

UGANDA

Agrifood System Change and PARI Research on Innovations

INTRODUCTION

Sustainable food systems transformation in Uganda requires innovative initiatives as the country is grappling with various challenges including limited access to finance, inadequate infrastructure and climate change. The government developed various strategies ranging from technological advancements, institutional frameworks to policy reforms aimed at ensuring sustainable agricultural growth and development in the country (see Table 1). However, there is need to scale the implementation of these plans widely. As such, government support, both financially and technically, is needed to facilitate the implementation. For the past two decades, government expenditure on agriculture in Uganda has been low, averaging at 6% of the total annual national budget. This is despite the commitment that the country made under Malabo Declaration in 2014 to allocate at least 10 % of its annual national budget to agriculture. The agriculture value added growth rate followed the same trajectory (see Figure 1). This calls

for the wide implementation and continuous learning and adaptation of the sustainable food systems transformation pathways that the country developed. This brief revisits these and other current initiatives to draw lessons based on studies done under PARI to guide future strategies.

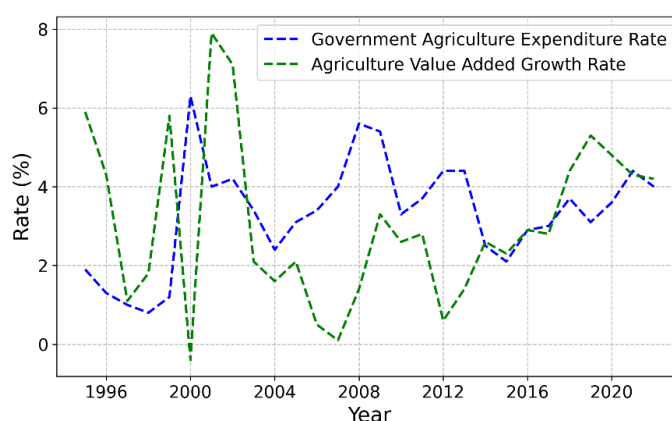


Figure 1: Trend of government agriculture expenditure and value added growth rate in Uganda¹

Table 1. Summary of innovative pathways to sustainable food systems transformation in Uganda²

Category	Key Innovations	Implementation objectives/Strategies
Institution and policy frameworks	<ul style="list-style-type: none"> Promote and implement the Parish Development Model 	<ul style="list-style-type: none"> Enhance nutrition-sensitive extension delivery at the grassroots level. Foster skill development to transition from subsistence to market-oriented farming.
	<ul style="list-style-type: none"> Develop efficient infrastructure 	<ul style="list-style-type: none"> Improve transport networks and energy supply systems to support food system value chains. Enhance agro-industrialization machinery to modernise agricultural practices.
	<ul style="list-style-type: none"> Strengthen policy and legal frameworks. 	<ul style="list-style-type: none"> Update and enforce the National Agriculture Policy to support the comprehensive food systems transformation.
	<ul style="list-style-type: none"> Support farmer groups and special interest groups. 	<ul style="list-style-type: none"> Form farmer groups and special interest groups (e.g. women, youth, persons with

¹ Source: Authors' illustration using data from <https://www.resakss.org/node/3>, accessed on 26 May 2025

² Source: https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/national-pathways/uganda/2021-09-15-en-pathway-to-the-food-systems-updated-150921.docx?sfvrsn=6a368960_1, accessed on 11 March 2025



Technological innovations		disabilities) to access large markets and credit facilities.
	<ul style="list-style-type: none"> Introduce fertilizer subsidies. 	<ul style="list-style-type: none"> Provide subsidies for fertilizers to productive farmers to boost agricultural output.
	<ul style="list-style-type: none"> Promote climate-smart agronomic practices. Enhance access to quality agro-inputs 	<ul style="list-style-type: none"> Implement sustainable land use management practices to maximise agricultural yields. Adopt technologies and practices that enhance productivity and resilience along the value chains. Promote community seed multiplication to preserve, multiply and promote indigenous foods. Ensure farmers have access to high-quality seeds, fertilizers and other essential inputs.

