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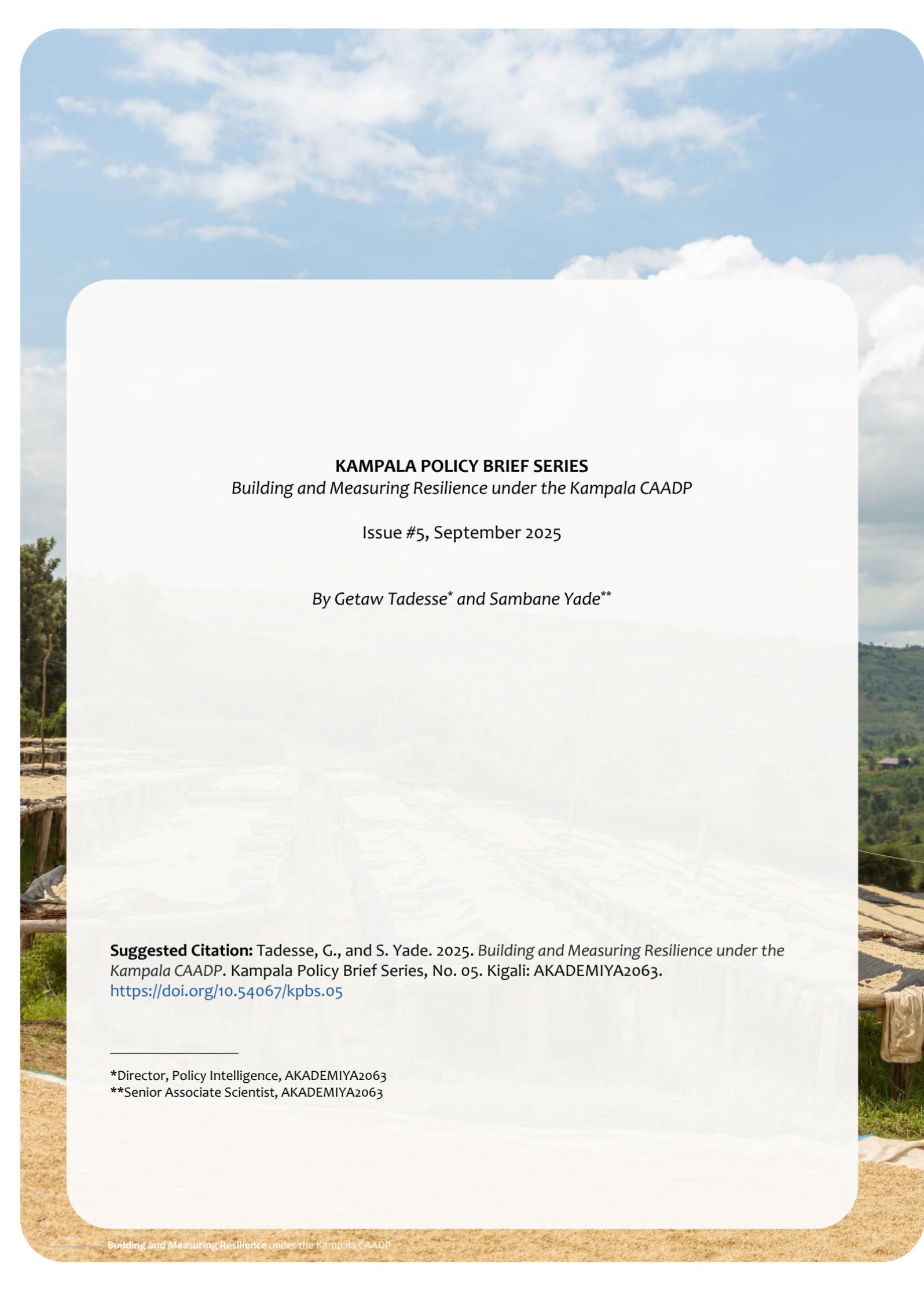


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*Building and Measuring Resilience under
the Kampala CAADP*

By Getaw Tadesse and Sambane Yade



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Editorial

Since its adoption by the African Union (AU) in 2003, the [Comprehensive Africa Agriculture Development Programme](#) (CAADP) has been Africa's primary policy framework for agricultural transformation, wealth creation, food security, economic growth, and prosperity. It guides the African Union Commission (AUC), the African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD), Regional Economic Communities (RECs), and Member States in driving agricultural transformation toward a self-reliant and productive Africa.

