and vegetables, cooked food such as steamed roots and tubers, matooke, roasted meat, smoked fish, among others, along Naboia road, Market Street, Central road and Bishop Wasiky road (Pers. comm. low end city food consumer). Moreover, a common phenomenon, which is also an important part of the informal food economy is sharing of food by relatives in the rural areas, with city residents (Mackay, et al., 2022). Interestingly, however, non-slum city dwellers are also frequent customers of the informal food vendors especially those selling pork (Brown, 2022). Though not officially taxed, vendors in the informal food economy incur hidden costs that can be quite high. They pay VAT whenever they buy items from the formal market, to facilitate their vending activities, especially packaging materials, cooking oil and some spices, and yet, they cannot claim for refund. Many of them also pay for the spaces where they erect their stands, especially the youth who sell roasted meat. They also have to collect and transport all the material they use in the vending business daily. These costs are a form of hidden tax.

Activities in the informal food economy are often characterized by flexible arrangements, cash-based transactions, and limited or no formal documentation. On the one hand the informal food economy provides livelihood to a sizeable proportion of Mbale city residents and food, particularly for those with

limited resources. On the other hand, the informality of these activities can present challenges in managing issues such as food safety, quality control, and fair-trade practices. The informal traders usually operate in the evening, and often in an attempt to avoid the city enforcement authorities, and hence they can conduct business without proper regulation. The informal food economy, however, is the most important source of revenue for those engaged in it (pers. Comm. city commercial officer).

8.1.2. Formal food economy in Mbale city

The formal food economy in Mbale city comprises food transactions in formal markets like the central and gazetted secondary markets around the city. It includes agro processing, markets, supermarkets and hotel industry. Supermarkets serve mostly city residents with higher incomes (Mackay, 2019). City residents buy mostly non-food items and processed food products from the supermarkets because they believe that fresh food stuff is of better quality in the market (pers. comm. high end food consumer). This was confirmed during an interview with a supermarket owner, who indicated that attempts by supermarkets to stock fresh foods was futile because they only made losses. The food stayed on the shelves unbought and started withering (pers. comm. supermarket owner). In these markets, activities are regulated and structured within the national legal framework for business operations. These markets operate with licenses and follow specific regulations and standards, sales are often documented, and transactions are conducted through formal financial systems. This sector is typically more organized and has clear accountability and record-keeping mechanisms. Although Mbale municipality undertakes the issuance of licenses for actors in this market, ensuring that key regulations are adhered to, interviews revealed that there are cases of the formal actors also flouting food safety regulations and standards. For example, the city abattoir operators are breaking the health and safety regulations by dodging inspection of meat they suspect to be of poor quality and are under threat of being closed, (pers comm. city health inspector industrial division).

8.1.3. Entrepreneurial innovation in Mbale city

The city has a high presence of a complex and varied network of food system actors in its food economy (section 4.1 to 4.7). They include input suppliers, food producers, food transporters, food processors, wholesale traders and retailers, food manufacturers (traders of cooked food). These food systems actors operate in a context that is competitive, with very many actors in one VC, aiming for very small margins, and yet, many consumers are not able to pay high prices for the goods and services they get. Each of the food system stakeholders, therefore, strives to increase their turnover by engaging in some innovative activities beyond their specific roles (Table 9). In general, most actors engage in innovative arrangements such as: exercising overlapping roles to capture a bigger percentage of the market; belonging to SACCOS, to mobilize own savings and access extra capital and; belonging to BDOs in order strengthen each other in business through communication, collaboration and sharing market information.

Table 9: Highlights of entrepreneurial innovations by Mbale city food system stakeholders

Food system actor	Entrepreneurial innovation
Input suppliers – source inputs by importing from China or buying from bigger traders	Some engage in provision of farmer advisory services, radio talk shows to explain the use of their specific products, improved displays and packaging materials amongst others – all targeting farmer to whom they sell.
Urban food producers	Some low-income urban farmers in the city suburbs, produce vegetables and fruits near riverbanks, utilizing irrigation from the city's numerous rivers to contribute significantly to the local fruit and vegetable supply.
Food processors - MSMEs	Setting up cottage industries to engage in several activities along the value chain, moving towards VC control.
Larger scale food processors	Supply institutions like schools and hotels, in addition to serving retailers and other consumers. Business promotion strategies: offering bulk buyers reduced prices, ensuring delivery to trusted customers, maintaining quality standards, utilizing branding, and emphasizing good customer care practices.

Wholesale food traders	Double as retailers to certain customers. They engage in tailored delivery services, customer care initiatives, price reductions for bulk buyers, price discrimination based on customers' ability, attractive display methods, branding efforts, and quality packaging.
Food retailers (supermarkets)	Engage in sales promotions, quality packaging, delivery services, and radio talks.
Hotels and restaurants	Offer take away options especially those who prefer traditional foods. Their marketing strategies include word of mouth, competitive pricing, adherence to industry standards, and direct marketing through flyers in various locations

Source: Authors' compilation from primary data analysis

8.2. Viability of agri-food economy

The agri-food system plays a crucial role in Uganda's economy, contributing 40.7% to the GDP and amounting to USD 13.4 billion in 2019. The agri-food sector employs a substantial proportion of the workforce of about 11.8 million people, equivalent to 75.4% of the country's total workforce in the country (Xinshen et al., 2023). On the one hand smallholder farmers reported that they struggle to make ends meet due to limited support from government in terms of infrastructure and micro-irrigation and yet, food prices are very low (pers. Comm. farmer). On the other hand, those engaged in medium scale agriculture and downstream nodes of specific VCs, as well as BDS providers, all indicated that their businesses are profitable and viable. Moreover, labour productivity in off-farm components of the agri-food system surpasses that in on-farm activities (FAO, 2023). The food economy has also experienced notable growth in agricultural exports, leading to a positive trade balance for agri-products since the 1990s. Although political leaders believe these trends indicate potential for viability of the agri-food economy in Uganda (FGD, GFC), the fact that the primary producers continue to struggle may counter these seemingly positive trends by reducing or getting out of agriculture.

In Mbale city, subsistence agriculture is the major economic activity, employing 81% of the city labour force and there are several signs of viability of the food economy. The annual marketed agricultural output increased from 53% in 2016/17 to 60.5% in 2019/20 (Mbale city, 2020). While most food system actors reported that their businesses are profitable and generate consistent income, some of them, especially agri-input retailers and smallholder farmers mentioned that their income varies from low to moderate, mainly due to seasonality and the fact that they market low volumes (pers. Comm. farmer; production officer). Some food distributors and processors, especially of maize, highlighted the unreliable nature of the maize business, mainly due to price fluctuations. Supermarkets, particularly those in low-income zones are also struggling.

The following food system stakeholder categories reported good profitability and consistent income generation from their businesses. They include: wholesale agro-input dealers; food distributors across various segments of the VCs, including, beef, FFV, as well as street food vendors who cater for diverse consumer base, including corporate workers, business people, individuals, school students, *boda boda* riders, and industrial workers (pers. Comm. food traders); transporters who indicated that their business is most profitable during the harvest season when there is high demand; large-scale food processors meat and FFV; wholesale and retail butcheries; food retail shops and kiosks selling raw food; food manufacturers, notably hotels and restaurants reported good business from guests and workshops – targeting the city middle-class corporates and business people.

8.3. Challenges faced by agri-food system economy

We describe the food system challenges of Uganda in terms of food system drivers, how these affect the production and delivery environment of food on the one hand and consumption environment on the other hand, as well as the impact.

8.3.1. In Uganda as a whole

At the level of food system drivers, Uganda's food system faces various challenges. All that entails soils, plants, animals and the environment in which they thrive in Uganda is appropriate for agriculture. The Uganda food system is characterized by the dominance of smallholder producers, who produce on small acreage of land, use rudimentary technologies in food production and rely on rain fed agriculture. Due to limited extension support, they engage in poor farming practices, incur high levels of food losses after harvest and are generally poorer than other segments of the population. They are generally unable to afford a healthy, nutritious diet. They also face many negative effects of climate change on soils and rainfall, which affects their agricultural productive capacity (The Food Systems Dashboard, 2022).

In addition to production challenges, the growth and job creation potential of Uganda's agricultural sector face impediments, including underdeveloped VCs, limited post-harvest handling and processing capacity, inadequate market information services, high market volatility, and substantial investment costs and risks. Insufficient access to credit, poor savings habits, and limited connectivity to markets and suppliers due to weak infrastructure, further hinder progress. Consequently, 85% of farmers resort to selling their crops directly to the public at local markets, accepting potential income losses (FAO, 2023). Moreover, Uganda grapples with infrastructure limitations, food insecurity concerns, a high burden of non-communicable diseases (blood pressure, and nutrition-related challenges etc), among others (The Food Systems Dashboard, 2022).

8.3.2. In Mbale city

Biophysical environment: Mbale city food system faces similar challenges similar to those in the whole country (Rikolto, 2020a). Although both climate and soil types favours food production, the city is experiencing negative effects of climate change, particularly unpredictable climate variability, especially experiencing long heavy rains in some cases, leading to flooding and increasing incidences of landslides. This affects food production and flow into the city and leaves internally displaced people in the sub-region to depend on relief items from government and NGOs. In addition, the soils within the city are degraded due to population pressure, deforestation, poor farming practices and limited restorative care over time. The reckless use of agro-chemicals poses a direct danger to the food production environment. Market infrastructure and environmental issues, such as poor drainage, unhygienic conditions, and inadequate water supply, discourage customers and affect sales for traders in central markets and other areas. Poor garbage management contribute to an unclean market environment, negatively impacting the overall trading atmosphere. There is little regard for activities that protect, restore and conserve the biophysical environment, as a critical contribution to a circular food economy.

Infrastructure and territorial drivers: The city, especially outside the CBD, faces the challenge of poor infrastructure in terms of roads, limited coverage of piped water, poor sewerage management, food storage infrastructure and poor telecommunication and electricity networks. All these things have a negative impact on food trade, especially transportation and processing of nutritious and safe food for city residents. Not only does poor infrastructure negatively affect the linkages between urban, peri-urban and rural areas but it also hampers food trade and efforts to promote the development of a circular economy through recycling residues back to the production area.

Electricity, while available, poses challenges due to its high cost and outages, affecting food businesses, milling processes, and cooking practices. Water distribution and access problems are widespread among food distributors in the informal food economy, with concerns of reliability, high bills, and contamination. Taxes are a major concern for all actors in the food system, including producers, transporters, and food manufacturers, contributing to high operating costs. Limited access to affordable credit facilities adds

financial pressure to core food value chain actors. All these challenges work against resource use efficiency, leading to losses on the part of food system stakeholders.

