POST-EVENT REPORT

The contribution of agroecology to climate change adaptation and mitigation

DeSIRA LIFT

Biennial Climate-Smart Agriculture Conference in Accra, Ghana and online
15 September 2022

The 2022 edition of the Biennial Climate Smart Agriculture Conference was held during the Science and Partnership for Agriculture Conference (SPAC) led by the Forum for Agricultural Research in Africa (FARA) on 14th to 16th September 2022 in Accra, Ghana and online. It provided a platform to discuss sustainable models of agriculture which contribute to climate change adaptation and mitigation such as agroecology.

A session was convened by DeSIRA-LIFT and FARA to discuss the contribution of agroecology to climate change adaptation and mitigation where experts from policy, finance and private sector presented successful agroecological initiatives and practices contributing to climate resilience and concrete ways in which agroecology can support adaptation and mitigation strategies.

CAADP XP4 PROGRAMME

FARA Forum for Agricultural Research in Africa

Funded by the European Union

Main messages and recommendations

• There is strong evidence from research and practice that the diversity in agroecological systems reduces vulnerabilities to climate variability. However, it was recognised that the findings are not sufficiently disseminated across stakeholders and that the investments made on research in agroecology are very low compared to those in conventional agriculture.

• The use of traditional knowledge from smallholders and value chain actors combined with the dissemination of scientific knowledge are recognised as effective in managing climate risks. It is recommended to support and document multistakeholder dialogues which bring complementary perspectives and support to agroecological transitions. In this context, the experience of the Alliance for Agroecology in West Africa (3AO) is very interesting.

• The efforts in promoting the circular economy, reducing waste and recycling it into productive resources combined with resources use efficiency contribute to limit greenhouse gas emissions and support climate change mitigation and are a source of income for smallholders. Furthermore, the rising cost of agricultural fertilisers and the impact it has in most of African economies makes the use of organic fertilisers an urgent necessity. It is recommended to support local farmers and businesses to access organic fertilisers and to upscale its adoption and use.

• It is recognised that the entrepreneurial ecosystem (research, policy, finance) needs to be more favourable to the agroecological wide-scale transition. In that context, incentives need to be available for smallholders and small and medium-sized enterprises (SMEs) to expand successful agroecological practices along the chain, from production to consumption. Conducive policies can also be instrumental to foster the domestic demand for agroecological products and consolidate new markets and well-informed consumers.

• The importance of financial investments and public-private partnerships was underlined as a key pathway to expand economic viable solutions adopted by smallholders, and as such, the role of finance in supporting green practices and technologies is well recognised.

Proposed actions

1. There is a need to disseminate and promote successful agroecological practices across Africa. FARA has mapped CSA innovations at the continent level and therefore is well placed to develop a roadmap to information about and promote the contribution of agroecology to climate change adaptation and mitigation.

2. Recognising that the next generation must be equipped with the right knowledge, skills and technologies (situation analysis, ecosystem support, enabling environment and exchange of best practices), it is recommended to carry out a mapping of youth and women-led innovations which support agroecological principles and practices at field level. DeSIRA-LIFT could consider supporting such an activity.

3. Increased investments from financial institutions and development partners, as well as increased evidence from practitioners and research are needed to inform policy and expand successes from the field and thus to upscale agroecological practices. FARA and DeSIRA-LIFT can partner with the private sector and finance institutions to identify scalable solutions, facilitate agribusiness exchanges on responsible value chains and further access to agroecological inclusive markets.

4. Green technologies and green services offer growing economic opportunities for operators in the agri-food sector, especially in the context of the implementation of the African

Continental Free Trade Area (AfCFTA). However, the knowledge about existing accessible green technologies is scattered. There is a need to map green solutions and innovations led by or adopted by local smallholders and entrepreneurs.

5. It is urgent to promote the potential and successes of agroecology amongst a wide range of stakeholders from farm to fork through support to communities of practice where knowledge co-creation and findings from research are widely disseminated. FARA and DeSIRA-LIFT with other key partners can support inclusive innovation platforms engaging stakeholders in AKIS.

