Kenya Final Foresight Report

Foresight for Food System Transformation (FoSTr) Programme

Foresight4Food

Contents

1.   Policy Summary

Transforming Kenya's food system is essential to address interconnected challenges of food insecurity, malnutrition, environmental degradation, and rural poverty. Kenya's current food systems, central to health, economy, and the environment face challenges to ensure equitable access to healthy diets, with persistent child undernutrition, rising adult obesity, and mounting ecological stress. In the FoSTr programme, foresight and systems thinking were applied to anticipate and shape long-term change, enabling stakeholders to plan resilient strategies rather than react to crises. The foresight process brought together diverse actors to analyse trends, identify uncertainties, and construct scenarios to support the Kenyan food system transformation agenda.

The process was tailored for Kenya to support emerging policy discussions, strengthen decision-making, and inform a national plan of action for food system transformation, building on momentum from national food systems dialogues and transformation pathways developed in the wake of the UN Food Systems Summit in 2021.

In Kenya, FoSTr worked across multiple levels. This involved national level work including multiple workshops in Nairobi, but also work in two Counties: Nakuru and Marsabit County. At all these levels we found foresight and food systems thinking is not only needed, but very practical and relevant. This is especially due to the need to link to bottom-up transformation processes but also community ownership and leadership.

1.1 The foresight process

The Kenya foresight process consisted of four iterative, participatory steps, which sometimes took a different pace (Nakuru started 2023, Marsabit in 2024).

Scoping the process: Partnerships were established with government and research actors, ensuring the process matched priority needs. Workshops engaged stakeholders from diverse backgrounds to set the agenda.

Map the system: Researchers and stakeholders used frameworks like Foresight4Food to analyse food system actors, drivers, outcomes, and feedbacks, combining data reviews with participatory mapping. This established a shared understanding of system complexity, trends, and opportunities for change. We created a National Kenya Food Systems mapping report, and drafted a Marsabit and Nakuru food systems analysis.

Explore future scenarios: At each level, foresight and scenario tools were applied. At national level, a diet scenario modelling exercise was conducted. In Nakuru, five scenarios were developed based on the uncertainties related to business structure, consumption patterns, scale of (food)trade and level of environmental sustainability. A desired future (Ukulima Bora) was selected to use as vision for mobilising for change. In Marsabit, four scenarios were developed, based on the uncertainties of climate change rainfall patterns and quality of governance. A desired future (Ajako) was designed to help stakeholders think through no regret, urgent and boosting intervention areas.

Mobilise for systems change: Foresight insights were translated into policy guidance for national level, Nakuru and Marsabit counties. Through participatory exercises such as stress-testing, backcasting, and Causal Loop Diagramming, stakeholders and the research team identified pathways and conditions for achieving agri-food goals. Furthermore, key entry points and models for sustainability were developed. For instance, the Kabazi Foresight Innovation Model, which allows for the replication of the foresight process across Kenya's counties tied to County Government frameworks. Another opportunity is to institutionalise foresight across government training via the Kenya School of Government, which has expressed an interest to collaborate with the FoSTr Kenya partners to integrate foresight and food systems examples in their curricula. Finally, briefs were developed giving recommendations on financing and investing in food systems transformation in Nakuru, and on strengthening the Science-Policy-Society interface in Kenya's food system environment.

1.2 Key insights & recommendations

The FoSTr programme in Kenya increased awareness among policymakers and stakeholders of current and future food system challenges through participatory foresight tools and data-driven scenarios. It supported policy development, cross-ministry collaboration, and national foresight capacity, while highlighting the risks of inaction on issues such as climate change. The process also helped shift mental models for systems change by encouraging actors to think in terms of interconnections, long-term impacts, and shared responsibility. In our work, insights revolved around the need to link pathways, processes and partnerships to a long-term vision, while being aware of the implications of diverse future situations. As such, the F4F process offers stakeholders across levels a wide range of ideas and participatory approaches to work together to create more action, momentum and coherence for change.

# 2.	Introduction

## 2.1	The FoSTr programme

Our national food systems are not delivering the food and nutrition security, decent economic livelihoods, and environmental sustainability we all need. We are living in turbulent and certain times, as substantial uncertainties and systemic challenges are appearing, including the impacts of climate change, shifting diets, disruptive technologies, trade tensions, price fluctuations and hikes, and the impacts of pests, diseases, natural disasters and conflict. The world is increasingly behind on achieving the SDG targets, many of which depend on changing our food systems for better health, livelihoods and environment. We will not get there by improving efficiency only: transformation is essential. But there are also increasing uncertainties on such pathways of change, ranging from less predictable weather conditions to regional instability or consumer behaviour. Transforming food systems will require imagining different futures in the way food is consumed and produced. This change requires consumers, producers, agri-food businesses and policy actors to revisit their assumptions and reframe their understanding what food systems should deliver, how they function, and the incentives that drive the behaviour of actors in the system.

> **FoSTr in Kenya**
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> The Foresight4Food Initiative (F4F) uses foresight and food systems approaches to support national food systems transformation pathways. F4F fosters a deeper understanding of the complexities within food systems and drive impactful decision-making by facilitating informed and strategic dialogues between government, private sector, science, and civil society. Foresight4Food implements the 'Foresight for Food Systems Transformation' (FoSTr) programme, which is financed by the Kingdom of the Netherlands, overseen by IFAD and led by the University of Oxford's Environmental Change Institute and Wageningen University & Research. Foresight4Food currently operates in Bangladesh, Jordan, Kenya and Uganda. In Kenya, Foresight4Food is partnering with University of Nairobi (UoN), Results for Africa Initiative (RAI), International Livestock Research Institute (ILRI), and Society for International Development (SID).

Using foresight approaches, FoSTr supports the Kenya Food Systems Transformation pathways. This involves creating a joint understanding between stakeholders on the current food system, exploring and analysing the implications of different scenarios and helping to chart a path towards a desired food system. Foresight processes that effectively integrate qualitative and quantitative information can offer options for stakeholders to be better prepared for the future. The United Nations Food Systems Summit and the National Pathways for food systems transformation have put the spotlight on the critical need to work on food systems change across multiple scales. It is increasingly clear that we need to understand and engage with the process of food systems transformation, and this requires many different aspects of society to start working in tandem to realise change.

## 2.2	The need to transform food systems

More than ever, longer-term perspectives are needed to underpin efforts to enhance the performance and sustain the food system. How can Kenya and its food system stakeholders be prepared for the risks at long-term? How can we build inclusive opportunities and mitigate the effects of risks that may affect the performance of the food system?

The Kenyan food system delivers a variety of outcomes to society. Over the past decades, poverty has gradually been declining; various governance initiatives have spurred economic growth and realized limited structural reforms (particularly since 2010); digitalisation has progressed; and green energy provision has expanded. Many food systems outcomes are not equally distributed. For instance, a substantial part of the population, including a significant number of refugees, lack access to food and nutrition security. Meanwhile, urbanisation and rapid population growth, with a large youth cohort, pose major challenges for the Kenyan government's aim of achieving middle income country status. Additionally, factors including ongoing issues related to food and nutrition security, a high cost of living, limited market access for smallholder farmers, political issues related to land, social instability after elections, and ethnic divisions, all continue to pose significant challenges.

The Kenyan food system is affected by many drivers. These include climate change, urbanisation, population growth, economic modernisation, governance restructuring, digitalisation, and social inequality. It is important to note that these drivers play out differently in the diverse areas of Kenya. In an area with fertile agricultural land, near growing cities and with generous rainfall patterns the food system will generate different outcomes and dynamics than in a more remote dryland area. The consequences of drivers and the ability to

adapt to them or grasp emerging opportunities has consequences and trade-offs. For example, the long period of drought, between 2016 and 2022, deeply affected pastoralist communities in the north and influenced cropping patterns in the south. Revenues generated from exports such as tea and coffee, and increasingly horticulture, are seen as key to economic growth. And, although food imports have increased in recent decades, these offer a solution for providing urban populations with cheaper staple foods. However, since the COVID-19 pandemic and the start of Russia-Ukraine war, inflation and prices of inputs and staple foods have increased. In light of such challenges and to boost staple crop production and decrease reliance on (costly) imports, the Kenyan government recently embarked on a national maize fertiliser subsidy program and the digital registration of farmers.

Understanding 'food systems': A food system encompasses all activities needed for food to end up on people's plates. For society, food systems need to deliver on three key outcomes: food and nutrition security, economic and social well-being and environmental sustainability. Food systems involve an interconnected set of value chains, from production to consumption, a range of supporting services, and an institutional environment of formal and informal norms and rules, mindsets and power relations, which shape how actors behave. How food systems evolve over time is influenced by a set of drivers and feedback loops, both internal and external to the system. To help explain these dynamics of food systems, Foresight4Food uses the model shown below.
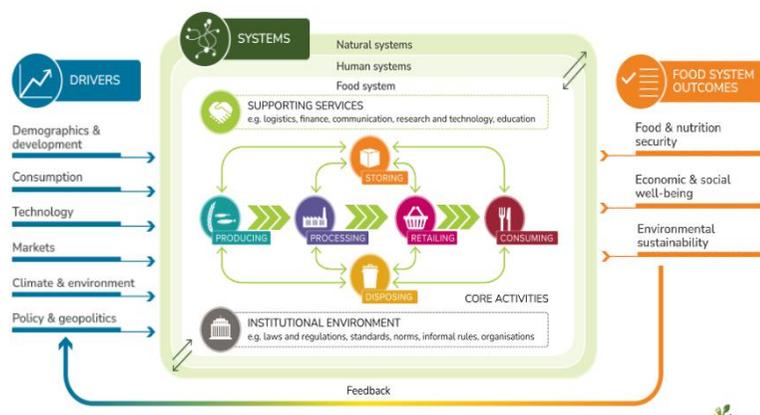

Figure 1: The Foresight4Food food systems model

2.3 Foresight and futures thinking

Foresight integrates a range of methods and tools for exploring the future. It includes horizon scanning, stakeholder analysis, mapping systems, data modelling, scenario development, trade-off analysis, visioning, and theory of change analysis. A wide range of participatory stakeholder engagement tools can be integrated into the overall process. Foresight is all about 1) being better prepared for a range of different situations that may have to be faced in the future; 2) helping to create the understanding, vision and ambitions needed to steer towards more desirable futures and away from less desirable ones; 3) providing a basis for assessing a range of different options and pathways for realising policy objectives; and 4) 'stress testing' how effective different policy, strategy and investment options might be in different scenarios.

Foresight and scenario analysis help us prepare for uncertain futures by asking "what if?" In essence, scenario analysis means exploring what different situations may be faced in the future and considering the options available. This opens space for anticipatory governance enabling better and more timely decision making. For example, what happens in 30 years' time if most people on the planet are eating an unhealthy high salt, high fat, high sugar and high animal protein diet? Or, what if climate change impacts on food production in more or less extreme ways? See the 'futures cone' figure here.

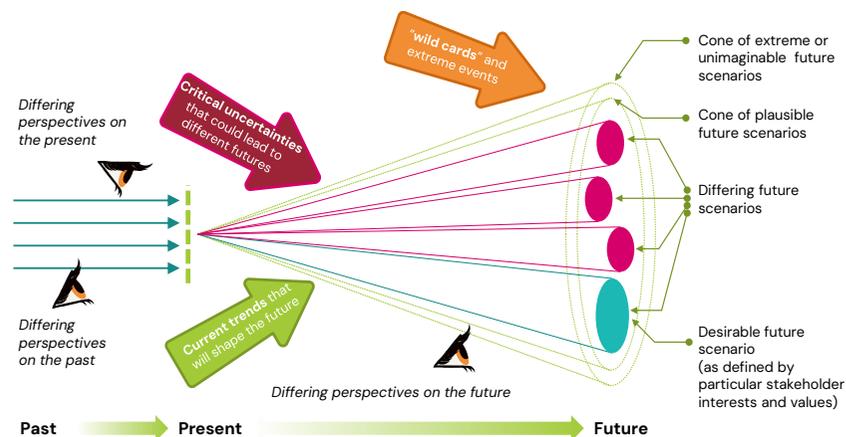*Figure 2: the Futures Cone*

Foresight sits at the interface of uncertainty about the future and human agency to steer change. Many governments and businesses have foresight, scenario or futures units to guide their decisions and policy making.

Foresight approaches underpin work by many national governments and global business associations to help navigate an uncertain world. Foresight is used in major environmental assessments, such as the International Panel on Climate Change. Foresight does not try to fully predict or project the future (an impossible task), rather, it helps to navigate future uncertainties and turbulence. Rare or unexpected events do have a dramatic influence on how the future unfolds. However, the future is also shaped by purposeful human intervention. Humans have tremendous capability to organise, communicate and create shared narratives about the future they desire. We are not simply victims of a pre-ordained future. Foresight is about enhancing the capability to shape the future in desirable ways, departing from the perspective that future is shaped by natural dynamics and human intervention.

