



Task Force 04

TRADE AND INVESTMENT FOR SUSTAINABLE AND INCLUSIVE GROWTH

Boosting the Bioeconomy and MSMEs: Lessons and Recommendations from the Global South

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Abstract

Micro, small, and medium-sized enterprises (MSMEs) are engines of growth that create employment and drive innovation worldwide. As such, MSMEs increasingly play a key role in transformational changes surfacing in the pursuit of robust bioeconomies in Africa, Asia, and Latin America. Indeed, global trends indicate that MSMEs are transforming towards innovation and sustainability. This policy brief highlights lessons for sustainable development and small business that emerged from the analysis of MSMEs' participation in transitions to bioeconomy in the Global South. It identifies key measures needed for progress: institutional frameworks that enable coordination across sectors; a business environment that supports value addition and sustainable business models for MSMEs; and constructive links between relevant academia, research centers, and businesses. It argues that South-South cooperation on bioeconomy-related issues is essential for growth and innovation in MSMEs and the bioeconomy. It recommends establishing targeted, collaborative platforms among Africa, Asia, and Latin America – led by a G20 country in each region – to initiate and foster such mutually beneficial cooperation. It outlines four key achievements that can result from this.

Keywords: Bioeconomy, Sustainability, MSMEs, Global South, Biodiversity, Inclusion



Diagnosis

MSMEs account for more than 70% of global employment and approximately 50% of global GDP; yet they are less productive and less profitable than larger companies, due in part to limited access to global value chains and financing mechanisms (Singh et al. 2023). Current global trends suggest that MSME management is leveraging new technologies, pursuing circular economy principles, seeking to preserve biodiversity, and advancing the social inclusion of marginalized groups as women and young people (ICSB 2024).

A comprehensive bioeconomy can contribute to the achievement of multiple Sustainable Development Goals (SDGs). The bioeconomy model has been shown to contribute to the achievement of 11 SDGs through its potential to foster bio-based reindustrialization in rural areas, promoting sustainability (IICA 2024). An enhanced bioeconomy can underpin the success of myriad types of MSMEs – among them smallholder associations, artisanal industries or high-tech start-ups in health, food and cosmetic sectors.

Throughout the Global South, biodiversity and agriculture are the cornerstones of many bioproducts and services, including bio-inputs, food, biocosmetics, biopharmaceuticals, biomaterials, bioenergy, and nature tourism. In Latin America, Southeast Asia, and East Africa, transitions to achieve a bioeconomy are ongoing and highly dynamic. In Latin America, for example, Argentina, Brazil, Colombia, Costa Rica, and Mexico are implementing their bioeconomy strategies across different levels and through different sectors (Chavarria 2023). In East Africa, a regional bioeconomy strategy (involving Burundi, the Republic of the Congo, Kenya, Rwanda, South Sudan, Tanzania, and Uganda) was adopted in 2022 (EASTECO 2021). In Southeast Asia, a bio-

circular-green economy (BCG) model for bioeconomy advancement was created by Thailand, addressing four working areas including food, wellness, energy and tourism (NSTDA 2021).

MSMEs are also facing similar opportunities and challenges in these regions. In Latin America, where MSMEs account for more than 90% of existing businesses, there are two key challenges: enhancing biodiversity, and incorporating climate change mitigation and adaptation goals into value chains; at the same time, MSMEs must increase productivity, accelerate digitalization, and access international markets (Diaz-Granados 2023). In Southeast Asia, where MSMEs represent 97% of businesses, such enterprises are also highly vulnerable to the risks of climate change, limited access to international markets and to financing (UNDP 2024). And in East Africa, where MSMEs represent more than 90% of the private sector (GIZ 2023), such enterprises lack adequately the skilled staff, engineers, and technicians needed to adopt, and upscale technologies for value addition and processing (Virgin et al. 2022).

The similarities among these three regions extend to key elements of the bioeconomy. The regions are alike in agroecological and biogeographical terms, suitable for major bioeconomy crops, such as cassava and sugarcane. Agriculture plays a vital role in the economies of these three regions, which provide low-value-added commodities to international supply chains. These regions all have valuable forest and non-timber forests and landscapes. They have similar cultures and values, with Indigenous communities that directly interact with biodiversity. At the same time, these regions face similar, major environmental challenges: biodiversity loss, deforestation, land degradation, and pollution. The three regions also confront similar socioeconomic challenges, such as income inequality and unequal access to public services.

Working with partners and allies, the Stockholm Environment Institute (SEI) led a bioeconomy initiative in these regions from 2018 to 2023. This work identified challenges and opportunities for bioeconomy implementation across three levels: **micro** (bioresource management, bioproduct development, and interactions with key stakeholders, such as MSMEs), **meso** (design and execution of bioeconomy policies at different scales), and **macro** (global and regional connections to advance in sustainability pathways). Work in Colombia, Thailand, and Kenya, for example, revealed recurrent challenges that coincide with the priorities Brazil has proposed for the G20 based on ensuring inclusion, sustainable development, and new global governance. Further, the recommendations outlined in this brief align with the G20 bioeconomy initiative (G20 2024) by leveraging the value of South-South and triangular (North-South-South) cooperation.