6. The existing sustainable and agroecological solutions which contribute to climate change adaptation and mitigation need to be documented, disseminated and expanded by FARA and partners to inform the CoP27 and CoP28 and feed the continental agricultural initiatives and processes. The Climate Smart Agriculture Biennial Conferences have a key role to play in this regard.

Background

The second Biennial Africa Climate-Smart Agriculture Conference is part of the SPAC organised by FARA. DeSIRA-LIFT co-organised events to showcase how agroecology and climate-smart agriculture (CSA) practices contribute to climate resilience, and adaptation and mitigation strategies:

• Thematic Paper Presentation on Compatibility assessment of agroecology and CSA practices (14th September 2022)

• Side event on The contribution of agroecology to climate change adaptation and mitigation (15th September 2022)

• Presentation of preliminary results from two commissioned studies: (i) 10 years analysis of Africa's progress on climate change; and (ii) Decadal Plan for the Africa Climate Smart Agriculture Framework (ACSAF) (operationalisation of the agricultural part of the AU strategy on climate change) (16th September 2022).

Summary of the presentations

Download the event's concept note and programme

This session gathered around 70 on site and online participants from a wide range of stakeholders: development partners, policy institutions, research organisations and projects, finance institutions, farmers' organisations, private sector and project implementers. Discussions brought different perspectives from policy to practice on how agroecology can contribute to climate change adaptation and mitigation. The biodata and PowerPoint presentations of all speakers is available on the DeSIRA-LIFT website.

The session was organised around three themes:

(i) Successes from the field supporting climate change adaptation and mitigation.

(ii) Smart solutions and local-led technologies from farmers and entrepreneurs - Promoting waste reduction and circular economy.

(iii) Public and private investments and policies needed to scale up successful agroecological practices.

I. Successes from the field supporting climate change adaptation and mitigation

Karim Sawadogo,
Coordinator at the Alliance for Agroecology in West Africa

Download the presentation

The Alliance for Agroecology in West Africa (3AO) created in 2018 is a coordination and information platform composed of farmers' organisations, research institutes, universities, international non-governmental organisations (NGOs) and social movements. It aims to promote and support an agroecological transition in West Africa to ensure resilient, sustainable livelihoods adapted to local agricultural challenges. Through a series of concrete and concerted actions, 3AO aims to create synergies between different scales and organisations to strengthen research and advocacy efforts in favour of agroecology, while providing greater visibility to the agroecological movement in West Africa.

The panellist highlighted how agroecology can support the weakened African agricultural systems to ensure food and nutrition security, reduce poverty and the increasing illness rate, while protecting the environment. There is an increasing awareness and commitment to agroecology amongst the West African policies and other stakeholders, such as farmers' and professional agricultural organisations, including through the work of the 3AO.

Karim highlighted some successful innovations in agroecology developed and implemented by farmer's organisations that are members of ROPPA (the Network of Farmers' and Producers' Organisations in West Africa):

• Use of the zaï (ndlr. seed hole) method to recover and reforest degraded land, while increasing agricultural and forestry production in Ouahigouya (Burkina Faso): crops are planted in small holes which enable the collection and concentration if runoff and organic matter. 700 000 producers were reached by this initiative increasing their food security and income, over 2 billion of trees were planted, and key forest species were protected.

• Coupling water and soil conservation actions with six agroecological practices to overcome the problem of irregular rainfall in the Suda-

