G20 Initiative on Bioeconomy 3rd Meeting

CSIR ICC, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng Province, South Africa,
18 to 20 September 2025

CHAIR'S SUMMARY REPORT

This Chair's summary report reflects the perspective of the South African Presidency of the Group of Twenty (G20) Initiative on Bioeconomy (GIB) regarding the scope and substance of deliberations held during the three GIB meetings convened in 2025 – February, May and September. While G20 member states, invited countries and organisations were invited to review and provide input on the factual accuracy of this report, it does not purport to represent consensus views or negotiated positions.

Introduction

The G20 Initiative on Bioeconomy (GIB), under the South African G20 Presidency, convened its final meeting from 18-20 September 2025 in Tshwane, South Africa. The meeting brought together representatives from G20 members, invited countries and international organisations.

Guided by the South African G20 Presidency's theme of "Solidarity, Equality and Sustainability", and aligned with the 10 High-Level Principles (HLPs) on the Bioeconomy decided by its members under the Brazilian G20 Presidency in 2024, particularly HLP 9 which calls for "international collaboration and cooperation that addresses global challenges, leverages complementary strengths, innovation and entrepreneurship and promotes financing, capacity building and sharing of best practices", participants reaffirmed their commitment to international policy cooperation to promote global prosperity and address shared challenges. The GIB continues to build on the foundational work done in this space by United Nations (UN) agencies, specifically the Food and Agriculture Organization (FAO), United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), United Nations Industrial Development Organization (UNIDO) and United Nations Trade and Development (UNCTAD), as well as the international fora such as the Global Bioeconomy Summit (GBS) and the Conference of the Parties (COP).

Several participants expressed their interest in leveraging the momentum of the GIB and ensuring its work continues on a permanent basis within the G20 and beyond.

A Vision for the bioeconomy

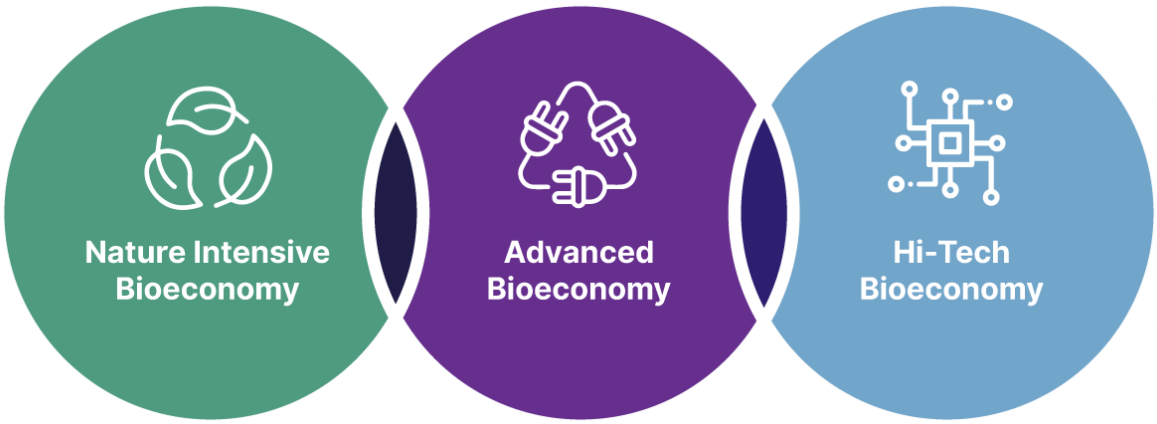
The global bioeconomy paradigm is a cornerstone in the transition to a more inclusive, low-carbon and climate-resilient, nature-positive and circular economy, that aims to protect, use sustainably and restore biodiversity in the context of the triple planetary crises of climate change, biodiversity loss, and pollution. Participants recognised the transformative potential of the bioeconomy as a solution to these interconnected global crises. Leveraging nature's

regenerative capacity, the bioeconomy can drive resilient, responsible and inclusive growth, improve people's wellbeing and reduce poverty, while advancing climate change mitigation and adaptation, biodiversity conservation, and sustainable development objectives, especially regarding food security and nutrition.