At the **micro level**, our work identified bioresources with significant bioeconomy potential, and assessed challenges and opportunities for sustainability, innovation, and competitiveness. This work included diverse case studies, involving biomass-based value-web analysis with stakeholder mapping of quinoa in Bolivia (Canales, Gómez, and Fielding 2020) and cassava (Canales and Trujillo 2021) and acai in Colombia; and value-chain analysis of sugarcane in Thailand (Aung 2021) and croton in Kenya (Diaz-Chavez 2020). A transnational innovation system related to the value chain of cassava in East Africa (Lutta et al. 2024) was also implemented.

This work identified challenges related to sustainable production systems and value addition regarding biodiversity and agriculture. Among them is the large gap between academia, research centers, and MSMEs, hindering the sharing of new and potentially valuable information on bioeconomy-related issues. Market success itself creates dilemmas for entrepreneurs in the wild harvesting of some non-timber forest products (NTFPs). Increased market demand generates greater pressure for productivity, leading

to increased production through domestication and cultivation processes. Technological packages to promote more sustainable production as an alternative to monoculture to avoid loss of soil quality and biodiversity are limited. There are insufficient incentives or support to develop technologies and innovations for small-scale producers, and MSMEs in an artisanal bioeconomy. Moreover, the agricultural workforce is rapidly aging in all three regions.

Work at **meso** and **macro levels** led to the co-formulation of the 2021-2031 East African Bioeconomy Strategy (EASTECO 2021) and the analysis of national and subnational bioeconomy visions (Bugge, Hansen, and Klitkou 2016). These efforts identified the most important drivers, challenges, opportunities for the bioeconomy, and set out roadmaps to achieve policy visions articulated for biotechnology, bioresources, and bioecology (including social aspects). This work also examined related experiences of actors in “quadruple helix” (science, policy, industry, and society) sectors in each country – for Colombia, at both the national level (Canales and Gómez 2020) and subnational level (Canales, Trujillo, and Purkey 2021); and for Thailand (Gladkykh et al. 2020) and Rwanda (Bailis and Ogeya 2020) at national levels.

A comparative analysis based on this work examined the bioeconomy visions set out by regions and selected countries (Colombia, Thailand, Rwanda, and Sweden) and highlighted pathways that each region and country prioritized (Johnson et al. 2022). Subsequently (during 2023), international bioeconomy workshops were held in Colombia, Thailand, and Kenya to connect the three levels of bioeconomy implementation.



Recommendations

Based on these insights, we recommend the creation of a dedicated cooperation platform led by a designated G20 country in each region to promote and support a flourishing bioeconomy and favorable environment for MSMEs. Such a platform should nurture the exchange of experiences and lessons learned that can enhance the sustainable use of biodiversity, sustainable agriculture, and innovation systems with MSMEs. We recommend that three G20 countries – Brazil, Indonesia, and South Africa – take leadership roles in their respective regions to facilitate technology transfer, promote best practices, and foster South-South cooperation to support MSMEs and the bioeconomy. Research has shown that South-South and triangular (North-South-South) cooperation platforms have been found to offer ways to support circular economy and bioeconomy strategies and help MSMEs leverage these (Ahluwalia et al. 2023).

Such a platform can and should undertake the three following steps:

1. Adapt an institutional framework for the bioeconomy.

The transition to the bioeconomy implies institutional arrangements and governance that go beyond traditional ways of approaching and coordinating the economy. Furthermore, good governance mechanisms across different levels are essential to ensure sustainability in the bioeconomy (Dietz et al. 2018).

Establishing a national-level agency or an institutional arrangement to lead and coordinate the transition to the bioeconomy with multiple sectors, actors, and scales is essential. Public policies, incentives, and government entities should recognize the cross-sectoral nature of bioeconomy and promote the use of bio-resources including actions to

mainstream the three principles of sustainability: economic-productive, environmental (especially climate action and biodiversity conservation), and social- inclusion aspects.

Effective implementation of bioeconomy strategies requires an entrepreneurial state, with the role of the state going beyond regulating to create new markets, make these markets more inclusive, and foster innovation systems with enterprises (Mazzucato 2011). In this way, policies should also encourage a supportive business environment for MSMEs, especially for those related to the sustainable use of biodiversity in rural areas and technology transfer for innovation and productivity. Incentives are needed to achieve compliance with the requirements for accessing permits, procedures, and biodiversity management plans. In all cases, a monitoring system with criteria and indicators should be implemented to assess the impact of the bioeconomy by verifying progress in sustainability.