2.4   A guiding framework: foresight for food systems change

To use foresight for food system change, the Foresight4Food Initiative has developed a guiding framework. Illustrated below, the framework covers a four-step process, with an emphasis on participatory stakeholder engagement supported by a strong evidence base. Each step has a set of participatory and analytical tools. The framework integrates the use of evidence about food systems change and modelling with participatory processes of stakeholder engagement and dialogue via scenario development. A core

Figure 3: the Foresight4Food Guiding Framework for foresight for food systems transformation

assumption of the Foresight4Food framework is the value of stakeholder dialogue across government, business, civil society and research informed by the best available evidence and effective data visualisation. The foresight framework links food systems mapping and scenario development to policy processes to achieve food systems change. The Framework has been designed to integrate food systems mapping, futures thinking and scenarios, and thinking about how to bring about change in complex and continuously changing food systems. This brings a strong emphasis on understanding the political economy of food systems and how power relations can enable or constrain opportunities for change.

Using foresight to support national food systems transformation pathways. Initiated by the United Nations Food Systems Summit, most countries are developing and implementing national food systems transformation pathways. To be effective these pathways will need to take a medium- to long-term perspective and prepare countries to cope with a range of future stresses and shocks to food systems. Foresight and scenario development can be a vital part of this transformation process. Transformation at local levels, across value chains and within agri-food sector businesses are needed for national pathways to achieve their objectives. Foresight can support the stakeholder engagement and evidence-based analysis needed to prepare our food systems for the future.
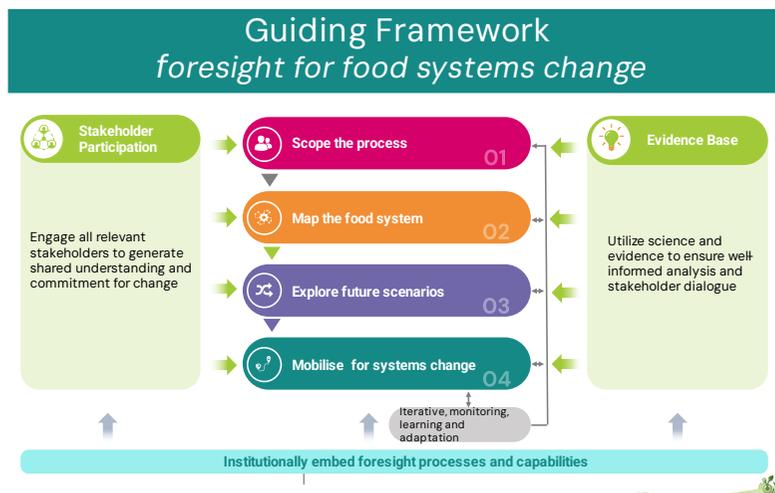
2.5   Scoping the process

Since arriving in Kenya in early 2023, the FoSTr programme partners have sought to work contextually, with national partners and driven by demand. This included high attention to scoping, identifying entry points and defining the key questions and boundaries of the Kenya food system. Additionally, FoSTr built relations with key government partners to support the national food systems transformation agendas.

Complementarity to the food systems transformation ecosystem and reinforcing the devolved governance of food systems. The Kenyan government has been actively searching for ways in which to implement the National Food Systems Transformation pathways – by identifying key priorities (partnerships and collaboration, youth and women inclusion in agriculture, digitization, diversified diets and climate action) and by convening an ecosystem of support, which included FoSTr. The efforts of mapping, knowledge collection and alignment on transformation pathways was guided by the National Food Security Technical Working Group. This coordination group sought to identify synergies with existing policy frameworks, map financial flows into the food

system (through 3FS piloted by IFAD) and develop dashboards and status reports. Notably, the food systems transformation pathways have identified a key role for Kenyan county governments to lead, budget and implement food systems transformation initiatives. In the past 3 years, political dynamics have shifted substantially: the incoming government of William Ruto since end of 2022 has faced turbulence – the attempts to secure budget cuts in the midst of higher costs of living led to demonstrations and, in July 2024, to further escalation with many protests led by GenZ across the country and a crackdown. Many Cabinet secretaries of Agriculture have been replaced as well, leading to discontinuities on this agenda.

FoSTr worked to build a wide network of partners and stakeholders. By working together actively with IFAD Kenya country office and World Food Programme Kenya, the CGIAR, MasterCard Foundation, Food and Land Use Coalition, GAIN and World Resources Institute FoSTr was able to expand its range of work beyond the envisioned national foresight process. In 2025, FoSTr also increasingly linked with other networks that are supporting food systems learning and leadership through African Food Fellowship and Netherlands Food Partnership, and foresight in other fields through SID.

Synergies were created through collaborations with MasterCard Foundation, Forum for Agricultural Research in Africa, African Food Fellowship, World Food Programme and Netherlands Food Partnership. Together with MasterCard and African Food

Since end of 2023, FoSTr actively focused on two Kenyan Counties: Nakuru and Marsabit. Through connections with RAI and with Ministry of Agriculture selected and worked in two pilot counties: Nakuru and Marsabit county. In collaboration with RAI, these county governments, encouraged by the Bottom-Up Economic Transformation Agenda, FoSTr has been able to engage with local communities and regional food systems stakeholders to support and influence county-level action in both these counties.

Country facilitator Wangeci Gitata-Kiriga was the country facilitator for FoSTr in Kenya. Supported by the Kenya FoSTr team and especially by Joyce Nyamweya, MBS, from RAI, her commitment and networks, the foresight process was managed effectively and smoothly, achieving consistency and avoiding contradictions and overlaps. The country facilitator actively connected with the international initiative facilitators and the national research partners, working together to provide technical, managerial and policy support to different food systems stakeholders.

Flowing from our foresight processes, two key reports were developed: a 'Manifesto for Change for Nakuru County' and 'A Future Scenarios for the Food System of Marsabit' were developed. These were shared and presented to the County governments. Also, two key policy briefs were drafted: 'Transforming Nakuru's food system through finance', and 'Science-Policy-Society Interface: A National Policy Framework for Food Systems Transformation in Kenya'.

The FoSTr Kenya work has synergized with new and exciting collaborations:

- With MasterCard, Forum for Agricultural Development in Africa (FARA), AGRA and African Food Fellowship, on supporting youth leaders' capacity development for the future of African food systems, culminating in two workshops in Mombasa and Naivasha. See details here:
  - Foresight for the Future of Youth in Africa's Agri-food Systems (Mombasa workshop)
  - Facilitating Foresight for Agri-Food Systems Change in Africa (Naivasha workshop November 2023)
- With World Food Programme and UNESCO, Foresight4Food collaborated in shaping the inception phase strategy for a new programme 'Unlocking the Economic Potential of Lake Turkana', which involved a multi-stakeholder trajectory involving consultations, co-creation, scenario development and systemic theory of change development involving both Marsabit and Turkana counties. Full report and video can be found **here**.

Figure 4: Scenarios created during the WFP Lake Turkana programme inception phase

3.   Mapping The Food System

3.1   Why map the food system?

A comprehensive understanding of the food system is essential. This is needed to identify and assess key drivers, trends, and uncertainties, which form the basis for the development of future scenarios. This phase also involved compiling data on historical and projected trends, assessing the political economy and power relations, and identifying enabling and constraining factors for change. The synthesis provided clarity on system boundaries, trade-offs, and synergies, and highlighted areas where additional information was needed. Together, these insights laid the foundation for the subsequent stages of the foresight process.

A food system encompasses many elements and dynamics. All activities, processes, and actors involved in the production, processing, distribution, consumption, and disposal of food, with the aim of ensuring food security, safety, and sustainability, while influencing health, the economy, and the environment. These systems are shaped by a wide range of interconnected factors, commonly referred to as drivers of food systems. Bene et al. (2020) define food system drivers as endogenous or exogenous processes that, deliberately or unintentionally, influence a food system over a long period, durably altering its activities and outcomes.

Conducting this mapping together with Kenyan food systems stakeholders is crucial. This helps to get a shared understanding on how activities and issues are interconnected and how they interact with one another. Food system mapping reveals relationships and dependencies among actors such as farmers, consumers, retailers, and policymakers, and helps identify local resources, agricultural strengths, and existing infrastructures, including markets and transportation systems, that shape the system. In the Kenya context, these mapping processes actively engaged diverse stakeholders, fostering collaboration and creating a shared understanding

The Foresight4Food food system framework was adopted as indicated in chapter one (Figure 1, see section 2.2). This framework builds on previous work and incorporates elements of the food systems framework developed by Ingram (2011), HLPE (2016) and van Berkum et al. (2018). The framework was used as a basis for describing the food system while customising specific elements to the Kenya context.

3.2   Gathering food systems data

Mapping the Kenyan food system consisted of several sequential steps. This process was somewhat different than in other FoSTr countries. This is because we, due to our focus on two devolved counties Nakuru and Marsabit, developed three food systems analyses.

First, we mapped the Kenya national food system. This involved, exploring through literature and reports, describing all food system activities, actors, outcomes, and drivers of the system, drawing on a diversity of data sources to provide a comprehensive picture. This initial mapping was validated with a diverse group of stakeholders, ensuring that multiple perspectives and local knowledge were incorporated. Causal relationships, feedback loops, and interlinkages between different components of the system were identified, highlighting how changes in one part of the system could affect others.

Secondly, the Nakuru and Marsabit food systems were mapped by ILRI and University of Nairobi respectively. These reports (yet to be formally published) built on the same methodology and structure as the Kenya food systems mapping but focused on the county food systems dynamics. The insights from these reports, combined with national level insights were used to start the discussion with county-based stakeholders, conduct data walks and highlight the urgency of food systems transformation.


An overview of the Kenyan Food System: Outcomes, Drivers and Activities
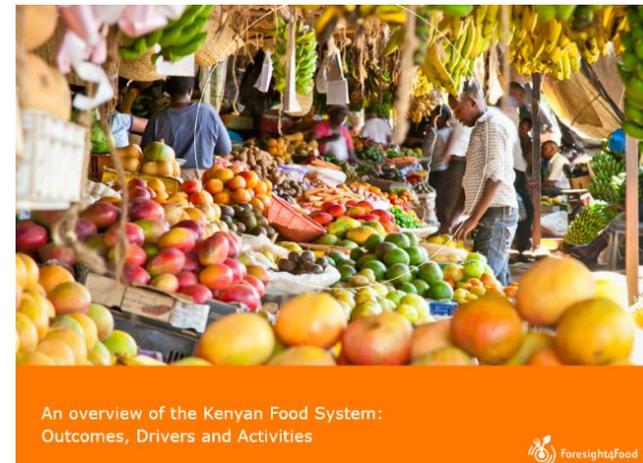
Kenya Food system analysis report, access via this link

How was it done? Mapping Kenya's food system was undertaken by the Foresight4Food team from University of Oxford and Wageningen University and Research including the country facilitators, with input and validation from food systems stakeholders during a workshop in June in 2023 in Nairobi.

The research conducted a food system analysis identifying food system outcomes related to food and nutrition security, socio economic outcomes and environmental outcomes; food system actors and their activities; and drivers and trends of the food system.

A desk review was undertaken by the research team processing all relevant literature. The documents reviewed included government documents and technical reports of food systems.

