

Task Force 02

SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS

Empowering Sociobioeconomic Stewardship: Integrating Local Cooperatives into Global Value Chains for Inclusive Development

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Abstract

The sociobioeconomic framework can be understood as systems that sustainably use, protect, and enhance biologically derived products and processes from ecosystems and cultures in order to promote sustainable development, resilience, inclusivity, biodiversity conservation, and community empowerment. Global value chains (GVCs) present a promising avenue for the integration of various stakeholders, including smallholder farmers, indigenous communities, and local cooperatives, into the global market landscape, but how this impacts traditional cultures and values is less clear. Examining case studies from the Brazilian Amazon underscores the potential of local cooperatives linked to GVCs as agents of sociobioeconomic stewardship. These cooperatives can advance sustainable practices, conservation efforts, responsible natural resource management, knowledge exchange, and community involvement. They can harness traditional knowledge, indigenous practices, and local innovations to develop sustainable solutions. However, integrating into GVCs poses significant challenges for these cooperatives, due to the power asymmetries, which create unequal bargaining conditions, limited access to market information, financial constraints, and skill shortages. Addressing these obstacles necessitates a coordinated governance approach, with lead firms, public actors (e.g. G20, States, municipalities) and civil society, working together to develop interventions that empower local cooperatives to engage in meaningful negotiations with lead firms in GVCs. To this end the GVC interventions should strive to promote inclusive growth, mitigate regional inequalities, foster open innovation, and stimulate private sector investment for long term sociobioeconomic sustainability. Two policy scenarios are developed, the first discusses the impact of financial support mechanisms, while the second discusses the need to incorporate this with a supportive

legal framework, capacity-building initiatives, facilitation of market access, and inclusive governance structures. By supporting the comprehensive policy intervention and principles, the G20 can support its Bioeconomy Initiative and Brazil's presidency goals of inclusive growth, sustainable development, trade and investment, innovation, and food security.

Diagnosis of the Issue

Conventional conservation methods often fall short in large areas like the Amazon due to high costs and inefficacy. The sociobioeconomy concept offers a promising alternative, emphasizing sustainable forest and river management to support indigenous and local communities, thus enhancing social and economic value through biodiversity preservation and diversified production (Garrett et al. 2023). Current economic systems frequently neglect those crucial to conservation, underscoring the need to fortify sociobioeconomies for fair development.

Brazil's G20 presidency aims to tackle hunger, poverty, and sustainable development, while also highlighting the G20 Bioeconomy Initiative's role. Integrating sociobioeconomic principles into G20 debates could foster more inclusive and sustainable economic growth. However, supporting sociobioeconomies through GVCs requires holistic governance to address environmental degradation and poor working conditions.

Community action, particularly via cooperatives, plays a vital role in meeting the Sustainable Development Goals in the Brazilian Amazon (Campos-Silva and Peres 2016). Community-based organizations are pivotal in deploying sociobioeconomic initiatives, prompting businesses to collaborate with them to improve interactions and reduce risks (Puppim de Oliveira et al. 2022). Fieldwork in regions like Middle Juruá and Lower Tapajós River Region show how community-led projects based on sociobioeconomic principles can lead to environmental conservation and socio-economic development through co-managed fisheries and sustainable forest product extraction linked to GVCs (figure 1).