2. Facilitate the business environment and value addition for MSMEs that promote sustainable business models.

Moving towards a sustainable bioeconomy will be possible through the coordinated action of entrepreneurs, enterprises, business networks, and the public policies that support them (Kuckertz, Berger, and Brändle 2020). MSMEs in the bioeconomy need support to meet legal requirements, improve technological adoption and innovation processes, and strengthen sustainable business models. Sustainability agreements are needed at the value-chain level so that the transactions that connect MSMEs to the market also serve the purposes of the bioeconomy. These agreements (including economic, environmental, and social-inclusion aspects) should be generated in participatory processes including all the actors along the value chain.

Market incentives play a key role in this process. Measures should include government procurement, tax benefits, and financing programs. Support services should be put in place to incubate, accelerate, and provide the market intelligence needed to scale up bioeconomy innovations and ventures.

3. Strengthen bridges between academia, research, and MSMEs to ensure technology development and innovation.

Academia and research centers must offer technological packages with more sustainable agricultural production systems and alternatives for value addition through science, technology, and innovation (STI). Technologies must be offered for the sustainable use of biodiversity and to improve productivity without degrading natural ecosystems. Traditional knowledge should be tapped and incorporated. Research and implementation of agroforestry systems should increase and expand its scope to include non-timber forest products in deforested areas. Rural extension agencies should address not only agriculture but also the sustainable use of biodiversity. Mechanization, digitalization, new technologies, and new cultural approaches in the field are needed to increase efficiency and profitability, and to attract younger people.

It is essential to provide capacity-building programs for policymakers and rural extension agencies on sustainable resource management, entrepreneurship, and technology transfer and adoption in agro-industries.

It is also essential to invest in building and upgrading infrastructure, providing access to advanced technologies, and promoting research and development in bio-based industries. Training of trainers offers one strategy to enhance capacities in the Global South through triangular cooperation.

Platforms with innovation or knowledge hubs can provide access to resources, research findings, advanced technologies, and case studies relevant to policymakers, MSMEs, and other stakeholders in the bioeconomy. For example, there is great interest across all regions of the Global South in learning about advances in cassava production, reuse of its by-products, and related industrialization, including through transnational networks (Lutta et al. 2024). Effective policy developments for the sustainable use of biodiversity in the three regions should be shared to enable cooperation and advance sustainable development in the Global South. These platforms can create networks between academia, enterprises, communities, and governments, and facilitate exchange visits, training programs, and workshops to share expertise on bioeconomy development.

Bioeconomy Pathways and Scenario of Outcomes

Cooperation between the Global North and Global South on bioeconomy-related issues can leverage complementary strengths, resources, and expertise. Such cooperation can help drive sustainable development, biodiversity conservation, and inclusive growth. Therefore, strengthening opportunities for collaboration and partnerships is one way to advance the bioeconomy in these regions. Such a platform can help accomplish the following four aims:

1. Increase national and regional capacities to formulate and implement more comprehensive and coordinated policies for the bioeconomy and small businesses.

The platform can facilitate policy dialogues, stakeholder consultations, and partnerships to develop supportive policy frameworks, regulations, and incentives for the sustainable use of biodiversity, sustainable agricultural systems, circularity, value addition, innovation, and technology transfer with MSMEs for the bioeconomy. It can also strengthen institutional capacities, governance, and coordination mechanisms that can be adapted to different regions, recognizing the multi-sectoral nature of the bioeconomy, the multilateral context, and related institutions. Such a platform can draw on the existing work of the International Advisory Council on the Global Bioeconomy (IACGB) and various other initiatives.

2. Improve capacities to monitor the impacts of the bioeconomy with systems of indicators of progress on the sustainable objectives of this model.

Measurement of the bioeconomy impacts requires clear metrics and standards to inform policy and investment. The G20 platform can consider a collaborative endeavor

to develop measurement indicators that can be used to track progress in the advancement of the bioeconomy. Globally recognizable standards are crucial for international bioeconomy development and trade to establish societal legitimacy, address public perceptions, and build acceptance.

3. Contribute to sustainable business models and value chains for the bioeconomy that increase employment generation, income, biodiversity, and social inclusion.

Needed collaboration and exchange of talent and ideas can be fostered by promoting bioeconomy clusters of innovation and entrepreneurial activities based on the sustainable use of biodiversity, and the transformation of agricultural production systems to more sustainable ones with biological resources common to each of these regions. The platform could bring together MSMEs, farmers, input suppliers, processors, consumers, and different actors from the value chain to coordinate activities and learnings. The platform could also facilitate and promote market-intelligence services, and business matchmaking to strengthen MSMEs to enhance their competitiveness and access to new markets.

4. Improve research, knowledge, and capacity building including STI and traditional knowledge.

G20 governments can allocate funding for grants and collaborative research projects and technology transfer between universities, research institutes, and MSMEs focusing on priority areas such as biodiversity, biotechnology, precision agriculture, agroforestry, agroecological approaches and technologies for the sustainable use of biodiversity and its value addition, among others. These grants can foster joint funding mechanisms and open



innovation approaches to address common challenges and pursue opportunities for innovation in bio-based industries for MSMEs.





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