Political and socio-economic: The administrative bottleneck of a city with full city status without an enabling financial mechanism to operationalise associated food system policies and regulations is problematic. From a socio-economic point of view, the poor food trade structure, combined with the challenges above erode women's income since they form the bigger proportion of downstream VC actors. Especially market vendors. The presence of numerous middlemen in the market, dictating prices, compounds the profitability issues for farmers and traders. City governance faces challenges in operating the food system under national laws without specific local regulations, with limited resources for effective implementation, particularly in waste management and garbage collection. Addressing these issues is crucial for creating a more sustainable and efficient food system in the city.

In the rest of this section, we describe the observable effects of the above challenges at the food system drivers' level in terms of food system challenges at various levels of food production, delivery and consumption environment levels.

Input supply level: In contemporary agricultural production practice, agri-inputs are crucial – ranging from seeds, through fertilizers and inputs against pests and disease. Input dealers in Mbale city grapple with delays in deliveries, price fluctuations, high transportation costs, stiff competition, poor product quality and numerous regulations during product shipment. The dealers also contend with low levels of capital, fluctuating demand and high operational cost. Furthermore, there are concerns about the safe use of inputs by ignorant users, which can undermine the credibility of input dealers. The input dealers also reported regulatory bottlenecks including high taxes, poor standards control, as well as limited policy awareness and guidance from city authorities (pers. Comm. agro-input dealer).

Food production and distribution level: the food production and distribution system is negatively affected by the prevalence of fake agricultural inputs and limited access to genuine ones, ranging from basic farm technology to improved seeds, pesticides, and post-harvest technologies. Farmers report that genuine inputs are often expensive, making farming financially burdensome. Furthermore, women and youth, lack individual land ownership and often face discrimination in land use decisions, in Lwaso zone as follows:

“Only few women own land due to cultural beliefs and we hardly find land for hire due to high population pressure”.

Members of a women's group in Lwaso zone

Regarding food distribution, sourcing is challenging as traders must collect small quantities from fragmented farms, increasing transportation costs. Perishable foods suffer due to poor quality harvest and inadequate storage in communities. Market dynamics, including prices and demand, pose challenges for traders. Middlemen dictating prices and fluctuating demand, especially during different seasons, affect the profitability of food traders. Poor packaging materials too, pose food distribution challenges. Additionally, limited access to business development services, knowledge, and information hinders the growth of food traders in Mbale.

Regulatory challenges include high and multiple taxes on transportation, income, market activities, and roadblocks, contributing to the overall cost of food. Some traders do not formalize their businesses due to lack of knowledge, fear of high taxes, or cumbersome formalization processes. A maize processor in the city explains this as follows, “There are too many taxes per annum: City council – UGX 200,000, UNBS – UGX 920,000, income tax – 600,000, UNBS stamp – UGX 350,000.”

Food manufacturing: Those food system actors involved in food preparation in Mbale city - including hotels, restaurants, and vendors, face a myriad of challenges including: congested and unhygienic city markets which sometimes compels some high-end hotels to source food from outside Mbale city; inconsistent food quality in city markets; seasonal fluctuations which impact food prices, sales and vendors' profits,

particularly during school holidays and rainy seasons; inconsistent energy, electricity outages, limited water supply and high costs of fuel pose obstacles. Other challenges are high cost of certification standards from the city council; high taxes further; inefficient waste management; delays in food waste collection; limited access to business development services to support business stability and growth. Street food vendors in particular face challenges with temporary structures, leading to losses in adverse weather.

Consumer perception level: Consumers have limited knowledge regarding prices, seasonality, nutrition, sourcing and processing of the products they consume in addition to lacking avenues to provide feedback to their suppliers (FAO, 2020). They also complain of unhygienic market environment, congestion in the market, limited adherence to food standards, food safety challenges especially the prevalence of higher chemical residue in food than allowed lack of inspection by the authorities, fluctuating prices, poor packaging, and lack of consumer education. Other challenges include inadequate and expensive power and water supply and low incomes especially in the low-end economic zones that affect their capacity to buy and prepare food.

8.4. Trends and shifts in agri-food systems economy

The agricultural sector in Uganda, employing most of the population, has experienced fluctuations in workforce percentages over the years. In 1991, 72% were engaged in agriculture, with a decline to 68% in 2005 and a subsequent increase to 72% in 2019 (International Trade Administration, 2023). Productivity shifts have been observed, with declines in crops like tubers and marginal increases in cereals (FAO, 2023). Uganda has seen a positive trade balance in agri-products since the 1990s, marked by a significant increase in agricultural exports. However, there is a growing inclination towards the consumption of processed agri-food products, reflected in the high percentage of agro processed imports at 82.5% (Xinshen et al., 2023).

Observable trends and shifts in the Mbale city food system include the following: While the variety and availability of agro-inputs have increased since trade liberalisation, the control of input quality by government has weakened greatly and as a result, proliferation of duplicates or fake inputs impacting negatively on food production, reducing volumes, farm incomes, and profitability. Food production has generally increased due to high food demands but yields are declining and quality of food as well. Regarding food trade, some VCs such as maize has evolved to include many actors, making the chain very long, with minimal profits at each node but others, for instance FFVs, are marketed mostly through direct contact between farmers and large distributors.

Consumers are more concerned and aware of food safety issues, giving rise to several food safety initiatives, such as the adoption of organic pesticides being promoted among farmers and potentially boosting consumer confidence. In addition, availability and consumption of food are affected by shifts in the availability and cost of energy, especially charcoal and firewood. Despite the challenges, there is limited shift towards consuming fast foods and local foods from city markets remain the predominant choice for consumers in Mbale. This is attributed to the cultural and nutritive value that residents attach to local food.

8.5. Alternative and emergent agri-food systems players and trends

In the food system of Mbale city, several players are emerging and influencing food system dynamics: i) *Brokers* – There is an increasing number of brokers, positioned as intermediaries between core value chain actors. While they provide some services, especially in the vacuum left by the collapse of cooperatives, the presence of a high number of brokers in VCs has an overall negative effect because the VCs become unnecessarily long, the margins per actor become smaller and they contribute to elevated food costs. This trend adversely affects producers, who receive the smallest share of the revenue as a significant portion is

absorbed by these intermediaries in the food value chain; ii) *Unregistered food vendors* – have proliferated outside Mbale central market introduces competition for market vendors. This situation hampers access to market vendors for potential customers, leading to lower sales as reported by the market master and; iii) *Online suppliers of food* – have emerged, especially during and after Covid. They aim at ensuring timely delivery to consumers. Concerns arise however, regarding the assurance of food quality and safe handling. Additionally, there is a risk of consumer exploitation through overpricing in the online food market (pers. Comm. city commercial officer).

8.5.1. Positive trends

Adoption of improved technologies and awareness of the dangers: Farmers are increasingly embracing improved technologies, such as improved seeds, fertilizers, agro-chemicals against pests and diseases, small farm implements, for instance walking tractors and micro-irrigation systems, all aimed at implementing Good Agronomic Practices (GAP). Furthermore, there is a growing awareness on food safety issues linked to unsafe chemical use, thanks to organizations like Rikolto. Some misconceptions, such as the belief that washing can entirely remove chemicals perpetuate chemical misuse. To counter this problem in tomatoes, some farmer groups are innovating, by harvesting tomatoes with stalks to enhance shelf life (pers. Comm. Farmer group member).

Adoption of improved standards: The Uganda National Bureau of Standards (UNBS) has played a role in training traders, particularly millers, to adhere to better standards. This involves practices like using magnets in milling machines and check the presence of metal particles, employing branded packing bags, sieving maize with mesh to remove impurities, creating a tiled trough for maize-water mixture before milling, and rejecting substandard maize.

Use of indigenous knowledge: in agricultural practices, utilizing organic pesticides and fertilizers. For instance, a farmer group in Namakwekwe employs a mixture of rabbit urine, hot pepper, aloe Vera, neem tree, garlic, ginger, ash, and blue soap for organic pesticide. Additionally, they create organic fertilizer by combining soil, dung, and use it for vegetable and passion fruit production. Pounded dry pepper mixed with ash is also used as a preservative for grains like maize and beans.

Demographic trends boosting food trade: The rising population in the city has led to increased demand for food products, benefiting local traders. Furthermore, there is a growing number of large-scale food processors and cottage industries emerging in Mbale city, such as the processing of pumpkin into powder for porridge. (pers. Comm. city commercial officer).

Increasing consumption of vegetables: mainly driven by their affordability and awareness of their nutritive value, while the consumption of meat has decreased due to its higher price.

Food systems multi-stakeholder fora: for example, Nutrition Coordination Committees, the Good Food Parliament, and the Good Food Council, among others, have been formed to assess, highlight, and drive transformation in Mbale city's food systems. It is a welcome initiative, according to the members. Although these fora are still young, they have already raised some food system issues regarding food safety which is currently being considered by the city Council for drafting an ordinance.

8.5.2. Negative trends

Youth migration and agricultural challenges: The trend of youth migrating from farms to urban areas in Mbale city has left women, the elderly, and children handling most farming responsibilities, negatively impacting food production. Additionally, increasing pest and disease incidences, reduced access to land, decreasing soil fertility, and climate change effects, all make agriculture more cumbersome, further driving the youth away and undermining sustainable agriculture.

Distribution dynamics: Continued spraying of fruits and vegetables during transit for preservation, without adequate awareness of associated risks, is observed in Mbale city; the rising presence of middlemen/brokers, combined with escalating fuel prices and transportation costs, contributes to increased food prices. Furthermore, a growing number of unregistered street food vendors pose potential challenges related to food safety and hygiene.

Changing consumption patterns: Street food consumption, notably roasted meat, chicken, and pork, is on the rise in Mbale city, particularly among men. This trend spans various social classes, with Naboa Street food kiosks emerging as popular venues. These changing consumption patterns reflect evolving preferences and dynamics in the city's culinary landscape.



Street food culture booming in Mbale city

Photo: ZIV photographer

November, 2023

9. Section 7: Mbale City Food Environment

The food environment, defined as the consumer interface with the broader food system, encompasses various factors such as availability, affordability, convenience, promotion, quality, and sustainability of foods and beverages within different environmental and cultural contexts (Downs et al., 2020). Several factors including socio-economic, political and the physical environment, influence the food environment and determine consumer choice of food (Rikolto, 2020a). In Mbale city, the food environment is fair because there is ample supply of food, generally accessible and reasonably priced for various segments of the population. The main sources of food for the city include the nine markets around the city, transfers from relatives in rural areas, own production in backyard gardens and wild harvest, mostly of bamboo shoots from forests in the Mt. Elgon sub-region. The primary concern in the food environment, however, revolves around the quality, safety and sustainability of food supply (pers. Comm. city technical staff).