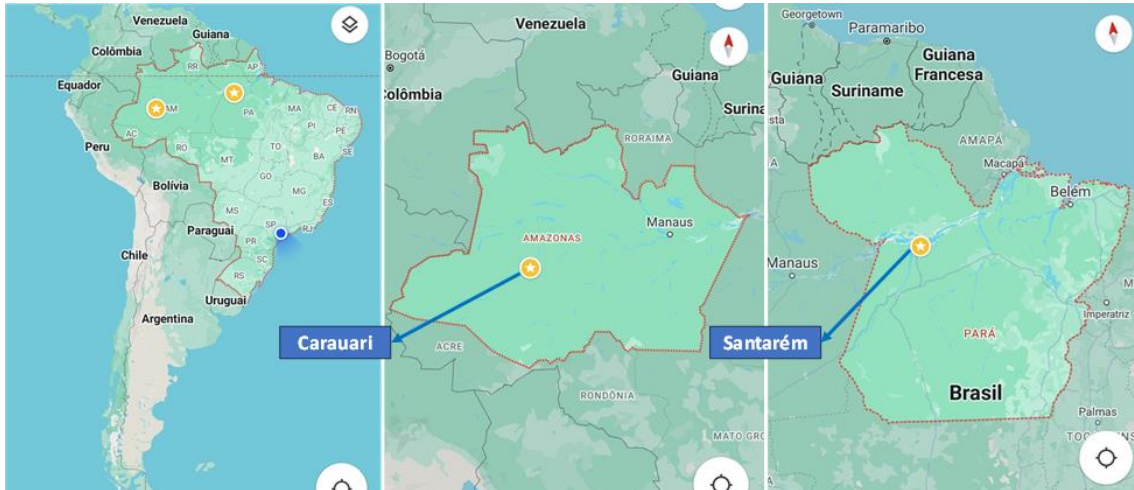


FIGURE 1: Location of the municipalities of Carauari (State of Amazonas) in the Medium Juruá River region and Santarém (State of Pará) in the Lower Tapajós River region, both within the Brazilian Amazon Forest (Source: Google Maps).

The sociobioeconomic GVCs in the Middle Juruá and Lower Tapajós River regions involve cooperatives employing traditional knowledge and circular economy concepts that offer nature-based solutions for equitable sustainable development (Campos-Silva and Peres 2016; USAID PCAB 2022). In both regions, approximately 400 families participate in a forest seed collection initiative, harvesting 36 tons of seeds yearly for cosmetic GVCs, and repurposing 70% of seed waste into locally produced soap. Additionally, around 700 family-run fisheries in the Middle Juruá and another 685 in the Lower Tapajós River region promote Pirarucu fish conservation. In addition to harvesting approximately 100 tons of the fish itself, the fisheries produce 7,500 kg of by-products annually, used for turtle feed and bio-jewelry, enhancing local livelihoods and biodiversity protection (Paes et al. 2021).

Research has identified several barriers faced by these cooperatives in GVC engagement, such as the lack of supportive policies, capacity-building programs, and

financial support mechanisms. Key stakeholders include the Association of Rural Producers, community associations, universities, and NGOs, with minimal government engagement, which complicates community organization. The Brazilian cosmetics industry, particularly in these regions, leverages local biodiversity to support forest communities and conservation, with major companies aiding in producer organization and governance efforts despite challenges from logistical complexities and historical factors (Simões-Coelho et al. 2023; USAID PCAB 2022).



FIGURE 2: a) Andiroba drying station in Lower Tapajós River community. b) Pirarucu fisherman in the Santarém region.

Recommendations

These findings and policy recommendations stem from the São Paulo Research Foundation (FAPESP) project (2022/12287-1) "Innovation for Creating Sustainable Value: Understanding Global Value Chains in the Amazon," part of the Amazônia+10 initiative. The authors are integral members of this initiative, organizing recommendations along three axes: supportive policy framework, targeted capacity building, and financial mechanisms.

The G20 should make a joint declaration in support of the ideal policy framework, targeted capacity building measures, and financial mechanisms for cooperatives in sociobioeconomy GVCs elaborated in tables 1, 2, and 3 (and discussed further in scenario 2). This would support the activities of the G20's Bioeconomy Initiative in integrating traditional and indigenous knowledge and diffusing best practices across member countries for sustainable use of biodiversity. It would create a level playing field, empower cooperatives to participate meaningfully, and ensure that the benefits of economic activities are shared equitably among all stakeholders (table 1).

TABLE 1 - Supportive Policy Framework

<p>A supportive public policy framework is essential for harnessing cooperative potential within sociobioeconomy Global Value Chains.</p>
<ol style="list-style-type: none"> 1. Legal rights and incentives: Establish legal recognition for cooperatives and their territories within the bioeconomy, along with clear regulations. Provide support for local governments to register land titles and offer tax incentives. Facilitate market access through trade agreements and market information dissemination. 2. Democratic cooperative governance: Promote democratic governance structures to ensure member participation in decision-making processes. Encourage transparency and accountability within cooperatives. 3. Market access and fair trade: Support fair trade practices and equitable market access for cooperatives. Implement preferential procurement policies, certification schemes, and market development programs. 4. Value addition and product differentiation: Assist cooperatives in adding value to products and differentiating them in the marketplace. Invest in infrastructure, technology, and skills development. 5. Sustainable and inclusive development: Prioritize sustainable and inclusive development, ensuring equitable distribution of economic benefits among stakeholders. Develop internationally recognized standards for sustainable production. 6. Supporting network of organizations: Develop a network of organizations and individuals that can support sustainable practices. 7. Traditional Knowledge: Value traditional knowledge as an important knowledge based for the development of new products and processes.

