

AN EXPLORATION OF THE EVOLVING FOOD SYSTEMS AND POLICY IMPERATIVES FOR A SUSTAINABLE FUTURE IN KENYA

PB1/05/2025

MAY, 2024



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Acknowledgements

We express our deep appreciation to the BRICS Insights team for their vital role in the development of this policy brief. We particularly acknowledge the contributions of **Bright Wekesa** and **Collins Bulinda**, whose technical expertise and commitment were key to the preparation of this product.

We also recognize Ashley Asin for her valuable support in the final editing and design of the report, which enhanced the quality and presentation of the final output.

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ABSTRACT

The global population is currently 8 billion, with approximately 828 million people facing chronic hunger and undernourishment. To meet the growing demand for food, food systems need to be more efficient, transform eating habits, and reduce food waste. Weaknesses in the food system are most prevalent in Africa and South Asia, resulting from problematic import/export dependencies, dietary reliance on a narrow range of crops, and climate change. Kenya is a developing country that has experienced rapid population growth, urbanization, and economic growth but still faces significant challenges related to food security, malnutrition, and poverty. Given the above, this paper presents literature on the current state of food system transformation in Kenya. The review indicated that there is growing recognition of the need to transform Kenya's food system to address existing challenges and create a more sustainable and equitable food system. The current state of food systems requires a significant overhaul. This paper reviews the challenges and opportunities facing the country as well as the policies and initiatives that could be implemented to promote food system transformation. Some of the noted challenges include climate change and environmental degradation, limited access to resources, food waste and loss along food value chains, and limited market access by farmers owing to poor infrastructure and farming complexities. Key interventions necessary to improve Kenya's food system include targeted supporting of small-scale farmers to aggregate, promoting sustainable agricultural practices, investing in research and development, improving access to markets and finances, and addressing nutrition and health challenges among vulnerable populations.

Key words

Food systems, transformation, food security, food markets, sustainability

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1. INTRODUCTION

Food systems are interconnected systems and processes that affect nutrition, food, health, community development, and agriculture (FAO, 2021). Food systems encompass all processes and infrastructure required to feed a population, including growth, harvesting, processing, packaging, transportation, marketing, consumption, distribution, and disposal of food and food-related items, as well as the inputs and outputs at each step. Food systems are social-ecological systems that link society and nature (Blesh & Wittman, 2015). They comprise actors and their needs, interests, knowledge, and institutions that determine how to produce, distribute, and consume food, thereby generating different impacts on ecosystems (Berkes & Folke, 1998; Ericksen, 2008a; Ostrom, 2009).

The global population today stands at 8 billion[1]. In 2022, approximately 828 million people were facing chronic hunger and undernourishment (FAO, IFAD, UNICEF, WFP, and WHO, 2022). As a result, food systems need to be more efficient in improving food production, transforming eating habits, and reducing food waste to meet growing food demand. The current state of the global food system requires a significant overhaul. The current trajectory is heading towards a dead end: relying solely on current trends in production and consumption cannot generate the necessary increase in food production to meet the demands of a growing human population. Although global agricultural yields have increased, poor distribution and food quality have resulted in increased numbers of both hungry and obese people (FAO, 2017), indicating significant flaws inherited from the last century (De Schutter, 2014).

[1]On 15 November 2022, the world's population reached 8 billion people, and is projected to reach 8.5 billion in 2030, and to increase further to 9.7 billion in 2050 and 10.4 billion by 2100. Most of the global population has increasingly concentrated among the world's poorest countries, most of which are in sub-Saharan Africa.

The erosion of local and national food security in various areas, primarily Africa and South Asia (global South), is another indication of the weaknesses of the food system resulting from problematic import/export dependencies, dietary reliance on a narrow range of crops, and climate change impacts (Bren d'Amour et al., 2016). Kenya is a developing country in East Africa that has experienced rapid population growth, urbanization, and economic growth over the past several decades (Nabwire et al., 2020). However, the country still faces significant challenges related to food security, malnutrition, and poverty, particularly in rural areas. In recent years, there has been growing recognition of the need to transform Kenya's food system to address these challenges and create a more sustainable and equitable food system for all Kenyans (Kogo et al., 2021). This review explores the current state of food system transformation in Kenya, including the challenges and opportunities facing the country as well as the policies and initiatives that have been implemented to promote food system transformation. Additionally, the paper highlights some of the key actors and stakeholders involved in food system transformation in Kenya, including government agencies, NGOs, farmers, and consumers. Finally, the paper provides proposals on the key interventions necessary to improve Kenya's food systems.

Why does a review of food system transformations matter?