The recently adopted [Kampala CAADP Declaration](#) on “**Building Resilient and Sustainable Agrifood Systems in Africa**” and the associated [CAADP Strategy and Action Plan \(2026-2035\)](#) will build on the success and deepen the progress achieved after two decades of CAADP implementation, during which Africa significantly improved in economic and agricultural growth, poverty reduction, nutrition outcomes, and agricultural trade expansion. The next 10-year cycle of CAADP implementation must further deepen its focus to incorporate lessons while responding to emerging issues to accelerate sustainable food system transformation within a context of climate change and multifaceted stressors and shocks.

The longevity and continued success of CAADP can be attributed to its credibility as a shared framework designed to guide Member States toward agricultural transformation and economic growth. Driven by the CAADP principles and values, with emphasis on African ownership and mutual accountability, alongside review and benchmarking, data and analytics have been central to CAADP's evidence-based planning and implementation approach. As Africa prepares for the implementation phase of the Kampala CAADP Declaration, which comes into force on January 1, 2026, evidence and robust data analysis will continue to remain indispensable to the successful implementation on the ground. This is the rationale behind AKADEMIYA2063's **Kampala Policy Brief Series**.

The purpose of the policy briefs is to serve as reference documents for policy analysts and planners across AU Member States as they prepare their programs in response to the Kampala CAADP Declaration. The policy briefs will provide a synthesis of a large body of research tackling topics of strategic relevance to Africa's development agenda in parallel with key issues to be addressed during the new phase of CAADP implementation to provide insights, analyze emerging ideas, review crosscutting thematic areas, and propose policy recommendations that can be replicated for sustainable impact.

The evidence presented in the Kampala Policy Brief Series is derived from published research and data by AKADEMIYA2063's scientists and collaborators across Africa and outside the continent. These lessons will be accessible to policymakers, non-state actors, and other practitioners at continental, regional, and national levels, as well as development partners, to support the implementation of CAADP 2026-2035. In addition to packaging the lessons and insights into comprehensive yet accessible knowledge products, AKADEMIYA2063 is facilitating policy dialogue through webinars. During these sessions, the findings will be presented to a broad range of stakeholders to guide programmatic interventions supporting the implementation of the Kampala CAADP Agenda.



Introduction

The third phase of the Comprehensive Africa Agriculture Development Programme (CAADP) has boldly and clearly recognized the need for building inclusive, resilient, and sustainable agrifood systems in Africa. The Kampala CAADP Declaration has made a significant shift from a narrow focus on agriculture-led growth to a broader agrifood systems approach. This strategic shift is informed by an understanding of the complex interplay between agriculture, nutrition, and economic development. As reflected by the title of the Declaration—*Building Resilient and Sustainable Agrifood Systems in Africa*, resilience has emerged as one of the priority commitment areas for building capacities of systems, households, and communities against socio-economic and climatic shocks and crises. Besides acknowledging “the significant effects of climate change on agriculture and food systems, particularly on vulnerable populations, and emphasizing the necessity for innovative responses that ensure access to safe, affordable, and nutritious food while reinforcing international cooperation and

commitments to sustainability frameworks,” the Declaration has stipulated a commitment of protecting 40 percent of households from shocks by 2035 through supporting the development of climate-sensitive technologies, building responsive systems, enhancing absorptive capacity, promoting adaptation strategies, and mobilizing sufficient climate finance and technical assistance.

The broader definition of resilience refers to the ability of systems, institutions, humans, and other organisms to absorb and adjust to potential damage, take advantage of opportunities, or respond to consequences (Trisos et al. 2022). Within the context of the Kampala Declaration, one may define resilience as the ability of African agrifood systems (households, communities, local institutions) to respond, absorb, adjust to, and escape from damage caused by climate and health shocks, implying that resilience capacity interventions should be defined in line with the type of shocks and specific to agrifood systems actors. However, the specific capacities and programmatic interventions required to

strengthen resilience are yet to be discussed and identified by countries and development partners. Besides understanding what interventions are required to improve resilience, the measurement and tracking of resilience within the agrifood systems approach require in-depth discussions among researchers, planners, and implementers. The existing resilience measurements are incomplete or very complex to apply by country-level experts.