Source: Adapted from Carbonell et al. 2021; Garrett et al. 2023.

Leveraging existing capabilities and traditional knowledge is crucial for developing sociobioeconomies, aligning with the G20 Bioeconomy Initiative's goal of sustainable biodiversity use. In the Carauari region of the Amazon, communities have long practiced

sustainable management of fisheries and non-timber forest products, building environmental and organizational skills. For example, to prevent overfishing, they monitor and regulate pirarucu fish catches each year. Indigenous knowledge, such as the medicinal uses of andiroba oil, also fosters innovation. These communities' deep-rooted experience in sustainable forest living embodies sociobioeconomy principles, highlighting their local importance and potential to reshape GVCs for sustainable development, fulfilling another G20 Bioeconomy Initiative objective (table 2).

TABLE 2 - Targeted Capacity Building

<p>Identifying existing capabilities and knowledge in these communities is a crucial initial step in formulating effective capability-building policy for the sociobioeconomy. This involves 3 main steps: community assessment, collaboration and relational capabilities development, and innovation capabilities development.</p>
<ol style="list-style-type: none"> 1. Community assessment: Conduct consultations and capability assessments within communities to understand existing practices and knowledge. Document traditional knowledge and successful case studies. 2. Collaboration and relational capabilities development: Foster partnerships between stakeholders to acquire resources and introduce innovative activities. Focus on building collaboration and relational capabilities within organizations interested in sociobioeconomy. 3. Innovation capabilities development: Facilitate knowledge-sharing platforms and incorporate sustainability principles into formal education curricula. Provide technical skills and knowledge necessary for sociobioeconomy activities.

Blended finance mechanisms are critical in enabling communities, cooperatives, and multinational corporations leading GVCs to adopt sustainable practices like community resource management, renewable energy, and sustainable agriculture (Betti et al. 2024).

In developing countries, lowering capital costs is vital to attract private investments, currently, only 14% of green projects receive private funding, versus 80% in developed nations. Financial instruments like foreign exchange guarantees and debt swaps can help stabilize rates and encourage private sector contributions. Green bonds, which fund reforestation and other public-private initiatives, further support the sociobioeconomy by enhancing biodiversity (Garrett et al. 2023). Payment for Ecosystem Services (PES) programs support forest conservation, aligning with global frameworks such as The Taskforce on Nature-related Financial Disclosures. Additionally, microfinance and community finance initiatives bolster grassroots enterprises and small businesses, promoting entrepreneurship and climate resilience with notable successes in Colombia, Bangladesh, and Uganda, integrating traditional and indigenous knowledge.

TABLE 3 - Financial Support Mechanisms

Innovative financial mechanisms are essential for scaling and building upon solutions provided by supportive policy frameworks and capacity-building initiatives.

1. **International cooperation:** Expand grants and subsidies specific to communities and cooperatives through collaboration with international bodies to support research, capacity-building, infrastructure development, and pilot projects with the overall aim of reducing costs of sustainable practices and make them economically competitive.
2. **Reducing cost of capital and private investments:** Reduce the cost of capital and encourage private investments in developing countries by offering security to investors through mechanisms such as partial foreign exchange guarantees, debt swaps for sustainable projects, and green bonds.
3. **Innovative financing mechanisms:** Recognition of the broader benefits that cooperatives offer through nature-based solutions in the sociobioeconomy such as ecosystem services, beyond what markets typically value. These are increasingly common in voluntary carbon markets and payment for ecosystem services mechanisms.
4. **Microfinance and community finance:** By offering working capital, equipment financing, and trade finance solutions, microfinance institutions enhance market access, strengthen connections between producers and buyers, and facilitate value addition and market integration.

Source: Garrett et al. 2023

Scenario of Outcomes

Based on field research and the scientific literature, we use foresight methodology to depict two scenarios to illustrate the impacts of proposed recommendations. Scenario one focuses solely on financial mechanisms. While in scenario two, all three core recommendations (supportive policy framework, capacity-building initiatives, and financial mechanisms) are implemented highlighting the necessity of a holistic approach.

