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BRIEF SERIES | 01

Extension and Advisory Services for Agroecological Transitions in Africa

Established by

THE AFRICAN CLIMATE FOUNDATION

Convened by

DSI-NRF Centre of Excellence in Food Security

This brief is part of a series produced by
the African Food Systems Transformation Collective (AFSTC).

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SUMMARY

African food and agriculture systems continue to grapple with food insecurity in the face of climate change, land degradation and biodiversity loss. The present brief highlights the pivotal role that targeted extension and advisory services (EAS) can play in contributing to the transformation of Africa's food systems and thus greater sustainability and social equity.

Agroecology emphasises ecological integrity, social justice and the empowerment of local communities, enabling farmers to adapt to climate impacts while enhancing their livelihoods. Despite its potential, however, only about 30% of farms worldwide operate according to integrated agroecological principles. This is primarily due to insufficient dedicated funding for agroecology, inadequate training of extension workers, limited access to EAS, and the dominance of industrial–agricultural models.

Agroecology-focused EAS could improve food security, bolster resilience, support biodiversity and foster social equity within rural communities. Achieving these goals would require building the capacity of extension workers to use agroecological principles effectively and to engage local farmers, markets and consumers, particularly women and youth, in the transition process.

Agroecology-focused EAS could improve food security, bolster resilience, support biodiversity and foster social equity within rural communities

This brief calls upon development partners to rethink funding strategies in order to prioritise long-term, community-driven initiatives that align with the principles of agroecology. An integrated approach is essential for creating sustainable and inclusive agricultural systems across the continent.

INTRODUCTION

Historically, efforts to achieve food security have centred on increasing agricultural output so as to feed growing populations. However, the negative environmental and social costs of conventional farming are now well established, underscoring the urgent need for more sustainable and equitable food systems. This is particularly critical in Africa, where the convergence of climate change, biodiversity loss, land degradation and related challenges presents complex, interrelated challenges for food security (Kleemann 2012; Shilomboleni 2020).

These challenges underscore the need for a radical transformation of Africa's agrifood systems (Loring 2021; Riemer et al. 2023) – one that ensures food security, prevents maladaptation and maximises positive outcomes for people, ecosystems and the planet (Dagli 2022). Such transformation must be aligned with global frameworks, including the Paris Agreement, the Kunming–Montreal Global Biodiversity Framework, and the Sustainable Development Goals (SDGs).

Agroecology offers a comprehensive pathway for food systems transformation by integrating ecological and social equity principles into agricultural practices (Chaudhary et al. 2023; Gliessman 2013). It emphasises on-farm diversification practices such as increasing biodiversity, crop/animal rotations and integration, soil and water conservation, reducing dependency on external inputs (Wezel et al. 2020), and equitable access to healthy, sustainably produced foods with farmers maintaining control over their production systems (Martínez-Torres & Rosset 2014; Rosset & Altieri 2017). In doing so, agroecology strengthens resource security, improves livelihoods and fosters social cohesion by building resilient communities capable of adapting to changing environmental conditions (Kerr et al. 2023; Sharma et al. 2024).

Despite agroecology's important contribution, only around 30% of farms globally have redesigned their farming approaches to reflect agroecological principles (FiBL 2024). This is primarily due to insufficient funding, inadequate training of extension workers, a high ratio of farmers to extension workers, and the dominance of industrial–agricultural models. Existing policies continue to favour industrial farming and a narrow focus on increasing yield outputs without considering yield quality and the impact on people and planet (iPES Food).

There is a need for governments and development partners to shift support towards agroecological approaches. One critical area of such public investments is into EAS in Africa, specifically to train and enhance the capacity of EAS providers in order to promote agroecological interventions that leverage the knowledge and experience of local farmers and indigenous communities. Agroecology-focused EAS systems can help to facilitate the co-creation of requisite knowledge and skills through tailored training programmes, workshops, role modelling and on-farm demonstrations. Such efforts can help to address the unique challenges faced by farmers, markets and consumers, ensuring that solutions are context-specific and culturally relevant, engage local communities, and foster participatory approaches for improved agriculture and food systems. Additionally, building strong networks between farmers, researchers and policymakers through effective EAS enhances the flow of information and innovation, ultimately leading to improved resilience and productivity in agroecological systems across the continent.

