POLICY BRIEF

Transforming Southern Africa's Food Systems for One Health: Insights and Policy Options from FoSTA-Health

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FOSTA
Food systems transformation in Southern Africa for One Health

Key Messages

1.

Food systems transformation requires aligning public–private investment, standards, finance and innovation to build competitive, nutrition-sensitive and climate-resilient markets that include smallholders.

2.

Shifting diets toward healthier and more diverse foods demands coordinated regulation, consumer education and retail reform so that food environments make nutritious choices accessible, affordable and aspirational.

3.

Sustainable agrifood transformation depends on transitioning to agroecological, water-smart and biodiversity-protective production systems that strengthen resilience while safeguarding natural resources.

4.

Lasting transformation requires centring smallholders, women and youth through secure rights, inclusive finance and participatory governance that reflects local aspirations and lived realities.

Introduction & Background

Food systems in Southern Africa sit at the intersection of human, animal, and environmental health, yet they are increasingly shaped by pressures that threaten all three simultaneously. Rapid population growth, urbanisation, expanding food markets, and changing dietary patterns are transforming how food is produced, distributed, and consumed across the region.

These shifts are occurring alongside climate variability, ecosystem degradation, and persistent social and economic inequalities, creating complex risks that cannot be effectively addressed through single-sector responses.

Despite the deeply interconnected nature of these challenges, food system governance remains largely fragmented across agriculture, health, environment, and trade sectors. This disconnect limits the ability of policies to anticipate and manage trade-offs between productivity, public health, animal health, and ecosystem sustainability. As a result, well-intentioned interventions such as irrigation- led intensification, livestock value chain expansion, and export oriented production when designed and implemented without addressing equity and power relations within the food systems, can inadvertently contribute to rising antimicrobial resistance, increased burdens of diet-related non-communicable diseases, biodiversity loss, and the exclusion of vulnerable populations from food system benefits. These outcomes highlight the urgent need for governance approaches that recognise and respond to the interdependence of human, animal, and environmental health.

This policy brief applies a One Health lens to food systems transformation in Southern Africa. It presents insights from the FoSTA-Health project to illustrate how integrated, cross-sectoral approaches can support more resilient, equitable, and sustainable food systems. Drawing on participatory processes and food systems modelling undertaken in Malawi, South Africa, Tanzania, and Zambia, the brief outlines pathways shaped by production systems change, livestock and export value chains, dietary transitions and land use pressures, and identifies policies for aligning food system investments and regulations with One Health principles. In doing so, it aims to support policymakers, development partners, and practitioners in advancing food systems that simultaneously protect public health, safeguard ecosystems, and sustain livelihoods across the region.

Drivers of Food System Change in Southern Africa

Food systems in Southern Africa are being reshaped by intersecting environmental, demographic, and economic pressures that collectively challenge the region's capacity to achieve resilient, nutritious food production. Climate variability, including recurrent droughts, floods, heatwaves, and diminishing water availability, remains a central driver, disrupting agricultural productivity and exacerbating livelihood insecurity (IPCC, 2022). These climatic stresses compound long-term environmental degradation, such as declining soil fertility, biodiversity loss, and heavy reliance on agrochemicals, which collectively undermine ecosystem health and the sustainability of agricultural systems (FAO, 2024; Rother, 2018). Meanwhile, rapid urbanisation and shifting demographics fuel a nutrition transition marked by increased consumption of processed and animal-source foods, contributing to rising rates of non-communicable diseases (Popkin & Reardon, 2018; Global Nutrition Report, 2020). At the same time, expanding export markets, tightening food safety and quality standards, and restructuring of livestock and horticultural value chains are reshaping who participates in markets and who bears production and compliance risks. Unequal access to land, irrigation, finance, and extension services, particularly for women and youth, further shapes farmers' capacity to adapt and engage with emerging opportunities, reinforcing social and economic inequalities within food systems.

Economic and Policy Dynamics Shaping Food System Trajectories

Economic and policy dynamics further influence the direction of food system transformation. Efforts to expand export markets, modernise value chains, and meet evolving sanitary and phytosanitary standards have intensified commercialisation, yet these shifts often reinforce maize-centric policy regimes that limit diversification into more nutritious and climate-resilient crops (SADC, 2020; Drimie & Pereira, 2020). At the same time, restructuring of livestock and horticultural value chains, including changes in processing infrastructure, contracting arrangements, and market access requirements, is redistributing costs and risks toward producers, particularly smallholder farmers who face high compliance and quality standards with limited support. Livestock intensification and irrigation expansion reflect broader development ambitions but raise concerns about water security, ecological sustainability, and disease transmission.