Poverty rate at the national poverty line, 2005/06–2021
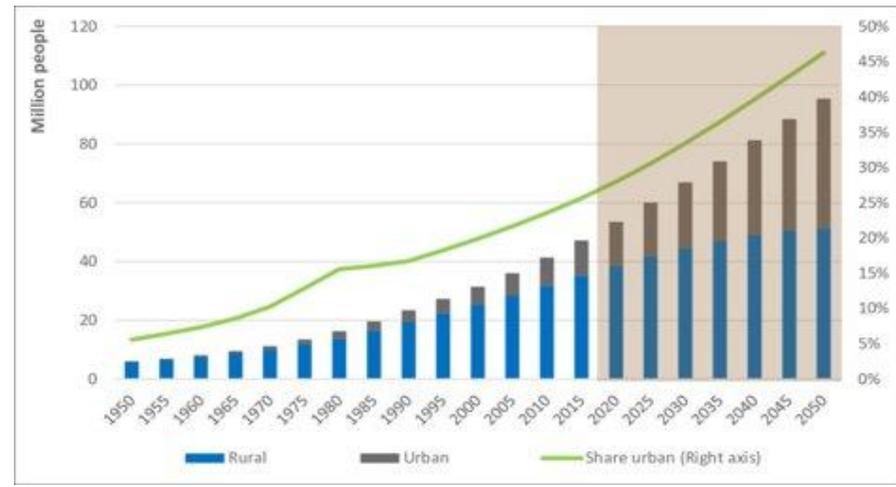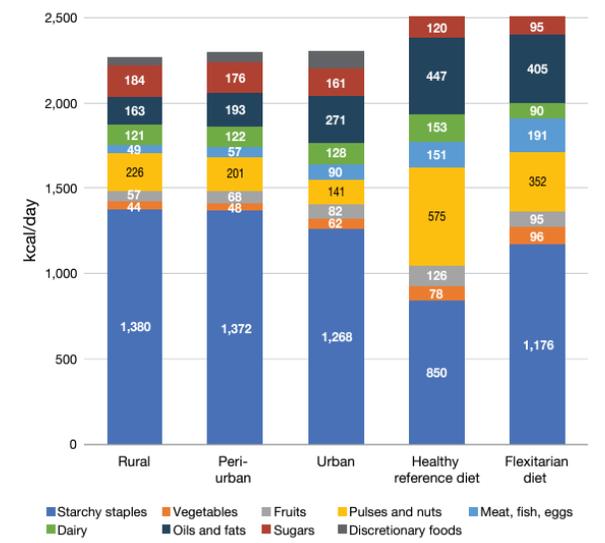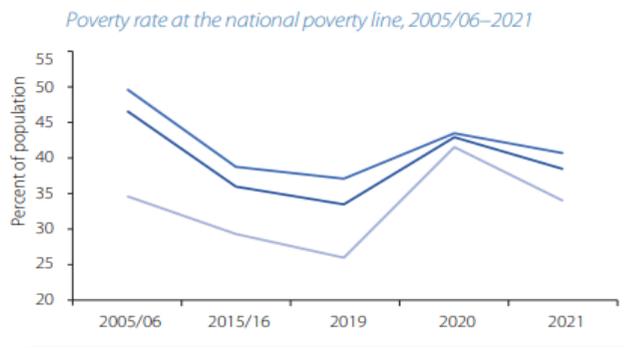
3.3 Highlights from the food system analysis

Kenya is home to more than 54 million inhabitants and possesses seven distinct agroecological zones, from highlands and coastal zones to semi-arid lowlands. Kenya's food system involves a wide range of food-related activities and provides multiple outcomes to Kenyan society. Over the past decades, poverty has gradually been declining; various governance initiatives have spurred economic growth and realized limited structural reforms (particularly since 2010); digitalisation has progressed; and green energy provision (largely from sustainable renewable sources) has expanded. However, many food systems outcomes are not equally distributed. For instance, a substantial part of the population, including a significant number of refugees, lack access to food and nutrition security. Meanwhile, urbanisation and rapid population growth, with a large youth cohort, pose major challenges for the Kenyan government's aim of achieving middle income country status. Additionally, factors including ongoing issues related to food and nutrition security, a high cost of living, limited market access for smallholder farmers, political issues related to land, social instability after elections, and ethnic divisions, all continue to pose significant challenges.

The Kenyan food system has multiple drivers of change. These include climate change, urbanisation, population growth, economic modernisation, governance restructuring, digitalisation, and social inequality. For example, the long period of drought, between 2016 and 2022, deeply affected pastoralist communities in the north and influenced cropping patterns in the south.

Revenues generated from exports such as tea and coffee, and increasingly horticulture, are seen as key to economic growth. And, although food imports have increased in recent decades, these offer a solution for providing urban populations with cheaper staple foods. However, since the COVID-19 pandemic and the start of Russia-Ukraine war, inflation and prices of inputs and staple foods have increased. The question now is: how to (nutritiously) feed a growing Kenyan population in the future?

Highlights of the Kenyan food system:

- The population living below the poverty line has been steadily declining. However, there are large disparities of economic growth across regions and notable income inequalities. North and north-eastern counties suffer most from high levels of poverty and under-nutrition.
- Agriculture contributes the highest share of Kenya's gross domestic product (GDP), accounting for 21.2%. Employment in agriculture has been declining, from 40% in 2010 to 33% in 2022.
- In Kenya, a growing population of youth is coming of age. At the same time, the share of the population living in urban areas has been steadily increasing up to 29.5% in 2023
- Among certain socio-economic groups, diets are changing towards more (ultra)processed food and animal-sourced proteins. Moreover, concerns for food safety are driving the 'supermarketisation' of the food environment.
- Food and nutrition insecurity has increased. Almost 70% on the population was severely or moderately food insecure in 2020. The prevalence of obesity among some population groups has also increased.
- Kenya faces high levels of post-harvest food losses (12-20% of total national production) while being highly dependent on food imports. Kenya's cereal import dependency ratio rose from 23.9% over the period 2000-2002 to 43.1% in the 2019-2021 period.
- Due to drought in recent years arising from climate change, freshwater use by Kenya's agriculture sector has increased – with the sector responsible for roughly 80% of all freshwater withdrawals in the country between 2017 and 2020. This is related to the fact that most of Kenya's agricultural output is grown in rain-fed farming systems, yet only 17% of the country's arable land is deemed suitable for such production.
- Despite greenhouse gas (GHG) emissions being comparatively low compared to industrialised countries, emissions from the food system are rising. Agricultural production was responsible for the largest share of Kenya's food system's GHG emissions in 2018 (83%), followed by food waste and disposal (13%).

We found that there are many differences across Kenya, as was highlighted in the Kenya food systems mapping. Working in both Nakuru and Marsabit meant to also explore those areas more specifically. This led to different insights and dynamics at county level.

Key insights from the Nakuru food systems report:

- The overall poverty rate in Nakuru County is 39.4%, translating to 893,000 individuals. The stunting rate for Nakuru County was 19% in 2022 which is slightly higher than the National average.
- Food affordability. The average monthly food expenditure per adult equivalent in Nakuru County is Kenya Shilling 3,563. Poor dietary diversity and low consumption of protein rich foods remain a key problem for the vast majority of the population.
- The lakes, notably Lake Naivasha in Nakuru County provides sources of livelihoods, food and fresh water to thousands on its shores and beyond. The lake supports a tremendous biodiversity but also supports the horticulture industry.
- The high population density in Nakuru County is causing an unprecedented demand for housing, commerce, and infrastructure. This has resulted in drastic land use changes as shown in the images below from 1990 to 2021.

Key insights from the Marsabit food systems report:
- Marsabit's food system is pastoralist-dominated and socio-economically fragile. Over 81% of the population practices pastoralism, primarily dependent on livestock for food and income.
- Drivers of fragility are intensifying and deeply interconnected. Key drivers include climate change (there have been five major droughts since 2020), high dependency ratios, unequal wealth distribution, and limited economic opportunities. Only 12% of Marsabit's roads are paved, isolating 70% of households from markets and services.
- Alarming poverty, inequality, and food insecurity threaten human development. Marsabit ranks 44th out of 47 counties in poverty. The multidimensional poverty rate is 85.8%, with particularly high rates

among children, youth, and the elderly. The food system cannot support equitable access to nutritious food, especially under recurrent environmental and economic shocks.

- Limited access to modern energy and infrastructure suppresses wellbeing. Despite hosting Africa's largest wind farm, only 20% of households have electricity. Traditional biomass fuels dominate, causing health issues and environmental degradation. Poor roads and vast distances hinder access to markets and services.

In all the engagements regarding the food systems mapping process, whether in Nakuru, Marsabit or Nakuru, 'data walks' were conducted with stakeholders, presenting key data charts or trends, and getting mixed groups of stakeholders to explore, interpret and discuss findings. This helps to get a broader understanding of the system as well as unearth questions, different perspectives and missing gaps. It was also essential at these sessions that representatives from Ministries of Agriculture, Environment and Water attended to learn from each other's perspectives.

Figure 5: Stakeholders in Marsabit explore food systems trends during a 'data walk'

3.4 Identifying causal linkages between food system elements

Causal loop diagrams are graphical representations used in system thinking. These diagrams can help by identifying leverage points and unintended consequences, enabling policymakers and other stakeholders to design more effective interventions and policies for enhancing food security, sustainability and resilience. Causal loop diagrams (CLD) were developed in a participatory exercise by the research team to understand the complexity of the Jordan food system and the interaction and feedback mechanisms within the system.

In any food system, stakeholders are likely to have different interests. Power and agency are unequally distributed, with certain stakeholders having more influence (e.g., on policymakers) than others do. This interplay between stakeholders, which creates coalitions of mutual interests, exercises power and influence and opposes other stakeholders with conflicting interests, is an important dynamic that shapes the food system. This political economic playground provides a good explanation for why a food system has great beneficial outcomes for one segment of stakeholders, while having significant detrimental effects on other segments in society or outcomes.

Key dynamics and trade-offs

Figure 6: A Causal Loop Diagram of Kenya's Food System – full page view accessible in the Kenya Food Systems Mapping Report.

Based on the food systems analysis and particularly the CLD conducted on the current Kenya food system, a number of key dynamics and trade-offs stand out. These will have to be named and resolved in order for food systems outcomes to change on the long run.

1. **Agribusiness ascending**

Dynamics around market competition, particularly when it comes to access and reach to international markets and more upscale urban retail areas in Kenya, increasingly favour either high quality, safe foods or extremely cheap bulk foods. Agribusiness companies that can substantially raise quality and access high paying retail markets have a growing edge over smallholder farmers and other small- and medium-sized enterprises (SMEs). Compounding the dynamics, smallholder land subdivision, reallocation of capital and increasing benefits from technologies and smart data management, widens an already large divide between smallholder farmers and larger agri-firms. Agri-firms, in turn, become more successful, raising their ability to invest more in accelerating digital and financial innovations, and becoming more attractive to the public sector as a source of tax and foreign currency. This contributes to a reinforcement of the paradigm that large scale farming is more efficient. Such differences among food producers are further widening the gaps in segmented food markets, reinforcing a systems pattern which can be called 'success to the successful'.

2. **The food security & trade 'hydra'**

As urbanisation increases and local food production remains stable, gaps in the food balance sheet occur, and it becomes imperative that Kenya secures enough food for its people, at the most affordable price. Cereals in particular are sought at cheap world market prices. People's diets are also changing: for some, due to socio-economic growth, there is an eagerness to consume (imported) processed foods and proteins. For others, there is behavioural dependency on cheap staples. In order to finance imports, Kenya needs to increase its exports. The country mostly exports low-processed export commodity crops, such as tea, coffee and horticulture, which deliver revenue and economic growth but are being traded-off against food crops and value chains that emphasise food and nutrition security outcomes. At the moment, tea and coffee offer limited poverty alleviation effects and limited food and nutrition outcome value. In its current form, horticulture is similar, as the majority of Kenyan consumers cannot access or purchase many of the types of vegetables produced in this sector, and purchase/grow limited vegetables and fruit from the informal

economy. Furthermore, a new problem is in the making: a trend toward unhealthy diets. Addressing this becomes like trying to cut off the head of a mythological 'hydra': solving one problem without addressing the whole system creates two new problems. The quick fix solution to the food security issue gives rise to new challenges, notably an emerging diet, economic and health divide between urban consumers and rural communities. This has implications for food imports, (maize) production, long-term health care and general workforce productivity. Urbanised communities grow relatively richer and change their diet patterns (towards an unhealthy 'Western diet'), with consumption patterns shifting to rice and other imported cereals as well as animal-based proteins and processed foods. Meanwhile, rural and peri-urban communities remain poorer and subsist on cheap staples and produce from local, informal food markets. They continue to grow maize for their own consumption, but have a hard time purchasing a healthy and diverse diet. Both sides of the divide will generate new challenges for society, particularly in healthcare, as both malnutrition and obesity cases remain.

3. **The decreasing carrying capacity of the environment**

The third pattern we identified relates to the health of the environment in Kenya. With climate change increasingly visible, particularly notable in the form of the recent six-year drought in the north of the country, new micro-climates and shifting seasons will affect Kenyan agriculture. At the same time, there is pressure to increase production due to high demand for more food, but also production of more resource-intensive food (cattle, livestock, etc.) is expected. This creates a dilemma regarding livestock and challenges in the ASALs: growing demand from Kenyan consumers for animal-based proteins might offer a significant potential market growth of the livestock sector. However, the droughts that affect key livestock-producing regions pose a significant climate risk for expansion and a relative risk to climate mitigation efforts. In the Rift Valley, increased potential for horticulture and floriculture due to export opportunities, as well as an increased appreciation for large-scale consolidated agri-firm production, puts increasing pressure on natural resources, water tables, soil health and biodiversity. This is visible in deforestation, land degradation and pollution incidences over the past decades. Smaller farmers seeking to keep up with the competition (but also governments seeking to increase yields) search for solutions in the form of increased fertiliser and pesticide use, supported by subsidies. While this might help in the short term, poor or indiscriminate use of chemicals may not be prevented fully, and eventually will accumulate in the environment – further degrading soils, limiting fresh and clean water, and harming biodiversity.

4. Explore Future Scenarios

4.1   Conducting foresight on three levels in Kenya

Building on the previous phase, step 4 in the Foresight4Food guiding framework focusses on exploring how the system might evolve under different future conditions.

It is important to note that, opposed to trajectories in the other three FoSTr countries (Bangladesh, Jordan and Uganda), in Kenya, we operated at three different food systems levels: at national level, Nakuru county and Marsabit County. These each led to different processes and different foresight methodologies and outputs.

