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Task Force 02

SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS

Catalyzing Public and Private Investments to Scale Up Socio-Bioeconomy and Nature-Based Solutions

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Abstract

Socio-bioeconomy presents a promising approach to sustainable development by leveraging biological and social diversity to transition away from fossil-fuel based economic systems while simultaneously creating income and employment opportunities for Indigenous and rural communities worldwide. The development of socio-bioeconomy depends on substantial investments from both public and private sectors, which require improved institutional coordination, robust planning, and novel methodologies to address This Policy Brief proposes a comprehensive framework for investment governance aligned with socio-bioeconomy, offering specific recommendations that G20 countries can adopt and help promote globally. The goal of this contribution is to foster a just development of the socio-bioeconomy by ensuring the rights of communities in accessing natural resources and participating in policymaking processes, and an investment climate that places socio-bioeconomy at the forefront of the development agenda at a global scale.

Keywords: socio-bioeconomy, nature-based solutions, investment

Diagnosis of the Issue

Our current global economic model, heavily reliant on fossil fuels and non-renewable materials, is driving us towards a perilous future. A fundamental shift in how we approach economic development is essential. Several promising frameworks have emerged to guide this transition, and the development of the bioeconomy stands out as a particularly compelling option. The strength of the bioeconomy lies in its promise to integrate critical aspects of global economic governance – from fuels and materials to technology and finance – into a unified, sustainable system. Furthermore, because the bioeconomy values the sustainable utilization of renewable biological resources, Nature-based Solutions (NbS) gain increasing prominence as actions with the potential to protect and restore biodiversity, reduce GHGs emissions, and provide benefits to local communities.

The operationalization of the bioeconomy is stymied by a lack of agreement regarding its definition and key components. This ambiguity can engender policy and institutional incoherence, subsequently leading to misallocated investments and unintended repercussions. This is particularly evident when it comes to financing mechanisms for NbS. This policy brief aims to elucidate these issues and provide actionable recommendations for G20 nations to foster investment environments that align with the core principles of the bioeconomy, effectively enabling a just and equitable transition away from a fossil-fuel based economic model.

Although there is no commonly agreed definition of bioeconomy, it is “the part of the economy based in biology and the biosciences” (El-Chichakli, 2016), and typically refers to bio-based value chains and economic activities that depend on biodiversity. Bioeconomy has traditionally been viewed through two key lenses (Borchardt, 2023):

resource substitution and biotechnology innovation (Lima, 2021). Resource substitution prioritizes replacing non-renewable industrial materials with renewable alternatives like biomass from agriculture or forestry. Biotechnology innovation, on the other hand, emphasizes the development of transformative technologies to utilize biological matter in the creation of sustainable products.

There have been long-standing concerns that the development of the bioeconomy is not centered around the needs of communities and does not promote inclusion (Siegner, 2017) or equity (Lima, 2022). In response, the bioeconomy is being increasingly framed as a socio-economic, technical, and ecological paradigm for human activities based on biological resources, with the potential to help conserve or restore habitats, improve knowledge about biodiversity, enhance livelihoods and increase social participation (Meza, 2022). To underscore the interconnection between natural systems and communities, the term "socio-bioeconomy" is being advanced wherein the prefix 'socio' accentuates the prominence of communities, and their critical role in resource production and biodiversity conservation.

The socio-bioeconomy presents new opportunities for Nature-based Solutions (NbS). Although developed in parallel and autonomously from the notion of bioeconomy, NbS have ascended in significance as viable avenues for addressing societal challenges via ecosystem-based adaptation (EbA), ecosystem-based disaster risk reduction (DRR), and ecosystem-based mitigation (EbM). Defined as "actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services,

resilience and biodiversity benefits" (UNEA-5, 2022), NbS represent an integral facet of the socio-bioeconomy.

Because of their potential to provide benefits for both nature conservation and restoration as well as climate mitigation and adaptation (Vogelpohl, 2021), some NbS have been used to 'offset' continued emissions in other value chains. This offsetting has been done in national emissions accounting, as well as in corporate accounting, where either direct investment in NbS or in the purchase of NbS-based credits have been used to 'offset' emissions in carbon accounting. The specific use of NbS for offsetting purposes has generated a lot of controversies (Chandrasekhar, 2021), underscoring the importance of clarifying how NbS can be a part of climate solutions, and what incentives and financing mechanisms are available and suitable. As NbS are a specific set of actions within the broader economic paradigm of the socio-bioeconomy, they should advance, not undermine, the development of a sustainable, circular, and just socio-bioeconomy.