In scenario one (table 4), relying solely on financial mechanisms such as microfinance, impact investment, green bonds, and carbon finance without supportive policy frameworks and capacity-building initiatives leads to mixed results for cooperatives under the G20's Bioeconomy Initiative. While these financial tools provide capital for cooperatives to enhance bio-based activities, expand operations, and access new markets—thereby boosting competitiveness, productivity, and value chain involvement—the absence of supportive policies and capacity-building presents significant challenges. Cooperatives might face difficulties in navigating regulations, governance, and acquiring technical expertise, with a risk of financial exclusion due to inadequate collateral or financial literacy. Prioritizing short-term financial gains over long-term sustainability could compromise environmental and social objectives, highlighting the need for a balanced approach that integrates financial incentives with broader socio-economic and environmental goals to fully realize cooperatives' potential in the bio-based sector.

TABLE 4 - Scenario 1 Only financial mechanisms adopted

	Benefits	Challenges and Tradeoffs
Financial Support	<ul style="list-style-type: none"> • Mobilization of private capital for nature-based projects, fostering investment in biodiversity conservation and sustainable development. • Creation of market-based incentives like carbon pricing, encouraging investments in sustainable land management and ecosystem restoration. • Development of public-private partnerships, leveraging private sector resources for scaling up nature-based solutions in the bioeconomy. 	<ul style="list-style-type: none"> • Limited awareness and understanding of financial mechanisms may impede their effective utilization by cooperatives, stakeholders, and ability to engage with investors. • Absence of supportive policy frameworks may hinder collaboration and coordination, limiting opportunities for scaling up nature-based solutions and mobilizing private capital. • Dependence on financial mechanisms without complementary support may lead to a risk of overreliance and limit their autonomy and resilience in the face of changing market conditions or external shocks. • Without supportive policies and capacity-building efforts, there is a risk that financial mechanisms may perpetuate colonial-style exploitation, as cooperatives remain in low-value-added activities.

While scenario one presents benefits, there are tradeoffs. Complex policy frameworks may burden smaller cooperatives with compliance costs and bureaucratic challenges. Capacity-building initiatives may require significant time and resources, with gaps in

training and technical assistance. Over-reliance on external financing poses risks of indebtedness and financial vulnerability.

In scenario two (table 5), all recommendations are adopted, leading to increased participation, capacity, empowerment, and resilience for bioeconomy cooperatives. With supportive policies, strengthened governance, and improved access to resources and capacity-building, cooperatives drive sustainable growth, inclusive development, and environmental stewardship. They enhance competitiveness, expand market access, and contribute to community development, poverty alleviation, and social cohesion. Moreover, they advance nature-based solutions, climate resilience, and biodiversity conservation, shaping a more equitable and environmentally responsible sociobioeconomy.

In conclusion, while financial mechanisms offer important opportunities for mobilizing private capital and financing more sustainable sociobioeconomy GVCs, their effectiveness and impact may be limited without complementary holistic governance approaches that include policy support and capacity-building efforts. It is essential to address these gaps and ensure that cooperatives and other stakeholders have the knowledge, skills, and resources needed to access and utilize innovative financial mechanisms effectively in support of biodiversity conservation, ecosystem restoration, and sustainable development in the sociobioeconomy that supports Brazil's G20 Presidency and the Bioeconomy Initiative's objectives.

TABLE 5 - Scenario 2 All recommendations adopted

	Benefits	Challenges and Tradeoffs
Supportive Policy Framework	<ul style="list-style-type: none"> • Clear regulatory frameworks enhance cooperative recognition and support, streamlining operations and fostering growth in the bioeconomy. • Procurement policies favoring cooperative products broaden market opportunities, driving up demand and revenue for cooperative members. • Legal safeguards for cooperative governance and member rights promote transparent decision-making, building trust among members and ensuring stability within cooperatives. 	<ul style="list-style-type: none"> • Rising regulatory compliance demands can burden cooperatives, especially smaller ones, raising operational expenses and limiting flexibility. • Poor alignment or coordination among policy initiatives and agencies can cause redundant regulations.
Targeted Capacity Building	<ul style="list-style-type: none"> • Strengthen operational efficiency, financial management, and profitability within cooperative businesses. • Proficiency in sustainable practices equips cooperatives with environmentally friendly methods, boosting productivity while minimizing ecological footprint. • Implementation of effective conflict resolution mechanisms and 	<ul style="list-style-type: none"> • Capacity-building initiatives entail considerable time and resources, with challenges in assessing their impact on cooperative performance. • Variances in education, cultural norms, or language can hinder the delivery of effective capacity-building programs that