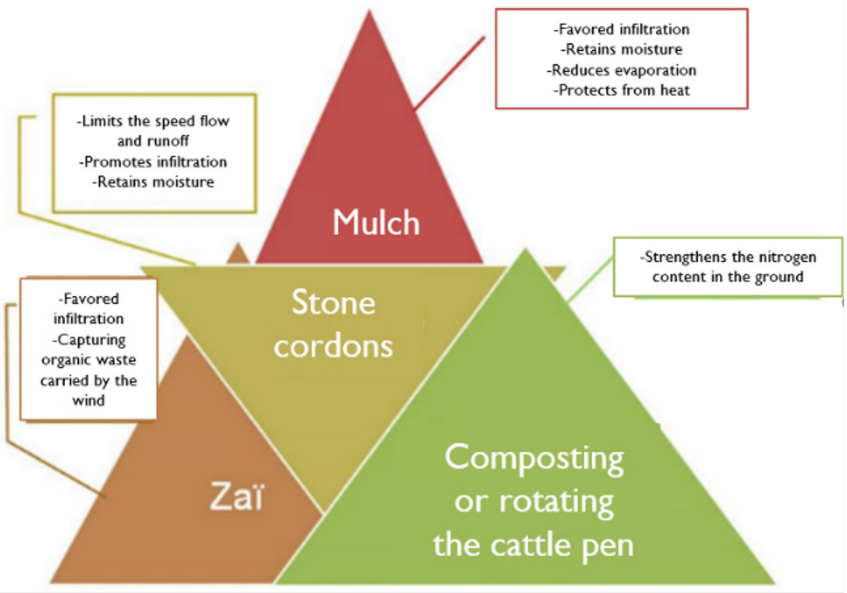


Figure 1. Farmers' responses to sustainable land management practices (Sawadogo, 2022)

no-Sahelian zone: (1) zaï; (2) anti-erosion dikes; (3) compost; (4) agroforestry; (5) controlled land clearing; (6) runoff collection system. 750 ha of land were restored, food security was strengthened, biomass increased and efforts to mobilise surface waters were made.

• Combining a range of practices for the conservation, protection and restoration of water and soil in Niger: see graph below. Both food security and the soil quality improved, and the population's awareness of biodynamics increased.

Yohann Zaba,
Project Officer, Global Climate Change Alliance Plus Initiative for West Africa (GCCA+AO)

Download the presentation

The Global Climate Change Alliance Plus (GCCA+) is a European Union flagship initiative which is helping the world's most vulnerable countries to address climate change. Having started with just four pilot projects in 2008, it has become a major climate initiative that has funded over 80 projects of national, regional and worldwide scope in Africa, Asia, the Caribbean and the Pacific.

GCCA+ West Africa aims to adapt, replicate and scale up pilot projects focusing on strengthening the terroir approach which includes resilient green irrigation, good agricultural practices, resilient agroforestry and access to climate information. GCCA+ West Africa also supports climate information services by training meteorological technical staff on HYDROMET and CLIDATA software and, updating of hydro-climatic data management databases by CILSS. It supports carbon measurement in four sites of West African forest ecosystems, the CILSS bio-carbon laboratory and the development of a regional digital library of low carbon and resilient agroecological practices.

Some successes shared include:

• Promoting a stronger integration between agriculture and livestock farming among farmers (especially women and youth) in Niger to overcome the impact of rainfall deficiencies on rainfed agricultural crops, water and wind erosion. The emphasis is on the dissemination of seeds adapted to climate risks and restoration of soil fertility, reducing the use of chemical fertilisers through integrated farming and training in assisted natural regeneration to restore biodiversity and local agrosystems through dissemination of agroecological practices.

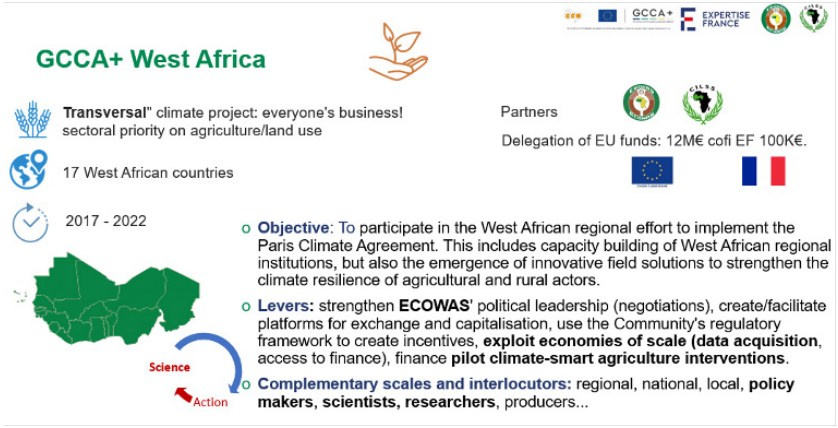


Figure 2. Summary of the GCCA+ West Africa programme (Zaba, 2022).

