Conference briefing

Agroecological Transition of Food Systems in Africa

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Evidence for research and development policies in Africa-EU collaboration

FiBL

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Introduction

Climate change and environmental degradation pose significant challenges to food and nutrition security in Africa. Agroecology and organic farming offer viable solutions to agricultural productivity while restoring soil health, conserving water and increasing biodiversity. Moreover, these farming systems deliver positive socio-economic benefits, compatible with more inclusive development.

This briefing presents key findings and recommendations from nine multi-actor transnational research and development projects focused on agroecological and organic farming practices in Africa. These results provide compelling evidence of the transformative potential of agroecology and organic farming, demonstrating their crucial role in driving the transition to more sustainable food systems.

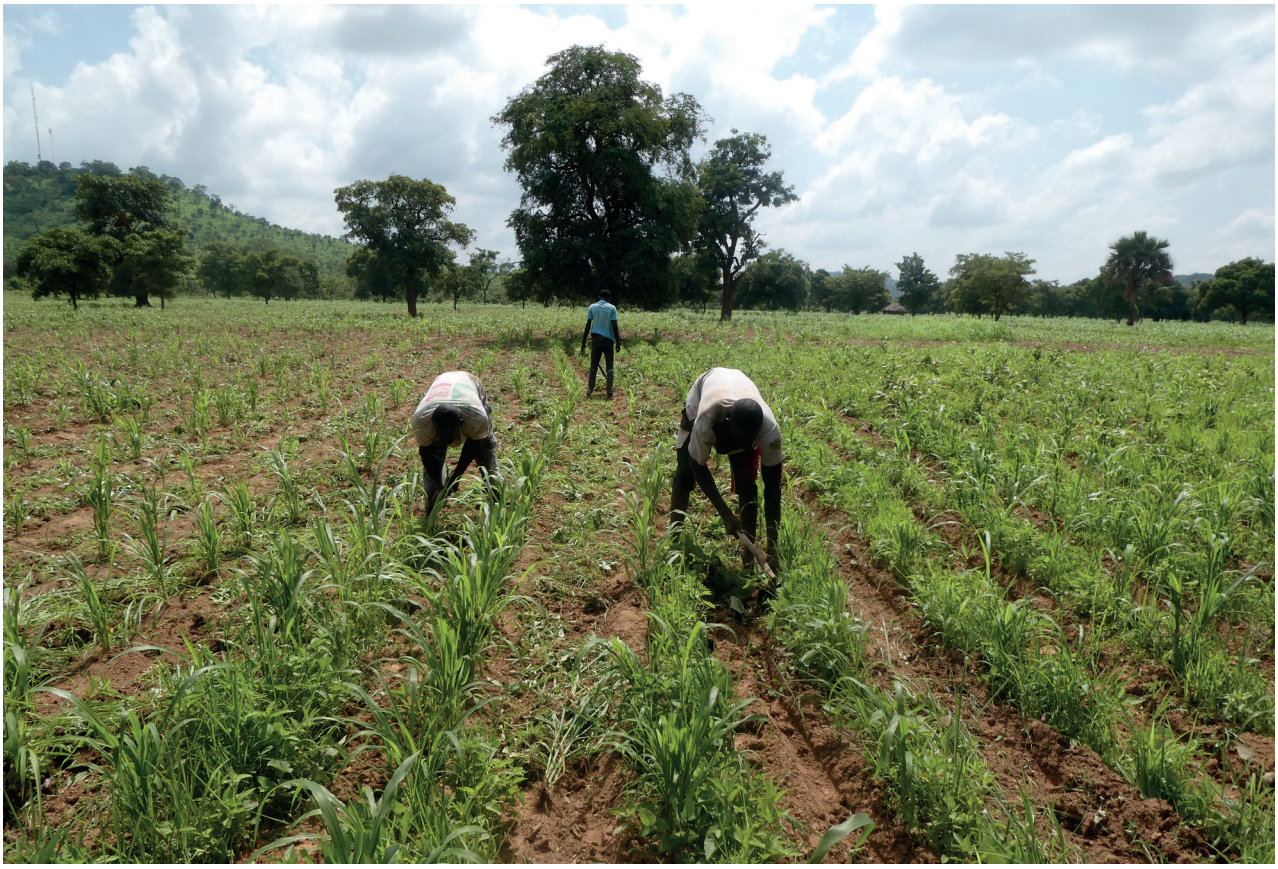
We present collective evidence from three main areas: 1) climate resilience and productivity, 2) food security and healthy nutrition, and 3) sustainable growth and job creation for local communities. We conclude with recommendations for scaling up agroecological and organic farming practices for greater positive environmental, social and economic impacts in Africa.

