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Policy Brief

The Case for Food System Knowledge Support System (FS-KSS)

AGRA-IFPRI Policy Brief #3

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About AGRA

Established in 2006, AGRA is an African-led and Africa-based institution dedicated to placing smallholder farmers at the core of the continent's burgeoning economy. AGRA is focused on scaling agricultural innovations that help smallholder farmers towards increased incomes, better livelihoods, and improved food security. AGRA understands that African farmers need uniquely African solutions to the environmental and agricultural challenges they face, enabling them to sustainably boost production and gain access to rapidly growing agricultural markets. In collaboration with its partners, AGRA catalyzes and sustains an inclusive agricultural transformation aimed at increasing incomes and enhancing food security in 12 countries.

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About IFPRI

The International Food Policy Research Institute (IFPRI), a research center of CGIAR, provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition in low- and middle-income countries. IFPRI was established in 1975 to identify and analyze alternative national and international strategies and policies for meeting the food needs of the developing world, with particular emphasis on low-income countries and on the poorer groups in those countries. Partnerships, communications, capacity strengthening, and data and knowledge management are essential components for translating IFPRI's research to action and impact. The Institute's regional and country programs play a critical role in responding to demand for food policy research and in delivering holistic support to country-led development. IFPRI collaborates with partners around the world.

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1. Introduction

The **Comprehensive Africa Agriculture Development Programme (CAADP) Strategy and Action Plan (2026-2035)** is a key framework aimed at transforming Africa's agrifood systems to achieve sustainable agricultural growth, food security, and economic development across the continent. Building on the lessons from the Malabo Declaration, the Plan emphasizes the need for sustainable food production, inclusivity, and resilience in the face of climate change and other challenges. However, achieving these ambitious goals requires a robust and integrated support system that can provide accurate, real-time data, facilitate evidence-based decision-making, and promote accountability among stakeholders. Without a well-functioning knowledge system, the efforts to transform agrifood systems may be hindered by data gaps, limited analytical capacity, and a lack of coordination among various actors.

The effectiveness of food systems in Africa is often hindered by data gaps, inconsistencies, and limited capacity for data analysis. These issues compromise the ability of governments and other stakeholders to make informed decisions, implement sound policies, and monitor progress toward national and continental goals such as food security and climate resilience. This is where the **Food System Knowledge Support System (FS-KSS)** becomes crucial, as it provides the necessary tools to ensure effective implementation of the CAADP Strategy and Action Plan.

Through funding from the International Development Research Centre (IDRC), the International Food Policy Research Institute (IFPRI) has been working in collaboration with AGRA on a project aimed at strengthening the coherence of food systems indicators and outcomes of the CAADP BR processes. The work seeks to address gaps and mismatches between UN Food Systems Summit priorities and existing CAADP BR process, with an exploration of how new or existing instruments can inform development of a more comprehensive set of food systems indicators to be integrated into the CAADP process. The goal is to enhance food systems thinking among African decision makers. The project has been working towards fostering greater coordination and integration of food systems indicators into national agendas, piloting this initiative in Ethiopia, Ethiopia, Malawi, and Rwanda. This endeavor is not just about numbers and frameworks; it is expected to empower policymakers, guide crucial policy decisions, and enhance the tracking of Africa's journey towards sustainable and resilient food systems. The work being done under the project intends to contribute towards helping countries develop comprehensive food system knowledge support systems.

1 John Ulimwengu , Vine Mutyasira , Boaz Keizire. 2024. "The Case for Food System Knowledge Support System (FS-KSS)." Policy Brief #3. Nairobi: AGRA, IFPRI, and IDRC.

One of the most pressing challenges in many African nations, including Rwanda, Malawi, Ethiopia, and Ghana, is the lack of accurate, timely, and comprehensive data on agricultural production, food security, nutrition, and climate impacts. These gaps in data are particularly critical in rural and smallholder farming contexts, where information on productivity, land use, and market access is often fragmented or outdated. The absence of robust data undermines the ability of policymakers to formulate effective interventions or monitor the impacts of agricultural policies and programs. In Rwanda, for example, the FS-KSS is being designed to improve the national statistical system by addressing gaps related to smallholder farming practices and post-harvest losses. In Malawi, the platform will be used to fill crucial data gaps in agricultural productivity and food security. These improvements are essential for tracking progress and ensuring that food systems can respond dynamically to changing conditions, such as climate variability and economic pressures.