9.1. Status of food environment

9.1.1. Food availability

Mbale city is a significant food basket in the Eastern region, with consistent and abundant food supply throughout the year. Sustainable availability of food for residents of the city is assured by sourcing the food both internally from peri-urban areas and other annexed sub-counties and externally, from neighbouring districts. Several socio-political food system issues described in section 5.2, related to poor policies and limited investment by government, impede the efficiency of food supply and availability (Pers. Comm. leader - central market traders' association). It is estimated that about one metric tonne (MT) of fruits and vegetables perish daily at the central market, a significant loss for traders, due to oversupply and poor food handling practices. Furthermore, during seasons of abundance, low demand for some perishable foods also results in food loss. Conversely, during off-seasons, food is sourced from as far as Kenya and Kampala to meet demand. (pers. Comm. city production officer; leader - Central market traders' association).

9.1.2. Food accessibility

Food in Mbale city is generally accessible to most residents, retailers and food processors. Residents access food from food stores, markets and even individual and school farms / gardens. The city has 9 markets: the central market which is the biggest, well developed and modern, seven gazetted and one non-gazetted market (see section 4.12.2). In addition, there are many food vendors along the streets. Dry food such as grains, especially maize and rice, is mostly obtained from the food stores and processing facilities in industrial zone, where most food processing takes place. There is only one city abattoir, constructed in 1930 and is in a very bad state. The toilets have collapsed, the floor is damaged and hard to clean, there are no showers, the fence of the holding ground has collapsed and there is no water. All these things pose a big food safety risk and yet when markets and the abattoir are properly planned, developed and with the intention of recycling waste many beneficial products can be obtained, including biogas from the abattoir and bio-degradable waste from the markets for black soldier farming, which can produce high quality protein, as well as organic fertilizer. Consequently, most city butcher men do not bring animals for slaughter at the city abattoir because consumers are scared of the situation, especially after a picture made rounds on social media recently. They instead go to private slaughter slabs which have come up around the city. Some of them source carcasses from outside the city (pers. Comm. City officials). Fish is supplied by wholesale traders who bring it from other districts and distribute it from the central market (Mbale city, 2020; Feed the Future, 2023). The poor state of many markets such as excessive crowding, unhygienic conditions and poor roads, negatively affect accessibility of food, as explained by a processor:

“The roads around industrial area are very bad, especially during rainy season so some customers of Posho (maize flour) park their cars at a distance and tell me to load the posho from that side of the road”

Maize processor in industrial division

9.1.3. Affordability of food

While Mbale city enjoys abundant and fairly priced food during harvests, year-round affordability of food is negatively affected by: seasonality, rising transport costs, poor infrastructure, and an increasing number of brokers who drive prices higher. Prices spike during periods of scarcity, hinder consumer access to diverse food options. In 2022, for instance, inflation in Mbale was 2.5% higher than the national average of 10%, driven mainly by the double-digit surge in prices of food and non-alcoholic beverages (UBOS, 2022). The most important issue regarding affordability is income inequality and low purchasing power (Rikolto, 2020a). Poorer segments of the city residents cannot afford to buy food of nutritional diversity (pers. Comm. Consumer).

9.1.4. Food quality and safety

About 80% of interviewees indicated that they are aware of food safety issues, especially at post-harvest food handling stages, particularly at the point of sales to consumers. Yet, food quality and safety issues stem from many sources and span whole value chains, at stages which may not be visible to consumers, as explained in section 4.11. The high level of food quality and safety risk awareness mentioned above is not surprising but should be taken with caution because most value chain actors consider the physical characteristics of the food products which may not reveal risks at other stages. This implies that stakeholder awareness for food safety risks may be much lower. It could be part of the reason why they continue to express effective demand for such contaminated food products. Other reasons could be a lack of alternative sources of good quality and safe food, as well as a trade-off on the part of poorer consumers, who, though aware of the food safety risks, may still go for unsafe food if they deem this to be significantly cheaper than safe food. Food system stakeholders believe training to raise awareness and equip them with tools for controlling food safety risks, through vendors' associations, can yield results (pers. Comm. Market vendors).

9.1.5. Food utilization

“Food utilization is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals are the result of good care and feeding practices, food preparation, and diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals” (FAO 2008).

According to the city production and marketing officer, While the majority of Mbale residents (92%) consume a diverse range of foods including meat, beans, chicken, and vegetables, disparities exist based on income and seasonality. The remaining 8% rely heavily on posho and beans, primarily due to financial constraints, (pers comm. city production and marketing officer). As a result, there is widespread nutrition insecurity within the population, particularly impacting children, pregnant women, the elderly, and the urban poor (pers. comm. city production and health officers). Vulnerability to malnutrition manifests itself through several angles: low income households not only struggle to afford diverse and nutritious foods, but also resort to having one meal a day due to high cost of energy for cooking; they also find it hard to afford electricity and access clean water and this hinders proper food preparation and storage. All these things could lead to nutrition deficiencies (UIA, 2018; The Nile Post, 2023; Mackay, 2019). Other issues include social-cultural norms that compel women to prioritize feeding other family members over themselves;

feeding school children predominantly on *posho* and beans due to budgetary constraints and; the increasing cost and scarcity of charcoal and firewood, the main energy sources for food preparation, resulting from high levels of deforestation.

9.2. Urban planning, design and spatial considerations: its role in food environment

Mbale city as described by the city physical planner, spans 158 square Km and consists of 26% planned CBD area with infrastructure such as housing, roads, markets, and utilities. The remaining 74% of the city area is unplanned area with insufficient or non-existent infrastructure. In addition, a significant portion (over 75%) of the city's land is unregistered. This disparity impacts the distribution of the food, the market environment and hinders consumer accessibility to food outside the planned city centre (Mbale city, 2020).

9.2.1. Housing infrastructure

In the CBD, 60% of housing is formally developed with approved building plans, and it serves as the primary food distribution and trade centre. Planned markets, supermarkets, an agro-processing industrial area, hotels, and restaurants are organized in this area. Outside the CBD, 90% consists of informal settlements, mainly in areas like Namatala, Mooni, Nauyo, Bugema, Namakwekwe, Doko, and Nasanda, located in the industrial division. These settlements source their food from local informal markets near them. This finding that a large population of Mbale residents reside in the slums, is further confirmed by Namaalwa *et al.*, (2020).

9.2.2. Road network and markets

The city's current industrial zone, situated in the CBD, is well-planned but road and market infrastructure outside the CBD is insufficient for its current needs. While the main roads in the CBD have recently been reconstructed, traders in industrial area complain about poor road conditions, especially those connecting to the rural supply base, negatively impacting their customer base. Good roads within the city facilitate easy food distribution but roads in poor condition, especially those connecting the CBD with annexed sub-counties, lead to higher transportation costs, food spoilage and higher food prices (pers. Comm. food processor). Here we see limitations emanating from the physical environment and political level in terms of low investment in infrastructure.

9.2.3. Electricity and Water

According to the city's physical planner, electricity and water distribution by UMEME and NWSC, respectively, within the CBD is fair. Availability of these services enhance food quality, especially with regards to cleaning food, processing and storage. The peri-urban areas, mostly in the annexed sub-counties however, face electricity connectivity problems, experiencing frequent power outages, as well as limited water supply in the higher altitude areas of the city, for example Lwaso (Pers. Comm GFC). Consumers, especially in low-income settlements and markets in the peri-urban areas, find utility costs expensive and this increases food processing costs, and therefore, the final food prices. In response to the high cost of electricity, MIAMA in industrial area negotiated with the UMEME to reduce cost of electricity in exchange for their collective efforts to ensure prompt payments by all their members. The traders' association has also made official complaints to the NWSC about inadequate water volumes and sewage flow in local rivers but did not receive a response. NWSC on its part affirms that water supply to Mbale city is not adequate since it was not designed to cover the current area and population. The parastatal has responded by selecting Mbale city for the implementation of a big World Bank water supply project upgrade, commencing in a few months (Pers. Comm. Official of NWSC).

9.3. The urban food environment

Downs et al. (2020) classify food environments into natural (wild and cultivated) and built (formal and informal). Applying these categories to Mbale city, the food environments is a mix of natural and built elements. The natural food environments of the city, comprises wild and cultivated areas which are predominantly found in peri-urban and rural regions in the city's Northern division. This division, inhabited mostly by subsistence farmers ensure ample food supply to the city. The built food environments on the contrary, consists of formal and informal markets, concentrated in the CBD, a big part of which is part of the industrial division which hosts most industrial setups. Food from both environments is accessible and reasonably priced for various consumer categories but food quality, safety, and sustainability of the food supply pose a challenge in the city's overall food environment.

9.3.1. Built environment plans that consider food environment

Mbale city lacks a comprehensive environmental plan focusing on food systems. Political leaders recognise the need for a comprehensive physical development plan to guide developments and zone land use, as the previous one expired in 2018. This has had implications on the current state of the city, for example there are no specific designated waste dumping sites, with waste dumped in gardens or burnt, posing a threat to the soils especially where non-biodegradable waste accumulates (Mbale city, 2020). Currently, Mbale has an industrial area primarily for food processing, and the central market is well-developed and planned, serving many residents. Other community markets selling food, however, are underdeveloped and in appalling situation. The city has been given de-gazetted parts of Watoto forest for farming, and there are NGO interventions for solar power and water installations in low-income areas such as Namakwekwe, Nabuyonga, Nkoma, Namatala, Mooni/Mukhubu. Despite the challenges, Mbale's spatial location, with numerous rivers and rich volcanic soils, naturally supports year-round food production.

The city physical planning department has conceptualised various city programs, to be developed, contingent upon available finances. These initiatives include upgrading peri-urban markets, establishing additional parking areas in the CBD for efficient food delivery, identifying zones for street vendors with plans to build markets for their accommodation, developing markets in host communities for displaced individuals, approving plans for more hotels, restaurants, and recreational centres in middle and low-income areas, promoting urban farming within institutions, and opening roads in slums and low-income settlements. A big challenge lies in the presence of illegal settlements on road reserves, as the city council has limited resources for compensation (pers. Comm. city physical planner).

9.3.2. Nature of and trends in the natural food environments in Mbale city

Mbale city heavily relies on its natural resources and surrounding areas for food, as highlighted by the city's natural resource and environment officer. The rich hinterland includes rivers, streams, forests, fertile volcanic soils, hills, and diverse flora and fauna, functioning as a food basket for both local and foreign markets. The cultivated food environment in Mbale city primarily consists of open fields and pasture land in rural areas, along with small gardens in peri-urban zones. The numerous rivers in the city provide abundant water that support food production, except for specific areas like Namabasa and Nakaloke, which are not situated along rivers. Additionally, the city's wild food environment contributes cultural delicacies such as bamboo shoots and fish to the local consumer base (Mbale city, 2020; pers. Comm. city environment officer). The food production environment around the city however, is not entirely safe for food production. Farmers producing food in Namatala and Malukhu suburbs, mostly use polluted water from

streams and sewage lagoons to water their vegetable gardens. A situation that is confirmed by Rikolto (2020b) in their study of food safety in fruits and vegetables in Mbale.