As agriculture increasingly takes centre stage in discussions under the three Rio Conventions – the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD) – the integration of agroecology-focused EAS offers a strategic pathway to scaling sustainable food systems. This approach fosters synergies between food security efforts and the objectives of these conventions, thereby advancing biodiversity conservation, climate change mitigation and desertification control while enhancing the resilience of agricultural landscapes.

MOTIVATION

As Africa's food systems continue to face increasing pressures from climate change, land degradation and population growth, sustainable approaches such as agroecology offer valuable contributions to restore and protect essential natural conditions for food production, including water resources, soil health, and biodiversity. However, realising the full potential of agroecology hinges on building the capacity of extension officers through the development of materials, strategies and frameworks and the dissemination of relevant skills and knowledge within farming communities (Gliessman 2022).

Agroecology-focused EAS can serve as a critical conduit for non-formal education and capacity-building and for facilitating the co-creation and sharing of agronomic knowledge and market linkages, thus ensuring increased productivity while enhancing the livelihoods of farmers. AES can also play an important role in scaling up agroecology. However, for this transformation to succeed, it is essential to address the ongoing challenges hindering the effective delivery of EAS in sub-Saharan Africa. Overcoming these barriers is crucial to ensuring the continuous dissemination of agroecological knowledge and innovations across farming communities.

CONTEXT

Various models of agricultural EAS have been implemented across Africa, differentiated by their funding sources (public, private or development agency), delivery approach (supply- or demand-driven; top-down or participatory), the actors providing the services (public or private), and type (virtual or face to face). Bitzer, Wennink and Piters (2016) explain that donor agencies, non-governmental organisations (NGOs) and large agribusiness corporations have traditionally provided financial support for private extension services in Africa, while donor-funded projects and national governments have funded public extension services for decades (Bitzer et al. 2016). However, a majority of these various players operate in terms of a top-down, private sector-led model that often prioritises commercial interests over the needs of smallholder farmers.

This approach typically emphasises one-size-fits-all solutions that may not align with the diverse and context-specific practices required for sustainable agroecological farming systems. In contrast, agroecology emphasises horizontal learning, fostering collaboration among farmers, and encouraging participatory forms of extension that empower communities to share knowledge and innovate together (Sarwoprasodjo, Santosa & Kinsen 2017). Such methods prioritise local knowledge and adaptability, ensuring that agricultural practices are not only environmentally sustainable, but also socially equitable. Therefore, current extension models fall short of supporting the transformative potential of agroecological approaches, overlooking the critical role of farmer-to-farmer exchanges and community-driven learning processes. Further, local and indigenous knowledge systems remain underutilised despite their ability to tailor agroecological practices to specific environmental and cultural contexts (Radcliffe, Raman & Parissi 2021; Lwoga, Ngulube & Stilwell 2011). These knowledge systems, which are deeply rooted in place-based traditions, provide insights into sustainable farming techniques passed down through generations (Handayani & Prawito 2010; Moyo 2010) and preserve cultural heritage.

A common challenge facing various forms of EAS in Africa is the lack of sustainable financing, for both private and public services. This financial strain has resulted in a steady decline in the number and capacity of EAS providers. A recent report noted that the average ratio of extension workers to farmers in Africa is 1:3 000 (SAA & AFAAS 2024), with the ratio being as high as 1:10 000 in some states in Nigeria (Tafida, Vondun Bulus & Nazifi 2024: 29–36). This shortage of EAS personnel hinders the effective delivery of agroecology-focused advisory services across Africa (Antwi-Agyei & Stringer 2021), representing a significant obstacle to the widespread adoption of best agricultural practices (Tafida et al. 2024).