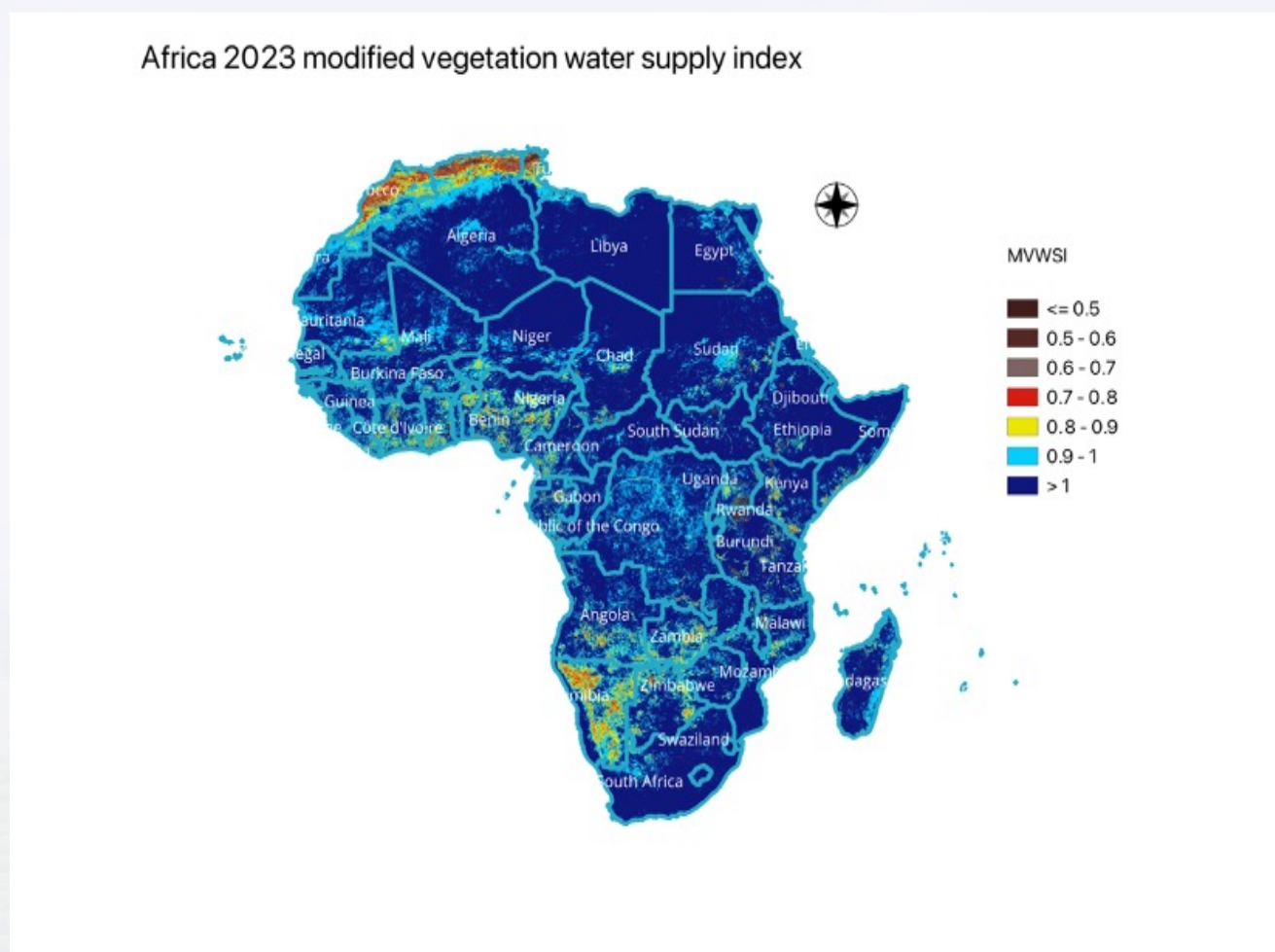
This policy brief clarifies the composition, structure, and measurement of efforts to build resilient agrifood systems under the Kampala Declaration. We present the rationale for strengthening resilience capacity, analyze the interactions among resilience strategies, and offer guidance for tracking progress in building resilient agrifood systems. The brief aims to provide insights and evidence for countries to identify specific interventions consistent with the local contexts and the continental agenda. We argue that with a proper and systematic understanding and selection of resilience innovations, synergy can be created between building resilience, protecting vulnerable groups from short-term shocks, and transforming agrifood systems. Moreover, it aims to discuss the need for revised indicators and approaches for measuring resilience within the agrifood systems approach.