Another challenge that impedes the transformation of agrifood systems is the limited capacity for advanced data analysis within local institutions. Although many African countries have made strides in collecting agricultural and food system data, the capacity to turn this data into actionable insights remains limited. This challenge is compounded by a lack of access to advanced analytical tools, such as big data analytics, machine learning, and predictive modeling. The FS-KSS seeks to address this by building local analytical capacity through training and the establishment of data-sharing networks among universities, research centers, and government agencies. In Ghana, for instance, the FS-KSS will support the development of a collaborative analytical network that will enhance the ability of institutions to generate and utilize data-driven insights for food system transformation. Similarly, in Ethiopia, FS-KSS will introduce advanced analytical tools and software to improve the capacity for data management and analysis.

The FS-KSS directly aligns with the strategic objectives of the CAADP Strategy and Action Plan (2026-2035), particularly in promoting evidence-based policymaking and enhancing resilience in agrifood systems. These objectives are critical to achieving CAADP's broader vision of sustainable agricultural growth and food security across Africa. One of CAADP's guiding principles is the promotion of **evidence-based decision-making**, which involves using accurate and reliable data to inform policy interventions and agricultural strategies. The FS-KSS is integral to this principle, as it will enhance the ability of governments and other stakeholders to make informed decisions based on solid empirical evidence. This data-driven approach will enable more precise targeting of interventions, better allocation of resources, and more effective monitoring of outcomes, all of which are critical for achieving CAADP's goals.

Another key objective of CAADP is to build resilient agrifood systems that can withstand shocks such as climate change, economic disruptions, and pandemics. Climate-smart agriculture is a central component of this resilience-building strategy. The FS-KSS will support this objective by enabling African nations to adopt more sustainable farming practices through the use of advanced data analytics. By providing real-time insights into

climate conditions, soil health, and water use, the FS-KSS will help countries anticipate and respond to environmental challenges more effectively. In Ethiopia, for example, the FS-KSS will help enhance resilience by integrating climate data into agricultural planning, thereby supporting the country's efforts to mitigate the impacts of climate change on its agrifood systems.

The FS-KSS represents a critical step forward in the transformation of Africa's agrifood systems. By addressing data gaps, enhancing local capacity for data analysis, and promoting evidence-based policy interventions, the FS-KSS provides a strong foundation for the successful implementation of the CAADP Strategy and Action Plan (2026-2035). Through its support for more resilient, sustainable, and inclusive agrifood systems, the FS-KSS will play an instrumental role in helping African nations achieve food security, adapt to climate change, and foster long-term agricultural growth. The alignment of FS-KSS with CAADP's strategic objectives underscores its importance as a tool for driving the continent's agricultural transformation.

2. Key components

The **FS-KSS** is a comprehensive platform designed to support the transformation of agrifood systems in Rwanda, Malawi, Ethiopia, and Ghana. By addressing critical gaps in data collection, management, and analysis, the FS-KSS will strengthen the ability of these countries to develop and implement effective agricultural policies. Its core components focus on enhancing national statistical systems, building data management and analytical capacities, promoting collaborative decision-making, ensuring mutual accountability, and providing a centralized digital platform for data access and analysis.

a) Enhancing the National Statistical System

A key objective of the FS-KSS is to improve the national statistical systems in Rwanda, Malawi, Ethiopia, and Ghana. Robust statistical systems are essential for informed decision-making, effective policy formulation, and accurate monitoring of agricultural progress. The platform will focus on identifying data gaps, improving data collection methodologies, and building institutional capacities to ensure accurate and comprehensive data management. Each country has unique challenges, and the FS-KSS will tailor its efforts to address these issues.

- **Rwanda**: In Rwanda, the FS-KSS will address critical gaps in the national statistical infrastructure, particularly in relation to smallholder farming practices, post-harvest losses, and nutrition data. Improving the accuracy and scope of data in these areas is vital for developing policies that address food security and agricultural sustainability.

- **Malawi**: For Malawi, the focus will be on enhancing the statistical system to fill significant gaps in data on food security and agricultural productivity. The FS-KSS will improve the collection of data related to crop yields, market trends, and climate impacts to ensure that policies are based on up-to-date, reliable information.

- **Ethiopia and Ghana**: Both Ethiopia and Ghana face challenges with missing or outdated data, particularly in areas like crop yields, livestock management, and environmental impacts. The FS-KSS will implement advanced data collection tools and analytics to address these issues, allowing for more effective monitoring and planning in the agricultural sector.

b) Strengthening Data Management and Analysis

The FS-KSS will strengthen data management and analysis capabilities by creating networks of local universities, research centers, and government institutions. These networks will facilitate knowledge sharing and capacity building, enabling stakeholders to better manage and analyze food system data.

A key aspect of the FS-KSS is the incorporation of advanced analytical tools, including big data, machine learning, and predictive modeling. These tools will improve the accuracy of food system forecasts and provide actionable insights for decision-makers. By leveraging these advanced methods, the FS-KSS will help governments and stakeholders anticipate challenges and opportunities in food production, trade, and consumption.