While the liberalisation of the EAS sector has contributed to the emergence of new actors in extension services delivery, including private service providers, producer organisations and NGOs (Saliu, Obinne & Audu 2009; Nwafor, Ogundeji & Nwafor 2021), a more pluralistic and demand-driven system seems to have evolved in many parts of Africa, incorporating a combination of public, private and non-governmental services (Agwu et al. 2023; Nwafor et al.). However, this has not translated into widespread adoption of new or improved agronomic technologies or practices.

Another key consideration is the role of women in African agriculture. Women often assume primary responsibility for the production of food and the management of natural resources (Farnworth & Colverson 2015; Adebayo & Worth 2024), yet they face significant barriers to accessing EAS, resources and decision-making power (Njiraini, Ngigi & Baraké 2018). Ensuring EAS are gender-sensitive can help to address women's needs, enhance their roles in food systems and strengthen overall community resilience (Anshida Beevi et al. 2018; Meinzen-Dick et al. 2011).

HURDLES TO TRANSITION

Despite the transformative potentials of agroecology-focused EAS, there are significant barriers to scale, including systemic financial constraints, human resource shortages, infrastructure deficiencies and policy biases. Recent developments suggest increased philanthropic interest in agroecology. However, funding for scaling agroecology remains limited compared with the conventional and industrial models (Miles, DeLonge & Carlisle 2017; Anderson et al. 2020). This has significantly impaired financing for agroecology-tailored EAS.

A report by Biovision and IPES-Food that tracks the financial flows of agricultural development reveals that agroecology has received only marginal support in many funding streams over the years. For example, while approximately 85% of the Bill and Melinda Gates Foundation's current projects in Kenya focus on improving the efficiency of industrial food systems – such as synthetic pesticide use and livestock vaccines – only 3% of its funding supports agroecology-related initiatives (Biovision 2020). This disparity significantly limits the scope and reach of agroecology-focused EAS and inhibits the ability of EAS to serve underserved communities.

Further, many funding mechanisms favour large-scale industrial projects over community-driven initiatives, thus sidelining agroecology, which typically requires smaller, localised investments. The lack of long-term funding commitments further exacerbates this challenge, creating uncertainty that hinders the planning and implementation of comprehensive agroecological programmes and limits the potential for sustained impact. The following philanthropic funding strategies tend to reinforce barriers to scaling agroecology, consequently limiting investment in agroecology-focused EAS:

1. **Project-based funding:** Many grants are structured around short-term projects with defined timelines, which can shift the focus to immediate outcomes rather than fostering long-term sustainability (Roy-Macauley & Rijsberman 2016). This approach risks neglecting the systemic changes needed to establish robust agroecological systems.
2. **A focus on high-profile initiatives:** Philanthropic support often concentrates on well-publicised projects or popular trends, leaving smaller,

grassroots initiatives underfunded (Ramirez et al. 2022). This disparity favours organisations with greater visibility, while local initiatives – often those most connected to communities – struggle to access the necessary resources.

3. **Lack of coordination:** Fragmented funding efforts lead to duplication of initiatives and competition among organisations, undermining the potential for collaboration and collective impact, especially with lacking convergence between different donor and funding priorities (Biovision 2020). Effective scaling of agroecology will require more coordinated funding strategies that align with local needs and priorities.
4. **Limited farmer engagement:** Many philanthropic strategies fail to directly engage farmers in the design and implementation of programmes or do not acknowledge the work of civil society organisations (CSOs) and movements at the grassroots in developing and spreading feasible and acceptable solutions to the challenges of food systems (Biovision 2020). This fuels a disconnect between what is funded and what is needed on the ground. Empowering farmers as key stakeholders is crucial for scaling agroecology.
5. **Institutional and policy bias:** Many African governments prioritise industrial agriculture due to its perceived, immediate economic benefits, often neglecting the potential of agroecological approaches. This bias is exacerbated by donor-driven funding priorities, leading to inadequate resources for research, education and extension services that promote agroecology (Gliessman 2016).