When underpinned by innovation, inclusivity and sustainability, as outlined by the HLPs, the bioeconomy presents opportunities for equitable progress across all nations, economic growth potential and job creation, while reflecting the cultures and knowledge of Indigenous Peoples and Local Communities. This goes beyond benefit sharing and envisages transitioning to the bioeconomy co-designed and led by Indigenous Peoples' knowledge, in line with the Nagoya Protocol.

Why the bioeconomy?

While there is no unified and globally accepted definition of the bioeconomy, participants acknowledged the wide range of preferences and priorities across G20 members. and following inputs and discussions during the Brazilian and South African Presidency, three bioeconomy types, namely nature-intensive, advanced and high-technology, have been used to lend a shared understanding of the diversity and range of the bioeconomy across the G20. Shared understanding can also be fostered through cross-sectoral engagement, encompassing the red bioeconomy (healthcare), green bioeconomy (agriculture, agro-processing, and forestry), white bioeconomy (industrial applications such as bioenergy and biomaterials), and blue bioeconomy (aquatic and marine resources).



With many countries around the world having adopted bioeconomy policies and strategies to harness the bioeconomy's potential, today's global bioeconomy is estimated to be valued at US$4 trillion, with a growth potential of up to US$30 trillion by 2050[1]. Recent data on biodiversity-based product trade further demonstrates significant potential for G20 members to expand bioeconomy markets and accelerate sustainable development, including in developing countries. This potential for growing the bioeconomy while supporting the implementation of the Kunming-Montreal Global Biodiversity Framework (KMGBF), and toward progress of the Paris Agreement, has been explored in the 2025 GIB.

The 2025 GIB discussions found that bio-based solutions offer significant potential across **climate mitigation, adaptation, and economic resilience** strategies. They can provide bio-based sustainable alternatives to carbon-intensive products, drive regenerative agricultural

practices and create circular forest and agricultural economies that help extend soil health and productivity, and prevent deforestation and land conversion. They can also support scientific developments and products such as synthetic biology, genomics and bioinformatics, as well as encompass biodiversity service-based activities such as tourism and gastronomy.

The Bioeconomy can contribute to Nationally Determined Contributions (NDCs) through mitigation efforts like **carbon sequestration in agricultural and forestry systems[2], and emissions reduction through bio-based alternatives to fossil fuel products, such as in aviation and maritime transport**, and implementation of adaptation measures like **nature-based solutions for climate adaptation and economic diversification of existing industries**.

The 2025 GIB has also sought to make the connections across the various G20 structures to echo the cross-cutting nature of the bioeconomy and ensure coherence both across the G20 and the global climate and biodiversity efforts. Meaningful dialogue has been fostered with the Environment and Climate Sustainability Working Group (ECSWG), which together with the GIB has played a pivotal role in advancing the recognition of the biodiversity economy as an integral pillar of the broader bioeconomy. The ECSWG has further advocated for the establishment of a harmonised taxonomy in forthcoming G20 Presidencies, aimed at promoting convergence of understanding among member states.

These deliberations have reaffirmed that biodiversity and ecological infrastructure constitute the foundational assets not only of prevailing economic systems, but more importantly, of the evolving bioeconomy. In this context, continued and coordinated investment in the bioeconomy and biodiversity economy — alongside robust conservation and restoration initiatives — remains imperative.