With the surging political momentum behind socio-bioeconomy (iacgb, 2020), a robust conceptual framework is urgently needed. Without it, emerging strategies risk being piecemeal and ill-equipped to tackle complex socio-ecological conflicts. To effectively navigate these interconnected challenges, the Policy Brief proposes four specific recommendations to G20 leaders for fostering a socio bioeconomy that delivers on its social and ecological promises while amplifying nature's contributions to people (Díaz, 2018).

Recommendations

1. Clear definition and framework

A clear definition of socio-bioeconomy is essential to direct financial flows, develop long-term policies and strategies, and ensure coherence across interventions. The G20 Bioeconomy Initiative could play a defining role in this endeavor. To become credible and effective, the socio-bioeconomy should have the following elements at its heart.

- Protection and restoration of biological diversity and ecosystems - A thriving socio bioeconomy is fundamentally dependent on healthy, resilient ecosystems. Healthy ecosystems are not only prerequisites, but also the cornerstone of long-term sustainability of the socio-bioeconomy (Calicioglu, 2024). To ensure that biodiversity is adequately safeguarded and that the bioeconomy is not transformed into a framework perpetrating nature exploitation, biodiversity conservation policies and socio-bioeconomy strategies should be coherently integrated. Achieving this harmonization requires increased cross sectoral and inter-departmental coordination amongst government agencies (de Queiroz-Stein, 2023).
- Alignment with sustainable development and the Paris Agreement - The socio bioeconomy offers opportunities to achieve several SDGs targets (Singh, 2024), but it also carries the potential to hinder progress on others. The socio-bioeconomy's sustainability must be actively cultivated through regulations, policies, and investments that ensure that positive impacts outweigh negative ones (Heimann, 2019).
- Circularity - The circular economy and the bioeconomy share a common goal: maximizing the value of biological resources, waste and residues (COM, 2018).

However, their scopes differ. The circular economy encompasses a wider range of waste materials, while the bioeconomy focuses primarily on biological resources. Despite this distinction, circularity is a fundamental principle within the bioeconomy, and both concepts can significantly contribute to each other.

- Community centric just transition - The bioeconomy should embody a genuine community-centric ethos within the socio-bioeconomic framework, promoting participatory processes to identify, recognize, and address the concerns and perspectives of less empowered stakeholders. Moreover, bioeconomy policy design should incorporate considerations for equitable distribution of incentives, benefits, and burdens arising from socio-bioeconomic activities.

2. Cease public and private nature-negative finance

Eliminating nature-negative financial flows, *i.e.* those with direct negative impacts on nature, from both private and public actors has the greatest potential to foster the socio-bioeconomy.

The vast scale of this challenge is evident. A recent UN report "State of Finance for Nature" estimates that public finance directed toward nature-negative activities reached US$1.7 trillion in 2022. This figure dwarfs the public investment in NbS by over tenfold (US$165 billion). Similarly, private finance flows to activities with direct negative impacts on nature are estimated to be at least US$5 trillion in 2022, dwarfing private NbS investments by a factor of 140. Eliminating these nature-negative financial flows across both private and public actors represents the most significant opportunity to cultivate an effective and thriving socio-bioeconomy.

3. Prioritize restoration of degraded ecosystems and lands, and ensure NbS do not delay rapid decarbonization

Socio-bioeconomy strategies should inform the selection of priority areas for ecosystem restoration via NbS. Within this framework, NbS initiatives should be supplemented by targeted efforts to restore terrestrial and aquatic biodiversity. For NbS to be effective tools they must be adequately designed and verified. IUCN stresses (IUCN, 2022) that NbS should only be utilized for offsetting purposes to compensate for residual emissions that cannot be abated through emission reduction efforts. However, no sector to date has successfully decreased the emissions that can be abated, and these emissions are expected to rise (IPCC, 2023). Robust assessments are, therefore, necessary in NbS financing. Only those NbS initiatives that deliver clear GHG-related benefits, as well as generate conservation and social co-benefits should receive financing.