In particular, predictive modeling will allow countries to simulate different scenarios, helping

policymakers to understand the potential impacts of climate change, market fluctuations, and other variables on food systems. This data-driven approach will enable more precise interventions and improve resilience to shocks.

c) Promoting Collaborative Decision-Making

The FS-KSS will play a pivotal role in fostering collaborative decision-making by facilitating **Joint Sector Reviews (JSR)**. These reviews bring together multiple stakeholders—governments, civil society, private sector actors, and international partners—to assess progress, share knowledge, and ensure that policies are inclusive and well-informed.

- **Ethiopia**: In Ethiopia, the FS-KSS will focus on promoting multi-stakeholder engagement, ensuring that the insights generated from data analysis are integrated into national agricultural policies. This will support Ethiopia's broader efforts to improve food security and enhance the sustainability of its agrifood sector.

- **Ghana**: Ghana will benefit from strengthened stakeholder engagement through the FS-KSS, ensuring that food system policies reflect diverse perspectives and are inclusive of all relevant actors. This collaborative approach is essential for ensuring that policies are widely accepted and effectively implemented.

By facilitating these Joint Sector Reviews, the FS-KSS will ensure that decision-making processes are transparent, data-driven, and aligned with the CAADP's strategic goals.

d) Establishing a Mutual Accountability Framework

Mutual accountability is a core component of the FS-KSS, designed to ensure that all stakeholders are responsible for their roles in the transformation of food systems. This framework will promote regular monitoring, transparent reporting, and performance evaluations, providing a structure for tracking progress and holding stakeholders accountable for their commitments.

The FS-KSS will establish systems for tracking progress through well-defined performance indicators. These indicators will be aligned with the CAADP's strategic goals, allowing countries to monitor their progress toward food security, sustainability, and resilience. Regular performance reviews will enable countries to identify areas of success and address gaps in implementation.

By holding all stakeholders accountable—governments, private sector actors, and civil society—the FS-KSS will foster a culture of transparency and continuous improvement within the agrifood systems of each country.

e) Developing a Digital Platform

The FS-KSS will feature a centralized digital platform that will house real-time data and offer user-friendly analytical tools. This platform will improve access to key data and insights, facilitating informed decision-making at all levels of governance.

- **Rwanda**: Rwanda's FS-KSS digital platform will enable real-time access to agricultural data, improving decision-making for government officials, farmers, and other

stakeholders. By providing timely and accurate data, the platform will support more agile responses to food system challenges.

- **Malawi**: In Malawi, the digital platform will be tailored to streamline data management processes and ensure that data is current and comprehensive. This will reduce inefficiencies and improve the quality of agricultural data, supporting better policy development and implementation.

The FS-KSS digital platform will also incorporate advanced analytical tools, allowing users to visualize data, conduct simulations, and generate reports that can guide decision-making. By improving data access and analysis, the platform will empower stakeholders to contribute more effectively to the transformation of food systems.

The core components of the FS-KSS—enhancing national statistical systems, strengthening data management and analysis, promoting collaborative decision-making, establishing a mutual accountability framework, and developing a centralized digital platform—are all designed to address the critical challenges facing agrifood systems in Rwanda, Malawi, Ethiopia, and Ghana. By improving data collection and analysis, fostering collaboration, and ensuring accountability, the FS-KSS will play a vital role in helping these countries achieve the goals set out in the CAADP Strategy and Action Plan (2026-2035).

4. FS-KSS tailored to Country-Specific CAADP Goals

The **Food System Knowledge Support System (FS-KSS)** is tailored to support the specific needs of Rwanda, Malawi, Ethiopia, and Ghana, aligning with their national agricultural strategies while contributing to the broader objectives of the **Comprehensive Africa Agriculture Development Programme (CAADP)**. By addressing country-specific challenges in data management, policy implementation, and resilience-building, the FS-KSS will help each nation make meaningful progress toward achieving successful agrifood systems transformation.

a) Rwanda

Rwanda's agricultural development efforts are guided by the **Strategic Plan for Agricultural Transformation (PSTA5)**, which aims to modernize agriculture, improve food security, and build resilience to climate change. The FS-KSS will be instrumental in aligning Rwanda's agrifood system with the goals of CAADP by enhancing data quality, facilitating knowledge sharing, and promoting evidence-based interventions.

One of the primary contributions of FS-KSS in Rwanda will be its role in addressing significant data gaps, particularly in relation to smallholder farming practices, post-harvest losses, and nutritional outcomes. These data challenges have often impeded effective policy implementation. By improving the country's national statistical systems and providing real-time data through a digital platform, the FS-KSS will enable more accurate monitoring of agricultural productivity, market trends, and nutrition metrics. This will ensure that the interventions proposed in PSTA5 are based on solid evidence, contributing to CAADP's goals of **sustainable food production, enhanced nutrition security, and resilience**.