Building on the exemplary leadership of the Brazilian G20 Presidency in 2024, which decided on the 10 HLPs to inform bioeconomy-relevant policymaking and market development, the South African 2025 G20 Presidency has focussed on providing pathways to translate these Principles into practice through **four strategic priorities**:

1. Towards establishing global bioeconomy standards and metrics

Growing a bioeconomy locally, nationally and internationally requires establishing frameworks with robust indicators to assess sustainability and track progress underpinned by a shared understanding while respecting diverse contexts and priorities. Building on HLP 8, “Utilising transparent, comparable, measurable, inclusive, science-based and context-specific criteria and methodologies to assess their sustainability throughout the value chains”, and supporting the 2025 GIB’s objective of championing trusted standards, advancing transparent data harmonisation, and fostering inclusive, participatory approaches to indicator development. Participants acknowledged the FAO’s new prioritisation approach[3] and comprehensive database of over 4000 existing indicators, relevant for sustainable bioeconomy development. This structured approach to building bioeconomy monitoring and assessment framework works across three complementary levels: 1) the territorial level, with indicators for monitoring and assessing bioeconomy development in geographical units at any scale (local, subnational, national or regional); 2) the product or value chain level, with indicators to monitor and assess the environmental, social, and economic impacts of specific bio-based products or services (covering all sectors) throughout their life cycle, ensuring sustainability from production to end-of-life; 3) and the business or sector level, with indicators for businesses and sectors that may operate across multiple territories to produce goods and/or services, facilitating cross-sectoral comparisons and performance benchmarking. This prioritisation approach is designed to

address all three dimensions of sustainability (economic, environmental, and social) alongside governance mechanisms that maximize synergies and minimize trade-offs between these dimensions. The framework, developed with input from the GIB, aligns indicators with G20 HLPs on Bioeconomy and the Sustainable Development Goals (SDGs) and further classifies them using the FAO Aspirational Principles and Criteria for Sustainable Bioeconomy.

2. Examining the common needs, opportunities and challenges in bioeconomy development in an African context

In line with HLP 10 on "country-specific approaches and implemented in line with national priorities and regional and local circumstances", the 2025 GIB has engaged deeply with the unique and shared challenges and opportunities in developing African bioeconomies. The potential of the bioeconomy in Africa remains largely untapped due to persistent environmental degradation that depletes the biomass base which is essential to deploy the bioeconomy solutions to enable for the new economic paradigm presented by a bioeconomy. Presently, Africa captures less than 10% of the final value from its biomass on average (CIFOR, 2025), while natural capital continues to be lost at alarming rates, $195 billion annually, due to land degradation, deforestation, and unsustainable agriculture (UNEP 2016). The 2025 GIB discussions have illuminated both the global market potential of African bioeconomy investment and the shared G20 challenges around inter-ministerial cooperation, scaling finance, and the challenges of supporting bioeconomy enterprises through the critical stages of progression between innovation and commercial viability.

3. The challenge and opportunities in financing sustainable bioeconomies

The shared challenge of financing was explored extensively during the second 2025 GIB meeting, which examined applicable financing instruments[4], and opportunities to leverage international commitments and development plans, while positioning the bioeconomy as part of just transition and sustainable development. Drawing parallels with the renewable energy transition, participants recognised that biotechnologies and sustainable biobased products and services that respect natural capital, biodiversity and ecosystems can provide alternatives to carbon intensive technologies and products and open up new markets, business models and industries. Like renewables, however, competing with well established, funded and supported or subsidised incumbents requires specific policy tools beyond market conditions alone. In the case of renewables, public incentives, particularly feed-in tariffs and research and development, played a crucial role in reducing the cost of renewable energy by providing guaranteed off-take agreements and revenue, spurring technological innovation, adapting national legislation and regulation, and attracting investment. In a similar vein, the need for comprehensive governance frameworks and cross-sectoral coordination are essential to durably mobilise private investment and scale biomanufacturing capacity. Bioeconomy enterprises especially those competing for market share with established, fossil-derived industrial production systems, such as the manufacture of plastics, require specialised and dedicated, policy-enabled support to progress through the 'valley of death', the difficult phase between innovation and commercial scale, from which many enterprises are unable to succeed. It was noted that support is particularly required for bioeconomy enterprises in both the Small, Medium and Micro Enterprises (SMMEs) but likewise needed for larger, more established sectors and industries which need to diversify or scale to become commercially competitive, although the nature of the support may be different, depending on the type and

scale of the offering. Likewise, there may well be a need for foundational infrastructure and an enabling environment to support the growth of these new industries.