- **At national level**, the food systems mapping report and various workshops in Nairobi progressed with a light touch modelling of future food systems diets scenarios and implications. At in Nairobi, experiences at Nakuru and Marsabit level with qualitative scenarios were shared. Final outputs here involved diets modelling results through the Modular Applied GeNeral Equilibrium Tool (MAGNET) model and a policy framework proposal on the Kenya Food Systems Science-Policy-Society Interface.
- **In Marsabit county,** the foresight process led to the development of four scenarios and a foresight report. This foresight report was also offered to the Marsabit County government and the local stakeholders.
- **In Nakuru county**, five scenarios for the future of Nakuru's food system were co-created with food systems stakeholders based there. These were analysed and converted into a Manifesto for Change, offered to the Nakuru county government. In the process, the Nakuru Foresight Innovation Model (Kabazi Model) was developed. Finally, many of the lessons learned from this case were described in the light of the link between food systems and biodiversity in a publication by the Netherlands Food Partnership – see here for the publication. Additionally, a policy brief was developed making the case for sustainably investing in Nakuru's food system.

This section will first describe the results of the healthy diets modelling; then the process of coming to scenarios in Nakuru, and then Marsabit. All these

efforts took place between 2023 and early 2025. The Marsabit process was not as far developed as the Nakuru process, partly due to time and budget considerations but also due to limited opportunity to engage with the Marsabit county government.

4.2   Diets modelling

Conducted by Elisa Bardazzi from Wageningen University and Research the simulation data modelling was conducted between December 2023 and December 2024, and presented to partners and food systems stakeholders during the closing workshop in November 2025. For this analysis, the FoSTr Kenya team used the Modular Applied GeNeral Equilibrium Tool (MAGNET) model, a so-called global general equilibrium model. MAGNET is a macroeconomic equilibrium model that estimates the consequences of different scenarios on food system activities, such as food production, trade, and consumption, as well as related outcomes including nutrition, livelihoods, the national economy, and environmental indicators.

The aim of the modelling exercise was to assess future scenarios for Jordan's society and environment under three different (diet) scenarios:

- Continuation of existing consumption and production practices (business-as-usual / BAU)
- Adoption of Kenya Food Based Dietary Guidelines (FBDG) as defined by the Kenya ministry of Health (and which are under revision)
- Adoption of a sustainable and healthy diet by the Kenyan population (modelled using the EAT-Lancet diet)

This analysis focused a critical issue for the Kenya food system: the kind of diets the people of Kenya will have in the long term. FoSTr used for this analysis two main diet patterns: the 'Business as usual' diet and the 'Healthy diet'. The Business-as-usual diet is characterised by the transition toward current 'Western diets' (e.g., fast food), which challenges health/nutrition goals. This diet seems the most likely scenario if no intervention occurs, and involves people eating a diet high in animal products, sugar, wheat & tubers-based products. The Healthy diet is the so-called EAT-Lancet diet, which is healthier and more sustainable. It is high in fruits, vegetables, pulses and nuts, and low in animal foods and sugar. Each of these scenarios was explored with a number

of assumptions (which need to be further adjusted), such as a certain level of economic growth, population growth, crop productivity increase. In the future, we also want to explore what the implications might be of a 'Kenya-specific diet', which is very relevant to the context of Kenya and used as a guideline by the Ministry of Health. Importantly, in this diet, consumption of more animal products such as meat and dairy are encouraged (such as by drinking milk) while much less staples compared to other diets; thus, this means that, overall, more grams of food are needed to achieve the same caloric target.

The key question: how would the Kenya food system outcomes (health and food security, economy and inclusivity, environment) look like in the future, and how would these change if the population of Kenya adopts a healthier and more sustainable diet? The analysis showed how each of these diets in 2050 might have an effect on healthy diets, self-sufficiency, wages in agriculture, added value of food systems, land use, water use, fertilizer application and Green House Gas emissions. These indicators are used as a proxy for food system outcomes in the MAGNET model.

Figure 8: Socio-economic results across three diet scenarios

This analysis delivered some interesting perspectives. Importantly, a clear result was that the calorie target of 2500 Kcal per day is not achieved with business as Usual, showing the necessity to act. Also, to meet food and nutrition security requirements, (healthy) food production needs to increase in fruit and vegetables and animal protein (particularly in FBDG). BAU does not need to increase fruit and vegetables but actually rather increases sugar and fats, which is less advisable health-wise. For EAT Lancet scenario to be achieved, more investment in vegetables, pulses, but also staples are needed. Other insights included that cost of diet (a very pressing issue today in Kenya) would increase most in the Business-as-Usual situation due to cost of dairy especially – but that the FBDG scenario would have similar features. Also, the EAT Lancet diet appears to be much less costly. Finally, EAT Lancet has the most positive results in living wages.
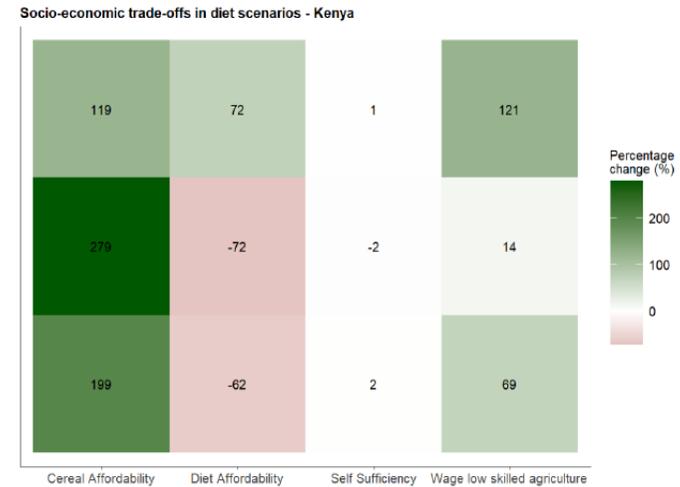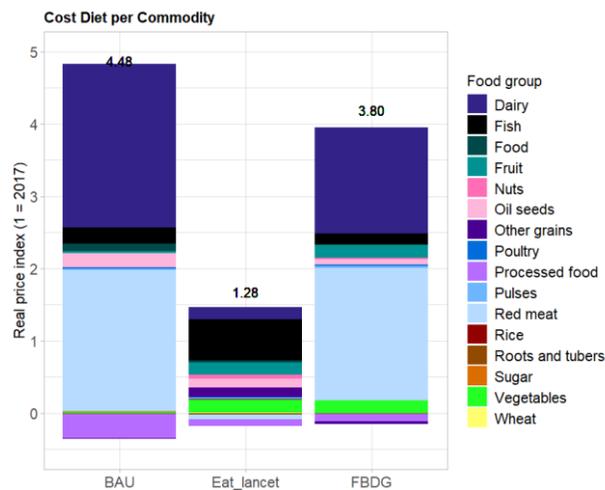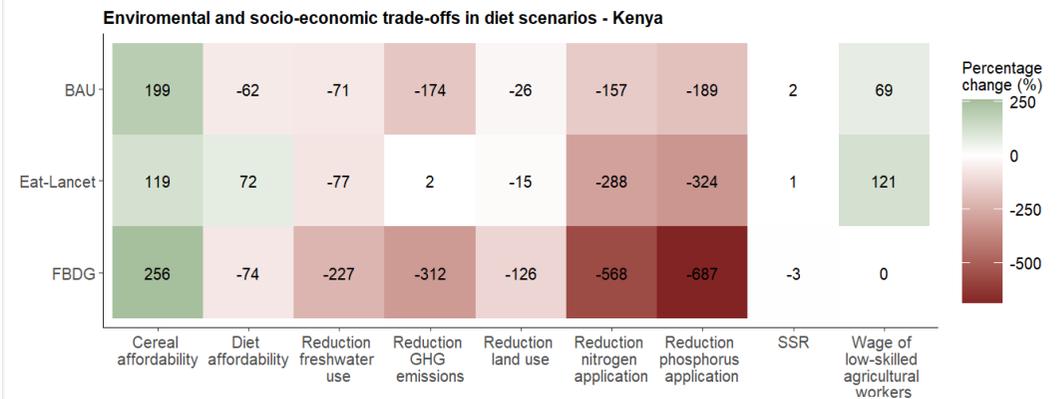

Figure 7: Environmental and socio-economic trade-offs

In terms of import dependency vs production, all diets scenarios either keep this at the same level (same import/production balance as today) or increase the dependence on trade. Particularly, a risk here is the FBDG, which creates more dependency particular for animal-based products which have to be imported along with other staples.

Figure 9: Presenting the modelling results to Kenya stakeholders

In terms of environmental impact, none of the scenarios offer a regenerative solution to key issues such as water shortages or land use. However, the EAT Lancet scenario has better performance in the emissions and land use. FBDG has the worst environmental impacts, mainly due to the implied need for more phosphorus and nitrogen for production (meaning Kenya exports goods that create this impact) while land water and emissions are higher, meaning that some of these contributions are imported. This is not the case for emissions in Eat-Lancet.

It is important to note that this analysis does not per se recommend the best pathway forward. This particularly came up in the discussions around meat consumption, the link to Kenyan culture and the manner in which the livestock sector is different than more industrialised processes. However, the following conclusions came out of the report:

- Business as Usual has clear negative impacts in terms of not achieving 2500 calorie intake per day, as well as a strong push in sugars and fats which have a negative consequence to health
- Moving towards sustainable and healthy diets can have positive impact on the society in terms of health and economy (green boxes) – In particular gains in diet affordability and agricultural wages in Eat-Lancet
- Adopting FBDGs might have negative impact on environment

- Moving towards a sustainable and healthy diet will contribute to achieving the goals on reduction of GHGH emissions. In the discussions

It should also be noted that greenhouse gas emissions in Kenya are relatively much lower than other high income industrialised countries. Insights from the discussion related to the importance of understanding the implications of diets for areas across health, economics and social spaces, the challenge and need to manage trade-offs on the short and long term, and the relevance of having discussions on the benefits and challenges of using modelling.

4.3   Marsabit foresight process

Scoping, mapping and scanning trends

The opportunity work in Marsabit emerged through two parallel engagements: through the support for World Food Programme and UNESCO in their 'Unlocking the Economic Potential of Lake Turkana' programme and the work partner RAI was doing in Marsabit regarding Bottom-Up Economic Transformation and good relations with the Governor of Marsabit. In April 2024, for WFP, F4F team members travelled to Marsabit and conducted a workshop focused on Lake Turkana and developing scenarios for these. Building on those relationships, we further developed a food system mapping for Marsabit and returned in December 2024 for a full-fledged workshop for Marsabit County.

This workshop in December led to the development of four guiding scenarios for the Marsabit future food system. In futures and foresight, scenarios are carefully constructed stories of how the future might unfold under different circumstances and conditions. Scenarios help us in visioning beyond linear assumptions thus orienting adherents to imagine a range of possible outcomes. If we consider foresight as a loom, weaving together political, socioeconomic, sociocultural, environmental, technological, and psychological drivers of change, scenarios provide rich narratives that allow policymakers and communities to envision the "bigger picture" of uncertainty.

Unlike forecasting or consensus-building methods, scenario development deliberately embraces divergence. It relies on participatory engagement, mapping, and visioning processes to explore multiple possible futures, outcomes of which can then be synthesized to provide recommendations guided by a normative approach to futures thinking. Instead of narrowing toward a binary idealistic and "most likely" outcome, scenarios stretch our perspective to include multiple plausible, probable and elastic futures. Some scenarios may depict continuity and stability, while others may depict crisis, disruption, or

sporadic transformation. Hence, scenarios assist decision-makers stress-test current policies against disparate pathways, while building resilience into long-term strategies. This process reveals blind spots, challenges assumptions, and highlights the most resilient options across futures. Ultimately, scenarios support more flexible, informed decision-making by preparing organizations for a wider range of potential challenges and opportunities.

In our bid to engage the grassroot stakeholders of the food system in Marsabit in meaningful discussions beyond visioning exercises, we made use of decision support tools and soft systems approach relevant to our focus on identifying drivers of impact/uncertainty affecting food systems at the ward and county level. Rich pictures were used to surface and demystify problem situations presently and also in the lens of 25 years to 2050. This facilitated futures thinking at this stage and sensemaking storytelling/narrative building commenced from mapping to identification of scenarios. Participants were group across sub-county administrative lines to mitigate for the risk of underrepresentation from remote wards of the rural regions of the county and country.

Based on the Rich Pictures and data walks, Marsabit stakeholders also explored drivers, trends and other developments critically shaping the futures, such as:

- Diversification of livelihoods, with emphasis on identified **increased economic diversification trends** such as growth of small-scale industries, trade, mining and tourism (to some extent), has provided alternative income for Marsabit's residents. In turn, this has reduced to a small degree their reliance on pastoralism and agriculture.
- Agricultural development was highlighted as critical especially with the **strong push for improving agricultural practices** such as the adoption of drought- resistant crops, greenhouse farming and improved irrigation techniques. Where this has been possible, some improvements on food security have been witnessed despite water scarcity and erratic rainfall cited as key challenges.
- The expansion of trade and commerce between Marsabit and neighbouring counties and within sub-counties was said to have facilitated **better market access for trading local produce**. Consequently, enabling farmers and traders to sell their products more efficiently, thus contributing to the local economy.
- The **investments in infrastructure** (such as roads and markets) have improved connectivity and access to food supplies for some. However, this trend unfortunately has benefitted some and left residents living in

areas with limited infrastructure to face the consequences of unequal distribution and availability of food.