1. Sources of Vulnerability

The three major components of vulnerability defined by the Intergovernmental Panel on Climate Change (IPCC) are exposure, sensitivity, and adaptive capacity (IPCC 2014; Füssel and Klein 2006). Exposure refers to the magnitude of climatic variations that households in a district are expected to face. Sensitivity, in this case, refers to the degree to which households may be affected by exposure to climate change risks. Adaptive capacity is broadly defined to include the ability of a system, community, or household to adjust, absorb, or transform the potential impact of climate change. Therefore, in this context, adaptive capacity generally refers to resilience capacity. In fact, the proper terminology should be resilience capacity, as it consists of the three types of capacities (absorptive, adaptive, and transformative) needed to build resilience (Béné et al. 2012).

Studies conducted by AKADEMIYA2063 for Benin, Malawi, Rwanda, Senegal, and Uganda indicate that while exposure to climate hazards and the inherent sensitivity of a system are important factors, the lack of adaptive capacity is a critical determinant of vulnerability to climate shocks in these African countries. Drought, characterized by extended periods of dry weather, is the most frequent shock in Africa and leads to severe water shortages that adversely affect lives, assets, and livelihood activities (World Bank 2017). Figure 1 illustrates the Modified Vegetation Water Supply Index (MVWSI)—an index developed by Wu and Lu (2016) to represent agricultural drought risk. According to this index, the lower the value, the higher the incidence of droughts. Thus, areas within West Africa, Namibia in Southern Africa, and significant portions of North Africa (Morocco, Tunisia) are identified as drought-prone, necessitating vigilant monitoring and the implementation of pre-emptive drought mitigation measures. The index revealed no substantial drought occurrence in many parts of the continent, as indicated by a widespread prevalence of dark blue shades. This suggests that risk exposure accounts for only a small portion of Africa's climate vulnerability.

Figure 1: Africa 2023 modified vegetation water supply index.

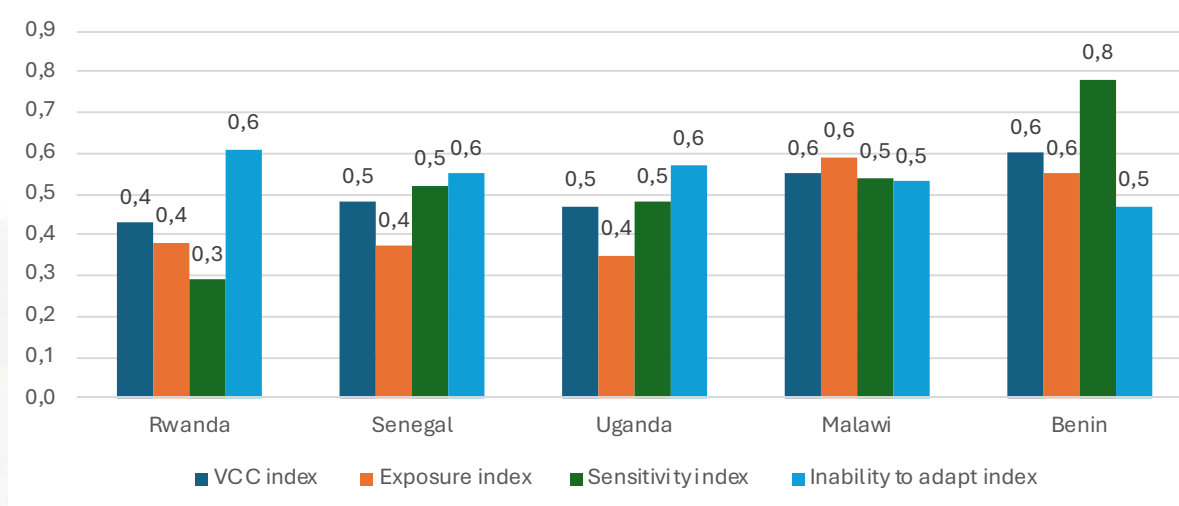


Source: Yade, Dia, and Randolph (2024).

In order to further examine the relative importance of exposure, sensitivity, and adaptive capacity, vulnerability analyses have been conducted in Rwanda, Senegal, Uganda, Malawi, and Benin¹. According to the results, Rwanda, Senegal, and Uganda all exhibit relatively high scores in the “Inability to adapt index” compared to their scores in the “Exposure index” and “Sensitivity index.” Malawi and Benin also show a similar trend, although with varying degrees. Malawi has a high exposure index (and a relatively high inability to adapt index (0.53)), indicating that both factors contribute significantly to its overall vulnerability. Benin stands out with a very high sensitivity index (0.78) and a moderately high inability to adapt index (0.47), resulting in the highest overall vulnerability score among the sample countries.