• Developing an integrated resilient shea agroforestry model in Nigeria to increase climate resilience and enable women farmers securing

land tenure, as well as diversifying and in increasing their sources of income.

• Building ecological latrines for small peri-urban farmers in Sierra-Leone to collect biological fertilisers for the benefit of their farms, scaling up an economically viable model at lower costs.

Rosinah Mbenya,
Country Coordinator for Participatory Ecological Land Use Management (PELUM) Kenya

Download the presentation

Participatory Ecological Land Use Management (PELUM) Association is a regional network of over 280 civil society organisations in 12 countries working with small scale farmers in East and Southern Africa in the area of Ecological Land Use Management. The association was established in 1995 with its first Secretariat based in Zimbabwe, since then, the membership has grown from 25 pioneer members in 1995 to 281 members in 2020. The Association works to improve the livelihoods of small scale farmers and the sustainability of farming communities by fostering ecological land use management. The country secretariats/ chapters are working with member organizations; mainly NGOs, faith based organisations, civil society organiqations (CSOs), as well as Community Based Organisations (CBOs) to promote sustainable use and management of natural resources through agroecology and other ecologically oriented farming systems for improved and resilient livelihoods.

This presentation illustrated how agroecology contributes to enhancing people's health, ecosystems and reduces the negative outcomes of agriculture (greenhouse gas emissions, water and biodiversity degradation etc.). Key points were addressed:

• Diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources.

• By optimising biological synergies, agroecological practices enhance ecological functions, leading to greater resource-use efficiency and resilience.

• By enhancing biological processes and recycling biomass, nutrients and water, producers are able to use fewer external resources, reducing costs and the negative environmental impacts of their use.

• Agroecological practices recover the biological complexity of agricultural systems and promote the necessary community of interacting organisms to self-regulate pest outbreaks.

• More recycling means agricultural production with lower economic and environmental costs.

• By supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition. It also promotes indigenous foods including indigenous seeds.

• Circular and solidarity economy reconnect producers and consumers, prioritise local markets and strengthen short food circuits, while maintaining a fair price for consumers.

• Co-creation and sharing of knowledge (traditional and indigenous knowledge, producers' and traders' practical knowledge, and global scientific knowledge) are key to promote locally relevant solutions.

Agroecological practices promoted by PELUM include: organic agriculture, permaculture, bio intensive agriculture, sustainable agriculture, biodynamic agriculture, biological farming and natural farming, regenerative agriculture, agroforestry, conservation agriculture and family farming.

II. Smart solutions and local-led technologies from farmers and entrepreneurs - Promoting waste reduction and circular economy

Noël N'Guessan,
Co-founder and CTO, LONO, Côte d'Ivoire

Download the presentation

LONO is an engineering company providing services and products to create local value from agricultural farming by-products, active since 2017 which started its first sale in 2018 of locally manufactured composters and biodigesters. It comprises a team of 10 experts based in Yamoussoukro, Côte d'Ivoire.
It has adedicated lab for trials and analysis and its main clients are agro-processing companies, development agencies and agroforestry service companies. The company works closely with smallholders and develops nature-based solutions to boost agricultural production and increase farmers income.

LONO has developed the KubeKo, an autonomous system that smallholders can use in their fields, farms, processing site or gardens, to transform waste into compost or cooking gas. KubeKo is a low-cost biowaste processing equipment which transforms all types of green waste (liquid and solid) into cooking gas and liquid compost. It allows smallholder farmers in West Africa to manage and generate income via their biodegradable green waste. LONO promotes organic fertilisers produced using natural by-products waste.

