

BIO-BASED SOLUTIONS FOR AFRICA'S SUSTAINABLE FUTURE: BRIDGING INNOVATION & SMALLHOLDER FARMERS

Bio-Based Solutions for Africa's Sustainable Future

From Research to Adoption: How Smallholder Farmers Are Driving the Bio-economy Revolution



EAFF's Role in Advancing Bio-economy in Africa



		•		
1 // //	h n		$\perp \Lambda$	FF?
WW		•	$\Gamma \Delta$	FF
V V		13		

- □A leading regional farmers' organization representing more than 25 millions smallholder farmers across Eastern Africa, covering Kenyam Uganda, Tanzania, DR Congo, Rwanda, Burundi, South Sudan, Ethiopia, Djibouti.
- ☐ Focused on policy advocacy, technology adoption, market access, and climate resilience.

EAFF's Bio-economy Strategy

- ☐ Promoting bio-based solutions that enhance climate adaptation, rural livelihoods, and energy access.
- ☐ Facilitating technology transfer, business models, and investment in bio-based enterprises.

EAFF & Bio4Africa: Impact & Lessons Learned

Led local stakeholder engagements with farmers, policymakers, governments, and private sector players.



Why Bio-Based Solutions Matter for Africa

Why Bio-Based Solutions Matter for Africa



- Africa faces multiple agricultural and environmental challenges, including:
- ☐ Soil degradation & declining fertility due to unsustainable farming practices.
- ☐ Deforestation & biomass overuse for cooking and processing.
- ☐ Post-harvest losses & inefficient waste management, leading to economic losses.
- ☐ Energy insecurity and dependence on expensive, non-renewable sources.

Benefits of Bio-based solutions

They offer a sustainable, circular approach to:

- ☐ Improve soil health & carbon sequestration (biochar applications).
- ☐ Provide clean energy alternatives (briquettes, pelletization, HTC technologies).
- ☐ Support rural bio-economies through local enterprise development.

The Role of EAFF in the scale-up of the Bio-based solutions

- ☐ EAFF represents millions of smallholder farmers across Eastern Africa.
- ☐ Bio-based solutions are no longer experimental; they are proven, scalable, and essential for the European Information programment of the European Information Infor

The Challenge - Why Bio-Based Solutions Are Critical



The Agricultural and Environmental Crisis in Africa

- ☐ Soil degradation & desertification are reducing food production capacity.
- ☐ Deforestation & over-reliance on biomass are increasing environmental vulnerabilities.
- ☐ Agricultural waste mismanagement is contributing to pollution and lost economic potential.
- ☐ Energy insecurity and high dependence on fossil fuels remain barriers to sustainable development.

The Need for Sustainable Agricultural Practices

- Africa needs agroecological practices to enhance smallholder farmers climate resilience.
- Transitioning to bio-based solutions will:
 - * Restore soil health and enhance carbon sequestration.
 - * Reduce reliance on unsustainable energy sources.
 - Provide new economic opportunities for smallholder farmers.
 - Support a circular economy model that maximizes resource efficiency.

The role of Bio-based solutions in addressing these challenges

- Biochar for soil amendment and improved agricultural productivity.
- ☐ Briquettes for clean energy solutions and reduced deforestation.
- ☐ With Africa's population expected to double by 2050, pressure on resources will escalate.
- ☐ Bio-based solutions then becomes a necessity for sustainable development.



<u> The Bio4Africa Project – Transforming Smallholder Agriculture</u>



Impact on Smallholder Farmers

- ☐ Increased soil fertility and improved crop yields.
- ☐ Reduction in deforestation by providing alternative biomass energy sources.
- ☐ New business models for rural entrepreneurs engaging in bio-based product manufacturing.
- ☐ Job creation & economic opportunities for women and youth through local production chains.

EAFF's capacity-building

- ☐ Engaged stakeholders in policy discussions, training, and technology demonstrations.
- ☐ Facilitated partnerships between farmers, researchers, policymakers, and the private sector to drive long-term adoption.

The way forward

- ☐ Scaling pilot successes into national agricultural policies.
- ☐ Expanding funding mechanisms to increase private sector investment in bio-based solutions.
- ☐ Strengthening regional collaboration through CIRAD partnerships.



Success Stories from Pilot Countries



Lessons from Bio4Africa's Pilot Trials

☐Biochar trials indicated improvements in soil health and moisture retention.
☐Farmers were receptive to biochar applications but required training on best use practice
☐Stakeholder engagement revealed a strong demand for affordable and accessible biobased inputs.
□Need for financial incentives to drive early-stage adoption among farmers and small businesses.
☐ Increased interest in public-private partnerships to expand technology uptake.
□ Identified the need for cooperative models to scale access to bio-based technologies.

Key Takeaway

□Pilot cases' local stakeholder engagement events provided critical understanding on technology adoption barriers and opportunities for scaling bio-based solutions across Africa.



Scaling Bio-Based **Enterprises** – The role of business models & investment

Scaling Bio-Based Enterprises – The role of business models & investment

Unlocking the Potential of Bio-Based Businesses

☐ Time to move from Pilots to Profits: Transforming trials into commercially viable enterprises.

Key Barriers to Scaling

- □ Lack of investment in processing infrastructure.
- ☐ Limited access to financial support for smallholder entrepreneurs.
- ☐ Need for stronger market linkages and supply chain development.

Business Models for Success

- ☐ Farmer Cooperatives: Shared ownership of processing facilities to reduce costs.
- ☐ Public-Private Partnerships (PPPs): Attracting investment through government and private sector collaboration.
- □ Social Enterprises: Sustainable business models that reinvest profits into community development.