- 828 million people worldwide suffer from chronic hunger, indicating that food systems are not meeting the needs of a significant portion of society.
- Improving the efficiency and effectiveness of food systems is essential to achieving Zero Hunger and ensuring access to nourishing food for the underprivileged in society.
- Flawed or broken food systems can negatively impact food security by driving up prices, making nutritious food unaffordable.
- Poor food systems can also prevent smallholder farmers from earning sufficient profits from their crops, which undermines their ability to maintain food production and meet local demands.

KENYA'S FOOD SYSTEM LANDSCAPE

Evolution of the Food System



Kenya's food system landscape is characterized by a range of agricultural production systems, including smallholder farming, pastoralism, and large-scale commercial farming (Eckert et al., 2017; Salami et al., 2010). The agricultural sector is a significant contributor to the economy, accounting for about a quarter of the GDP and employing approximately 75% of the labour force (FAO, 2020; KNBS, 2022). The primary crops produced in Kenya include maize, beans, potatoes, and vegetables, and livestock production, including cattle, sheep, and goats, is also an essential component of the food system (FAO, 2020).

Evolution of the Food System

A range of factors shape Kenya's food system landscape, including natural resources, socio-economic conditions, and cultural practices. One of the current factors shaping the food system is the impact of climate change, which has led to frequent droughts, floods, and other extreme weather events that affect agricultural production and food security (FAO, 2020).

The political and economic context in Kenya is also an important factor shaping the food system, with issues such as land tenure, trade policies, and access to credit influencing agricultural production and food prices (Kimenju et al., 2019). Cultural practices and social norms also play an essential role in shaping Kenya's food system, with traditional dietary patterns and preferences influencing food choices and consumption patterns. The role of women in food production and household decision-making is also an important factor shaping the food system, with women providing crucial farm labour that is critical for agriculture and food security in many parts of the country (Onyolo, 2019).

The food system in Kenya is also influenced by technological advancements, with the adoption of modern farming techniques and digital technologies contributing to increased productivity and efficiency in agricultural production (Mwangi & Kariuki, 2015). Additionally, urbanization and changing consumer preferences are reshaping the food landscape, leading to a growing demand for processed and convenience foods in urban areas (Rischke et al., 2015). Furthermore, the increasing role of supermarkets and formal retail channels in food distribution is altering traditional supply chains and market dynamics, impacting both producers and consumers (Neven et al., 2009).

Food System Transformation

➔ The Early Years of Independence

Kenya's food systems were characterised in the early years of independence by focusing on increasing agricultural productivity through large-scale state-led interventions (Duker et al., 2023). The government invested heavily in large-scale irrigation schemes, which led to the expansion of commercial farming in areas such as Rift Valley (Odhiambo et al., 2017). However, these interventions largely bypassed small-scale farmers, who continued to rely on rain-fed agriculture and traditional farming methods. This approach created a dual agricultural system, with commercial farms benefiting from government support while smallholders struggled to access resources and markets. The uneven development led to increased rural-urban migration as many small-scale farmers sought better economic opportunities in cities. Consequently, this shift in population dynamics began to strain urban food systems and infrastructure, setting the stage for future challenges in Kenya's food security landscape.

➔ The Green Revolution

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Food System Transformation

➔ Structural Adjustment and Liberalization

The 1990s saw significant changes in Kenya's food systems, driven by the government's adoption of structural adjustment policies and liberalization of the economy (Lynam & Leresche, 2021). These policies led to the dismantling of state-led interventions in agriculture and the opening up of the sector to private player investment and trade liberalization. This led to significant changes in the agricultural sector, with the increased commercialisation and diversification of crops. The shift towards market-oriented farming resulted in the emergence of new value chains and the expansion of export-oriented crops. However, these changes have also brought challenges, particularly for smallholder farmers who struggle to compete in increasingly globalized markets and face difficulties accessing credit and modern agricultural technologies.

➔ Recent Trends (2000's to present)

In recent years, Kenya's food systems have continued to undergo significant changes, driven by factors such as population growth, urbanization, and climate change. One

notable trend is the rise of urban agriculture, which has emerged as an important source of food and livelihood for urban residents (Clark et al., 2020; Joshi, 2021). Another trend has been the emergence of alternative food systems, such as organic and fair-trade agriculture and online food delivery systems, which aim to address the spatial, social and environmental challenges associated with conventional food handling (Obando et al., 2021)



Key Food Distribution Channels

Fresh produce Markets

These markets are a popular food channel in Kenya, where farmers sell their fresh produce directly to consumers or through agents (Kyule, Mwangi, & Nkurumwa, 2014). These markets provide consumers access to locally grown fresh fruits and vegetables, dairy products, meat, and poultry (Kirimi et al., 2011). Popular fresh farm markets in Kenya include the Maasai market in Nairobi, the city market in Nairobi, and the Nakuru Farmers' Market. These markets provide consumers with a great opportunity to buy fresh produce at affordable prices while supporting local farmers.