The funding disparity, compounded by a lack of trained extension personnel (Chavula et al. 2022), inadequate infrastructure and limited access to relevant information (World Bank Group 2018; Federal Ministry of Agriculture and Rural Development 2016), stifles the growth of agroecology and hinders its potential to serve underserved communities. Addressing these challenges through concerted efforts is crucial for creating an enabling environment for scaling the adoption of agroecological farming practices through agroecology-focused EAS.

RECOMMENDATIONS TO PROMOTE TRANSITIONS

The intersection of agriculture, climate change, biodiversity, and food and nutrition security underscores the need for a holistic and integrated approach to agricultural development in Africa. The transition to agroecology, facilitated by EAS, presents a unique opportunity to address these interconnected challenges and promote indigenous agroecological knowledge. By tackling environmental, social and economic dimensions simultaneously, agroecology-focused EAS can empower communities to navigate these converging crises – ultimately contributing to the stability and well-being of both ecosystems and communities.

Targeted donor funding and philanthropic engagement can play a crucial role in promoting agroecology-focused EAS and agroecology adoption across Africa. This will entail rethinking current funding approaches to incorporate long-term, coordinated funding strategies that prioritise grassroots engagement, capacity-building and systemic change. Key principles and funding mechanisms highlighted below can help align philanthropic strategies with Africa's unique food systems' needs and realities.

1. **Redirect funding towards strategic support and financing for agroecology:** Funding should be strategically allocated in order to incentivise the adoption and scaling of agroecological development programmes while mitigating investment risks. Targeted funding initiatives that prioritise agroecological practices and long-term sustainability over short-term industrial projects can help create an enabling environment for effective agroecology-focused EAS in Africa. As such, establishing multi-year grant mechanisms can provide the sustained funding necessary for comprehensive agroecological EAS programmes.

2. **Capacity-building:** Donors and development partners should invest in capacity-building initiatives focusing on training extension workers, developing educational resources for agroecology-focused EAS, and supporting local research in collaboration with local institutions. Building the technical and organisational capacity of EAS providers could ensure that agroecological knowledge is effectively disseminated and sustained within communities. Donors and development partners can also support platforms that facilitate farmer-to-farmer learning, and knowledge exchange is a crucial EAS approach to scaling agroecology adoption and maximising its impact in Africa.

3. **Local engagement and ownership:** EAS funding design must prioritise initiatives that actively engage local communities in decision-making processes in order to ensure that EAS adopts a bottom-up agroecological approach. Engaging and empowering farmers, community-based organisations and local leaders foster a sense of ownership, increasing the likelihood of successful implementation, long-term adoption, and sustainability. Participatory approaches that recognise and leverage the knowledge and expertise of local stakeholders are essential for building agroecological systems that are both effective and context-specific. This model encourages partnerships between NGOs, local governments and community organisations, thereby fostering a shared investment in the success of agroecological transitions. This could include increasing philanthropic support for joint efforts by CSOs, government and other stakeholders to develop a national agroecology strategy.

4. **Long-term commitment:** Agroecological practices take time to develop and implement. Therefore, philanthropic funding should prioritise long-term commitments over short-term projects. Multi-year funding cycles provide the stability necessary for sustained progress, allowing for adaptive learning, flexibility and adjustments based on evolving local conditions. This approach creates room for long-term agroecology-focused EAS and agroecological initiatives to take root and thrive in the long run.

5. **Systemic approaches:** Philanthropic strategies should focus on supporting systemic change rather than isolated interventions. This involves funding initiatives that enable EAS providers to address interconnected challenges such as food security, climate resilience, biodiversity conservation and rural poverty alleviation. A systemic approach can enable agricultural development partners and EAS providers to design and implement synergistic interventions among various agricultural practices, ensuring that their impact is amplified and more holistic, thus ultimately fostering resilience across the food system.