Other reflections included the dynamics with other sectors and the environment, and changes of mindset:

- The fact that Marsabit is home to the Lake Turkana Wind Power Station, the largest in Africa, with a capacity of 310 MW with 365 active standing and operational wind turbines, yet the residents of Marsabit persist in energy poverty without access to the electricity being generated within its borders.
- Concern over growing wildlife conservation and protected areas (Sibiloi), arid desert areas, water feeding Turkana, Mountain biosphere reserve, crops, conservation.
- Mindset shifts have been experienced, for example, communities that never ate fish before having now embraced and welcomed it to their food options. The group believed that this shift will have an impact on Marsabit's food system and increase the demand for fish.

Additional reflections highlighted governance challenges and local devolved government strategic development planning (County Integrated Development Plan) and the dependency syndrome and how it affects Marsabit's local food system:

- The duplication of effort on humanitarian and socioeconomic interventions from the many state and non-state actors.
- The need to coordinate projects and programmes at the county government level (County Development Committee)
- The failed anticipatory governance projects like the Badasa Dam in 2016/17 which after costing the taxpayers KES2bn delivered no water to the people of Marsabit.
- Graft and corruption which exists on different levels

Constructing qualitative scenarios

In qualitative scenario development, we utilized ethnographic observations and focus group discussion to contextualize uncertainties and impact to the experience driven by natural, socioeconomic or behavioural phenomena. An example of such is the belief that eating fish in an agropastoral community is frowned upon as a sign of poverty. Using soft-systems methodology, the grassroot stakeholders could break down complex and unstructured issues affecting their produce, health and markets. Qualitative scenarios allow the

envisioning of potential futures from a storytelling, narrative-approach rather than metrics and statistics.

This participatory process cultivated a contextual narrative/perspective necessary in sensemaking with regard to the many driving forces (enabling or disruptive), and barriers affecting the outcomes of their husbandry; this succeeds in providing a structured way of deducing and reducing complexity into a scenario space/vision and ensuring that scenarios developed are both relatable/plausible and strategically useful for decision-making.

Ideally, mapping of uncertainties and trends within food systems at the grassroot level would vary given the geographic and climatic variability between counties in focus. In Marsabit's case, stakeholder mapping and representation lacked some constituents from the furthest ends of Marsabit rangelands and conflict zones, thus the stakeholders were grouped across sub-county administrative lines to ensure equity in diversity and participation while also providing legitimacy and credibility to the process from a county perspective. Here over 32 drivers, trends and uncertainties were mapped and deduced to envision four (4) plausible futures for Marsabit food systems.

Of importance to note is the relational aspects of uncertainties distilled highly uncertain in terms of their present and future direction, such as adequate rainfall given the impact of climate change. Highly impactful on the communities, health, food and governance systems, herein – good governance and public infrastructure.

This participatory process cultivated a contextual narrative/perspective necessary in sensemaking with regard to the many driving forces (enabling or disruptive), and barriers affecting their agricultural outcomes; this succeeds in providing a structured way of deducing and reducing complexity into a scenario space, vision and ensuring that scenarios developed are both relatable/plausible and strategically useful for decision-making.
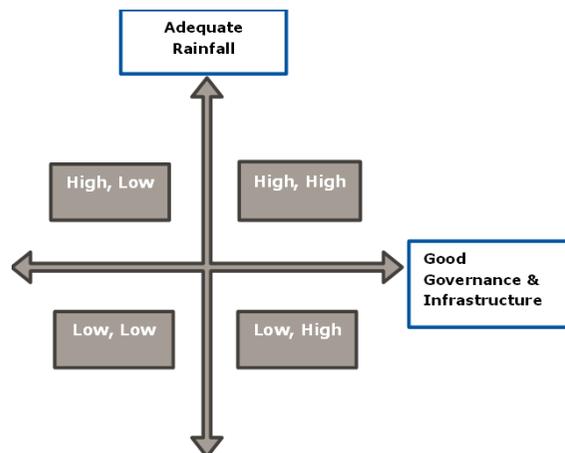
Stakeholder mapping and representation is, in experience, of particular importance from an inclusive dimension; in Marsabit, we lacked some constituents from the furthest wards of Marsabit rangelands and conflict zones. In mitigation, facilitators grouped the stakeholders across sub-county administrative lines to ensure equity in diversity and participation while also providing legitimacy and credibility to the process from a county perspective. Developing qualitative scenarios presents an opportunity to embed cultural perspectives and insights into the food systems transformation process through grassroot participatory discussions and ownership.

Four scenarios for the future of Marsabit's food system

Having successfully covered qualitative scenario development, the 2x2 scenario framework was used as a method to facilitate the development of four (4) distinct, plausible futures by crossing two critical uncertainties, each plotted against an axis. The critical uncertainties identified above are most likely to shape the systems future but whose outcome remains unpredictable. Once plotted on a grid, the intersection of the two axes produced four quadrants each representing unique combination of conditions – ideally, these produced four different futures/scenarios that shapes the contrasting narratives. Developing qualitative scenarios brings the complexities of food systems transformation to clarity by helping communities, policymakers, and development actors visualize alternative futures, understand trade-offs and co-design pathways toward sustainable, regenerative and resilient food systems.

Four scenarios were developed:

1. Ajako scenario: a model for sustainable development
2. Bonna scenario: a challenging road but with seeds of local ownership and resilience
3. Ganna scenario: a future highly impacted by climate change and ongoing governance challenges
4. Nahbay scenario: a worst-case future with conflict, climate change and migration
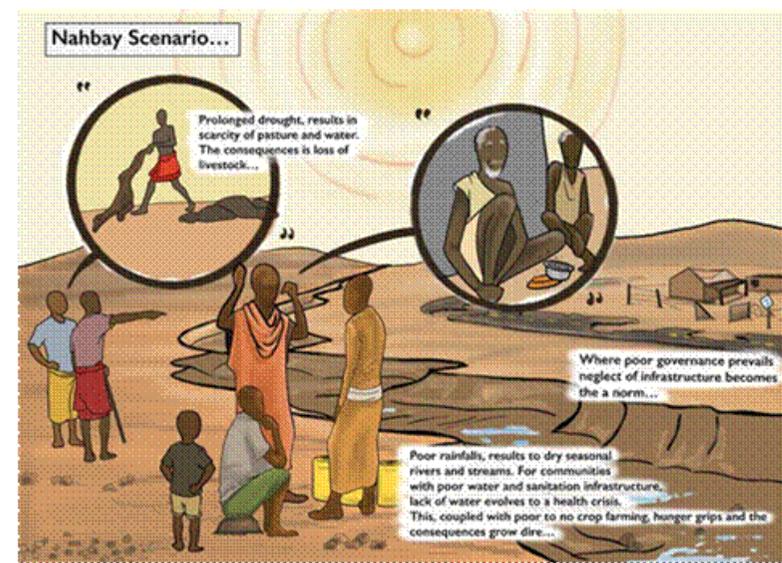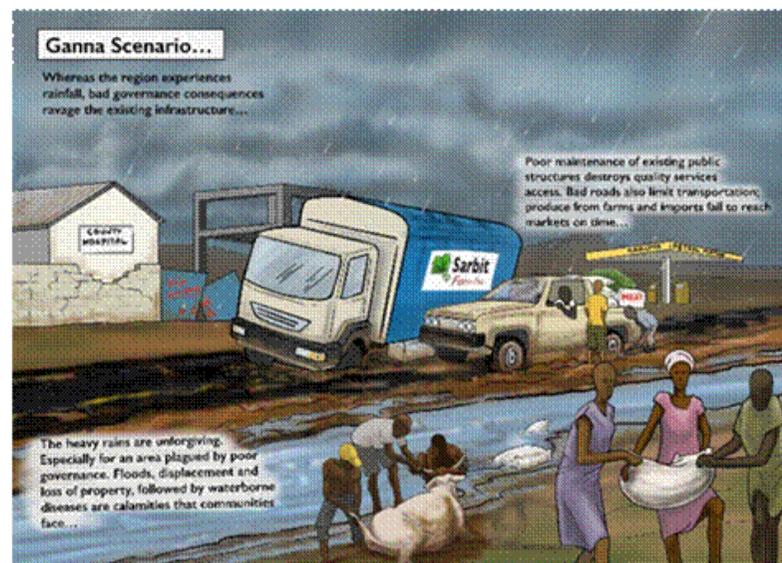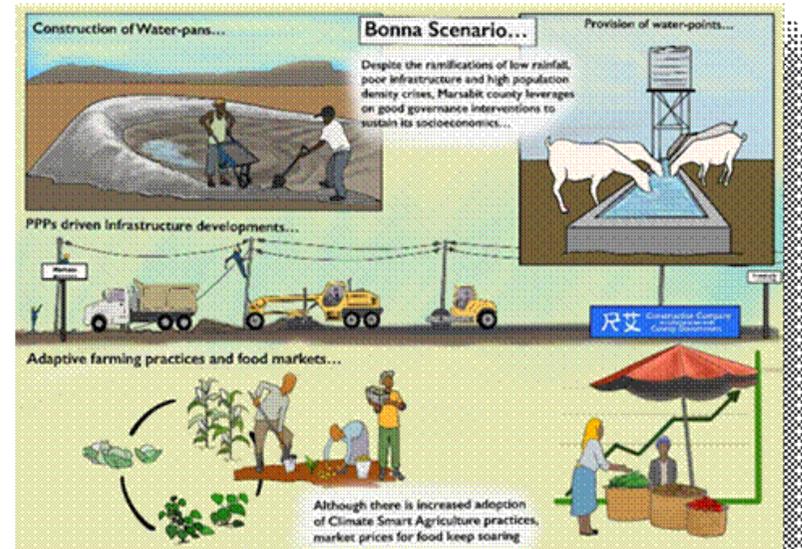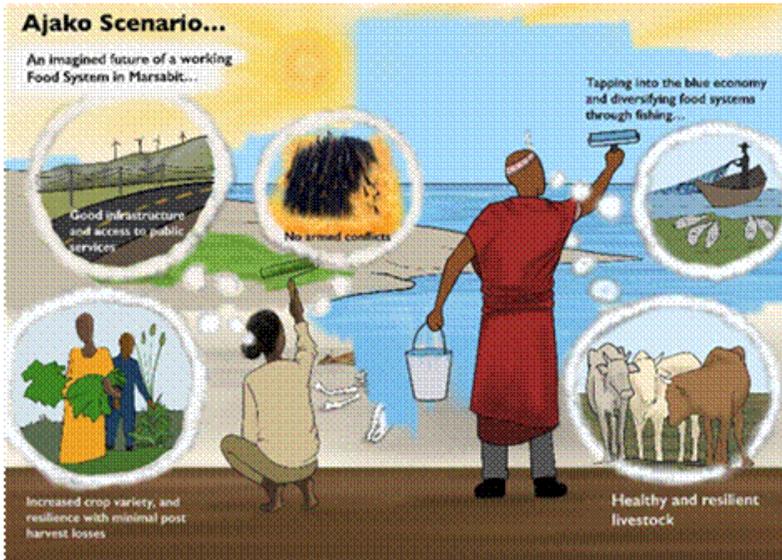
Stakeholder implications of constructed scenarios

Clearly, the Ajako scenario was seen as the desired future. However, many of the stakeholders felt that the other scenarios were quite realistic and perhaps more likely. The stakeholders reflected that these scenarios teach important lessons:

1. Coupled with the scarcity of water and persistent droughts in that region, the grave interpretation of those factors, highlight the negative implications they have on their food system, clearly emerged from all group scenarios.
2. The groups also developed a clear understanding of the duplicating efforts in aid programs in the county. Marsabit has the highest presence of AID organizations and INGOs working with communities in Kenya. The participants conveyed a particular discontent that was echoed by the county leadership – a dependency syndrome. One would expect an elaborate system of coordinating development projects/programmes in the county to align with the County Integrated Development Plan (CIDP).
3. Who develops the CIDPs? Are grassroots actors aware of how they can have their aspired development needs captured in the CIDP? The participants gave their remarks on the fact that the CIDP is developed by the county government in anticipation of the needs of the communities. The crux of the matter is the disconnect between INGO/NGOs, the County government and the grassroot communities in Marsabit.
4. Marsabit's case mirrors efforts in Ethiopia to mitigate food shortages and food security risks. However, Safety Net Programmes are cash based and only offer intermittent relief that is capped per household. As a recent case for Marsabit, the national government issued KES239,014,800 under the Hunger Safety Net Program (HSNP)2 to cover 7,377 beneficiaries from July 2024 to June 2025 – which equates to 32,400 per beneficiary, or 2,700 shillings per beneficiary per month. If such funds were consolidated into development of infrastructure facilities, then financial partners can assist the county to invest in long-term solutions such as construction of feeder roads, leather tanneries near abattoirs or drilling of boreholes.