Supermarkets

Supermarkets are popular food channels in Kenya, where consumers can buy a wide range of food products, including fresh produce, packaged foods, and household items (Chege et al., 2015; Kamau et al., 2019). Some popular supermarkets in Kenya include Naivas, Carrefour, Uchumi, Quick Mart, and Shoprite. These supermarkets source their products from local and international suppliers, and consumers can access them at their convenience. The growth of supermarkets in Kenya has led to increased competition among retailers, resulting in improved product quality and competitive pricing (Neven et al., 2006). This trend has also influenced the food supply chain, with supermarkets often establishing direct relationships with farmers and producers to ensure a steady supply of fresh produce (Reardon et al., 2003). However, the expansion of supermarkets has posed challenges for traditional open-air markets and small-scale retailers, who struggle to compete with the larger chains' economies of scale and marketing strategies (Weatherspoon & Reardon, 2003).

Key Food Distribution Channels

Local Grocery Stores

Local grocery stores are a common food channel in Kenya, where consumers can buy fresh produce, packaged food, and household items. These stores are typically small, independently owned, and operate. They source their products from local farmers and distributors, and offer consumers a convenient option for buying their groceries (GoK, 2016). These local grocery stores play a crucial role in Kenya's food distribution system, particularly in urban and peri-urban areas. They often have strong ties to the community, providing personalized service and sometimes offering credit to regular customers. However, they face increasing competition from larger supermarket chains and online grocery platforms, which are gradually expanding their presence in the Kenyan market.

Online Food Delivery Platforms

These platforms connect consumers with local restaurants and food vendors and allow them to order food online and have it delivered to their doorsteps. Some popular online food delivery platforms in Kenya include Jumia Food, Uber Eats, and Glovo. These platforms have gained significant popularity in urban areas, especially among young professionals and students. They offer convenience and a wide variety of food options from different restaurants, catering to diverse tastes and dietary preferences. The growth of these platforms has also created new opportunities for restaurants to expand their customer base and increase sales through digital channels.

Current Challenges Facing Kenya's Food System

1

CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION

Kenya is highly vulnerable to the impact of climate change, including droughts, floods, and other extreme weather events. These impacts have a significant effect on agriculture and food production, especially for small-scale farmers who lack access to resources and technology to adapt to changing climatic conditions (Benegiamo et al., 2020). Environmental degradation, such as soil erosion and deforestation, poses a threat to long-term food security and sustainable food production. The government has implemented various policies and programs to address these challenges, including the National Climate Change Action Plan and the Green Economy Strategy. However, the effectiveness of these initiatives is limited by inadequate funding, weak institutional capacity, and insufficient coordination among stakeholders.

LIMITED ACCESS TO RESOURCES

Many small-scale farmers in Kenya lack access to essential resources, such as land, water, and other inputs like fertilizers and seeds. Additionally, they often lack access to credit and financial services, which limits their ability to invest in farms and increase their productivity. This lack of resources and support can lead to lower yields and reduced income for farmers, as well as limited availability of nutritious food for consumers.

2

3

FOOD WASTE AND LOSS

Food waste and loss are significant problems in Kenya, particularly in the post-harvest stage. Inadequate infrastructure and storage facilities, as well as poor transportation networks, lead to high levels of food waste and loss, which not only impacts food security but also exacerbates environmental problems, such as greenhouse gas emissions from decomposing food waste. This issue is particularly acute in rural areas, where smallholder farmers often lack access to proper storage facilities and efficient transportation methods.

LIMITED MARKET ACCESS

Small-scale farmers in Kenya face challenges in accessing markets for their products, particularly high-value markets, which could yield better returns on their investments (Nchanji & Lutomia, 2021). Limited market access can lead to diminished income for farmers and restrict the availability of nutritious food for consumers. These challenges have contributed to disruptions in food distribution, resulting in food insecurity and malnutrition. Consequently, a significant portion of the Kenyan population experiences hunger and malnutrition, with approximately 16% of the population estimated to be undernourished (FAO 2020). Malnutrition, encompassing both undernutrition and overnutrition, remains a critical issue, with about 26% of children under five years of age being stunted and 4% overweight (UNICEF, 2020).