This pattern suggests that even if African countries face moderate climate hazards (exposure) and have a certain level of inherent susceptibility to hazards (sensitivity), their primary challenge in managing climate risk stems from their limited capacity to adapt and build resilience. Addressing the challenge of adaptive capacity through targeted interventions aimed at building resilience is therefore crucial for mitigating climate risks and fostering sustainable development across the continent.

¹ The analyses were made by the authors, following the technical approach and conceptual framework of Intergovernmental Panel on Climate Change (IPCC).

Figure 2: Sources of vulnerability to climate risk in selected African countries.

Source: Authors, using the LSMS household data survey of each country.

2. Building Resilience under Kampala

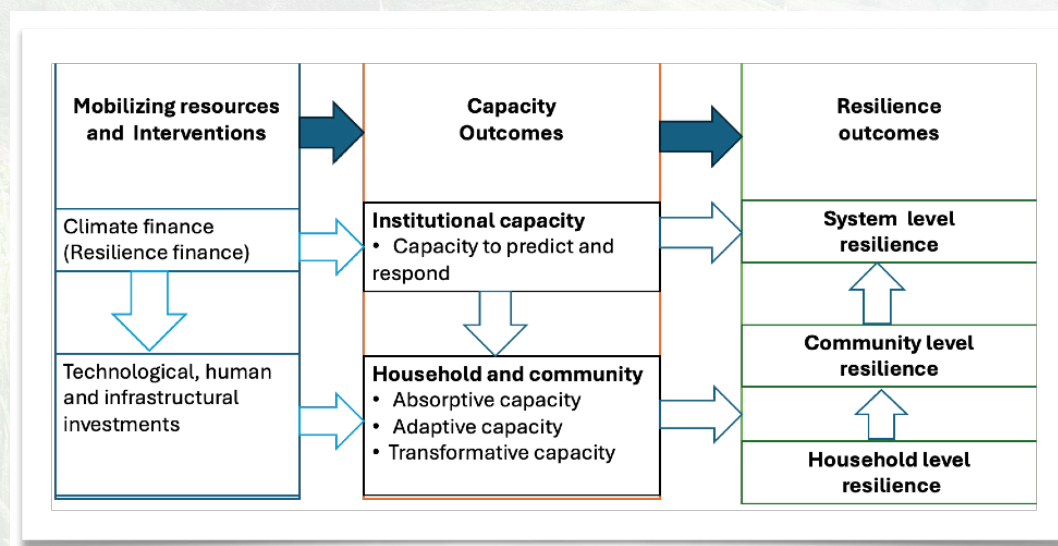
Consistent with the evidence presented above, the Kampala CAADP Declaration aims to build the different capabilities required to build resilience across the agrifood systems. Unlike the Kampala CAADP Strategy, which defines four major capacities to build resilience, commitment area 5 of the Declaration outlines six interrelated priority interventions for ensuring resilience in Africa. Besides building responsive, absorptive, adaptive, and transformative capacities, the Declaration outlines the importance of mobilizing climate finance and indigenous knowledge to build these capacities. Summarizing the different interventions proposed under the Declaration and the strategy indicates that six areas of strategic interventions are critically important for building resilient agrifood systems in Africa. The three intervention areas (Intervention Area A on technological and human capital investment, Intervention Area F on indigenous knowledge, and Intervention Area E on expanding climate finance) are immediate public actions to help households and communities build capacities of different kinds— absorptive, adaptive, and transformative capacities. They also help strengthen the capacity of public institutions to predict and respond to imminent risks and disasters caused by climate change and other shocks. Unlike the institutional (responsive) capacity, the other three capacities (absorptive, adaptive, and transformative) are strategic outcomes needed to induce behavioral and technical changes at household and community levels.