LONO provides training to farmers and raises awareness on the merits of natural compost and biofertilisers and on food waste and food losses. The company collaborates with cooperatives

Figure 4. LONO's nature-based solutions for agricultural production (N'Guessan, 2022).

and partner organisations such as ECOCERT working on the sustainability of value chains like cocoa and various fruits. The company is also developing larger-scale industrial composting projects that create a local bioeconomy for organic waste.

In close collaboration with the polytechnic university of Yamoussoukro (INP-HB), LONO studies and tests opportunities for biofuel production, researching different types of locally available feedstock.

The company develops nature-based solutions to boost agricultural production and increase farmers' income:

• The biological activity of the soil contributes to mineral availability, nutrient recycling and pest control.

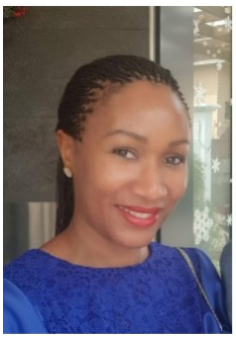
• Using second generation hydrogels and nutrient pumps increases resistance to extreme droughts.

• Production and incorporation of biochar in soil is one of the most scalable and already available solutions to carbon sequestration.

• Research and training are crucial links in the chain to having significant adoption of these solutions.

Sandra Snowden,
CEO, Hendy Farms Ltd.

Download the presentation



Hendy Farms is an award-winning Ghanaian company producing mangoes, mango preserves and condiments. The company produces dried mango, jams, hot sauces, and various frozen products from fresh mango as well as honey from it's apiary. Hendy Farms value added products are Global GAP and FDA certified and sold in premium recyclable packaging. Hendy Farms is very committed to promote farming amongst the young generation providing tours of the mango orchards which have four varieties of mangoes and teaching sustainable farming practices, and ways to reduce waste. The company is dedicated to contributing to climate change adaptation.

Local SMEs have a key role to play in contributing to the agroecological transition and adopting a variety of sustainable practices and agricultural innovations while remaining competitive and profitable businesses. Women-led enterprises are also leading the way in sustainable farming methods, value-addition and branding meeting the demands of local and export market's needs.

Sandra Snowden runs the Ghanian second generation mango farm Hendy Farms Ltd that has introduced climate smart agriculture practices in its operations.