These processes unfold within a context of persistent socio-economic inequality, including gender disparities, youth unemployment, and rural marginalisation, which constrains farmers' adaptive capacity and deepens inequities in access to nutritious food and economic opportunity (SALDRU, 2018). Although SADC and member states have articulated ambitious regional policies, ranging from agricultural transformation and climate adaptation strategies to AMR and school nutrition frameworks, implementation gaps persist due to institutional silos, limited financing, and uneven standards enforcement (FAO & SADC, 2025; Signé & van der Ven, 2021).

One Health Implications and Interconnected Risks

A One Health perspective highlights how current food system transformation pathways intersect to generate significant and uneven health, environmental, and livelihood outcomes. Intensification of crop and livestock systems, including increased use of agrochemicals and expansion of animal production, elevates exposure to chemical residues and heightens risks of zoonotic disease and antimicrobial resistance (Grace, 2015; FAO, 2022). Land-use change associated with agricultural expansion and landscape fragmentation disrupts ecological regulation, increasing pest and vector-borne disease prevalence, while irrigation and water stress reshape aquatic and terrestrial ecosystems in ways that compromise food safety and fisheries.

Concurrently, dietary transitions toward greater consumption of animal-source and ultra-processed foods contribute to rising obesity, diabetes, and hypertension even as undernutrition persists among vulnerable groups. These outcomes are shaped not only by consumer preferences but also by market structures and food environments that influence affordability and access. Gender inequalities further amplify these risks by restricting access to land, finance, markets, and technology, thereby limiting adaptive capacity and entrenching vulnerability, particularly for women and youth engaged in small-scale production and trade (FAO, 2024b). Together, these dynamics underscore the need for integrated, cross-sectoral strategies capable of addressing interconnected risks across production systems, value chains, and food environments in Southern Africa's food systems.

Integrated and Participatory Research

The FoSTA-Health project responds to these systemic challenges through a mixed-method, participatory research design that integrates social, economic, and biophysical evidence. Stakeholder dialogues in Malawi, Tanzania, South Africa, and Zambia enabled diverse actors to co-develop future visions and articulate priorities for food system transformation. These insights informed the development of Representative Transformation Pathways (RTPs), which link qualitative narratives to quantifiable policy levers. Using the iFEED modelling platform, the project assessed the implications of different transformation trajectories across food security, nutrition, food safety, women's empowerment, environment, biodiversity, health, and trade dimensions (Cain et al., 2025).

Complementing these approaches, the project also generated empirical evidence from field-based testbeds examining production practices, input use, soil and water management, and crop and livestock system performance under different management regimes. Qualitative research captured farmers' aspirations and social dynamics, while supply chain and food standards analyses identified bottlenecks in regulatory systems and market governance. Together, these methods enabled an integrated assessment of how production systems, value chains, and policy choices interact to shape One Health outcomes.

Pathway Analysis

The FoSTA-Health project applied a mixed-methods approach combining national stakeholder dialogues, community aspirations research and policy analysis to develop Representative Transformation Pathways (RTPs) that reflect plausible and desirable trajectories for food system transformation in Southern Africa (Cain et al., 2025; Mwamakamba et al., 2024). FoSTA-Health analysed future food system change in Malawi, South Africa, Tanzania, and Zambia under these RTPs to 2050 using iFEED modelling. Four RTP "families" capture the main directions of change that were explored in the project.

Table 1:
Country-level RTPs and categorisation into families

Malawi	Business as usual	National Irrigation Master Plan	Women's empowerment and agricultural diversification	Community aspirations of nutrition security, agricultural diversification, and hybridized management
South Africa	Business as usual	Educated consumers can afford to drive dietary changes	Educated consumers drive improved food safety	Increased exports
Tanzania	Business as usual	Tanzania's Horticulture Exports Accelerator Programme	Nutrition-sensitive crop diversification	Community aspirations of organisation and market engagement
Zambia	Business as usual	Soybean intensification and expansion	Diverse diets drive agricultural change	Agroecology becomes common practice

KEY
- Market-oriented pathways
- Diet and demand-oriented pathways change
- Equity and local aspirations-oriented pathways
- Farming systems and landscapes-oriented pathways

Market-oriented pathways prioritise agricultural commercialisation, export horticulture, soybean intensification, and value addition, offering opportunities for job creation, foreign exchange earnings, and regional trade expansion under the African Continental Free Trade Area. However, these gains are unevenly distributed. Smallholder farmers without access to finance, infrastructure, or SPS compliance support risk exclusion, while intensified livestock systems and large-scale land investments heighten antimicrobial resistance, biodiversity loss, and ecosystem degradation. Without One Health-aligned regulation and inclusive financing, commercial growth may undermine long-term sustainability.

