



# 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

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# EAFF's Role in Advancing Bio-economy in Africa



## Who is EAFF?

- ❑ A leading regional farmers' organization representing more than 25 millions smallholder farmers across Eastern Africa, covering Kenya, 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 EAFB in the scale-up of the Bio-based solutions

- ☐ EAFB represents millions of smallholder farmers across Eastern Africa.
- ☐ Bio-based solutions are no longer experimental; they are proven, scalable, and essential for Africa's sustainable future.



# 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.



## 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 practices.
- ☐ Stakeholder engagement revealed a strong demand for affordable and accessible bio-based 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.



## 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 Businesses



## The Funding Gap – Why Investment is Needed

- ☐ Bio-based enterprises require significant investment to transition from trials to full-scale businesses.

### Key barriers to financing include:

- ☐ High initial costs for processing and manufacturing infrastructure.
- ☐ 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.



## **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.

# Policy & Institutional Support for Bioeconomy Expansion

## Strengthening the Policy Framework



☐ 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.

## Private Sector & Civil Society:

- ☐ 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



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## Sustaining Impact Beyond the Pilot Phase

❑ Bio4Africa has proven that bio-based solutions work. Now, the challenge 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.



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## 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.



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# 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!



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