Backcasting

Backcasting is a strategic planning method used to guide our visioning exercise and defining desirable future and then working back from that ideal future to

identify policies and pathways of working towards connecting both present with desired future. Having identified the foresight tool for the futures exercise, the SID team facilitated the workshop participants on futures thinking & sensemaking of the current gaps/constraints affecting food systems - nutrition and value-chains in the country/county and orient the workshop participants towards solutions to move them away from worst case scenarios to the ideal scenario, were developed as an alternative and desirable future for Marsabit.

Figure 10: Food system stakeholders sharing views in Marsabit

This exercise led to some important actions needed to take place on the short term and long term, but also key processes to be in place. Key insights emerging as 'no regret actions' on the short term were:

- The application of agronomic practices, technologies and farmer focused research based on needs assessments carried out.
- Participatory and inclusive planning to reinforce people-centred development plans that are result oriented.
- Farmer-focused research, one that address needs of the individual, family unit, community and county.
- Collective and cohesive spirit, innovative investments.
- Land identification for abattoirs, leather tanneries, value addition factories and processing zones.

Long-term solutions proposed included:

- Electing merit-based leaders and not along ethnic lines to protect against self-interests and ensure good governance.
- Resource mobilisation and allocations to the prioritized areas of development needs e.g., Water, education, agriculture, health etc.

- Harmonised planning and prioritising food security by all stakeholders in all sectors of development.
- Implementation of rehabilitation and restoration activities in protected areas e.g., reforestation and afforestation efforts, conservation efforts of forests and rangelands.
- Improved water harvesting technologies e.g., dams, water pans, tanks and training on sustainable water use and management.
- Planting of high yield and high value crops and stocking high-breed livestock – consider cross breeds.
- Creation of cottage industries for value addition for livestock and farm produce.
- Improved infrastructure and linkages to market.
- Efficient and well-structured financial services and systems and well-established cooperative societies.

Proposed processes to form towards achieving the desired Ajako future are:

- Investment in knowledge systems and research, across a wide diversity of sectors. This means that a knowledge management system is also in place, so provision of and dissemination of research findings, information and reports happens regularly.
- Strong community involvement processes, enabling community members to participate to create ownership of solutions on local problems/challenges. This also entails benefit sharing mechanisms and ongoing empowerment programs, training and workshops for the communities.
- Inclusive leadership and governance systems, including a well-established leadership accountability mechanism in place, supportive policy frameworks, capacity building of local leaders.
- Strategic thematic priority setting processes, enabling inclusive food security and nutrition programs, climate resilience technologies implementation and infrastructural development,
- Well established strategic partnerships for impact in place, both within the county and with partners outside of the county.

Figure 11: Workshop participants in Marsabit, including high level County leadership

3.5 Nakuru foresight process

Scoping, mapping, scanning

The food system of Nakuru County is full of potential, as Nakuru is rich in natural resources and a wide range of agricultural value chains are represented. However, challenges related to food and nutrition security and environmental sustainability exist. Trends of climate change and its negative impacts urbanization and a rapidly growing population, unhealthy diets and land fragmentation are emerging. The future holds many uncertainties. Yet, in order to future-proof the food system, it is urgent that investments are made to further enhance the resilience and sustainability of food and agriculture in Nakuru as espoused in the 2023 - 2027 County Integrated Development (CIDP).

Starting in November 2023, a diverse group of more than 40 different stakeholders, both state and non-state actors, from Nakuru county have been coming together to consider the future of the food system, supported by researchers and facilitators of Foresight4Food. This inclusive group looked at the challenges and opportunities for food and agriculture today, but also at how it might evolve in 10-15 years' time.

This Manifesto builds on a joint food system analysis, an assessment of drivers and trends relevant for Nakuru, and 5 scenarios developed by this group. These outputs culminate in a vision for their desired future for Nakuru's food system, and a range of possible pathways that can set us in that direction, while preparing us for a range of uncertainties. The Manifesto calls upon all stakeholders to join

Figure 12: Stakeholders in Nakuru unpacking drivers, trends and uncertainties

and align their actions, and intensify collaboration to transform Nakuru's food system so that it can feed its people; advance inclusive economic development; grow in-county revenue; and eventually GDP growth for Kenya.

Five scenarios for Nakuru's food system

Based on the identification of 60+ trends and uncertainties, 5 plausible scenarios were co-created. These were based on 4 critical uncertainties. All scenarios were later visualised by artist Celestine Wamiru. Learning from each of these scenarios, we distilled a 'desirable future scenario' for the Nakuru food system. The scenarios are named and briefly described below:

1. Ukulima Bora

This scenario presents Nakuru in 2040 as a vibrant, regionally focused business community with a sustainable and inclusive food system. It envisions a thriving future characterized by sustainable agriculture, healthy consumption habits, and socioeconomic harmony. The community focuses on local and regional trade, with agriculture serving as a backbone for economic growth. Despite the seasonable nature of foods available, food safety and security, nutritious value, hygiene standards are maintained through regulation as well as trust-based standards. The community focuses on local and regional trade, with climate
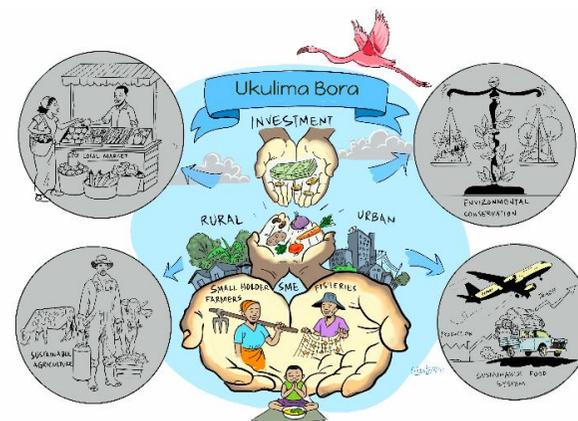

resilient agriculture serving as a backbone for economic growth. There is space for smallholder farmers, SMEs as well as professional companies from a range of different sectors such as green energy, IT and tourism. Stakeholders prioritize farmer welfare and environmental conservation, which means that food systems stakeholders, especially farmers, have access to information and markets, as well as financial services and responsive (advisory) research services. The economy is characterized by social enterprises, public-private-partnerships, business incubation and cooperative hubs, smart agri-IT services and inclusive financial services. Youth are highly educated with a strong participation in agri-food systems, and open-source technological advancements enhance productivity and efficiency.

2. Usipo Ziba Ufa

In a scenario where global business and trade dominate, unhealthy consumption habits prevail, and businesses and their leaders are dominant, Nakuru faces numerous challenges. The population is increasing rapidly, leading to urbanization and land
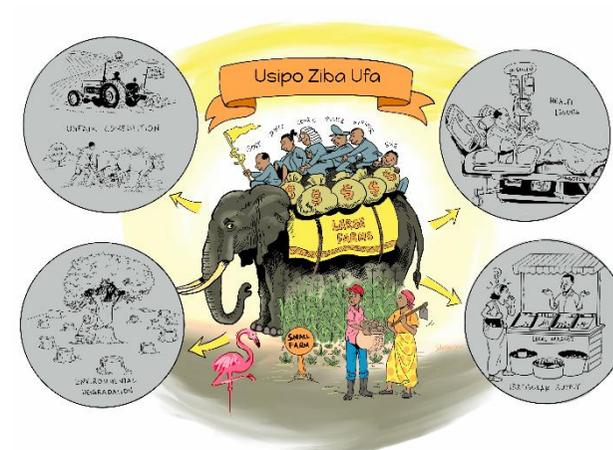
fragmentation. The proliferation of fast-food consumption exacerbates health issues, while commercial farming practices degrade the environment and displace small-scale farmers. This leads to food becoming inaccessible for many, contributing to a rise in sickness and death rates. Additionally, socioeconomic inequality is stark, with few wealthy individuals amidst a sea of poverty, leading to increased crime and insecurity.
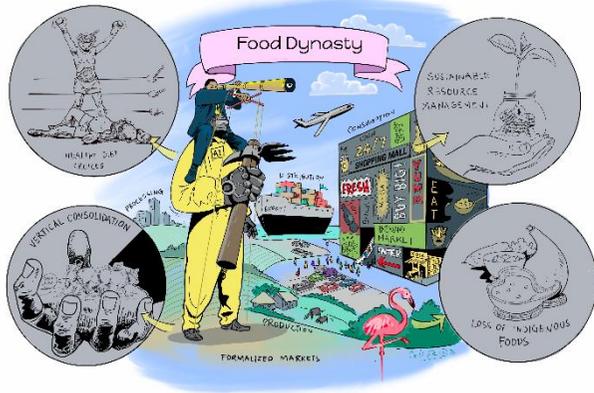

3. Food Dynasty

The vision for Nakuru in 2040 under this scenario centres on a corporatized food system that balances economic prosperity with environmental sustainability. Trade remains primarily local and regional, while consumption patterns shift towards healthier diets. Sustainable resource management practices are implemented, including land consolidation and improved financial systems. Formalized markets and increased awareness of food and nutrition contribute to a thriving agricultural sector, although concerns about the potential loss of indigenous foods are noted.

4. Greeniapolis

This scenario depicts Nakuru in 2040 as a technologically advanced and environmentally conscious city. Green energy sources, such as geothermal power, drive economic growth and sustainability. Tourism and sporting activities flourish alongside innovative transportation systems, including electric trains and cars. Agroforestry initiatives and lab-developed foods support a healthy population, while increased investment in research and development fosters innovation. However, challenges such as cybercrime and mental health struggles arise from excessive reliance on technology.
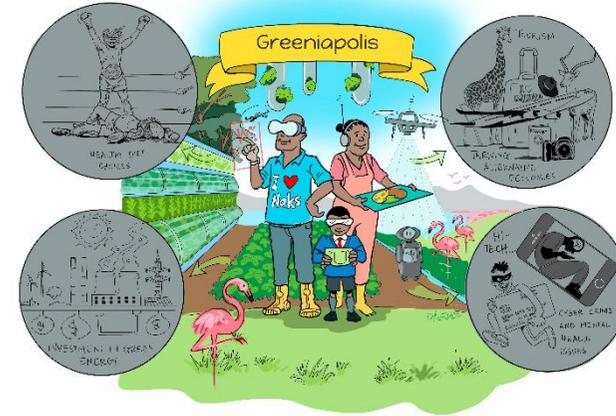
5. Doomsday Nakuru

In a bleak scenario marked by unsustainable practices and socioeconomic collapse, Nakuru faces a multitude of crises. Deforestation, land degradation, and dwindling natural resources lead to widespread environmental devastation and food shortages. Youth unemployment soars, exacerbating social tensions and crime rates. The once-thriving city grapples with mass exodus and health crises, painting a grim picture of its future.

4.   Mobilise For Systems Change

In this final phase of the project, we aimed to inform Kenya's food systems transformation policies in three ways:

1. Use foresight efforts to inform policies and financial networks building in the Nakuru and Marsabit county processes
2. Establish a Model for foresight integration into food systems decision-making
3. Link foresight capacity to food systems decision-making ecosystems
4. Develop follow up deep dives: financing and science-policy-society interface

This chapter outlines the following: Recommendations following out of the foresight processes in Marsabit and Nakuru, the Kabazi Foresight Innovation Model, and the links to integration of foresight capacity in key institutes such as Kenya School of Government. In Nakuru, the work was well embedded by local partners and networks, and received great buy-in by County government officials. In Marsabit, this step was not yet implemented by the County due to political developments and lack of time and resources for FoSTr to visit the county more often.

4.1 Ajako: Recommendations for Marsabit county

During the Marsabit workshop in December 2024, a multi-stakeholder group of actors, including state and non-state, community-based groups, and development partners, examined the prevailing challenges and opportunities within the Marsabit County food system. Through participatory foresight exercises, the workshop provided a platform for inclusive dialogue, collaborative visioning, scenario building, and strategic reflection on policy pathways toward a more resilient, equitable, and sustainable food system.

The deliberations underscored the necessity of centring grassroots voices and indigenous agronomic knowledge in devolved ward & county-level development planning. Another highlight is on the critical role that cross-sector coordination, foresight and systems thinking-embedded towards advancing the county's food and nutrition security objectives. These were separated into 'no-regret measures', urgent remediate action, and boosting desirable directions.

1. **Strengthening climate resilient livelihoods** emerged as important no regret and urgent action. Diverse livelihoods in this space are essential, across pastoralist, fisheries and agriculture, but also processing and agri-food services. This means supporting the development of agropastoral and small-scale fisheries systems through agropastoral/technical extension services, inputs provision and inclusive market access. Also, diverse and integrated approaches in livelihoods should be encouraged - combining agriculture, beekeeping, fisheries, and value-added enterprises tailored to local contexts.

2. **Reforestation, land rehabilitation and ecosystem Restoration** is a crucial boosting pathway that will take a long time to grow but will be essential to achieve the Ajako scenario. This means implementing large-scale rehabilitation of degraded rangelands, including reseeding, rotational grazing and community-led reforestation programs and strengthening local institutions for sustainable natural resource governance, including customary norms and traditions. The latter is essential in order to avoid short term needs reasserting themselves.