Cont'



Investment Opportunities

- ☐EU and African Union funds supporting bioeconomy startups.
- ☐ Impact investors looking for scalable, green business solutions.
- ☐ Microfinance and blended finance models to increase accessibility for smallholders.

Way forward

Governments, investors, and private sector players must work together to scale bio-based enterprises.

The future of Africa's bio-economy depends on transforming trials into thriving businesses.



Financial and Technical Support for Bio-Based Busines

The Funding Gap – Why Investment is Needed

B io-based	enterprises	require	significant	investment	to	transition	from	trials
to full-scale	e businesses		_					

Key barriers to financing include:

			• . •
☐ High initial costs fo	r nracessing and	ı manlıtactlırıng	Intrastructure
	processing and	i illallalactaring	, ii ii i asti attai e.

- □ Limited access to grants, loans, and investment capital for smallholder entrepreneurs.
- ☐ Weak financial literacy and business development support for startups.

Available Funding and Support Mechanisms

■Support for scaling bio-based innovations through grants and financing programs.

Impact Investment & Blended Finance

□ Attracting socially responsible investors who prioritize sustainability.



Cont

Microfinance & Cooperative Banking



☐ Providing accessible funding for smallholder farmers and rural enterprises.

Public-Private Partnerships (PPPs)

☐ Leveraging private sector expertise and funding to complement public investments.

Technical Assistance for Sustainable Growth

□Capacity Building & Training

Business development training for small-scale bio-based entrepreneurs.

Technology Transfer & Support

☐ Strengthening access to affordable bio-processing technologies.

Market Linkages & Value Chain Development

□Connecting local businesses to larger supply chains and export markets.

Way forward

□ Scaling bio-based enterprises requires a coordinated approach from policymakers, investors, and financial institutions.

This project has recieved funding the European Union's Horizon 20 and Innancial and Innancial Institutions.

Policy & Institutional Support for Bioeconomy Expansion



☐ Bioeconomy policies remain underdeveloped in many African nations.

Key policy gaps include:

- □ Lack of explicit integration of bio-based solutions in national agricultural and energy policies.
- □Absence of incentives for bio-based enterprises, such as tax reliefs and subsidies.
- ☐ Weak regulatory frameworks.

Institutional Roles in Bioeconomy Expansion

Government Agencies

- ☐ Develop and implement policies that support bio-based innovations.
- ☐ Provide subsidies and funding for research, pilot projects, and commercialization.

Regional & International Organizations:

- ☐ The AU, ECOWAS, and EU play a key role in shaping bioeconomy strategies.
- ☐ Facilitating regional trade agreements for bio-based products.



Contí

Private Sector	& Ci	ivil Sc	ciety:
----------------	------	---------	--------



- ☐ Invest in bioeconomy initiatives and promote technology adoption.
- □Support grassroots movements advocating for sustainable agriculture and renewable energy solutions.

Recommendations for Strengthening Policy & Institutional Support

- ☐ Integrate bioeconomy into national and regional development policies.
- ☐ Create financial incentives (subsidies, grants, tax relief) for bio-based enterprises.
- □ Develop certification standards for biochar, bio-briquettes, and alternative biofuels.
- ☐ Enhance collaboration between governments, the private sector, and research institutions.





Scaling Bio4Africa Beyond the Project



Scaling Bio4Africa Beyond the Project

Sustaining Impact Beyond the Pilot Phase



☐Bio4Africa has	proven that	bio-based	solutions	work.	Now,	the cha	allenge is
scaling them.							

The transition from pilot trials to full-scale adoption requires:

- ☐ Integration into national policies to ensure long-term impact.
- ☐ Strengthening local capacity to sustain operations post-project funding.
- ☐ Private sector engagement to commercialize bio-based technologies.

Key Strategies for Scale-Up

□Business Incubation & Acceleration Programs

Support local entrepreneurs in launching and growing bio-based enterprises.

□ Investment & Financial Sustainability

❖ Attract impact investors and funding from international development partners.

☐ Knowledge Exchange & Technical Training

Expand farmer training programs and strengthen university-private sector collaborations:

Cont

Strengthening Global and Regional Collaboration



☐ Working with **Biostar Afrique**, **CIRAD**, **EU** and **AU** to align efforts for large-scale implementation.

Vision for the Future

- □ Africa's bio-economy must move from pilot projects to a fully integrated, scalable industry.
- □EAFF, Bio4Africa, and its partners must push for long-term funding, policy support, and market-driven sustainability.

Way forward

☐ We must move beyond pilots. It's time to turn bio-based solutions into Africa's next economic frontier.



Next Steps & Call to Action

The Time to Act is Now



- ☐ Bio-based solutions are no longer experimental they are ready for scaling.
- □Collaboration is key: We need governments, investors, research institutions, and farmers to drive this movement forward.

What is needed

- □ Investors & Policymakers: Create an enabling environment for bio-economy expansion.
- ☐ Private Sector & Entrepreneurs: Develop commercially viable bio-based businesses.
- ☐ Research & Development Partners: Continue innovating and supporting knowledge transfer.

EAFF's Commitment

Advancing policy dialogues, supporting farmer-led bio-enterprises, and fostering sustainable partnerships.

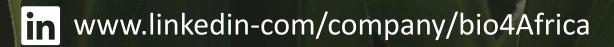
The end



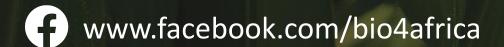
Our final message

- ☐ Together, we can turn Africa's bio-economy into a thriving, sustainable industry.
- □ Join the movement—let's build a bio-based future for Africa!











This project has recieved funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101000762

www.BIO4Africa.eu

Presenter: Robert Kubai

Email: kubairm@gmail.com

EAFF