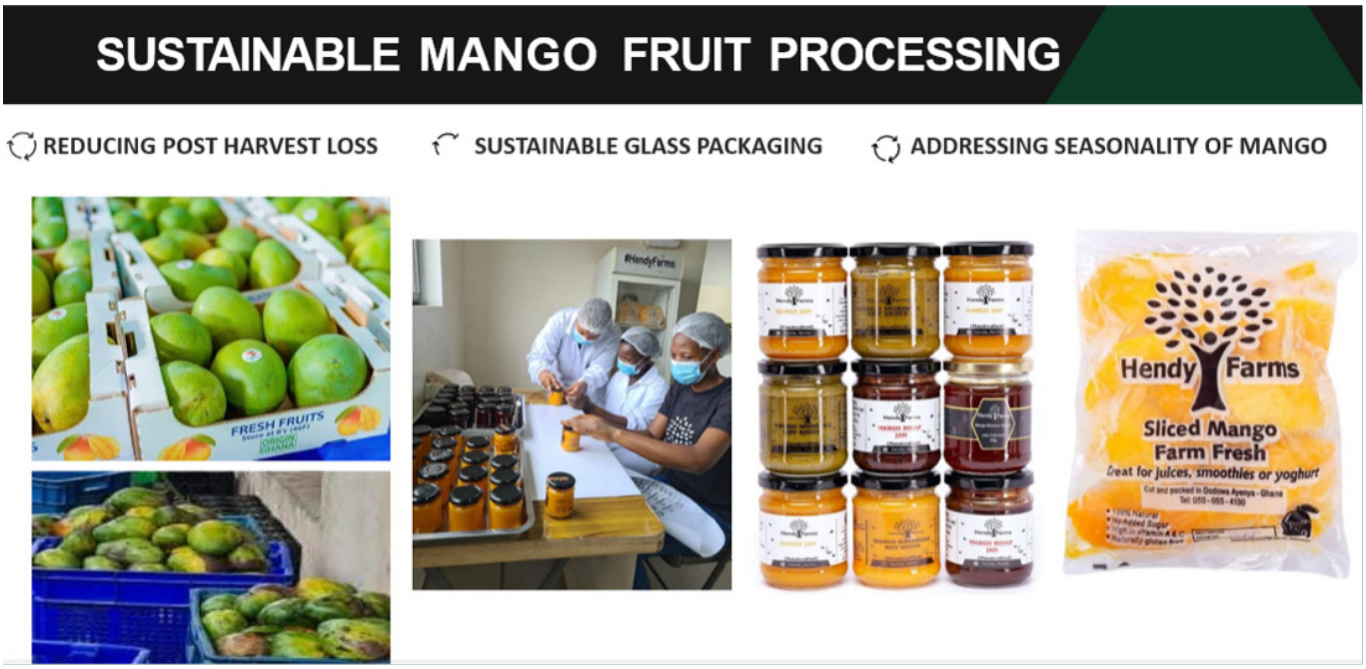


Figure 5. Examples of sustainable mango fruit processing (Snowden, 2022).

Value addition remains key to increasing income generation, as well as reducing post-harvest losses in seasonal fresh food products. Fresh mangoes are processed in various value-added products that are Global GAP and FDA certified and sold in premium recyclable packaging.

• Solar drip irrigation and fertigation have been installed to use more efficiently water and reduce the workforce needed to water mango trees.

• Hendy Farms also promotes solar drying practices and trains women to build solar dryers to produce dried fruit, vegetables, leaves and herbs, reduce post-harvest loss and generate income for women farmers.

III. Public and private investments and policies needed to scale up successful agroecological practices

Ibrahim Traoré,
Head of the Climate Finance Division at West Africa Development Bank (WADB/BOAD)

Download the presentation

The West African Development Bank (WADB) is the common development finance institution of the member countries of the West African Monetary Union (WAMU). It was established in 1973 and became operational in 1976. Member countries include Benin, Burkina, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo. WADB is an international public institution whose purpose is to promote the balanced development of its member

countries and foster economic integration within West Africa by financing priority development projects.

The panellist presented the WADB 2021-2025 Climate Investment Strategy and its commitments to mobilise resources for CSA. Since 2009, the WADB mobilised 155 billion CFA franc (CFAF) for climate projects with the fundings from the UNFCCC financial mechanisms (19,700 million FCFA from the Adaptation Fund (AF); 9,515 million FCFA from the Global Environment Facility (GEF); 126 225 million FCFA from the Green Climate Fund (GCF)). Between 2015-2019, climate finance operations financing CSA, renewable energy (solar), energy efficiency and sustainable waste management represented around 10% of the bank's portfolio.

The new WADB Strategic Plan 2021-2025 intends to allocate 25% of total commitments to climate finance for five strategic sectors:

- Clean Energy and Energy efficiency
- Food Security and CSA
- Mobilising and Greening the Financial Sector
- Adaptation and Insurance to Climate Shock
- Green Cities and Sustainable Infrastructure

The meeting recognised the urgency to invest in climate change adaptation and green technologies at country level to foster innovation and welcomed the new WADB strategy. The WADB also supports key partners in country transition towards agroecological practices.