1. Climate resilient production systems: agroecology for enhanced productivity, soil and livestock

Agroecological and organic farming reduce greenhouse gas emissions because they are more energy-efficient and relying less on non-renewable energy sources. Research from the projects shows that overall energy demand in agroecological or organic systems is 3 to 5 times lower than in conventional approaches. This is mostly due to the lower use of synthetic agrochemicals and more system approaches, such as integrated crop-livestock systems.

Healthy soils are the very foundation of resilient food systems. As a major carbon sink, soil plays a crucial role in climate change mitigation. Results from long-term studies in tropical climates clearly show an accumulation of soil organic carbon over 15 years when comparing agroecological and organic to conventional systems (e.g. from initially 40 t/ha to 55 t/ha in trials at Chuka, Kenya). A new standardized soil information system has been set up for Africa to improve soil management. It supports a wide range of soil-related management decisions, including identification of areas at risk of soil degradation, selection of suitable farming systems and monitoring the status and impact of soil management efforts at regional, national and continental scales.

Healthy soils support higher productivity because they have better structure, aeration, and water-holding capacity—all essential for consistent crop growth. In the African context, locally available organic fertilizers, such as manure, compost, leguminous plants and tree/shrub mulches are of particular importance. They add nutrients and enhance the soil's ability to retain moisture, thus protecting yields against erratic rainfall patterns and regenerating soil health. This, in turn, reduces the need for synthetic nutrient inputs.



Agroecology introduces diversification in crop rotations, for example, more legumes bring natural nitrogen into the soil, enhancing soil fertility. Agroecological practices also emphasise the use of neglected or underutilised crop species, such as fonio (*Digitaria exilis*) in Ghana or lablab (*Lablab purpureus* (*L.*) *Sweet*) in Tanzania. These crops are well adapted to short rainy periods, enhancing resilience to climate change.

Integration of Livestock is key to sustainable production systems. It allows the exploitation of non-edible plants for humans into valuable fertilisers and soil improvement thus contributing to increased food production. Using diverse fodder sources such as tree and shrub foliage instead of common rations also improves livestock productivity and health. For example, evidence from Senegal shows that sheep fed with acacia tree foliage experience a higher average daily weight gain compared to those fed with their usual diet. By integrating livestock, farmers can reduce their dependency on external inputs, and generate workforce for the farm. Furthermore, livestock provides a financial safety net, offering economic stability for family farms.

The adoption of push-pull technologies in farming significantly boosts productivity. This is a technology whereby pest repellent crops are placed in the field and pest attracting plants at the edges. In East Africa, smallholder farmers practicing push-pull consistently report higher grain yields, with additional cereal harvests from 0.5 ton/ha to ca. 2 ton/ha. These technologies, which use natural methods to manage pests and improve crop yields, reduce hunger periods and increase access to nutritious food.

2. Food security, agrobiodiversity strategies and nutrition

Crop diversification plays a critical role in achieving food security and healthy nutrition. This increased diversity enriches diets while reducing the economic risks associated with cultivating a limited range of crops.

Neglected or underutilised crop species, such as fonio or lablab, are highly nutritious, rich in proteins and fibres. These crops provide essential nutrients when other food sources may be scarce. Additionally, agroecological and organic farming minimise the use of pesticides, ensuring that food is free from harmful chemicals. Agroecological plant protection approaches enhance sustainable farming through resistant crops, traditional biopesticides, and sustainable storage and packaging methods, warranting pathogen and pest control by natural means, while addressing food safety risks.