The natural food environment is easily accessible to residents the whole year round, however, the sustainability of this food source is jeopardized by indiscriminate human activities, including water pollution and poor farming methods which are causing significant changes in the ecosystem and a decline in the natural resource base. A good example of human-induced ecosystem changes in Mbale city in the Sino-Uganda Mbale Industrial Park in the city's industrial division and covering an area of 2.51 square Km. It was farmland, used by smallholder farmers to grow swamp rice but government decided to relocate majority of the families to make way for the park. The park now has four factories employing over 2000 people in the manufacture of steel, wood, foam and led bulbs, among others (Baez, 2022). The once healthy ecosystem, characterized by ample water volumes, is now experiencing reduced water levels and some of the rivers are drying out, attributed to the conversion of upland ecosystems into farmland and built up areas, leading to increasing land degradation, extensive soil erosion and negative impact on sustainable water supply for food production. Moreover, farming along riverbanks is leading to more frequent floods and river water pollution. Both private and Mbale central forest reserves are dwindling due to deforestation and land sales for development. The government has also de-gazetted Watoto forest and given to Mbale city, which has allocated parts of it for farming.

Climate change effects on the natural food environment of the city is evident, with more erratic weather patterns and undefined seasons. Certain areas, like Lwaso, are experiencing landslides (pers. Comm. city environment officer). There is a growing presence of pests and diseases, the use of counterfeit agro-inputs, a decline in soil fertility, and an increase in soil erosion due to ongoing poor farming practices. Overall, there is a lack of awareness regarding the sustainability of natural resources, coupled with a negative attitude towards conservation efforts. Weak enforcement mechanisms are attributed to limited resources, including human resources, financial constraints, and inadequate equipment.

9.3.3. Nature of and trends in built-in food environment in Mbale city

Mbale city being young (3 years old) and small, with an estimated population of 364,000 people has its built-in food environment, concentrated in the CBD, senior quarters and industrial area. They include markets, supermarkets, hotels and restaurants, institutions and food processing facilities.

9.3.3.1. The formal market food environment

The formal food environment in the city consists of the main **central market** in Mbale is the most developed and planned, as well as seven other gazetted **secondary markets** and one non-gazetted one. The Mbale central market, constructed by the government as a modern facility, is well-developed and designed for different commodities with provisions for storage, processing units, power for cooking, and water harvesting. Despite the initial plans, the storage and processing facilities were never installed. The market plays a significant role in the city's food business, attracting major food traders and wholesalers. Majority of consumers and food vendors in Mbale city access their food from the central market. As of the 2019 census, the market had approximately 10,313 vendors, and its daily population can exceed 30,000 people (pers. Comm. Market management committee member). The secondary markets are mostly undeveloped, with poor infrastructure, lacking stalls and vendors using makeshift structures or place food directly on the ground, incidences of flooding at the entrance and paths. In Kikindu and Namakwekwe markets, for instance, vendors selling fresh foods express a big need for infrastructure development (pers. Comm. Market vendors in secondary markets).

The **supermarkets** sell mostly dry processed food rather than fresh produce and cater for high-end food retailers. The supermarkets and **hotels and restaurants** also cater for high-end consumers and tourists. Locally produced fresh foods from central and other markets are preferred by both high and low-income consumers, as well as many hotels and restaurants which serve the more affluent categories of city

residents such as tourists, corporate professionals, government, and NGO staff. These establishments source food both locally and from cities like Kampala and Jinja. Despite adequate food production in Mbale city, hotels and restaurants face challenges of inconsistent food quality and supply. Some high-end hotels address these challenges by obtaining dry rations from supermarkets like Bam and fresh foods from contracted suppliers within Mbale city and even occasional sourcing from Nakasero market in Kampala. There are numerous moderately priced hotels which target middle-income earners. They offer predominantly local foods at affordable prices, to cater for middle-income corporates, civil servants, NGOs and the private sector. The restaurants engage in some form of specialization, for example, in boiled and roasted food to carve out a niche among consumers. All food preparation establishments express common concerns about the quality of food, hygiene, and accessibility, particularly in Mbale central market.

Market cooked food vendors: these food vendors prepare and sell within the markets, as well as other locations in the city. They primarily serve city traders and a significant number of low-income consumers from outside the market, offering affordable food options. The management of the central market however, is concerned about the vendors cooking in unauthorized areas, such as near drainage lines, which poses hygiene, sanitation and food safety risks to the food environment. Additionally, the use of charcoal for cooking by vendors is highlighted as an unhygienic practice within the market.

Institutions: Mbale city is home to numerous schools, hospitals and a prison, with a significant demand for large quantities of maize and beans as primary food items. Some schools and the prison have their own farms to meet own food but they are not self-sufficient. The majority purchase substantial amounts of grains (maize and beans) from food processors in the industrial area and fresh produce from farmer markets. During the school term, this high demand from schools pushes food prices up, particularly for maize and beans. A challenge to students' nutrition, however, arises from the limited food choices imposed by school managers. CONSENT, a partner of AfriFOODlinks is preparing to implement a consumer awareness project with schools to promote dietary diversity in schools. This however, might be problematic since most students do not even access meals in schools.

Food processing industries: The industrial area of Mbale city has numerous food processing facilities, of mostly grains. Old industrial buildings house various type of food processing machines for rice, maize, ground nuts, beans, among others. These facilities suffer from poor supply of electricity and water, to ensure smooth operations.

9.3.3.2. Informal markets food environment

Mbale city's informal markets comprise farmers' wet/secondary markets, street vendors, kiosks, and mobile vendors. These markets are typically situated on roadsides, along highways leading to neighbouring districts like Kumi road, Bugwere road, Soroti road, and Juba stage (serving Southern Sudan). They are an affordable source of food for consumers, benefiting from lower operating costs. It is important to note however, that accessibility to these areas for some consumers may be limited due to distance, as these markets are outside the CBD. In addition, the city many street food vendors who sell various types of both fresh and cooked food. Market vendors express concern that these street vendors disrupt their business, with many located outside the central market or along the streets. Some consumers prefer buying from street vendors to avoid entering the crowded central market. Street vendors often do not pay market dues and frequently engage in conflicts with the city council. Furthermore, there are mobile food vendors in the city, selling items like fish, fresh fruits, and vegetables, moving from place to place to serve consumers and other cooked food retailers. Some consumers from upscale areas prefer buying from these vendors as they offer convenience by delivering food directly to the consumers' location. Additionally, food kiosks are present in the city, strategically located for easy access by consumers.

9.3.4. Trends in the built-in food environment in Mbale city

In the formal market: The recent improvements in roads within the CBD and senior quarters, as well as modernisation of Mbale central market using ADB funds, is a welcome development, especially since this market is the most accessible to many consumers, as well as wholesale buyers who retail in other smaller markets around the city. The conditions in this modern market however, are deteriorating and are not very convenient to access for several reasons; some of the market infrastructure, such as cold storage was not completed; decline in standards due to poor maintenance of market facilities and; overcrowding by informal traders and *boda boda* riders all around the market. Inside the market, prices are higher because the vendors have to pay dues which translates into higher food prices inside the market. This congestion and the higher prices discourage consumers and wholesale traders from accessing the market. In addition, a competitive business environment is building up in the city, especially among players such as grocery kiosks which retail food on some city streets.

In the informal food markets: particularly the farmers' wet markets are rapidly expanding within the city because they are strategically located along the highways, to target travellers. These markets, often unorganized and situated along highways to target travellers, are introducing competition with the formal market vendors. Some consumers opt to buy directly from these informal markets due to their affordability, attributed to lower operating costs. This raises the important issue of considering the connection between the food environment and infrastructure, when upgrading markets, such as the Mbale central market. Street vendors are also increasing in numbers because they conveniently located in busy city areas, especially around the central market. This category of food vendors mainly comprises very low-income residents who cannot afford more organized spaces. While they offer accessible and convenient options, street vendors are perceived as problematic because they disrupt formal businesses. Many people prefer buying food from street vendors due to their convenient locations and accessibility, especially when the main markets are crowded or difficult to reach.

9.3.5. Nature of food environment in low-income economic zones

In low-income settlements of the city, the food environment can be classified into two categories, the farming and non-farming communities. Subsistence farmers, mostly in the northern division, cultivate the land and practice agriculture in the natural cultivated food environment and obtain their food from own production. For non-farm settlements, predominantly in the industrial division, the food environment is a mix of formal and informal markets. Low-income earners in these areas often settle near streams and are engaged in horticultural crop production using the streams for irrigation. Food availability and the sustainable supply of food however, is affected by constraints associated with subsistence farming, including low investments, poor farming methods, and low levels of production and productivity (pers. Comm. city environment office).

Low-income non-farm dwellers situated within the CBD, mostly the youth - *boda boda* riders, casual workers in industries and businesses, street vendors, underemployed slum dwellers, students, landless individuals, and street children, obtain affordable food from both formal and informal markets. This category of city dwellers, purchase food daily and typically consumes food of low diversity but fairly inexpensive, such as *posho*, beans, and vegetables.

9.4. Opportunities in the food environment to address food system limitations

Availability of natural resources: Mbale city has abundant water resources that can support irrigation, fostering food production. The city's land is relatively fertile, capable of sustaining small-scale urban farming, particularly in areas with volcanic and loam soils and moderate rainfall. Moreover, the city spans 158 square Km, with only 26% of the area planned, consisting of the CBD and the remaining 74% is unplanned. This presents an opportunity for deliberate integration of the city food system into the city

comprehensive physical plan, yet to be developed to guide land use and development. The annexation of rural sub-counties is also a good opportunity to use part of city land to address some of the city's food system issues.

The strategic location for trade: Mbale's central location in the Eastern region and close to the border with Kenya, positions it as an attractive and competitive business hub, including food business in the region. The city receives goods from various neighbouring districts and serves as a transit centre for goods leaving the region, destined for major cities like Kampala and neighbouring countries such as Kenya and Southern Sudan. This is an opportunity for building thriving businesses to increase sustainable food trading activities, attracting essential investments for economic development, as highlighted in the city development plan (Mbale city, 2020; pers. Comm. city commercial officer).

Availability of markets: the city has a well-constructed central but can still be improved, and seven secondary markets, all of which can be developed to better serve the residents. Moreover, the city is planning to upgrade and develop markets in peri-urban areas to accommodate street vendors. Availability of numerous markets, is an opportunity to improve access to food for city inhabitants.

Presence of enthusiastic food systems stakeholders: the city food system stakeholders both private and government, are interested in the city's food system and are willing to work for its transformation. The BDOs which aim primarily at on improving their businesses, can support food system transformation efforts, although many of them are currently weak and organisational development assistance. They include farmer groups and cooperatives, SACCOS, trader associations, among others (Table 3). The BDOs also lobby for improved food system services and can be suitable vehicles for food system transformation interventions (pers. Comm. city commercial officer).