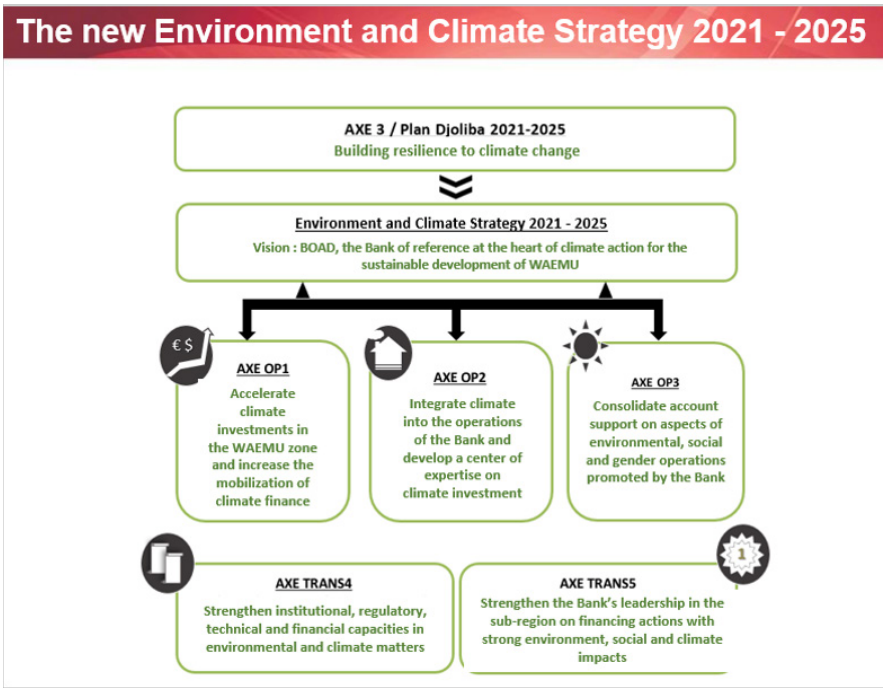


Figure 6. The new Environment and Climate Strategy 2021-2025 of WADB (Traoré, 2022).

Jacques André Ndione,

Regional Coordinator of the AIC project implemented by the Regional Agency for Agriculture and Food ARAA from ECOWAS

Download the presentation

The Economic Community of West African States (ECOWAS) in 1975 with its stated mission to promote economic integration across the region. The ECOWAS region, which spans an area of 5.2 million square kilometres. The Member States are Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Le-

one, Sénégal and Togo.

The panellist explained how ECOWAS supports agroecological practices to meet the objective of its agricultural policy which is to "contribute in a sustainable manner to the satisfaction of the food needs of the population, to economic and social development and to poverty reduction in the Member States". ECOWAS has developed a Regional Climate Strategy (RCS) and an Action Plan for 2022-2030, and mapped climate finance flows to ECOWAS-CILSS zone in a report published in 2020.

ECOWAS is involved in the implementation of several projects supporting agroecology, including as the executing entity of the AI-project (implemented by the WADB and financed by the Adaptation Fund (AF) that aims at reducing the vulnerability of farmers and livestock breeders to increased climate risks in Benin, Burkina Faso, Ghana, Niger and Togo. The project is implemented through three components:

• Improved knowledge and technical capacity building through regional and local interactions to promote climate resilient agricultural practices.

• Strengthening best practices related to climate change adaptation in agriculture and pastoralism at the local and regional level.

• Knowledge management on best agricultural practices that are resilient to climate change, including CSA.

The panellist highlighted the need to mobilise financial resources towards agroecology as its benefits are demonstrated. Equally important is the need to develop skills for drafting climate finance projects to have a critical mass of experts and to formulate projects based on the nexus approach (energy, water and food security).

The quality and reliability of data remains an issue to be addressed, notably through capacity building of various stakeholders. Agroecological practices need to be documented at country level to demonstrate the potential for expansion.

Ibrahima Coulibaly,
Chairman of ROPPA

Download the presentation

ROPPA (West African Network of Peasants and Agricultural Producers) comprises 13 member national farmers' organisations and associated member farmers' organisations. Since its creation in June 2000, in Cotonou, Benin, ROPPA has positioned itself as the voice of family farming that constitutes the key system of agricultural, forestry and pastoral production in West Africa.

Bringing the voice of the farmers' organisations and smallholders, Karim

Sawadogo, 3AO Coordinator, shared key messages for Ibrahima Coulibaly. Several actions and commitments have been taken by both regional and international organisations and agencies to promote and finance agroecology on the continent, including the creation of 3AO by ROPPA and other structures.