Research has demonstrated that agroecological farming systems are on average more profitable on the long term than conventional systems. They ensure resilient and continuous and climate-resilient production over time. This stability, in turn, supports the well-being of farmers and their families, offering a steady source of income and a foundation for a varied and nutritionally balanced diet.

3. Inclusive growth and sustainable job creation

Farmers are more likely to adopt agroecological or organic practices when these methods are profitable, compatible with their existing farming methods and reduce labour requirements. On-farm research has shown that agroecological methods are more profitable than local conventional ones. This is because agroecological and organic systems deliver higher yields while simultaneously reducing farmers' reliance on costly purchased inputs, thereby increasing farm autonomy.

Strengthening the role of women in every stage of the agricultural supply chain—from production to marketing—is especially transformative when agroecological practices are adopted. By engaging women in decision-making, they gain more control over their time and resources. This, in turn, leads to economic empowerment, as women can contribute more effectively to household income and community well-being.

Around 98% of food processing in Africa is carried out by women (from field to plate, including small-scale transforming industries). In many African smallholder farms, women are the primary managers of local seed species, which have high nutritional and agricultural value. This is especially relevant for neglected and underutilised species. For example, fonio in Western African countries is mostly a woman crop (e.g., 79% of fonio cultivated in Senegal is grown by women). Promoting and preserving these indigenous seeds enhances women's roles. This is an example of how agroecological practices become a vehicle for gender equality and social transformation.

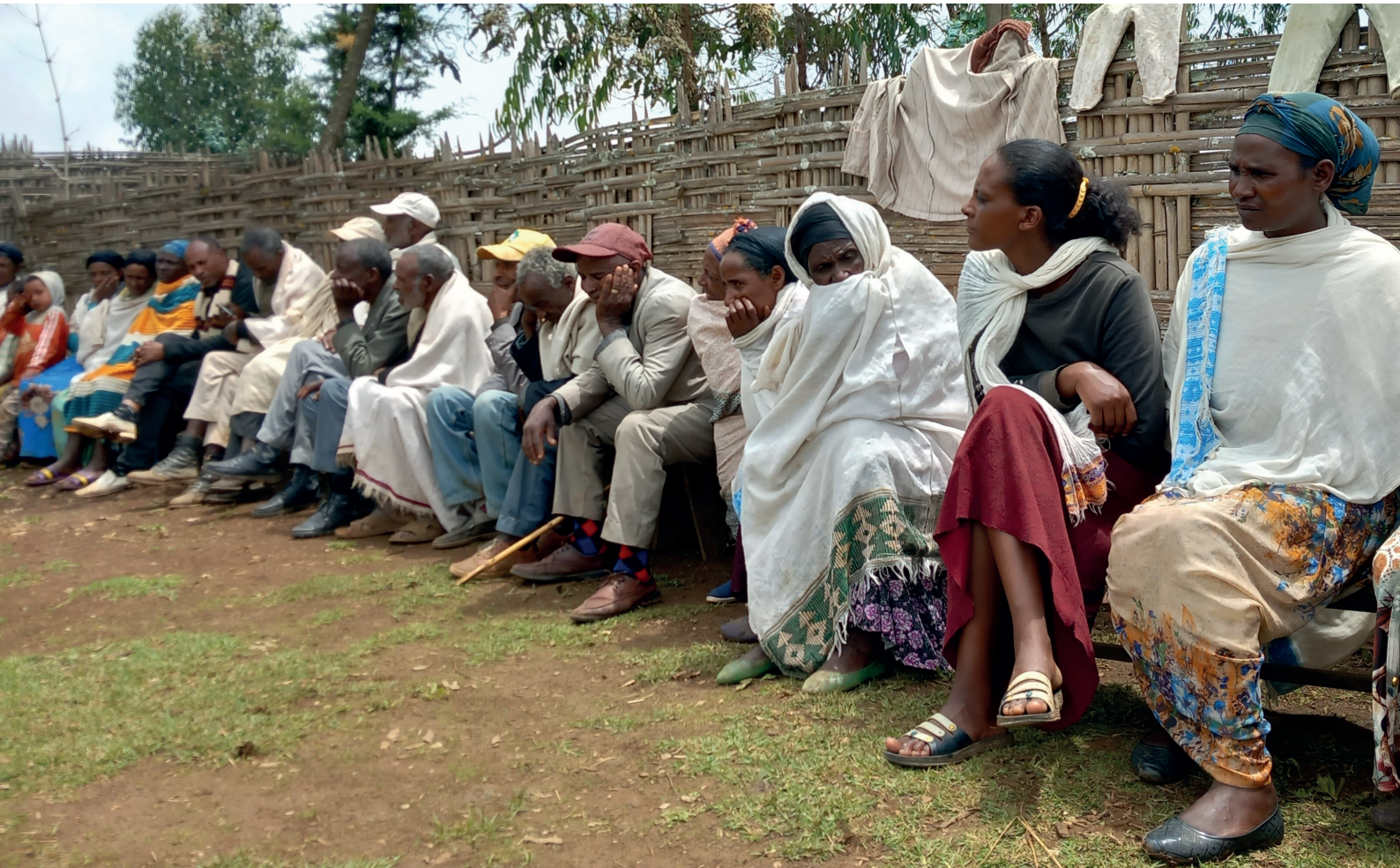
Expanding agroecology and organic agriculture in Africa