4. Determine appropriate financing and monitoring mechanisms

The climate and biodiversity crises require an integrated approach, with socio-bioeconomy offering opportunities for synergy, especially through NbS. The globally accepted definition of NbS encompasses a variety of approaches that foster connections between biodiversity and society. However, when considering financing mechanisms to effectively implement and scale up NbS, grouping them under a single umbrella concept risks oversimplifying the important nuances and complexities involved.

The financing gap to achieve global commitments for nature conservation remains significant (UN, 2023).

- Public finance is the primary source of funding, comprising 82% (US$165 billion) of total capital flows for NbS. This funding is primarily allocated to biodiversity and landscape protection.
- Private finance accounts for only 18% of total finance flows to NbS, amounting to US $35 billion. This includes various components such as (i) biodiversity offsets and credits; (ii) private investments in sustainable supply chains; (iii) impact investing; (iv) payments for environmental services, such as those to farmers and landowners to provide these public goods; (iv) philanthropy; (v) carbon markets; (vi) private finance leveraged by development finance institutions, development banks, development agencies, multilateral climate and biodiversity funds, via blended finance arrangements. While some of these mechanisms of private finance are profit-oriented, others serve broader societal or environmental goals.

It is crucial to recognize that the suitability of each financing source varies based on the type of NbS and on the specific challenges NbS are designed to address. Conducting a rigorous and thorough analysis of financing gaps, needs, benefits and trade-offs with distinct financing mechanisms is essential for closing financing gaps and minimizing unintended consequences.

Scenario of outcomes

The socio-bioeconomy can be a crucial avenue for sustainable development. While investing in the socio-bioeconomy offers a cost-effective approach to combating climate change, biodiversity loss, and land degradation, caution is warranted due to its potential for over-exploitation and misinterpretation (Garrett, 2022). Upholding healthy ecosystems and fostering inclusive planning processes are essential for defining and developing the socio-bioeconomy, as emphasized in the first policy recommendation.

Policy Recommendation n. 2 emphasizes halting nature-negative public and private capital flows. Redirecting public subsidies, in particular, holds promise for aligning government commitments with climate and biodiversity objectives. However, such reforms must be carefully managed to avoid adverse impacts on stakeholders, such as farmers and fishing communities. Comprehensive policy measures, rather than solely subsidy removal, are necessary to mitigate these risks (Damania, 2023).

The emphasis on NbS - as emerging from Policy Recommendations 3 to 4 - is due to the high potential they have in providing benefits for climate, nature, and people, thus in fostering the development of the socio-bioeconomy. However, poorly designed investments may hinder emissions reduction efforts and sideline Indigenous Peoples and local communities, who ensure that restored ecosystems will last into the future. Therefore, NbS should be designed following a process of co-creation, with communities, of the mechanisms that will provide value over time. Robust social and environmental safeguards must be integrated into NbS governance frameworks and accounting systems.

Policy Recommendation n. 4 also interrogates the role that private capital may or should play in the development of the socio-bioeconomy. Some highlight that private

capital for the socio bioeconomy - and, in particular, in NbS - may be a way to help companies manage ecosystem related risks to their operations, especially considering the mounting pressure on companies to report their nature-related risks and dependencies (WEF, 2022).

The tension between the urgency to close the financing gap for nature, creating market incentives for the private sector, and the idea that biodiversity has inherent value and should not be commodified is challenging to reconcile. However, constructive dialogues among governments and long-term strategies across geographies and sectors that build on the pathways and analyses of academic studies and international organizations (CCSI, 2023), have the potential to address some of these tensions.

The socio-bioeconomy holds immense promise for reshaping our global economic trajectory away from non-renewable resources and fossil fuels. However, realizing these potential demands meticulous attention to how we conceptualize, define, design, finance, and implement these approaches. It is imperative that both future research and policymakers prioritize this task. The recommendations presented in this policy brief offer a roadmap for G20 nations to craft bespoke socio-bioeconomic solutions, ensuring that the voices and priorities of local communities are central to global decision-making processes.

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