6. **Monitoring and evaluation frameworks:** Investing in robust monitoring and evaluation frameworks that prioritise learning, allowing agroecology-focused EAS programmes to evolve based on what works and what does not, is essential for scaling up agroecology adoption and assessing its impact. By emphasising the importance of adaptive learning, donors can ensure that their investments lead to meaningful, measurable outcomes and long-term success.

Adhering to the principles highlighted above holds great potential to strengthen agroecology-focused EAS efforts and contribute to broader goals of food security, environmental conservation, and community resilience across the continent (Somashekar et al. 2024).

CASE STUDIES

Soils, Food and Healthy Communities (SFHC) organisation, Malawi

The SFHC in Malawi is an organisation that promotes agroecological farming practices to help communities increase soil fertility, sustain nutritious and diverse diets, encourage democratic leadership and gender equity, and build resilience to climate change. The organisation's EAS research model that leverages farmer-led experimentation has helped to scale the adoption of a wide range of agroecological farming approaches, including biofertiliser and biopesticides, legume intensification, and the revitalisation of local, indigenous seeds. With support from donors such as the McKnight Foundation, SFHC Malawi has facilitated participatory research on agroecological intensification through the Global Collaboration for Resilient Food Systems (CRFS). This initiative brings together smallholder farmers, researchers and development professionals to co-develop innovative technologies that enhance nutrition, livelihoods and agricultural productivity within farming communities. To date, the CRFS project has supported 15 farmer-led projects and participatory farmer research networks that have been implemented in Kenya, Malawi, Tanzania and Uganda, which are based on local and scientific knowledge and are responsive to the heterogeneous contexts of farmers. Through such initiatives, the organisation continues to enhance agroecology adoption among smallholder farmers, demonstrating possibilities, providing evidence, and influencing others to scale agroecology adoption among smallholders.

Key lessons

1. Incorporate the social and cultural milieu within which farmers live and adjust agronomic training approaches accordingly to help scale up the adoption of agroecological innovations.
2. Farmer-led experimentation can encourage the adoption of agroecological farming techniques.
3. Integrate local and indigenous knowledge systems with scientific expertise programme design and implementation to meet the diverse needs of farming communities.

Participatory Ecological Land Use Management (PELUM) Association

PELUM is a network of over 280 CSOs operating across 12 countries in East and Southern Africa. It collaborates with local communities and small-scale farmers to promote agroecology and other ecologically sustainable farming systems. The association focuses on disseminating knowledge about sustainable farming techniques, including seed security, climate resilience, and the preservation of indigenous agricultural knowledge. PELUM utilises capacity-building, a participatory research approach, networking, and advocacy at all levels to create an enabling environment for ecological, social and economic transformation of smallholder farming communities. With the core values of people-centred development, respect for indigenous knowledge, and participation, its initiative gives priority to the true participation of local people for community-led research, development and documentation.

Key lessons

1. People-centred development, respect for indigenous knowledge, and meaningful community participation are essential for adopting agroecology.
2. Strengthening linkages and collaboration through action learning enhances agroecology adoption at different scales.
3. Participatory and bottom-up EAS foster the uptake of agroecological innovations.
4. Combining technical training with advocacy skills empowers farmers to adopt sustainable practices and influence policies affecting their livelihoods.

By promoting agroecology-focused EAS platforms to protect and conserve ecological health, social equity, economic viability, cultural integrity and supportive institutional frameworks aligned with food systems transformation, the identified case studies serve as models for extension and advisory service providers and philanthropic donors aiming to foster sustainable agricultural practices among smallholder farmers.

ACKNOWLEDGEMENTS

The authors wish to extend their sincere appreciation to the participants at the AFSTC convening in Rwanda in 2024, to the participants of the online consultation held in February 2025 for their insights, and to the reviewers of the present brief.

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