	<p>governance practices fosters cooperative unity, mitigating internal conflicts and bolstering overall performance.</p>	<p>cater to diverse stakeholder needs.</p>
<p>Financial Support</p>	<ul style="list-style-type: none"> • Supportive policies and capacity-building initiatives empower cooperatives to utilize financial mechanisms effectively. • Synergies arise from implementing financial mechanisms alongside supportive policies and capacity-building efforts, expanding opportunities for cooperative engagement in nature-based investments. • Empowered by these measures, cooperatives gain autonomy, resilience, and sustainability, capturing more economic value within the bioeconomy. 	<ul style="list-style-type: none"> • Overdependence on external financing. • Emphasizing financial gains may prioritize short-term profits over long-term sustainability. • Insufficient risk management or financial literacy among cooperative members may endanger the sustainability and viability of cooperative endeavors.

References

- Betti, Luana, Bruno Felin, and Vinicius Almeida. 2024. “3 questões sobre financiamento climático que o Brasil enfrentará à frente do G20 e da COP30,” March.
<https://www.wribrasil.org.br/noticias/3-questoes-financiamento-climatico-brasil-g20-cop30>.
- Campos-Silva, João Vitor, and Carlos A. Peres. 2016. “Community-Based Management Induces Rapid Recovery of a High-Value Tropical Freshwater Fishery.” *Scientific Reports* 6 (1): 34745. <https://doi.org/10.1038/srep34745>.
- Carbonell, Sergio A. M., Luis Augusto Barbosa Cortez, Luis F. C Madi, Lilian C. Anefalos, Ricardo Baldassin Junior, and Rodrigo L. V. Leal. 2021. “Bioeconomy in Brazil: Opportunities and Guidelines for Research and Public Policy for Regional Development.” *Biofuels, Bioproducts and Biorefining* 15 (6): 1675–95.
<https://doi.org/10.1002/bbb.2263>.
- Garrett, Rachael, Joice Ferreira, Ricardo Abramovay, Joyce Brandão, Eduardo Brondizio, Ana Euler, Daniel Pinedo, et al. 2023. “Supporting Socio- Bioeconomies of Healthy Standing Forests and Flowing Rivers in the Amazon.” Scientific Panel for the Amazon. <https://www.theamazonwewant.org/wp-content/uploads/2023/08/230811-PB-Bioeconomy-EN-approved2.pdf>.
- Paes, Michel Xocaira, João Vitor Campos-Silva, and José Antonio Puppim De Oliveira. 2021. “Integrating Circular Economy in Urban Amazon.” *Npj Urban Sustainability* 1 (1): 29. <https://doi.org/10.1038/s42949-021-00031-z>.
- Puppim de Oliveira, José A., Umesh Mukhi, Camilla Quental, and Paulo Jordão de Oliveira Cerqueira Fortes. 2022. “Connecting Businesses and Biodiversity Conservation through Community Organizing: The Case of Babassu Breaker Women in Brazil.”

Business Strategy and the Environment 31 (5): 2618–34.

<https://doi.org/10.1002/bse.3134>.

Simões-Coelho, Marco, Ariane Roder Figueira, and Eduardo Russo. 2023. “Motivations for a Sustainable Ethos: Evidence from the Globally Present Brazilian Multinational Natura &Co.” *Environment Systems and Decisions* 43 (3): 321–36.

<https://doi.org/10.1007/s10669-022-09890-y>.

USAID PCAB, (United States Agency of International Development Partnership for the Conservation of Amazonian Biodiversity). 2022. “Andiroba: The Seed That Generates Income and Enables People to Plan for Their Future.” Partnership for the Conservation of Amazon Biodiversity PCAB. 2022. <https://pcabhub.org/en-us/news/news-highlights/andiroba-the-seed-that-generates-income-and-enables-people-to-plan-for-their-future>.

Appendix

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