4

Initiatives and Policies for Food System Transformation in Kenya

The Kenya National Climate Smart Agriculture Strategy

Launched in 2017, this strategy seeks to enhance the resilience of Kenya's agricultural sector to climate change while simultaneously promoting sustainable and productive agricultural practices. The strategy underscores the significance of improving soil health, advancing agroforestry, and supporting small-scale farmers by facilitating improved access to inputs and financial services.

The Agricultural Sector Transformation and Growth Strategy (ASTGS)

The ASTGS, initiated in 2019, seeks to revolutionize Kenya's agricultural sector by fostering commercial agriculture, enhancing agricultural productivity, and improving farmers' access to markets. This strategy underscores the significance of advancing infrastructure, encouraging the adoption of technology, and improving access to credit and financial services. Similarly, the Kenya National Food and Nutrition Security Policy, also launched in 2019, aims to enhance food security and nutrition outcomes for all Kenyans by promoting sustainable food systems, increasing access to nutritious food, and addressing the underlying causes of malnutrition.

The National Agricultural Policy (2019)

enhances food systems transformation in Kenya by promoting sustainable and climate-smart agriculture, improving productivity through research and innovation, and supporting value addition and market access. It emphasizes food and nutrition security through diversification and inclusion of

vulnerable groups, strengthens institutional coordination across sectors and counties, and fosters private sector participation through investment incentives and public-private partnerships. The policy also prioritizes evidence-based decision-making through improved data systems, making it a key driver of a more resilient, inclusive, and efficient food system in Kenya.



Recommendations and Conclusions

Conclusion

Kenya's food system landscape is characterised by a range of factors that shape agricultural production, food availability, and nutritional outcomes. While the country's agricultural sector is a significant contributor to the economy, significant challenges, such as food insecurity, malnutrition, and environmental degradation, persist. Addressing these challenges will require a holistic approach that addresses the various factors that shape the food system, including natural resources, socio-economic conditions, and cultural practices.

Over the past six decades, Kenya's food systems have experienced substantial transformation, influenced by a variety of factors such as policy changes, economic growth, and environmental pressures. Although these transformations have resulted in notable increases in agricultural productivity and food production, they have also engendered significant social and environmental consequences. Addressing these impacts necessitates a comprehensive approach that considers the diverse factors shaping Kenya's food systems, including natural resources, socio-economic conditions, and cultural practices.

Kenya has various food channels that connect farms to consumers in major towns. These channels include fresh-produce markets, supermarkets, local grocery stores, and online food delivery platforms. Consumers have access to a diverse range of fresh produce, packaged foods, and household items from local and international suppliers. The government has implemented policies to support and regulate these food channels, ensuring food safety and quality standards are met. Additionally, there has been a growing trend towards organic and locally sourced products, with many consumers preferring to support small-scale farmers and sustainable agriculture practices. Despite these developments, challenges such as transportation infrastructure and post-harvest losses continue to impact the efficiency of food distribution across the country.

Improving food systems in Kenya requires an approach that addresses the various factors that shape food production, distribution, and consumption. This will require coordinated efforts from the government, civil society, and private sector actors, as well as the active participation of communities and small-scale farmers. Implementing sustainable agricultural practices, such as agroecology and conservation agriculture, can help increase productivity while preserving natural resources. Strengthening local food markets and improving infrastructure for food storage and transportation can reduce post-harvest losses and enhance food security. Additionally, promoting nutrition education and diversifying diets can contribute to better health outcomes and support local food producers.

Recommendations for improving Kenyans food systems

Support for small-scale farmers to aggregate:

Small-scale farmers are an important source of food and livelihood in Kenya, particularly in rural areas. Supporting them through targeted aggregation policies and investments can help them to pool efforts and resources, improve their productivity, incomes, and food security.

Promote sustainable agriculture:

Sustainable agriculture practices such as conservation agriculture, agroforestry, and integrated pest management can help improve soil health, conserve natural resources, and reduce environmental impacts.

Increased investment in research and development:

Increased investment in research and development: Investment in research and development can help identify and promote new technologies, practices, and crops that are better adapted to local conditions and can improve productivity and resilience.

Improved access to markets and finance

Access to markets and finance is a key constraint for many small-scale farmers in Kenya. Improving access through infrastructure investments, market linkages, and financial products can help support businesses and increase their incomes.

Address nutrition and health challenges

Malnutrition remains a significant challenge in Kenya, particularly among vulnerable populations, such as women, persons with disabilities, and children. Addressing these challenges requires a multisectoral approach that addresses the underlying social, economic, and cultural factors that contribute to poor nutrition.



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