3. **Adequate Water Access and Infrastructure Development.** Water management will be urgent and no-regret actions, appearing centre stage in all Marsabit scenarios. This means developing and rehabilitating water infrastructure (dams, boreholes, water pans) to reduce reliance on transhumance pastoralism. It also once again means promote community-based governance of water resource models to ensure sustainability and equity.

4. **Diet, Nutrition Security and Health Systems Integration.** This is an urgent issue that needs to be addressed now in order to avoid further negative directions into the future. However, hunger and malnutrition need to be addressed differently by strengthening the diets/health/WASH/education nexus: scaling up community-based malnutrition screening and treatment programmes, including mobile health outreach and Community Health Practitioners. Also, Integrating Kenya dietary guidelines into nutrition-sensitive programming across sectors (agriculture, WASH, school feeding) with a focus on children under five.

5. **Cold Chain and Post-Harvest Systems.** This will be an important boosting pathway, if linked to growing options in renewable energy. The geography of Marsabit means that transportation times are long and markets far way. Increasing buffers and maintaining quality of produce will be important to increase profits and minimise losses, particularly in potential sectors such as fisheries. For pastoralism this might be less directly relevant. This means investing in decentralized

cold storage infrastructure, particularly for fish-landing areas to minimize food loss/wastage. Building capacity of fisherfolk and traders on hygienic fish handling, processing, and value addition.

6. **Multi-Stakeholder Coordination Governance.** This avenue contains the recommendation to implement a boosting initiative that will help to make governance of Marsabit county more ready to address complex challenges. This means that the County should establish a lean, multi-sectoral coordination group mandated to engage with the County Government and relevant line departments (especially CEC Public Service & Administration) to facilitate implementation and policy alignment. Also, institutionalize mechanisms for regular consultation between grassroots stakeholders and political leadership. Finally, this is also an investment in the future generation, which should be supported by scholarships for community youths at county level.

Finally, a number of key supporting processes and capacity investments were identified that will support the actions compiled above:

- Utilize scenarios as tools to communicate policy needs and inform county development priorities.
- Equip local leaders and grassroots representatives with structured advocacy tools to engage effectively with decision-makers.
- Provide foresight and scenario planning training for county planners, community leaders, and civil society actors to enhance adaptive capacity and long-term systems thinking.
- Designing and implementing a learning and accountability framework that supports evidence-based decision-making, with disaggregated data tracking food security, nutrition, and resilience indicators.
- Exploring opportunities for regional cooperation for climate action on shared natural resources, livestock mobility, and market linkages, particularly given Marsabit's proximity to cross-border trade corridors.
- Promoting iterative and participatory monitoring systems that enables communities to track progress and provide feedback.

Figure 13: Marsabit food systems stakeholders discuss implications for action

4.2 Ukulima Bora: A desired future for Nakuru County

The Nakuru foresight process culminated in two results: 1) the delivery and adoption of a Manifesto for Change by the Nakuru County into strategic planning and budgeting documents; and 2) the nurturing of the Kabazi Foresight Innovation Model, capturing the process elements linked to community mobilisation and which can be replicated in other Kenyan countries.

Key subsystems needed for realising the desired scenario

The focus on the Ukulima Bora scenario enabled a long-term dot on the horizon for Nakuru food systems stakeholders. Through Causal Loop Diagramming, CATWOVE analysis, and brainstorming of what pathways, processes and partnerships were needed in this future, stakeholders came up with key sub-systems that are crucial to invest and curate, while identifying 6 important pathways for realising Ukulima Bora.

In the Ukulima Bora scenario, various key sub-systems of the food system are functioning well and generating more than the sum of their parts. Thus, this desired future involves:

1. **Value-driven research and innovation data systems:** Valuing research and conducting participatory research are essential. Policies need to be informed by data, emphasizing evidence-based decision-making for sustainable agri-food systems. This involves engaging communities and stakeholders in research processes to ensure their perspectives are considered. This includes investments and results tracking, monitoring and evaluation, including diverse data sources, ongoing data collection and effective analysis.

2. **Effective natural resource management and restoration systems:** Responsible and judicious input use and local practices for soil, water and biodiversity conservation are crucial. Farmers and SMEs adopt sustainable practices, through a mindset shift towards integrated practices and through collaboration with partner companies. Additionally, practices like terracing and riparian land preservation play a vital role in preserving natural resources.

3. **Resilient value chain development:** Inclusivity and shared responsibilities in the value chain are paramount, ensuring that all communities contribute and benefit. Risk sharing and mitigation strategies, along with sustainability through information sharing and financing, are essential. Using the right inputs is crucial for maintaining quality throughout the value chain.

4. **Inclusive financing systems:** Finance providers, organized groups and collective savings serve as driver and collateral for financing, promoting financial inclusion among small-scale farmers and SMEs. Micro-insurance for agribusiness helps mitigate risks, while ongoing financial literacy and empowerment programs ensure effective financial management.

5. **Vibrant multi-stakeholder processes:** In this desired future there are ongoing multi-stakeholder platforms and collaborative instruments, such as private partnerships, fostering effective multi-stakeholder engagement. A central data repository is accessible to all stakeholders and facilitates informed decision-making and enhances transparency.

6. **Participatory and inclusive enabling environment.** The County government plays a pivotal role inviting citizens and stakeholders to contribute the policy process. Principles such as 'participatory', 'inclusive', 'co-creation' and 'enabling' guide the development of policies that drive positive impacts.

This desired future does not emerge naturally. The scenarios pointed to the need to strongly take action now, and nudge the system into the direction of change needed, while being aware of global drivers and trends.

Figure 14: Nakuru food systems stakeholders discussing the Nakuru context

Nakuru Pathways of change

Based on systemic casual loop analysis, the Nakuru food systems stakeholders analysed how all these systems work. Based on the analysis and the scenario lessons, a number of essential entry points for starting the transformation process emerged. These involve combinations of pathways, processes and partnerships. The pathways are aligned with the National Government's Bottom-Up Economic Transformation Agenda (BETA) and the Nakuru County CIDP (2023-2027) Plan.

Pathways are areas of intervention and direction. These pathways involve both a transformational mindset as well as potent areas of investment for the Nakuru food system stakeholders. Following these pathways will serve as 'no regret' strategies, investments toward positive futures and put mechanisms in place to avoid doomsday scenarios. The pathways are:

1. **Inclusive and enabling environment for food systems transformation:** a consistent, committed and catalytic role is envisioned for the County Government. Participatory consultation, multi-stakeholder forums and public-private partnership inform adaptive and anticipatory policy making and co-implementation of regulations. Farmers, enterprises and local research institutes working together in 'Living Labs' contribute to innovations, ongoing data collection, sense-making and results monitoring. A strong focus on applied, evidence based decision-making and citizen science informs strategies, with additional input from foresight and trend analysis units.

2. **Farmers' collective action, in partnership with key private sector partners**. The voluntary action taken by small holder farmers to organize themselves into farmer groups and cooperatives will enable them to achieve common shared interests. The outcome of such collective action will be better bargaining power, access to better input prices and markets for farm produce.

3. **Think and go green in agri-business**: By fully starting to embrace circular economy, agro-ecological practices, water harvesting, waste to value, farmers, SMEs, cooperatives, financial service providers and researchers start to introduce new business models, and practices aimed at reducing greenhouse gas emissions in agriculture. In collaboration with local government, stakeholders reform and repurpose extension services, initiate agroforestry and generate green energy investments. Regulators and citizens ensure polluters are incrementally penalised and adoption of payment for ecosystem services is embraced. On the other hand, climate resilient plant varieties, livestock species and farming practices will enable farmers to adapt to the impacts of climate change.

4. **Sustainable and inclusive land management to buttress the viability of small-scale agriculture**: A multi-stakeholder coalition of planners, farmers, citizens and companies initiate dialogue and visioning around urban and rural development. This coalition will also advance the restoration of degraded lands, the management of soil fertility in agri-ecosystems, as well as addressing land fragmentation and afforestation.

5. **Shifting diets through food safety, health and education:** A broad coalition of schools, women groups, local government, health care professionals and volunteers, food companies, and financial service providers will drive a healthy food environment. This includes equal gender relationships, inclusiveness and nutrition awareness, penalties for imported unhealthy processed food, and subsidies for local indigenous foods. Community-led school-feeding programmes are triggered to enhance education outcomes as well as sourcing from local farmers to increase marketability of nutritious foods. Reforming of curricula enhances engagement in health and food production sectors.

6. **Nakuru County government and Nakuru communities take the lead in shaping nutritious, resilient and sustainable business value chains**: Farmers, communities, local government, business leaders and financial service provider's work together to prioritize key value chains and strategic processing per sub-county based on business potential, sustainability and local nutrition outcomes. Food value addition drives income growth through processing (fortification, pickling, and fermentation), logistics, and marketing. Farmers, researchers, local government and companies diversify and build resilience of farm enterprises and markets in the face of climate change through strong investment in adaptable and drought-tolerant plant and livestock varieties, local seed propagation and diverse cropping systems. Shock-resilient markets are ensured through early warning systems and versatile buffer stocks of both staples and nutritious foods. Strategic investments in key low-emissions protein sectors lead to exploration of novel food developments and piloting alternative protein value chains.

These pathways form the Manifesto for Change for Nakuru's food systems future. This manifesto is a common reference point that serves to guided, motivate and spur action among the stakeholders that are an integral part of this food system.

Figure 15: National stakeholders reflecting on Nakuru and Marsabit experiences

4.3 The Kabazi Foresight Innovation Model

The Kabazi Foresight Innovation Model, getting its name from Kabazi Ward, within Nakuru County's sub-county structure, created a decision-support ecosystem from the onset that integrates systems thinking and foresight approaches with bottom-up leadership rooted in authentic community ownership.

Crucial to starting this model was the collaboration with Results for Africa Institute (RAI), led by Joyce B. Nyamweya, CBS. Through her leadership RAI pioneered the Ward/County/Kenya Integrated Social Economic Transformation (IS SET) Capability Enhancement Initiative. This anchored and purposed programme under the bedrock of Kabazi Ward Transformation Programme (KWTP) integrates the FoSTr approach and climate change adaptation into the Bottom-Up Economic Transformation Agenda (BETA) Beyond 2030, fostering a whole-of-government, whole-of-society approach. Upon invitation by the County Governments of Nakuru and Marsabit, RAI has deepened and scaled this model, leveraging tools like the WARD-IS-SET Results Ecosystem Development and Sustainability Model and County Integrated Transformation Results

Figure 16: RAI formed a Small Core Group to drive and co-own the initiative.

Framework (CITRF) to link research, innovation, and stakeholder engagement to policy execution.

The FoSTr foresight process built on a strongly rooted Kabazi community momentum to advocate for change. The scenario building process led to the initiation of a 'Small Core Group', which had many representatives from Kabazi Ward, which took the implications from the scenarios forward. The ward leveraged pre-existing Beyond 2030 Networks comprising ward departments, chiefs' forums, school heads, women's groups, local businesses, and community actors as the foundation for co-creation and systemic change. These organized community networks provided visionary, lived reality perspectives into the county's 'Manifesto for Change' through scenario-based foresight processes, introducing context relevant approaches to promote indigenous crops and applying circular economy principles.

This grassroots mobilization generated the credibility and evidence needed for county-level adoption. By leveraging existing social capital, Kabazi Ward demonstrated local implementation pathways and provided legitimacy for county-wide policy integration. This creates a replicable model for nature-positive food systems transformation that is both locally relevant and institutionally supported. They learning has been to connect grassroots action with multi-level governance through a multi-stakeholder network advising the county government.

As a consequence of these actions, through the promotion and discussion of the Manifesto for Change, the shared vision and transformation pathways are now embedded within Nakuru County's 2023-2027 Strategic Plan and budget. the county committed 117 billion Kenyan shillings to promote agroforestry adoption, indigenous crop cultivation, and payment for ecosystem services, while also attracting business and financial service providers to invest in biodiversity-supporting value chains. County officials shifted from viewing conservation as a productivity constraint to recognizing biodiversity as essential for food security.

In the process, FoSTr and RAI also managed to involve new stakeholders in this transition. For instance, faith leaders emerged as food systems champions expanding sustainable and inclusive food systems advocacy into communities. Danish Church Aid was interested and brought in financing to conduct value chain analysis on key backbone local food value chains. Financial service providers were briefed and triggered to support in co-financing local community initiatives and build in new criteria into agricultural investment decisions, responding to rising demand for sustainably produced foods.

As was stated by Hannah Oduor, Nakuru County Government officer: "It is the people, it's coming from the people, what the people want. It's not somebody coming to tell the community what they want to do for them. The community are already organized, and they're already ready to be partners in their development."

Throughout the model, the idea for replicating this concept across other counties in Kenya is through the linking the insights from food systems thinking and foresight, with participatory, community co-led multistakeholder facilitation and support to county governance. The following frameworks that are relevant for county leadership: Integrated Performance Management and Accountability Framework (IPMAF) and County Integrated Transformation Results Framework (CITRF).