For effective implementation of the Kampala CAADP Declaration, one must clearly understand the difference between adaptive, absorptive, and transformative capacity and define specific interventions that can help build these capacities at household and community levels. According to Béné et al. (2012), responsive, absorptive, adaptive, and transformative capacities are four dimensions of resilience. While “absorptive capacity enables a system to cope with shocks; adaptive capacity allows it to adjust to change; transformative capacity enables fundamental change when conditions require it.” One can easily differentiate the three resilience components as “reducing the damage” for the adaptive capacity, “absorbing the damage” for the absorptive capacity, and “scaping the shock/damage” for the transformative capacity. Both this definition and the Kampala Declaration imply the need for targeted and specific interventions for achieving absorptive, adaptive, and transformative capacity. From the climate change perspective, classic examples of interventions are the use of food reserves and emergency support for absorptive capacity, the adoption of drought-resistant crops for adaptive capacity, and access to markets for

building transformative capacity. More generally, building absorptive capacity requires institutional innovation for building assets and reserves, while adaptive capacity requires technological changes, and transformative capacity requires investments in infrastructure. Economic and political capacities are critically important in designing and implementing all these technical solutions.

Figure 3 shows the conceptual and logical relationships between the proposed Kampala resilience-building interventions under commitment 5. As shown in the Figure, building a resilient agrifood system requires ensuring resilience at household, community, and system levels. This indicates that any effort to build and measure resilience should at least refer to the level of resilience being measured or created. In principle, system-level resilience is ensured if the households and communities are resilient and the system creates a strong institutional capacity to predict and respond to stress, shocks, and disasters. Similarly, any effort to build and measure resilience at household and community level must ensure that three capacities are created and measured. All the capacity outcomes are contingent upon resource mobilization and investments to support technological, human, and infrastructural improvements.

Figure 3: A Theory of Change for Building Resilience under the Kampala CAADP.



Source: Authors' construction.

3. Measuring Agrifood Systems Resilience

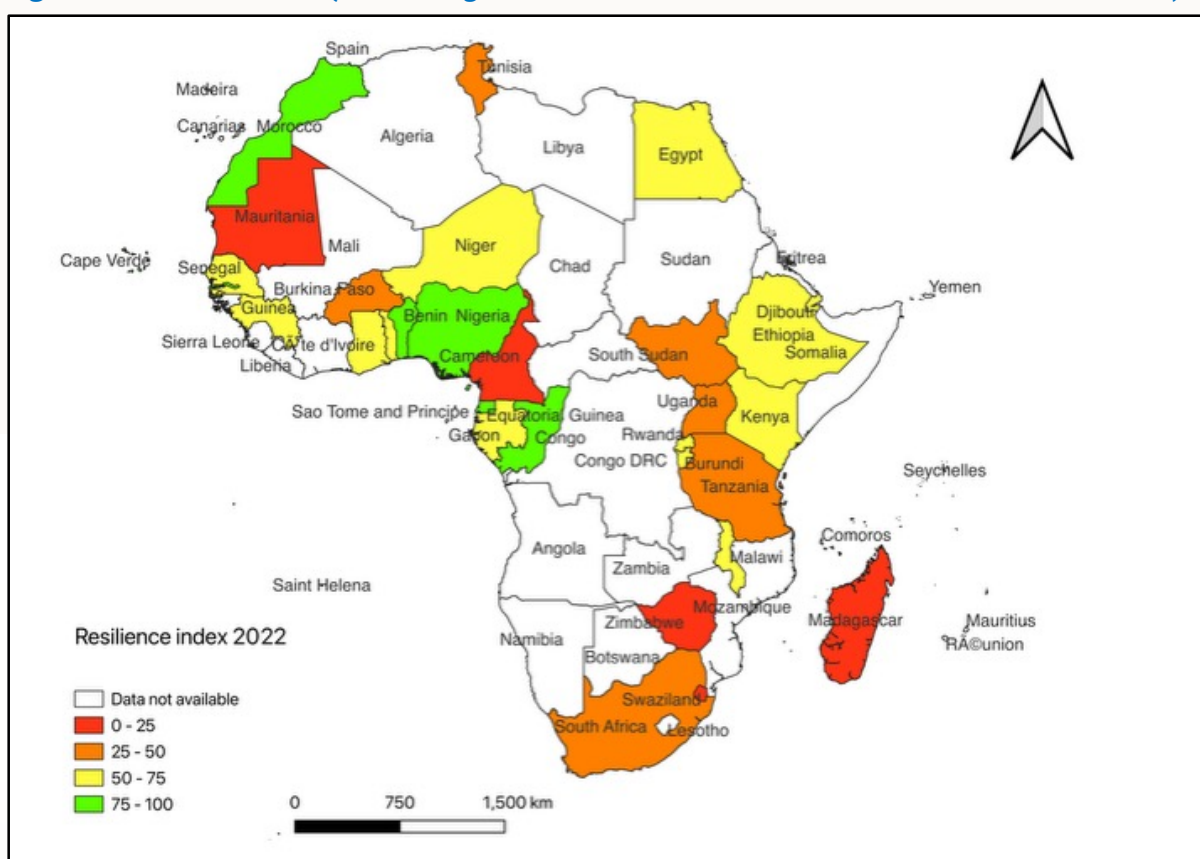
When it comes to measurement, resilience is the most complex subject. Several indices, including the Resilience Index Measurement and Analysis (RIMA), have been developed to measure resilience (FAO 2016). However, none of them are easy to compute, partly due to the lack of capacity to fully capture the approach and mainly due to the lack of comprehensive and timely data on the different components of resilience. The CAADP Biennial Review (BR) incorporates an indicator to track progress in resilience, referred to as “the number of agricultural households that are resilient to climate shocks.” Though improving over time, only a few countries have reported on this indicator. For the most recent BR report published in 2023 and covering the year 2022, only 31 countries reported reasonably valid data on the indicator.