Resource mobilisation is key to enable smallholder farmers adopting agroecological practices and overcoming obstacles to the transition towards agroecology, such as difficulties to access land and water, seeds and organic inputs. However, West African countries remain highly dependent on the funding modalities and development strategies of international organisations, bilateral donors and philanthropic foundations, and private investors are reluctant to support agroecology, which aims to reduce farmers' dependence on synthetic inputs.

ROPPA also raised concerns on the cost of implementing agroecological practices from seeds, equipment, storage infrastructure, markets to support during the transition period.

ROPPA strongly recommends to:

• Develop holistic national policies integrating agriculture, livestock, water, environment, health and economy

• Strengthen the mobilisation of domestic economic resources for agroecology

• Raise awareness of the advantages of agro-ecological and organic farming to encourage the local consumers to buy local products

• Strengthen collaborative research with farmers' groups for innovation and transformation of food systems

• Adapt the conditionalities of financial support to the realities of African countries

• Focus on inclusion, especially of indigenous peoples, farmers, women and youth for a better involvement of working populations

Etienne Coyette,
Head of Sector, Climate change, European Commission (DG INTPA)

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This presentation shared how the European Commission support the scaling up of agroecological practices through policies and investments, notably through the DeSIRA Initiative.

In terms of policies, it is recommended to:

• Support agroecology focused on smallholder farmers as they are key stakeholders in the improvement of the farm system, food security and land tenure and they are often excluded from extension services, post-harvest management tools and financial services.

• Assess the performance of agricultural systems using the same information (i.e. yield, pro-

duction, income) and also including soil fertility, water retention, resilience, climate footprint and environmental impact, which are critical factors for sustainability purposes.

• Promote public procurement procedures to support local production accompanied by supportive policies and integrated, multisectoral and territorial approaches. Increase investment global public goods, including through support to sustainable value chains.

In terms of investments, it is recommended to:

• Increase investments in global public goods and support sustainable value chains

• Facilitate innovation and public-private partnerships, including through calls for proposals for SMEs to showcase positive examples and by involving smallholders in research and innovation.

• Facilitate access to financial services (guarantees and mixed formal and informal systems).

The DeSIRA Initiative (Development Smart Innovation through Research in Agriculture), funded by the European Commission, Directorate General for International Partnerships (DG INTPA), seeks to enhance an inclusive, sustainable and climate-relevant transformation of rural areas and of agri-food systems, by linking better agricultural innovation with research for more developmental impact. It supports actions in low- and middle-income countries (LMICs) to strengthen the resilience of their agri-food systems, the relevance of the national and regional research and innovation systems, and the coherence and efficiency of their agricultural public research and extension services related to climate change challenges.

DeSIRA-LIFT (Leveraging the DeSIRA Initiative for Agri-Food Systems Transformation) is a service project (June 2021 – May 2024) to the European Commission, DG INTPA, with the main objective to enhance the impact of the DeSIRA Initiative by providing (on-demand) services to DeSIRA project holders and partners. DeSIRA-LIFT includes three service areas aligned to the three DeSIRA Pillars: Service Area 1 supports country-led DeSIRA projects to enhance their impacts on climate-oriented innovation systems in line with more sustainable food system transitions. Service Area 2 supports the Comprehensive Africa Agriculture Development Programme (CAADP) ex-pillar IV organizations in their Agricultural Knowledge and Innovation Systems (AKIS) related roles. Service Area 3 is providing support to policy makers on themes related to agricultural research for development (AR4D) and innovation policies and programming.

DeSIRA-LIFT is implemented by members of the Agrinatura and EFARD, in particular the members: Wageningen UR, CIRAD ISA (University of Lisbon), NRI (University of Greenwich), SLU and COLEAD. Agrinatura (http://agrinatura-eu.eu) is the European Alliance on agricultural knowledge for development. The European Forum on Agricultural Research for Development (EFARD) (http://www.efard.org) is an umbrella network of European research and non-research stakeholders from public and private European organisations and the European Commission.

Disclaimer
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