RAI has identified that the IPMAF and CITRF are pivotal frameworks for enabling the translation of foresight into policy execution:

- **IPMAF:** A performance management tool embedding foresight into governance, IPMAF aligns stakeholder-generated scenarios and manifestos with policy indicators (e.g., CAADP, BETA, NDCs). It tracks outcomes like food security and job creation through Rapid Results Initiatives (RRIs), fostering accountability across Nakuru's 55 wards and Marsabit's anchor wards (e.g., Sagante, Karare).
- **CITRF:** This results framework operationalizes foresight-driven priorities (e.g., climate-adapted value chains) into county plans like Nakuru's CIDP (2023–2027). It integrates rich pictures and scenarios into actionable deliverables, such as the WARD-IS-SET Results Ecosystem Development Model, enhancing service delivery and own-source revenue growth.

As a result of our foresight work in two counties the current status is:

- **Nakuru**: Round-table and follow up workshop produced scenarios and the Nakuru Manifesto, operationalized via IPMAF in Kabazi Ward, scaling to 55 wards by 2025.
- **Marsabit:** The RAI mobilized Stakeholder engagement (August–December 2024) would yield rich pictures and a manifesto, with CITRF embedding these into ASAL-focused policies that we will integrate as the workshop report from Society for International Development (SID) is presented and processed.

In 2025 and beyond, RAI intends to move to Kisumu and Nyamira counties, linking ward-level results centres to Governor's Results Delivery Units. Also enhancing performance via IPMAF's RRIs, tracking climate-adapted value chains (e.g., AGROWORLD) and cooperative strengthening, with CITRF ensuring county-level alignment.

A promising direction to institutionalize foresight is through mainstreaming IPMAF and CITRF into county and national policy frameworks to sustain foresight-driven planning beyond 2030. As an example, this can be done by aiming for a transformation case like the Marsabit County **'Ajako'** scenario by 2040: a model of resilience and sustainability with climate-smart agriculture, functioning markets, robust infrastructure, and environmental stewardship. This would eradicate hunger and malnutrition, empower thriving farmers and pastoralists, and build climate-resilient communities. In 2040, **"Ukulima Bora Nakuru"** scenario can model a sustainable food hub where regenerative agriculture, youth-led agri-tech, and inclusive cooperatives boost farmer incomes, nutrition, and environmental resilience. All these scenarios can be driven by foresight and tracked through IPMAF and CITRF as they are established though whole of society -whole of government validated manifestos.

Embedding foresight thinking through IPMAF and CITRF will transform Kenya's agricultural sector and food systems by linking rich pictures, scenarios, futures, and manifestos to policy ensuring results delivery and performance management align with climate adaptation and socio-economic goals, positioning Kenya as a leader in sustainable development.

4.4 Embedding foresight capabilities

In 2025, the FoSTr programme sought to find ways to embed foresight practices more deeply in key decision-making institutions. It emerged that County governments, due to their devolved functions and specific powers in shaping food and agricultural policies, are a crucial stakeholder in the wider transformation process. Especially county leaders and civil servants then can benefit from understanding complex food systems and foresight approaches.

Through the connections with Society for International Development, RAI the FoSTr team linked up with the Kenya School of Government (KSG). This institute is responsible for training current and new civil servants from all across the country. KSG drives curricular development and delivery—offering face-to-face and online learning, technical assistance, and results coaching—while supporting the Kenya Devolution Support Program II and capacity-building efforts. It emerged that foresight is a key priority for new curriculum.

In the last FoSTr workshop, held in November 2025, FoSTr partners were able to deepen the connection with KSG, by organising a workshop on the premises of KSG. Of particular areas for collaboration, it emerged that F4F and Kenyan partners can contribute by helping KSG to provide training to policymakers on learning about food systems and foresight and practically integrate foresight outputs into IPMAF/CITRF for measurable outcomes.

Professor Nura Mohamed, the Director General of the Kenya School of Government (KSG), delivered the keynote address at the workshop, focusing on the critical role of Strategic Foresight in driving Public Service Reform in Kenya. He commended Joyce Nyamweya for her longstanding contributions to public sector transformation, particularly the reforms she initiated that continue to shape the trajectory of Kenya's governance systems.

Figure 17: Professor Nura Mohamed, the Director General of the Kenya School of Government, speaking at the FoSTr workshop in Nairobi (KSG)

Professor Nura emphasized the urgency of preparing the public service for the demands of 2040. He highlighted the need to anticipate emerging trends and drivers of change including digital transformation and artificial intelligence and to equip public servants with the competencies required to navigate future complexities. He underscored that foresight should not only inform strategy but also guide the development of relevant programs, training, and institutional structures.

As such, promising opportunities lie the implementation and service delivery of civil servants: the shift from documentation to practical implementation. Professor Nura called for deliberate efforts to take public services closer to communities, particularly in rural areas. This includes working with local administrators and deploying mobile units to deliver training, services, and accountability mechanisms at the grassroots level.

Professor Nura stressed the importance of multi-stakeholder collaboration involving government agencies, universities, development partners, and communities. He supported the proposal to develop a 100-day roadmap anchored in strategic foresight, food security, and public service transformation. He also highlighted the need to strengthen the Kenya Foresight ecosystem by developing a model that links the grassroots to the presidency, positioning Kenya as a leader in future-oriented governance.

In the coming years, FoSTr Kenya team members will seek to build on this opening of partnership with KSG to support capacity delivery and foresight integration into curricula for food systems processes.

4.1 Thematic deep dives

Building on the insights and interactions in the foresight processes at national, Nakuru and Marsabit levels, the research team of the FoSTr programme, particularly University of Nairobi and International Livestock Research institute did two additional policy deep dives.

This was meant to connect across scales and touch upon key issues that were seen as important in all three areas we worked. These were: financing and investment for food systems transformation, and the science-policy-society interface. Each topic was captured in a position paper. See for instance to the right the paper on finance and foresight for Nakuru, which built on insights engaging with the Netherlands Food Partnership's newly established Finance for Food Systems Transformation Community of Practice in Kenya, and on presenting the Nakuru foresight work at the FINAS conference in May 2025. Here the exchange with IFAD's 3FS framework and Kenya analysis was also important.

5. Reflections and way forward

5.1 Reflections

To reflect on the progress of our work, a mid-term and final reflection report were developed, in which key stakeholders involved in the FoSTr work in Kenya were consulted through interviews, surveys and focus groups.

From these consultations, a positive picture emerges of FoSTr's contribution in Kenya. FoSTr helped raise awareness among policymakers and stakeholders on future challenges and opportunities, including how to navigate healthy diets, climate change, trade dependency, and food insecurity. With food system assessments and data gallery walks, FoSTr highlighted, together with stakeholders, critical data gaps and questioned existing evidence bases. The programme also supported County agri-food policy development through evidence, strategies, scenario thinking, and backcasting exercises, enabling participating policymakers to design resilient and forward-looking strategies.

The multi-stakeholder process supported cross-ministry engagement and collaboration. With its research team and collaborations with government agencies, FoSTr helped build national capacity for foresight and research collaboration and demonstrated the added value of applying foresight. Stakeholders reported that the process improved their understanding of other actors' perspectives, clarified roles, encouraged systems thinking, and provided structured spaces for dialogue, fostering trust and collaboration across the food system. Finally, FoSTr highlighted the consequences of inaction on important food system challenges.

Finally, FoSTr team has come up with final messages that are crucial for a group of individuals, facilitators or leaders to embrace when mobilising for change in the food system. They are:

Radical inclusion of voices from the margins to the centre. One of the most powerful aspects of the foresight process in both Marsabit and Nakuru was the deliberate inclusion of diverse stakeholders, from grassroots farmers and herders to county officials, researchers, youth groups and private sector actors. In Marsabit, participants representing the four sub-counties brought hyper local insights in the room, enriching the process with lived realities. Nakuru's journey similarly embraced multi stakeholder collaboration, culminating in a Manifesto for Change that reflected collective aspirations. This radical inclusion did not just democratise the process, it legitimised it. It turned the foresight process into a shared act of imagining alternative futures of food systems in Kenya and ownership.

Visualising complexity using rich pictures and participatory modelling is powerful. The use of rich pictures and participatory modelling during the Marsabit F4F workshop was transformative as it allowed participants to map their food systems, not just as abstract concepts, but as dynamic, interconnected realities. Participants could see the feedback loop between drought, conflict, infrastructure ad market access. This visual storytelling grounded the foresight process in experience, making systems thinking accessible and actionable for all the participants, validating that the activity was not just about drawing diagrams but about drawing connections and meaning from the identified drivers of potential food system transformation in Marsabit County.

Learn to actively navigate uncertainty using imagination and scenarios. Both counties embraced scenarios development as a way of navigating uncertainty. Marsabit's four scenarios (Ajako, Bonna, Ganna and Nahbay) offered starkly different food system transformation futures shaped by governance, climate resilience and infrastructure. Nakuru's scenarios on the other hand distilled over 60 trends into plausible futures of food systems transformation, culminating in a shared vision for the year 2040. These scenarios should not be perceived as predictions. They are provocations. They challenge all stakeholders to confront uncomfortable possibilities and commit to transformative food systems that ensure food security and nutrition for all residents of Marsabit and Nakuru counties.

Data is not just knowledge; it is also a way for starting dialogues to spark collective insights. Both processes were anchored in data, not as static facts, but as tool for dialogue. The "Data Walk" during the Marsabit workshop helped participants to interrogate trends in food processing, nutrition and climate variability. The Nakuru process emphasised value driven research and participatory data systems to inform policy. This approach seemed to have elevated the foresight process from speculation to informed deliberations, empowering the stakeholders to make decisions rooted in reality.

Having a vision, and then backcasting with the intent to move from vision to action is immensely mobilising. Backcasting as a tool emerged as a critical bridge between aspiration and implementation. During the Marsabit

workshop, for example, stakeholders worked backwards from their desired futures to identify concrete steps, policy shifts, infrastructure investments and community led innovations. Similarly, the foresight process in Nakuru aligned its pathways with national agendas like the Bottom-Up Economic Transformation Agenda (BETA), ensuring relevance and traction. This visioning turned visioning into strategy, and strategy into movement led by RAI.

Develop a systemic action to mobilise for change by identifying pathways, processes and partnerships. In both the Marsabit and Nakuru, the Foresight4Food process did not just stop at imagining the future, it boldly charted the way forward for interested and committed stakeholders to jump into action. The Marsabit workshop participants identified ten priority pathways that cut across climate resilient livelihoods, ecosystem restoration, cold chain development and governance reform. Each of the above stood as a strategic lever for unlocking resilience in one of Kenya's most fragile counties. Meanwhile, Nakuru's Manifesto for Change laid out a similarly ambitious roadmap. It champions green agri-business, dietary shifts and inclusive land management as pillars of sustainable food futures. There pathways are not abstract ideals, they are grounded actionable and deeply rooted in local realities, which is key. They offer direction, hope and a shared sense of a food system transformation that is necessary, but also within reach when communities, governments and partners collaborate and align around a common vision and commit to walking the path together. Collective action towards a desired food future.

A Spoken Word contribution during our final FoSTr workshop in 2025, by Dorphanage, artfully captured the urgency for change but also reminded participants of the deeply political nature of food systems transformation:

Governments speak of empowerment

While selling futures to foreign hands

Signing away tomorrow for the comfort of today

Pretending not to see the blight they sow

Africa does not lack muscle or mind

Only the will to honour its own abundance

Our fields are fertile with potential

But the plough is steered by self-preserving hands

5.2 Way forward

At the final workshop, the participants agreed the following actions, which are of high relevance to integrate systemic practice and foresight in the food systems transformation process:

- Continue to strengthen and build a networked community of practice, integrating foresight, food systems change and facilitation to support Kenya's food system transformation process
- Strengthen capacity building and communication materials on systems thinking and foresight, especially with the Kenya School of Government and key learning institutes
- Consolidate and scale the county-level 'Kabazi Foresight Innovation Model' to share experiences with other counties and support decentralised governance
- Invest in local learning ecosystems such as Community Research and Living labs to support locally embedded and applied sustainable innovation and farmer-centric learning
- Support legislators to adopt a futures perspective when it comes to laws and regulations, such as through the Senate Futures Caucus
- Work towards societal mindset shifts, behaviour change and accountability mentality. Value cultivation is crucial for long-term change: values such as responsibility and awareness of food systems must be cultivated, while addressing entrenched social norms that stop us from reframing power and relations within the current food system.

The FoSTr team members, RAI, ILRI, SID and University of Nairobi but also Egerton University, Food and Land Use Coalition, are relevant partners to continue this work.

Three key practical areas of work emerge:

1. Working to embed foresight capabilities in KSG and other strategic institutes
2. Capturing, sharing and scaling the Kabazi Foresight Innovation Model across Kisumu and other interested counties in Kenya
3. Provide strategic support to leaders and partnerships, such as the Senate Futures Caucus, a group of senate leaders eager to use foresight to guide Kenya on the long term.