As seen in Figure 4, more than 25 countries reported a value of resilience of more than 69 percent, which seems too high to be convincingly true. Some countries reported as high as 100 percent resilience and as low as 0.6 percent resilience. The inherent challenge for this indicator is its conceptual ambiguity and lack of measurement clarity. In the BR template, the indicator is stated as “Percentage of farm, pastoral, and fishery-based households that have improved their

resilience capacity to climate and weather-related shocks.” However, the BR data is reported as “The percentage of agricultural households who are resilient to climate shocks.” These two concepts are quite different. The former seems more practical and easier to measure than the latter. It measures changes or improvements over time. The other challenge is its measurement difficulty. It was not clear how resilience is measured. Specific indicators (capacities) and parameters are not specified under the BR data-capturing template. Thus, it is unclear how countries measure or estimate the percentage of households that have improved resilience capacity or that are resilient.

Besides the measurement difficulty and conceptual ambiguity, this indicator does not seem valid anymore for two reasons. First, it only focuses on climate shocks without considering other shocks such as markets, health, etc. Second, it focuses only on agricultural households, which is inconsistent with the new agrifood systems approach. Therefore, new indicators are needed to track progress under the Kampala CAADP Declaration.

Figure 4: Resilience index (Share of agricultural households who are resilient to climate shocks).



with the conceptual framework illustrated above, additional indicators and parameters should be included to fully capture the different aspects of resilience building.

Table 2 presents four proposed composite indicators, each aligned with one of the four key capacities needed to build resilience. To measure these indicators, we identified three core parameters for each, selected based on priority programmatic interventions required to strengthen that specific capacity. For example, building institutional capacity requires the establishment of a strong national food reserve, effective early warning systems, and responsive governance structures. Accordingly, the Institutional Capacity Index is designed to reflect these key interventions. Similarly, we identified three priority interventions to serve as parameters for each of the other indices. It is important to note that the selected interventions (parameters) are not only easily measurable but also serve as effective proxies for assessing a country's economic and political capacity to design and implement technical solutions for resilience building.

The last column of Table 2 outlines the metrics used to estimate each composite index. These indices are designed to be practical and straightforward to measure. The necessary data are generally available through national agricultural household surveys for all but the first index. The first index can be derived using data from the government agency responsible for disaster risk prediction, preparedness, and response.



Table 2. Proposed indicators and parameters for measuring the resilience of agrifood systems.