Agroecology and organic agriculture are gradually gaining recognition in African policies, yet its integration remains at an infant stage. Conventional agriculture continues to dominate, bolstered by subsidies and well-established value chains.

Strengthening networks between civil society, research institutions, governments and producers is essential for advancing agroecological and organic farming. Reinforcing existing networks and smallholder cooperatives enhances advocacy, scales initiatives, and promotes knowledge-sharing. Involving local communities is also crucial, as it fosters ownership and ensures the long-term success and sustainability of agroecological practices.

Economic viability has to be addressed. Improved market transparency, fair trade, and public policies supporting agroecology and the development of value chains for neglected and non-staple crops are crucial. Additionally, connecting farmers to organic value chains and certification schemes can open premium markets, providing financial incentives for the transition to agroecology. Business models for agroecology oriented enterprises—such as small-scale biopesticide production or composting—offer sustainable revenue streams, while microfinance programmes can help reduce risks.

To scale agroecology and organic agriculture, stronger political support and intersectoral coordination are needed. Increasing the knowledge at farmers level and along the value chain is crucial to support the actors in developing locally adapted solutions. Capacity building programmes for farmers and food literacy programmes for consumers should target agroecology and organic production. Finally, to support the multiple initiatives emerging on the African continent a strong partnership is needed between Europe and Africa, funded by research support programmes such as the Desira+ and Horizon Europe programmes.



Opportunities for the EU and African partners to promote the agroecological transition in Africa

1. Enhance capacity building and promote awareness: mainstream agroecology in education and extension programmes and launch communication campaigns for African farmers and consumers, raising awareness about the nutritional benefits and advantages of diverse, locally grown, organic crops and products.

2. Strengthen inclusiveness and adopt a holistic approach: prioritise participatory approaches and build stronger links between local communities, civil society, businesses, research institutions, governments and producers to scale successful initiatives, and facilitate knowledge sharing. Put a specific focus on women, youth and vulnerable groups.

3. Enhance access to organic inputs and resources: such as seeds of local and neglected varieties, organic fertilizers and bio-control methods.

4. Improve market transparency and support fair trade: introducing public procurement policies that favour agroecological and organic products and developing certification programs to open up premium markets.

5. Allocate greater resources to research focused on organic and agroecological practices: positioning these as key drivers of innovation in African agriculture.

Projects involved

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