Governance system, policies and institutions: Mbale City Council possesses adequate and qualified staff to oversee improvements in the local food system. Since declaration of the city status, the position of heads of department of the city have been elevated and filled with senior staff in their fields with key roles in food system transformation (Table 3). The collaborative identification of food system issue and search for solutions under the GFC and GFP, is a new way of working in the NGO-facilitated food system MSP. All these are opportunities for transformation of the food system environment. The capability of the city governance team to perform however, is hampered by low allocation of resources needed to act on the solutions proposed. For now, support from NGOs, given under specific projects, assure reasonable functioning of the city food system governance. Unless the situation changes however, sustainability of actions resulting from the MSPs remain questionable (pers. Comm. GFC members). The city food system is covered by the many laws, policies, standards and regulations, most of which are drafted at national level but with local government mandates for implementation (Tables 4, 5, 6, and 7). Although these instruments are scattered among various government institutions, they can serve as a starting point for building a strong foundation for food system transformation.

Improving infrastructure: The city commercial officer highlights improvements in the road infrastructure within Mbale city CBD and senior quarters, particularly through the MATIP program. This development is facilitating better access to food markets from rural areas and enabling faster delivery of perishable food items, especially the FFVs. Additionally, there has been enhancements in electricity distribution by UMEME and NWSC has already signed a contract for upgrading the piped water supply system in the city. This presents an opportunity for lower food processing costs, cleaner food for consumption, as well as safe water. Outages of electricity and inadequate water supply, remain a challenge.

Emergence of food system multi-stakeholder platforms: The existence of multi-stakeholder platforms specifically addressing food system issues provides a valuable opportunity to tackle limitations within the city's food systems. These include: the NCCs, the GFC, the GFP, among others.

9.5. Broader conceptual framing of food environment in relation to city contexts

According to Down et.al 2020, studying the food environment enable us to understand the socio-ecological factors of the food system that influence the foods that consumers have access to and which in the end influence the quality of their diet, their food and nutrition security and their general wellbeing. In this section, we adopt this concept (Figure 5) to reflect on the broader food system of Mbale in relation to its food environment.

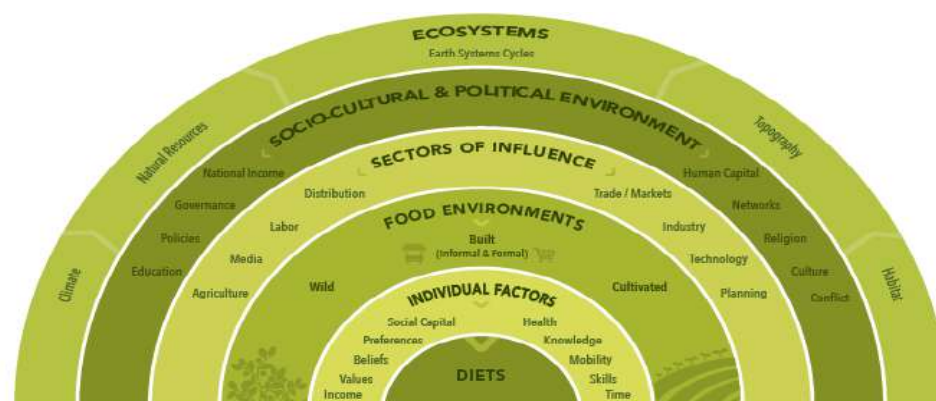


Figure 5: Positioning the food environment within food systems based on a socio-ecological model
Source: Downs, S.; Ahmed, S.; Fanzo, J. Herforth, A. (2020)

In positioning the food environment within the broader food system based on a socio-ecological approach, the layers identify the layers closest to diet as individual factors and the food environment. Individual factors influencing diets include social capital, preferences, beliefs, values and income on the one hand and health, knowledge, mobility, skills and time on the other. The food environment itself consists of the natural and the built environment. These two layers entail the structures and processes which individuals directly interact with in their immediate surroundings. The outer layers (sectors of influence, social cultural and political environment and ecosystems) are the more distal drivers influencing food environments, individual factors and diets.

Within Mbale city, according to the city health officer, the diet of the population is of low nutritional diversity despite the variety of foods in the city. In addition, the vulnerable people in city especially from low income, slum areas are most prone to malnutrition. The factors that influence the diet range from individual factors such as their income and preferences to food environmental factors and further to the social-cultural and political environment and the ecosystem at large as described in the research findings.

Some of the surrounding factors that affect the diet include seasonality of some foods such as fruits, high Perishability of some foods and yet the city lacks proper storage infrastructure such as cold rooms, high energy bills that may not allow for the constant use of fridges for preserving food, high wastage rate of foods that are produced and yet not consumed due to excess production and low demand, tendency by households to sell of all the nutritious foods leaves them malnourished.

The people's diets are also influenced by their social economic status. According to the city health officer, the urban poor are generally food stressed and lack variety making them vulnerable to malnutrition. In addition, women are more prone to nutrition insecurity than men since they often sacrifice their foods for other household members, school going children in the city face nutrition challenges with many going without breakfast and the elderly especially too are prone to malnutrition. Furthermore, consumer education in the city is very limited with many of the consumers not being informed about the health risks of the foods they consume.

The more distant drivers of the food environment in Mbale city include the city local governance, Uganda national bureau of standards (UNBS), the media, the multi-stakeholder platforms, the food business

associations and the NGOs. At the higher level, the food environment in Mbale is influenced by factors such as the government policies. According to the city health team, the city lacks ordinances that promote food and nutrition security and in addition, The Food and Drug Act that guides issues of food and nutrition is not updated and lacks a specific implementing authority and therefore may not ably address nutrition challenges in the city.

Finally, at the eco-system level, the city is being affected by climate change which is causing weather changes and floods affecting food production. In addition, there is degradation of the environment going on due to human activity such as pollution of the rivers and deforestation.



10. Section 8: Mbale City Food System: The Often-Unseen Aspects

10.1.1. Overlooked and underutilized urban food systems knowledge

The indigenous knowledge of the farmers and consumers need to be studied and harnessed to address the food systems challenges in Mbale city. The Bagisu cultural institution could be more utilized as a source of information for research into the use of indigenous and appropriate methods of food preservation, food processing, and food safety to help reduce the current trend in excessive utilization of chemicals, food waste and food losses. The cultural institution can also be used to sensitize the community.

10.1.2. What makes the city's food system unique?

The multi stakeholder platforms initiated by Rikolto and others, that are engaging food systems actors, are a novel initiative, creating more awareness amongst the stakeholders on the food environment challenges enabling them to seek solutions.

10.1.3. Who are the food contaminators?

Food value chain stakeholders revealed many bad food handling practices, right from the farm and in PHH, which most stakeholders may not have heard off, from the moment food leaves the farms up to preparation for consumption. All VC stakeholders are involved in different ways: farmers spray tomatoes with a fungicide for as long as they are not sold; even on the day of harvesting otherwise the traders will not take it; truck drivers stop on the way from the farm to the market near a pool of dirty water and wash the carrots before arriving in Mbale city; poultry farmers inject steroids in broilers (specifically anti-retroviral drugs) to facilitate weight gain; cooks at restaurants add aspirin in beans to hasten cooking and use polythene bags to cover food, to mention a few.

10.1.4. The myth of organic fertiliser

More farmers are becoming aware of the advantages of using organic manure, however, organic matter in the rural areas where production takes place is rather scarce. Besides, the quality of organic manure one gets will depend on the raw material used. Many times, farmers are not aware of the fact that organic manure may be deficient in certain nutrient and needs to be boosted and balanced. In such cases they apply deficient organic manure but yield does not improve much, let alone the fact that food produces will also be deficient in certain nutrients.

10.1.5. Low capacity of city food system actors

Although the food systems actors are trying to organize themselves and innovate, their capacities are too low to make reasonable impact on the food system. The SACCOS for example lack capacity to finance the food business of their members and the formal finance institutions have very high interest rates. This has left the food business actors to be exploited by money lenders who charge exorbitant interest rates and some are not regulated. The central Market trader's association management committee briefly mentioned this challenge saying some venders have ran away from the market when they fail to pay money lenders.

10.1.6. Rural urban migration of the youth

An important sustainability factor in the food environment is the trend of youth migration to the city, leaving the women, elderly and children to do the cultivation. This may affect the sustainability of food production in the long run due to limited productive labour force. The other factor is the continuous land fragmentation also being driven by population growth that will affect production in the long run.



Male youth migrate for self-employment as *Boda Boda* riders in Mbale city
Photo: ZIV photographer
November, 2023

11. Section 9: Discussion

Our research findings suggest the presence of foundational elements within Mbale city food system that can serve as pillars for the development of key aspects of a resilient food system. First, examples of existing pillars include, enthusiastic stakeholders who demonstrate a willingness to collaborate in the development of the food system. Second is the city status itself which comes with many expectations in terms of increased resources to upgrade key components of the city infrastructure and management, as well as opportunities for partnerships with other stakeholders, in order to transform the city food system. These pillars though present, have some weaknesses, especially the capacity of technical and political teams to analyse and respond to key issues. Furthermore, some of the pillars do not exist notably, the independence and capacity of the city to mobilise and allocate resources needed to address the priorities for developing a resilient food system development. Our findings are confirmed by other authors (Mackay, 2019; Awino, 2019) who affirm the need for attention to these critical pillars in order to fortify Mbale city's food system and address the existing challenges.

We further discuss our findings based on the three interlinked concepts of food systems, food sovereignty and sustainable cities. First, a food systems approach emphasises food system sustainability and resilience. Sustainability of food systems necessitates their transformation so that they become more productive, inclusive, environmentally sustainable and resilient, while producing healthy and nutritious diets. Our findings highlight adequate food supply to Mbale city from annexed sub-counties, as well as the rural food production areas in the Mt. Elgon sub-region, with which city has a good link. There is however, a gap in conditions for enhancing food production, considering the growing population of the city which demands larger volumes of food, and yet, no budget for agricultural extension services to producers in the annexed sub-counties. This situation is worsened by the declining soil fertility and climate change effects being experienced in the country. Since most of the producers in the city and those to whom they are linked in the Mt. Elgon sub-region are smallholder farmers, stakeholders need to consider local, affordable technologies for productivity enhancement, for instance traditional and agro-ecological methods of soil restoration and preservation, or organic-inorganic combinations of inputs and effective food preservation methods. Such options will not only be inclusive, especially for the majority smallholder farmers who are limited in resources but it will also be environmentally friendlier than the situation at the moment.

Beyond the farm, food quality, food safety, inclusivity of food access, waste management and environmental sustainability implies proper Post-Harvest Handling (PHH) by all other food value chain actors who link with the farmers in order to secure produce, add value and engage in onward selling until food reaches the consumers. It also implies consumer awareness of food quality and choices available. Our results highlight other challenges faced by the Mbale food system in terms of poor infrastructure of all types, food safety and food quality issues, high cost, low consumer awareness, limited access to health and nutritious food by vulnerable groups of city residents, among others. Tackling these issues in order to strive for a resilient city food system will require well-functioning and coordinated food value chains, food system governance in which multiple stakeholders actively participate, as well as investment in good infrastructure.