Resilience Indicators	Elements to be included as Parameters	Proposed Resilience Indices (metrics)
Institutional (Responsive) capacity index (RPC): the level of system resilience capacity to predict and respond against shocks	The level of national reserve: public reserve, either in the form of cash or in-kind, including food reserve for emergency purposes.	RPC= NFR+EWS+RGS NFR= the per capita food reserve of the country, measured as high, medium, low, or none.
	Effectiveness of early warning systems:	EWS= effectiveness of early warning system, measured as high if alerts are published before the shocks occurred, medium if alerts are made immediately after the shocks occur, and low if no alerts are published for shocks that occurred during the year.
	The functionality of the risk and disaster management governance system: a system of designating responsibility, coordination, accountability, and progress tracking on resilience activities or actions.	RRG= the effectiveness of the governance system for risk and disaster response, measured as 2= effective if the response covers all victims, 1= medium if the response covers only part of the victims, and 0= low or none, if there is no response or late response.
Absorptive capacity index (ABC): Percentage of households that have improved their absorptive capacity	Asset building: supporting vulnerable groups to build assets through saving (in-kind or cash) and diversifying income.	ABC=HAB+WAI+STC HAB=Share of vulnerable households supported to build assets and diversify income.
	Weather-based crop and livestock insurance: insurance to protect farmers from weather variability and payments triggered by weather changes.	WAI= Share of agricultural households that purchased crop and/or livestock insurance.
	Social transfer: Non-contributory payments or in-kind support to reduce poverty, enhance social protection, and improve economic stability.	STC= Share of vulnerable households that received a social transfer in the form of cash, food, or public works.
Adaptive capacity index (ADC): Percentage of households that have improved their adaptive capacity	Sustainable Land Management:	ADC= SLM+ARC+SIL SLM=Share of agricultural land under sustainable land management.
	Resilient crops: adoption of heat and drought-tolerant crops and early maturing varieties.	ARC=Share of Farmers adopted resilient crops.
	Water management: water harvesting, irrigation development, and water use efficiency.	SIL=Share of irrigated agricultural land.
Transformative capacity index (TRC): Percentage of households that have improved their transformative capacity	Human capital: education and aspiration of rural households to engage in non-farm activities and business or professional employment.	TRC= ERH+ ACM +ACF EAH=Share of rural household heads who completed high school.
	Access to markets: proximity to cities, rural towns, and main roads to start a non-farm business and employment.	ACM= Share of rural households with market access (live in rural towns and along the main roads).
	Access to finance: increases access for rural households to start businesses and non-farm employment through concessional loans and grants.	ACF= Share of rural households with financial access (members of credit associations, experience with microfinance).

Note: the indicators and metrics are suggestions that can be further developed for implementation.

4. Conclusion

Building resilience has emerged as a priority commitment area under the Kampala Declaration. The Kampala CAADP Declaration and its Strategy and Action Plan (2026–2035) outline key intervention areas to achieve set resilience targets. However, the specific capacities and programmatic interventions required to build resilience are yet to be fully defined. If countries do not get this right and citizens do not have the capacity to bounce back from shocks, then all other efforts will be redundant and ineffective. Additionally, measuring resilience within an agrifood systems approach requires further in-depth discussions among researchers, planners, and implementers.

This policy brief highlights the importance of understanding the different components and levels of resilience. Although resilience is a complex subject, both in terms of policy implementation and performance measurement, a systematic understanding of the capabilities needed to build resilience at the system, community, and household levels helps guide the effective implementation of the resilience commitment under the Kampala Declaration.

Focusing on four priority capabilities – responsive, absorptive, adaptive, and transformative – can support both the effective building of agrifood systems resilience and the measurement of progress. These capabilities provide a framework to identify, prioritize, and design specific programmatic interventions and facilitate the use of simplified composite resilience indicators, which can address common challenges related to data gaps and measurement inconsistencies seen in previous frameworks.

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ABOUT AKADEMIYA2063

AKADEMIYA2063 is a pan-African non-profit research organization with headquarters in Kigali, Rwanda, and a regional office in Dakar, Senegal.

Inspired by the ambitions of Agenda 2063 and grounded in the recognition of the central importance of strong knowledge and evidence systems, the vision of AKADEMIYA2063 is an Africa with the expertise we need for the Africa we want. This expertise must be responsive to the continent's needs for data and analysis to ensure high-quality policy design and execution. Inclusive, evidence-informed policymaking is key to meeting the continent's development aspirations, creating wealth, and changing livelihoods for the better.

AKADEMIYA2063's overall mission is to create, across Africa and led from its headquarters in Rwanda, state-of-the-art technical capacities to support the efforts by the Member States of the African Union to achieve the key goals of the African Union's Agenda 2063 of transforming national economies to boost growth and prosperity.

Following from its vision and mission, the main goal of AKADEMIYA2063 is to help meet Africa's needs at the continental, regional and national levels in terms of data, analytics, and mutual learning for the effective implementation of Agenda 2063 and the realization of its outcomes by a critical mass of countries. AKADEMIYA2063 strives to meet its goals through programs organized under five strategic areas—policy innovation, knowledge systems, capacity creation and deployment, operational support, data management, digital products, and technology—as well as partnerships and outreach activities. For more information, visit www.akademiya2063.org.



Building Resilient and Sustainable Agrifood Systems in Africa



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