PARI CONTRIBUTIONS

The PARI research in Uganda relates to priorities as indicated by PARI Partners, and took note of initiatives of the Green Innovation Centers.

Seed systems

Decentralizing seed services in Uganda has significantly improved farmers' access to quality seeds (Waithaka et al., 2021). Between 2016 and 2021, the number of community seed banks (CSBs) grew from one to five, while local seed businesses (LSBs) increased from 27 in 2012 to 256 by 2020. Enhanced collaboration among stakeholders has been key to strengthening seed production. LSBs have formed strong partnerships with the Zonal Agricultural Research and Development Institute (ZARDI), while CSBs work closely with the Plant Genetic Resources Centre. The Integrated Seed Sector Development (ISSD) agency coordinates efforts to promote Quality Declared Seed (QDS) production across the country. However, financing remains a major barrier to further decentralizing seed production, limiting the potential for greater impact. Recent reductions in international development aid, particularly by the UK and US governments, may exacerbate this challenge. Aligning with Uganda's sustainable food systems transformation pathways, targeted financing and enhanced extension services are crucial to support smallholder farmers and promote sustainable agronomic practices.

Fertilizer production

Supply-side challenges, such as quality control, subsidies and transport infrastructure, are key factors affecting mineral fertilizer uptake in Uganda (Olaleye and Edje, 2020). Fertilizer application remains low, averaging just 2 kg per hectare, which is

far below the sub-Saharan African average. The supply of fertilizer has mainly been driven by cash crops such as tea, sugar and oil palm, with smallholder farmers receiving little attention. Government involvement has been limited to regulations and advisory services, with no fertilizer subsidies for smallholders since the 1990s. This lack of support has led to poor quality control, including improper labeling and frequent adulteration of fertilizers. NGOs have stepped in to import and distribute fertilizers, but total imports remain low—40,000 tonnes in Uganda compared to 480,000 tonnes in Kenya in 2010. Recent US tariffs on other countries pose a threat that could disrupt the global fertilizer supply chain and subsequently worsen the situation in Uganda. In addition, high transportation costs, the second-largest fertilizer expense, further hinder fertilizer adoption. To increase fertilizer use, Uganda needs stronger market regulation, transportation subsidies, and strategic investments in infrastructure improvements. This is critical to support smallholder farmers, increase productivity and contribute to food security.

Women empowerment

Gender disparities in labour division persist in Uganda, with women bearing a disproportionate burden of unpaid work. A fairer task distribution and technological innovations are essential to reduce this workload (Isoto et al., 2024). Women spend more time on total work, especially unpaid tasks, though their participation in paid work increases with



higher education. This underscores the need for improved access to education and vocational training. Access to agricultural technologies affects time allocation by increasing men's paid work and reducing women's unpaid tasks. For low-income women, shorter distances to water sources decrease unpaid work and increase paid work. Women's engagement in both types of work correlates with improved children's dietary diversity, highlighting the importance of investing in amenities like piped water, electricity and transportation infrastructure. Integrating gender equality in governance and policy along with promoting access to financial services is crucial for empowering women in the transformation of food systems. Expanding access to mechanized agricultural tools can ease women's manual labour burden, particularly for those with limited education and paid work opportunities. In addition, high-quality childcare facilities and ensuring a more equal distribution of care work are needed to free up women's time and improve their well-being.

KEY TAKE AWAYS FROM PARI RESEARCH IN UGANDA

Strengthen seed systems: Decentralizing seed services in Uganda has improved access to quality seed through growing community seed banks and local seed businesses, though financing remains a challenge. Enhanced collaboration and targeted financing mechanisms are essential for further progress.

Boosting fertilizer use: Fertilizer adoption is low due to high costs, poor regulation and limited government support. Addressing these barriers requires subsidies, better regulation, and infrastructure improvements to support smallholder farmers and increase productivity.

Easing women's workload: Women in Uganda bear a heavy unpaid labour burden, limiting economic opportunities. Access to education, mechanized tools, childcare and better infrastructure—like water and electricity— can ease workloads, boost productivity and improve well-being.

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All studies are available at www.r4ai.org.

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