Addressing these issues in the pursuit of a resilient city food system necessitates the establishment of well-functioning food value chains (VC). The origin of these challenges is rooted in the infrastructure and practices at this level. Achieving this requires the presence of professional and trustworthy value chain actors at every stage, supported by a network of chain supporters connected both vertically and horizontally. Effective communication systems are vital for the efficient flow of goods along the value chain, enabling gradual upgrading and ensuring better revenue for all participants. The fact that women dominate the food vending segment of the VC both within markets and on the street is good for inclusivity, equality of opportunities within the food system and resilience of the city's food system.

The current situation is compounded by the lack of organization among a large number of smallholder farmers along specific value chains. The absence of organization at the production level leads to unhealthy competition among traders, transporters, and middlemen, resulting in compromised food quality and safety. Thus, the organization of smallholder farmers along specific value chains becomes imperative for fostering a healthier and more resilient food system in Mbale. Only through concerted efforts to organize and

streamline the entire value chain can stakeholders overcome these challenges and achieve sustainable improvements in the city's food system.

On the one hand, the consumption of a wide range of locally produced, healthy and culturally appropriate food by most city residents is an important aspect of food sovereignty. On the other hand, the current weak food system governance undermines food sovereignty. At consumption level, unplanned rural urban migration and limited economic opportunities keep a certain proportion of the population in low income status, making it difficult for them to access nutritious food even when it is available. If more stakeholders invest in upgrading specific VCs as explained above, there will be more job opportunities for such people, increasing their chances to access food. In addition to job creation in specific VCs, it will be important to stimulate a traditional kind of food self-sufficiency mind-set in which smallholder farmers are encouraged to save a good part of their production for own consumption especially since, the functioning of the liberalised food market is such that once a farmer sells all that s/he has produced, they cannot afford similar food from the market. All these key aspects of food consumption and value chain feed into the city's quest for food sovereignty and sustainability.

These strategies, when implemented together, hold the potential to address the right to food for all segments of the population within the city food system. By combining job creation through VC investments, encouraging self-sufficiency among smallholder farmers, and addressing storage and preservation challenges, stakeholders can make significant strides in enhancing food accessibility and security for the diverse actors in the city.

Across all facets of our research, a unanimous consensus emerges among respondents from various categories: the food environment in Mbale city is lacking in multiple aspects, adversely impacting food quality, safety, and consequently, the health of its residents. To unlock the full potential of investments in the transformation of the food system, it is imperative for the city to take the lead in investing in sustainability, commencing with the development of robust infrastructure to facilitate the efficient movement of goods and people.

Efficient mobility and communication are pivotal contributors to increased productivity once the populace can navigate and connect seamlessly. Additionally, substantial investment is needed in maintaining cleanliness, with a particular focus on waste management designed to facilitate recycling and contribute to the circularity of the city's economy. Such strategic investments not only hold the potential to enhance the overall food environment but also serve as catalysts for job creation.

By prioritizing sustainability, investing in infrastructure, and embracing effective waste management practices, Mbale city can pave the way for a more resilient and vibrant food system. These initiatives not only address immediate concerns related to food quality and safety but also contribute to the long-term well-being of the city's residents and the sustainable development of its economy.

By integrating the principles of the three concepts above, transition of the Mbale food systems will be well on its way towards sustainability and resilience, however, Uganda government must intervene, through the city government in order for various stakeholders to play their roles. Liberalised as the Ugandan business environment is, proper functioning of government regulatory bodies is crucial in order to nurture an enabling environment for business. If input suppliers and dealers trade freely in fake inputs and cause losses to farmers and traders, food business cannot thrive and consumers are put at risk. If a butcher man can sneak uninspected meat that could be infected into the market, then all consumers and other handlers are at risk. It is therefore imperative that government strengthens the foundation for transition towards a resilient food system in Mbale city.

By integrating the principles engrained in the three concepts mentioned above, the transition of Mbale's food systems towards sustainability and resilience becomes a tangible prospect. Nevertheless, for various stakeholders to effectively assume their roles in this transformative journey, the hand of the government, specifically through the city government, must be palpable. Despite the liberalized nature of the Ugandan business environment, the proper functioning of government regulatory bodies is paramount to cultivating an enabling environment for business operations.

In a context where input suppliers and dealers trade freely in counterfeit inputs, leading to substantial losses for farmers and traders, the thriving of businesses becomes precarious, and consumers face heightened risks. Similarly, if a butcher can stealthily introduce uninspected and potentially infected meat into the market, the safety of consumers and other handlers is compromised. Therefore, it is imperative that the government assumes a proactive role in fortifying the foundational elements necessary for the transition towards a resilient food system in Mbale city.

Government intervention is crucial for instilling regulatory frameworks that safeguard the integrity of inputs, ensure food safety, and foster a conducive business environment. This not only protects the interests of farmers, traders, and consumers but also bolsters the overall resilience and sustainability of the food system in Mbale.



Cooked food vending in Mbale city is a major food safety risk

Photo: ZIV photographer

November, 2023

12. Section 10: Conclusions and recommendations

In this report we generate path-leading scientific evidence to inform actions and strategies aimed at transforming Mbale city food system in such a manner that addresses the systemic foundations of food insecurity and environmental impact.

12.1. Conclusions

We found that Mbale city is well endowed with natural and other resources that are necessary for developing a robust and resilient food system. The city is unique in that it has a substantial rural area, with relatively fertile soils, adequate rainfall, and a climate that supports food production. The city food supply is higher than demand and it is diverse, however, poverty limits many residents from accessing diverse food sources. Consequently, the city population still experiences malnutrition. The city is a regional business hub, well connected to other cities and Kenya and this nature of the food economy presents an important opportunity for food trade. The city has a relatively good infrastructure but needs upgrade to fit the city status. While the city has a local government status, its capacity to implement food system activities is constrained by an incomplete financial structure for accessing central government budget allocations.

The food system stakeholders in Mbale are diverse and they play crucial roles at different stages of the food system. They include smallholder farmers, vendors, consumers, farmer organizations, business development organizations, market associations, NGOs, regulatory bodies, city council authorities, educational institutions, health facilities, food manufacturers, media organizations, and central government ministries. Each member of this complex network of food system stakeholders, face unique challenges. Addressing issues related to responsible agro-chemical use, financial access, enhancing transportation infrastructure, strengthening city government capacity to execute their mandate, among other, are crucial for building a more sustainable and resilient food system in Mbale. Moreover, the dual food economy with the informal food economy running alongside the formal, has its own challenges that need to be addressed.

The multi-stakeholder food governance and processes in Mbale city reflects the patch work at national level, mainly because responsibility for key aspects of the food system is divided among different Ministries, Departments and Agencies, some of which are not obliged to collaborate. This implies that much as food system stakeholders are many in Mbale city, collaboration among them is minimal. Multi-stakeholder platforms which have been facilitated by NGOs like Rikolto, is a young initiative that can yield positive results. There are opportunities for improve food system governance such as the city status itself but there are also threats in terms of limited autonomy of the city authority, limited land and contradictory guidelines.

There are several entrepreneurial innovations in the food business in Mbale city, mainly due to high competition in the food business, perishability of them most of the foods and the general poverty situation, which makes margins very low. Innovations at various levels include provision of advisory services by input suppliers; self-organising by smallholder farmers in production groups and SACCOS; for traders and processor, there is an increase in network marketing where food vendors deliver as they market their services and; some food retailers prepare ready to eat food and distribute. A cross cutting innovation among most VC actors is the playing of overlapping roles – for instance wholesalers doing retail. These innovations have given rise to new food system players such as online food suppliers.

We find a relatively good food system environment in Mbale city in terms of availability and affordability although for low-income residents, accessibility is hindered, in addition to associated costs of utilising food, for instance preparation. Food safety and quality are the most important challenges.

Using qualitative research techniques, combined with extensive literature review, we can shed light on the state of the Mbale city food system by characterising the key aspects of the system. While results may

point in similar directions to other urban food systems in Africa, they remain specific Mbale city. This takes into consideration the fact that in addition to political leadership, many other factors including the level of economic development, political history, as well as culture, shape local level food systems.

12.2. Recommendations

- a) Considering the needs of the city and the expectations that come with a city status, it will be important for the food system stakeholders to prioritise investment in **only few strategic value chains** which are important for Mbale city, for example, Matooke, herbs, Fresh Fruits and Vegetables. This will make it easier to plan to upgrade and render them more efficient, productive and job creating. The learning from such initiatives can then be used throughout the food system. Private coffee companies have demonstrated the effectiveness of this model with farmers groups and cooperatives in the coffee VC and NGOs like Rikolto demonstrated it in the FFV sub-sectors.
- b) The city authorities have engaged various partners and an ambitious food system transformation agenda and it is a good thing. Besides political good will, this work needs to be protracted and requires significant financial resources which the city may not be able to amass with the current system of decentralisation, in which financial decentralisation is not clear. The city, needs **to fight for financial decentralisation**, through the network of Uganda Local Government Association (ULGA), so that it can build a reputation for raising and/or attracting funds, deploying it to supplement partner investment in specific city priorities (such as AfriFOODlinks) and control the funds for results. In the meantime, the city leaders should engage in raising funds off-budget for specific projects, with a clear system of management and performance monitoring, preferably by a committee of food system stakeholders.
- c) The city leadership needs to develop a vision for the unique characteristics of the city that it wishes to preserve and develop within a city, especially **urban agriculture**. The vision should be part of a clear urban agriculture policy, with priorities which are then integrated in a comprehensive physical plan that provides for food system transformation towards sustainability.
- d) The fact that Mbale city is young and is yet to develop a comprehensive physical plan is a good opportunity that the leadership can take, while making use of the multi-stakeholder platforms which are emerging, to develop clear strategies for **integrating food system and circular economy issues**, especially related to infrastructure improvements that assure resource use efficiency and supports MSMEs to grow and sustain their food system related businesses.
- e) Sustainable city development strategies should focus **on improving market conditions, infrastructure**, and storage facilities, research into appropriate food safety and preservation methods to ensure a reliable and efficient food supply.
- f) The dualistic nature of Mbale City's food economy implies a need for a balanced approach that recognizes and regulates **the informal sector** while maintaining standards in the formal sector. Specifically, the idea of a business hub for Mbale city should be fast tracked, bearing in mind the need to support the informal sector towards formality, addressing their challenges regarding food safety and quality so that they can continue serving the low-income population.
- g) Collaboration between city authorities, farmers, vendors, and other stakeholders is essential for fostering a resilient and thriving food economy in Mbale City. While current initiatives by AfriFOODlinks partners to establish the Good Food Council and Parliament is appreciated, their capacity to engage each other and take up responsibility to make specific contribution for food system change is still weak. It will be important to invest in developing the GFC and GFP into a multi-stakeholder food system governance structure through capacity building - to engage in food system analysis, use scientific evidence for advocacy, tune their minds to food system and circular economy perspectives and, undertake their role to sustain food system transformation activities and transition to a circular food economy, rather than spend a lot of time to discuss the status quo.