Diet and demand-oriented pathways reflect a profound nutrition transition driven by urbanisation, rising incomes, and evolving food retail environments. Increased consumption of ultra-processed foods and animal-source products is contributing to a growing burden of diet-related non-communicable diseases, even as undernutrition persists among vulnerable populations. Although policy instruments such as dietary guidelines and school nutrition programmes exist, weak implementation, limited consumer information, and inadequate food safety oversight, particularly in informal markets, constrain their impact. These dynamics illustrate the need for coordinated policies that shape healthier food environments while protecting food safety.

Farming system and landscape-oriented pathways reveal continued dependence on maize-centred production systems reinforced by subsidy regimes and market structures. Ongoing land conversion, irrigation expansion, and agrochemical use are degrading soils, reducing biodiversity, and placing increasing pressure on water resources. Fragmented landscapes and ecological disruption elevate pest, vector-borne disease, and food safety risks, intensifying One Health challenges. Gendered barriers to land, technology, and extension further limit the adoption of diversified and climate-resilient practices, underscoring the importance of agroecological transitions and landscape-level governance.

Finally, **equity and local aspirations pathways** highlight the social foundations of transformation. Farmers' engagement with markets and innovations is shaped by aspirations for secure livelihoods, dignity, and opportunity, but also constrained by land insecurity, climate shocks, market volatility, and limited access to finance and extension services. Persistent exclusion of women and youth weakens adaptive capacity and system resilience. Evidence shows that transformation efforts are most effective when they are participatory, culturally grounded, and responsive to local priorities.

Taken together, these pathways demonstrate that sustainable food systems transformation in Southern Africa requires integrated, One Health-informed strategies that simultaneously advance economic development, healthy diets, ecosystem integrity, and social inclusion, while actively managing trade-offs across sectors and scales.

Policy Recommendations

Across the four RTP families, a coherent transformation agenda emerges. The following recommendations collectively call for systemic change that aligns markets, diets, production systems, governance and equity objectives toward healthier, more sustainable and inclusive food systems in Southern and Eastern Africa. Rather than acting in isolation, these pathways reinforce one another.

1 Align Markets with Nutrition and Sustainability

Markets must reward nutritious, climate-resilient and biodiversity-friendly production, not just volume and short-term profit. Transformation depends on coordinated action by the finance, agriculture, and trade ministries, private-sector actors, financial institutions, and Regional Economic Communities.

Priority actions include:

- Strategic public–private investment in infrastructure, value addition and trade
- Harmonised standards and strengthened SPS systems
- Targeted financial instruments for smallholders
- Research and innovation aligned with long-term resilience

2 Shape Food Environments to Drive Healthy Demand

Production gains will not improve nutrition without healthier consumption patterns. Governments must align health, trade and agriculture policies so that economic incentives reinforce dietary guidelines.

Priority actions include:

- Sustained nutrition literacy campaigns
- Regulated school food environments
- Front-of-pack labelling systems
- Retail incentives that prioritise indigenous and nutrient-dense foods
- Strong domestic food safety governance

3 Transition Farming Systems Toward Agroecology and Climate Resilience

Production systems must move away from input-intensive models toward agroecological, water-smart and biodiversity-protective systems. Environmental sustainability and market competitiveness must be treated as mutually reinforcing.

Priority actions include:

- Regulating hazardous agrochemicals
- Investing in irrigation and soil health
- Embedding water–energy–food nexus planning
- Protecting genetic resources and seed systems
- Integrating indigenous knowledge with science

4 Place Equity and Local Agency at the Centre

Transformation must be inclusive and locally owned. Smallholders, women and youth must be recognised as economic and institutional actors, not beneficiaries.

Priority actions include:

- Securing land and resource rights
- Designing smallholder-appropriate finance and insurance
- Reforming extension into two-way learning systems
- Embedding gender-transformative and youth-responsive approaches
- Ensuring meaningful participation in decision-making platforms

Across all pathways, five cross-cutting principles stand out:

- Policy coherence across agriculture, health, trade, finance and environment is essential.
- Standards and regulations are transformation levers, not technical add-ons.
- Public–private co-investment and risk sharing are necessary for scale.
- Research–extension–farmer linkages must be reoriented toward co-production.
- Equity is structural, not supplementary.

Conclusion

Transforming Southern Africa's food systems requires coordinated, multisectoral, and One Health-aligned action. FoSTA-Health evidence shows that irrigation and production intensification, expanding livestock and export value chains, and rapid dietary transitions are reshaping risks and opportunities across health, ecosystems, and livelihoods. Market growth, dietary change, agricultural transformation, and social equity are therefore deeply interconnected and must be addressed together. Policies must move beyond sector-specific responses toward integrated and inclusive approaches that manage trade-offs, strengthen regulatory systems, and support sustainable production and food environments, while grounding interventions in the aspirations and lived experiences of communities.

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