Moreover, by fostering greater collaboration among stakeholders, including government agencies, civil society, and the private sector, the FS-KSS will ensure that interventions are inclusive and reflective of the needs of all segments of society. This aligns with CAADP's objective of promoting **inclusive agricultural growth**.

b) Malawi

In Malawi, the FS-KSS is designed to support the implementation of the **Food Systems Strategy and Investment Plan (2023-2030)**, which seeks to improve agricultural productivity, enhance food security, and promote environmental sustainability. The FS-KSS will play a crucial role in bridging the gap between policy formulation and implementation by providing robust data management systems and advanced analytical tools.

Malawi's agricultural sector has been plagued by data inconsistencies, particularly regarding crop yields, food security, and climate change impacts. These challenges have made it difficult for policymakers to craft effective and responsive agricultural policies. The

FS-KSS will address these issues by enhancing the country's statistical infrastructure and ensuring that data is collected, processed, and analyzed in a timely and accurate manner . By incorporating big data analytics and machine learning into the data management process, the FS-KSS will help Malawi improve the **accuracy of food system forecasts** and better anticipate agricultural challenges.

Through improved data-driven decision-making, FS-KSS will support Malawi in achieving CAADP's objectives of **increasing food productivity and sustainability**, ensuring that agricultural growth is both economically viable and environmentally sound. The system's support for collaborative decision-making will also foster more cohesive and aligned strategies across various sectors, strengthening Malawi's overall capacity to implement its national food systems strategy.

c) Ethiopia

Ethiopia's agricultural sector is a cornerstone of its economy, providing livelihoods for the majority of its population. However, the country faces significant challenges in terms of climate change, land degradation, and limited access to technology and markets. Ethiopia's **National Agricultural Investment Plan (NAIP)** outlines key strategies to address these challenges, and the FS-KSS will be central to improving the efficiency of the monitoring and evaluation systems that support the NAIP.

By integrating advanced data management tools and establishing robust monitoring systems, FS-KSS will enable Ethiopia to better track progress across its agricultural initiatives. This will enhance the country's ability to **monitor food production**, assess climate change impacts, and identify opportunities for improvement. The system will also provide real-time data on crop yields, livestock management, and market conditions, supporting more informed decision-making at both the national and local levels.

The FS-KSS will also facilitate **multi-stakeholder engagement** through Joint Sector Reviews (JSRs), ensuring that agricultural policies reflect a wide range of perspectives, from government bodies to civil society and the private sector. This will help Ethiopia build a more resilient and inclusive agricultural sector, in line with CAADP's objectives of **sustainable agricultural growth and climate resilience**.

d) Ghana

Ghana has made significant strides in agricultural development, but its food systems face challenges related to climate change, urbanization, and market volatility. The FS-KSS will play a vital role in addressing these challenges by driving **innovation** and fostering public-private partnerships, essential for building resilient food systems.

A key focus of Ghana's FS-KSS will be the integration of **predictive analytics** and other advanced tools to enhance food system forecasting and planning. By leveraging big data and machine learning, Ghana will be able to anticipate agricultural trends, assess risks, and implement proactive measures to address emerging issues. This aligns with CAADP's goal of improving food security and agricultural productivity through the use of modern technologies.

The FS-KSS will also support **accountability** through Joint Sector Reviews, ensuring that all stakeholders, including government agencies, civil society, and the private sector, are held responsible for their roles in implementing agricultural policies. By fostering transparency and accountability, the FS-KSS will help Ghana meet its CAADP objectives of **transforming agrifood systems, promoting sustainability, and improving resilience** to environmental and economic shocks.

5. Conclusion

The **Food System Knowledge Support System (FS-KSS)** will play a critical role in advancing the goals of the **CAADP Strategy and Action Plan (2026-2035)** across Rwanda, Malawi, Ethiopia, and Ghana. By addressing fundamental challenges such as data gaps and inconsistencies, the FS-KSS will provide the necessary tools for evidence-based decision-making, enabling governments and stakeholders to implement more targeted and effective agricultural policies. Additionally, the platform's promotion of stakeholder collaboration through Joint Sector Reviews (JSRs) and other engagement mechanisms ensures that decisions are inclusive and reflect the diverse needs of society. The mutual accountability frameworks embedded in the FS-KSS will foster transparency, ensuring that all actors are responsible for their contributions to food system transformation.

Ultimately, the FS-KSS will enable these countries to build **resilient, inclusive, and sustainable agrifood systems** that are aligned with the overarching goals of CAADP and the **African Union's Agenda 2063**. Through its integrated approach, the FS-KSS will not only support national agricultural strategies but also contribute to the broader vision of a prosperous, food-secure Africa, where agriculture serves as a cornerstone of economic growth, poverty reduction, and environmental sustainability.

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