- h) It is good news that the central government responded positively to the demand for investment in agricultural extension services for the city. This is an opportunity to develop and implement a good concept of **urban farming that fits within a sustainable food system and circular economy** vision for the city. It will also be important to retrain city extension workers to be able to respond to stakeholder food system and circular economy needs of the city.
- i) There is need for the city authorities working with stakeholders to put concerted efforts in **consumer education** to address the major challenge of food safety, since consumers are a driving force in the food value chain business.
- j) AfriFOODlinks could engage stakeholders in to experiment on initiatives to **encourage primary processing in the rural areas** where production happens. Not only will this kind of exercise assure the retention of waste from primary processing in farms but it will also reduce transportation of raw food products with its waste. It will also plant seeds of mindset change among such actors in favour of circularity.
- k) The dietary diversity awareness campaigns that CONSENT intend s to implement in schools can be an opportunity for better linkage of various work packages under AfriDOODlinks. The same schools could be engaged **in garbage sorting and training within their farms, in farming methods** that protect, conserve and reuse resources such as agro-ecology.
- l) Considering the many concerns with reckless application of agro-chemicals and the food safety and health risks they pose, it might be a good idea for AfriFOODlinks and partners (including the city), to look for ways of investing in **organic agro-input development**, in partnership with organisations like PELUM, AFSA and NOGAMU who are already trying it out. This will offer farmers alternatives to the chemicals, as well as affordable and safer organic-inorganic combinations of agro-inputs.
- m) The project should engage food system stakeholders to solve the **garbage collection, processing and management**, for a more sustainable food system and to promote a circular food economy.
- n) When the city gets to complete central market and upgrade the secondary markets, it will be important to plan for **appropriate food preparation facilities** for the ladies who prepare food in the markets in order to mitigate food safety risks for consumers and to improve to improve the business environment of the ladies. Furthermore, the city should plan for **clean energy sources**, including solar, electricity and gas under negotiated subsidised rates to promote inclusivity of women MSMEs in a clean environment.
- o) The city needs to urgently plan for and implement an upgrade exercise for the city abattoir, in order to mitigate the glaring food safety risks and make good use of the resource. Integrated in such a plan for the abattoir upgrade should be biogas production from cow dung.



Food system intervention: upgraded market infrastructure supported by Rikolto
Photo: ZIV photographer
November, 2023

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14. Annexes

14.1. Table A1: Administrative units and population of Mbale City

WARDS	CELLS
NORTHERN CITY DIVISION: Population = 222,300 (193,000 females and 171,100 males)	
Aisa	Nankusi, Masanda A, Masanda B, Mbiko A, Mbiko B, Nangolo, Namabwa, Nakigalo, AisaTeko Upper, AisaTeko Lower, UTC Elgon, UTC Elgon Central and Muwoza
Rock	Nakaloke Central A, Nakaloke Central B, Nandala A, Nandala B, Namabasa 2 Lower, and Namabasa 2 Upper
Afya	Busajjabwankuba A, Busajjabwankuba B, Khwanga, Afya, Nakaloke 3 and Kabogoza,
Kireka 1	Kireka Central, Kagwa and Byabato
Mukunjija	Mukunjija, Namunsi Central B, Muwereza
Najja	Nakaloke 2 Upper, Nakaloke 2 Lower, Kazibwe, Namigalo
Nakaloke	Entebbe Road, Nabitende, Mutuba and Nakaloke 1 Cell
FikaSalama	KirekaMailo 6, Sajjabi, Wabomba, and Mulindwa
Namagumba	Namagumba A, Namagumba B, Bunguhulya, Namengo, Busamira Central, Busamira Upper, Nanyulu, Namakole, Namawondo, Kifafa, Lower and Kifafa Upper
Nabweya	Kilulu A, Kilulu B, Kasanvu, Budi A, Lumumbwa, Nabweya A, Nabweya B, Bugembe, Nankobe, and Makudui
Nkoma	Nansu, Nkoma Centre A, Nkoma Centre B, Namanyonyi Centre A, Namanyonyi Centre B, Namatala, Ndeega, Kanikwa A, Kanikwa B, Kinyoli A, Kinyoli B, Nabunyiri and Budi B.
Bumuluya	Kiduwa, Matale, Bumuluya main, Musitu, Namugobera, Gizombe, Nabilinda, Bumuluya Upper, Makuya, Machele, Kilagala, Kiyanza, Bwika, Ikoko, and Matungulu
Bulweta	Mahoto, Bumalunda, Kidumi, Nabukalisha, Upper, Buwamwangu Main, Buwamwangu Town Council, Nagwere, Mayiyi, Nahando, Bulweta A, Bulweta B, Nabukalisha, Lower, Manganga, Ibanda, Musola, Mulundu, Kiwila, Nakinawa, Mpigwe, Mahalwe, Namazanza, Bushabe, Kidabago, Nambale, Kibudi, Nanyira, Namwani, Namuhondo, Kifululiro, Lusulula, and Makuwa
Bumuyaga	Masaba, Bumuyaga Upper, Bumuyaga, Mafudu, Nabwami, Lukhobe, Bwaki B, Lugongo, Mitumba, Webuta, Bumusamali and Nangulugulu
Nanyunza	Kidondo, Nanyunza, Tugutu, Nakitokolo, Sagiya, Makosi, Masegese and Lusala
Kasanje	KasanjeDoko 1, KasanjeDoko 2, Kasanje A, Kasanje B, Nambulu, Nsereko and Wangoli
Namunsi	Waboola, Gesa, Wabusimba and Ntate
Kireka II	Kadebede Upper and Kadebede Lower
Namabasa	Namabasa, Namabasa IV, Namabasa VB, Namabasa IV Upper, and Namabasa IV Lower
Bwana	Kolonyi Upper, Kolonyi Lower, Kilagals and Bwana
Kolonyi	Kolonyi Central, Kolonyi Farm road and Kolonyo I
Kolonyi Salem	Salem A, Salem B, Namabasa I Lower, and Namabasa I Upper
Doko	Kibumbire, Doko, Namabasa III Central, Namabasa III, and Namabasa III A
Lwasso	Makuyu, Bukimuga, Masiwe Upper, Masiwe Lower, Mutuba, Balegali and Magada
Kihuno	Kibagala, Kyakyoya, Namazaba, Nabuloho, Nafulyungu and Kituti
Bukikali	Kilongo Lower, Kilongo Upper, Katala, Nanzegom, Lwandra, Kyamugungu, Nagobongobo, and Bukikali Central.
Buwangolo	Namulama, Bumadi, Buwangolo, Namajese, Bukishelo, and Itebe
Nabuyonga	Sebei, Buwalasi, Kichafu, Kisenyi, Mirembe, Magezi
Nkoma	Busajja, Hygiene, Buyonjo, Bujoloto, Gangama, Senkulu, Wanambwa, Nambozo
North Central	Hospital, Clock Tower, Duka, North Road, Byasala, Uhuru, Pesa, Nkokonjeru
Namakwekwe	Nabigyo, Link Road, Bufumbo, ii8 ission, Kachumbala, Gudoi, Mugisu, Kiteso, Bulago, College, Mpumude
University	Staff, Sheraton, Northern, Village
INDUSTRIAL CITY DIVISION: Population = 141,800 (74,700 females and 67,100 males)	
South Central	St. Andrew's, Wasike, Naboa, Republic Street, Foods, Lwakhakha, Park, Police, Kale, Cathedral
Masaba	Butaleja, Bumasifa, Pallisa, Malawa, Bugwere, TemuteoMukasa
Malukhu	Sironko, Busano, Majanga, Wanyera, Muti, Primary, Muyembe
Namatala	Somero, Mvule, Sisye, Nyanza, Wandawa, Doko, Bubirabi, Kiduda
Boma	Masaba, Union, Elgon, Nakhupa, Bungokho, Fairway, Bukwa, Nabigyo, Wanale
Busamaga West	Nabweya, Health Centre, Mosque, Bumboi
Busamaga East	Nampanga, Butandiga, Namalogo, Namatsyo
Mukhubu	Isebele, Sawa, Shiende, Zesui
Mooni	Namubiru, Mutoto, Nashibiso, Nagudi

Bumutoto	Mutoto Upper, Mutoto Lower, Bugunalire Upper, Bugunalire Lower, Bunamwani Upper, Bunamwani Lower, Katwaka, and Magokha
Munyanda	Namiko, Mukhubu, Busimba, Shikunga and Bubetsye
Namalogo	Musoola, Lusaga, Kamisiyo, Mukhuwa, Mangho Lower, Mangho Upper, Nabwisha and Wakongo
Bumboi	Namashele, Kidobo, Bumadi, Nalokha, Nagimesi, Shdula, Nabisolo, Magakala, and Bumboi Trading Centre
Mooni	Bukhosa, Milembe, Bululeje, Miyale and Bukungala
Nabitiri	Green Pasture, Musoto, Nashibiso, Makhubo, Masanda and Nabitiri
Tsabanyanya	Bugema C, Tsabanyanya, Wangito, Kibinko, Nashisa, and Masaba
Marale	Nasenge, Marare, Kisenyo, and BugemaB
Doko	Nkwanga, Centre, Saluti and Mosque
Bukasakya	Bugema A, Bugema Centre and Munkaaga
Kijja	Walwema, Balayo, Onzima, Ausi
Napooli lower	Kengere, Mutenyo, Mutende, Khabusi, and Situma
Napooli upper	Wakholi, Moiti, Light and Namunane
Wakwaba lower	Wakwaba A, Wakwaba C, Aramazani, Wakwaba B and Florida
Wakwaba central	Musa, Warid, Mabonga, and Zadoki
Wakwaba upper	Masaba, Holy Trinity, Mututu and Nambele
Napoli Central	Nabwana, Primary, Wepukhulu and Kugungu

