WFP
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SAVING LIVES
CHANGING LIVES

Food Systems in Tanzania

Investing in Distribution to Trigger Systemic Change

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Executive summary

Food system challenges in Tanzania are among the root causes of food insecurity and hunger, with implications for food production, processing, distribution and consumption. Food systems encompass the entire range of actors and their interlinked, value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and those parts of the broader economic, societal and natural environments within which they are embedded.

There are many food system challenges in Tanzania and within the greater sub-region that impact on food- and nutrition-security outcomes and influence the opportunities for improved production and demand.

The starting point is a food system that presents challanges for:

Production
with low soil productivity due to lack of knowledge, poor access to infrastructure and investment that is limited by low profitability

Distribution
with a large number of losses due to the lack of aggregation, missing cold storage and refrigerated vehicles, and long travel times due to poor road infrastructure

Nutrition
with persistent issues of malnutrition, underpinned by the high cost and comparatively lower desirability of nutritious diets

Overall, the main impacts of an inefficient food system include:

a. **low profitability** for producers, due to the poor quality and/or quantity of products sold;

b. **limited food availability**, especially for fresh and nutritious foods, affecting food availability, affordability and access; and

c. **increased pressure on the environment**, due to the inefficient use of already scarce production inputs (e.g. water) and continued land conversion at the expense of fragile ecosystems.

The **current challenges prevent the attainment of a sustainable food system that: supports viable livelihoods** (corresponding to **a** above); **provides adequate and affordable nutrition** (corresponding to **b** above); and **protects natural resources and minimizes climate and environmental impact** (corresponding to **c** above).

This study analyses the Tanzanian food system, and specifically food distribution, where the latter enables investment in sustainable production and improves food security and nutritional outcomes.[1] We define food systems here with reference to the food value-chain in its totality, taking into account all the elements, their relationships and the related effects for a multitude of economic actors. We consider all relevant causal variables of a problem and all social, environmental and economic impacts of the solutions to achieve transformational, systemic changes. Similarly, in accordance with the definition of food systems, food distribution is analysed with a clear understanding that, due to the integrated nature of food systems, focusing on how food is made accessible in the Tanzanian context will necessarily highlight connections to other areas, such as food production and consumption.

This aligns with the process and outcomes of "Pathways for sustainable food systems 2030" ("Pathways"), a project carried out in 2020 and 2021 by the Government of Tanzania. The six areas of focus highlighted in the "Pathways" analysis are interconnected in our assessment. We find from our qualitative and quantitative data that **investments in food distribution have the potential to increase profits and enable further financing** (item 2 in "Pathways") to strengthen production (item 1), which results in higher availa-

1 This report also includes scenarios that consider aggregation and processing.

bility of nutritious food (item 3), and the use of more climate-resilient infrastructure (item 4). The overall outcome is a food system that is more resilient to economic fluctuations, trade dynamics and climate change (item 5).[2]

Both qualitative and quantitative methods are used in this study, to first map and conceptualize the complexity of the food system in Tanzania, and then to quantify the likely impacts of scenarios of action and inaction. System dynamics modelling, the approach chosen for this study, is a methodology that allows the capture of many socio-economic and environmental links of production, distribution and consumption, and highlights the long-term impact of policy and programming decisions on the food system. It also allows us to estimate, analyse and present physical results alongside a cost–benefit analysis (CBA) for each scenario.

Our analysis suggests that using an integrated approach to food systems leads to the greatest gains, in terms of profitability for farmers, nutritional outcomes and efficiency in the use of production inputs (see Table ES1). While our analysis shows that investments in production, distribution and consumption are all economically viable, we find that while investing in production or consumption alone can generate benefits, it does not lead to a transformation of the market and does not trigger virtuous, self-sustaining, systemic dynamics. Specifically, investment in improved access to infrastructure, adequate storage and transport infrastructure results in lower distribution losses, while at the same time ensuring that high-quality, fresh produce reaches the market at affordable prices. This in turn leads to a change in consumer behaviour towards higher consumption of fresh fruit and vegetables, which in turn leads to a change in the composition of crops grown, stimulated by higher demand and profitability. Practically, investment in food distribution infrastructure triggers many of the 'game changers' listed in "Pathways", by generating this systemic change.

Table ES1: Overview of scenario impacts on key model indicators for all scenarios relative to the BAU scenario

Indicator	Scenario results compared to business as usual (BAU)			
	Improved production	Improved distribution	Consumer awareness	Full integration
Total production	↑	→	→	↑
Crop diversification	↑	→	↑	↑
Distribution losses	↗	↓	→	↓
Product quality	→	↑	→	↑