14.2. Table A2: List of individual respondents for Mbale city research interviews

Name	Sex	Education level	Marital status	Telephone Contact	Category	Location	Division	
Moses	Musoba	Male	Tertiary	single	0784 671395	Agro-input dealer	Mbale bus park	Industrial
Ruth	Itwiniilo	Female	Tertiary	Married	0782 002653	Agro-input dealer	north central	Northern
Sylvia	Munialo	Female	Tertiary	Married	0775 540012	Agro-input dealer	Mbale taxi park	Industrial
John	Baife	Male	Secondary	Married	0781 538767	Maize processor	Namatata	Industrial
Abubakar	Sikwera	Male	Secondary	Married	0782 613138	Processing service	Nakaloke	Northern
Cissy	Nabukenya	Female	Tertiary	Married	0772 648548	Consumer	Malukhu	Industrial
Justine	Nambozo	Female	Uneducated	separated	0741 138985	Consumer	Namakwekwe	Northern
Sam	Opio	male	Tertiary	Married	0393 239576	Hotel food retailer	Senior quarters	Industrial
Isaac	Salira	Male	Tertiary	Married	0771 277635	Hotel food retailer	north central	Northern
Micheal	Welishe	Male	Secondary	Married	0776 422010	Wholesaler	Central market	Industrial
Lukia	Nabbosa	Female	Primary	Married	0772 951308	Produce retailer	Nakaloke market	Northern
Josephine	wabule	Female		separated	0778 970914	Produce retailer	Namakwekwe-Kikindu market	Northern
James	Sempala Musisi	Male	Secondary	Married	0772 927894	Wholesaler	Masaba-industrial area	Industrial
Muhammad	Wotaba	Male	Primary	Married	0754 430087	Wholesaler	Central market	Industrial
Jamada	Mukoya	Male	Primary	Married	0772 639439	Wholesaler	Nakaloke	Northern
Annah	Nasimiyu	Female	Primary	Married	0761 986703	Street vendor	wakwaba central	Industrial
Ronet	Chelangat	Female	Tertiary	Married	0760 460875	Consumer	wakwaba central	Industrial
Julius	Okiror	Male	Tertiary			Consumer	Bukasakya	Industrial
Morris peter	Edichu	Male	Tertiary	Married	0783 964669	Restaurant	Nkokojero	Northern
Sharon	Kakayi	Female	Tertiary	single	0773 616554	Restaurant	Bukasakya	Industrial
Simon	Katunk	male	Tertiary	single	0751 209031	Super market	namakwekwe	Northern
Amina	Namasaba	Female	Primary	single	0781 074291	Street produce vendor	Kikindu	Northern
Yasin	Saley	Male	Tertiary	single	0702 777196	Super market	Abra shopping centre	Industrial
Jafari	Wabomba	Male	Secondary	Married	0773 166782	Processing-wholesale butchery	Nakaloke	Northern
Badru	Mukasa	Male	Primary	Married	0782 711681	Processing-wholesale butchery	Masaba-Bugwere	Industrial
Godfrey	Musamba	Male	Tertiary	Married	0784 659060	Consumer-school	Namakwekwe	Northern
Stella	Akwedde	Female	Tertiary	Married	0782 038222	Consumer-school	South central	Industrial
Cate	Nandudu	Female	Secondary	single	0779 552504	Cooked food-street vendor	Hospital ward	Northern
Eva.	Nakiryowa	Female	primary	Married	0781 635264	Kiosk cooked food vendor	Namatata	Industrial
Neumbe	Nabukwasi	Female	primary	single		Street produce vendor	Namakwekwe	Northern
Isama	Wambede	male	Secondary	Married	0774 144883	wholesaler/retailer-beef	South central	Industrial
Hamza	Mafabi	Male	Secondary	Married	0784 100686	Produce retailer	Nakaloke market	Northern
Rose	Nakibirango	Female	Secondary	Married	0786 016592	Street vendor	Namatata	Industrial
Richard	Higenyi	Male	Tertiary	Married	0764 752338	Transporter	Central market	Industrial
David	Okurut	Male	Secondary	Married	0753 233459	Transporter	Nakaloke	Northern

14.3. Table A3: List of association representative respondents for Mbale city research interviews

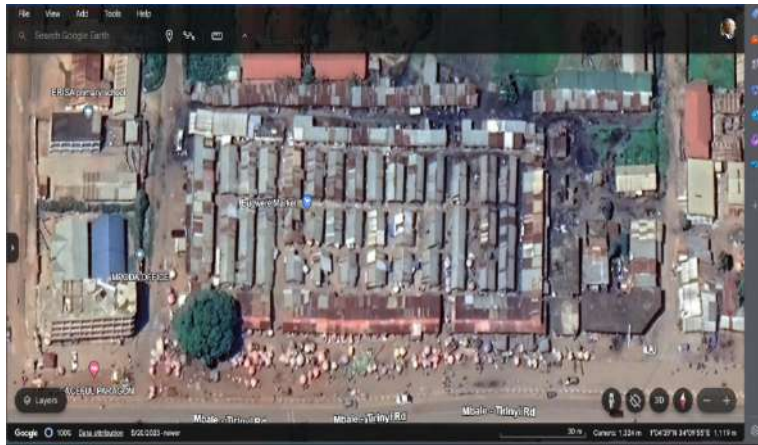
Group name	Group type	Membership (M/F)	Activity	Location	Division
Elgon integrated modern urban farmers association	Women and youth	30 (7 / 23)	Producers	Namakwekwe	Northern
Mbale industrial area millers' association (MIAMA)	Processors	85 (65 / 20)	Millers	Masaba	Industrial
Northern City Division Animal and Butcher Traders Association	Traders / processors	100 (99 / 1)	Animal trade and butchers	Rock	Northern
Mbale police barracks producers' association	Mixed	30 (8 / 22)	Producers	south central	Industrial
Bugwere road market traders' association/tailors	Mixed	40 (20 / 20)	Produce traders	Maluku	Industrial
Maluku prison producers' association	Women and youth	20 (19 youth /1 Adult)	Producers	Masaba-Maluku prison	Industrial
Mbale Abattoir Association	Mixed	80 (50 / 30)	Processors	Masaba-Bugwere market	Industrial
Malo women farmers group	Women and youth	29 (23 / 7)	Producers	Lwasso	Northern
Kikindu fresh market vendors' SACCO	Mixed	30 (5 / 25)	Traders SACCO	Namakwekwe	Northern
Nabwiso Horticultural group	Mixed	15 (15 / 10)	Market vendors SACCO	Namalonge	Industrial
Mbale central market traders' association	Mixed	10313 vendors (Executive M28, F3)	Traders association	Mbale central market	Industrial
The Mbale city Good Food Council	Mixed	15	Food systems MSP	Mbale city	City-wide
The Mbale city Good food parliament	Mixed	Over 50	Food systems MSP	Mbale city	City-wide

14.4. Table A4: List of Institution representative Respondents for Mbale City Research interviews

Names	Gender	Position	Institution	Contact
Wamuwaya Rogers	Male	Senior Commercial Officer	Mbale city council	0773 020081
Kainza Agnes	Female	Focal Person for Nutrition	Mbale city council	0784 626271
Muyama Eunice	Female	Senior Physical Planner	Mbale city council	0774 209479
Kisakye Sarah	Female	Acting Production Officer	Mbale city council	0774 181496
Rhoda Nyaribi	Female	Principle Environment officer	Mbale city council	0772 693722
Mutonyi Aisha Mugoya	Female	Finance Minister	Mbale city	0772 557881
Lunyolo Josephine Fradia	Female	Woman councillor, Northern Division	Mbale city	0705 025264
Mafabi Richard	Male	Market master - central market	Mbale city council	0772 642722
Egonda Emmanuel	Male	Station manager	Elgon FM 101.3 FM	
Kulubya Moses	Male	Reporter and News Anchor	Step FM	0780 342940
Peter Businda	Male	Business advisor	Rikolto	
Goldenbells Tayebwa	Male	Area team leader-Eastern region	AVSI	0774 910 628
Sarah Ganisha	Female	Business advisor	Technoserve	0753 798777
Isaac Okiring, Pius Woniala, Albert Otim	Male	microbiology analysts	UNBS	0784 997335
Masaba Joseph	Male	Credit Loans Officer	Centenary Bank, Mbale Branch	0779 968764
Mr. Kanakulya Fred	Male	Agriculture and Lending Officer	Pride Micro Finance	
Muyama Eunice	Female	Focal Point Person, Mbale City	RUFS	0774 209479
Gimei Ronald C	Male	Head of protocol / Administration	Inzuy Masaba	
Mubuya Godwin	Male	Personal Assistant to Traditional chief	Inzuy Masaba	

Notes: Inzuy Masaba is the cultural institution of the Bagisu

Figure A1: Google satellite images of Mbale food system infrastructure



Bugwere Market: 1°04'29"N 34°09'56"E



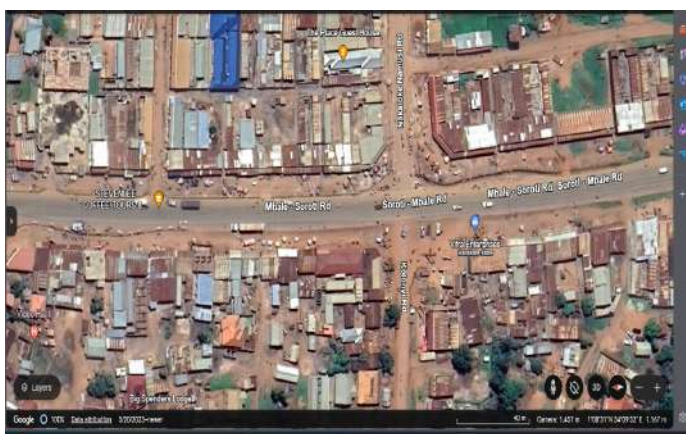
Kikindu Market: 1°05'34"N 34°10'35"E



Kumi Road Market 1°04'40"N 34°10'47"E



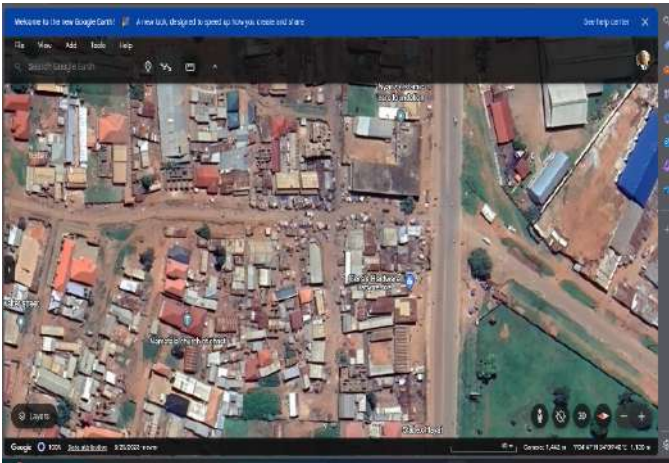
Mbale Central Market: 1°04'15"N 34°10'42"E



Nakaloke market: 1°08'35"N 34°09'52"E



The non-gazetted - the Juba stage: 1°07'29"N 34°10'06"E



Nylon Market: 1°04'46"N 34°09'44"E

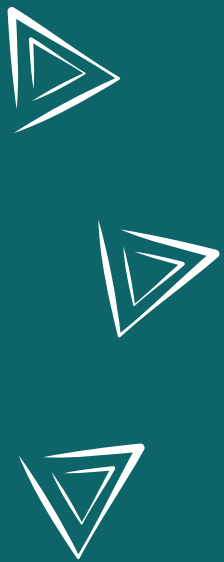


City Abattoir (marked blue) 1°04'33"N 34°09'36"E

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Mbale City Industrial Area



AfriFOODlinks



Funded by
the European Union



Coordinated by
ICLEI Africa