Proposed Bioeconomy Finance Hub for Africa

Noting that the Kunming Montreal Global Biodiversity Framework calls on actors across society and our economies – including financial institutions (FIs) in the public and private sectors – to work together to transform our relationship with nature, participants found the proposed establishment of the Bioeconomy Finance Hub for Africa very promising. Financial Sector Deepening (FSD) Africa, African Natural Capital Alliance (ANCA) and NatureFinance proposed and co-developed the Bioeconomy Finance Hub for Africa with input from the 2025 GIB. Functioning as an independent, pan-African network of stakeholders, the Hub would build upon existing high-impact initiatives, amplify ongoing efforts, align fragmented activities, and bring coherence, ambition, and actionable scale to bioeconomy finance for Africa.[5]

4. Framing an international coordination and implementation platform for growing the global bioeconomy

The multitude of national and regional bioeconomy initiatives very often have a common need for coordinated global support, particularly related to research and development (R&D), technology applications, advocating for, and financing of, development priorities, developing markets and trade opportunities. The 2025 GIB explored a possible leadership structure, as a more permanent means of coordinating the international effort for promoting, advancing and driving bioeconomy development globally, in a manner aligned with the GIB's 10 HLPs and ensuring coherence and shared purpose across regions. Participants discussed the value of a **Global Bioeconomy Implementation Platform envisaged as a mechanism** to spearhead and coordinate international, evidence-based initiatives. It was broadly agreed that the suggested platform warranted further development and that it should leverage the momentum and urgency generated by the GIB. It needs to be ensured that it does not duplicate existing efforts, such as that underway at the FAO, and is clearly defined in terms of its potential added value and role within the broader multilateral landscape.

Key discussion areas and further work needed

As G20 economies seek pathways toward resilient, inclusive and sustainable growth, the bioeconomy represents an opportunity toward economic systems better aligned with planetary and human health requirements. The urgency of intervention was underscored amid growing indications that the planet may be on a trajectory to surpass the 1.5º warming threshold outlined in the Paris Agreement. The following key areas have emerged from discussions in the GIB during the South African G20 Presidency, and articulate the critical roles of policy, regulation, coordination, investment and sustainable trade, in unlocking the full potential of a just and inclusive transition, of which the bioeconomy is critical.

1. The added value of a permanent G20 global structure and cross-ministerial coordination and alignment for implementation

Scaling the bioeconomy requires strong coordination across government ministries, especially those of research and innovation, education, finance, environment, climate, trade, economic planning and innovation, agriculture, natural resources and energy. **GIB members discussed how enhancing the alignment of relevant policies and instruments, including but not limited to investment plans and trade regulations can foster a policy environment that**

supports a sustainable bioeconomy-based transition to a more inclusive, low-carbon, climate-resilient, nature-positive and circular economy. This coordination could include mechanisms to discuss trade-offs and create complementarities between commercial and environmental goals, ensuring that economic interests support rather than undermine sustainability. Transitional policies and investments in innovative industries are also needed to support alternatives to fossil fuel-derived products and more sustainable nature-based solutions.

Participants discussed the possibility for G20 members to establish a more permanent global structure linked to the G20 and a more permanent means of coordinating the international efforts for promoting, advancing and driving bioeconomy development globally.

In line with HLP 9 and given the urgency of climate action mitigation and the competitiveness of emerging bioeconomy sectors, **G20 members also discussed the potential establishment of formal multi-country coordination platforms** that would support joint action while ensuring equitable and inclusive distribution of benefits. With regards to both this platform and the global structure mentioned above, some members noted that the duplication of work should be avoided and cautioned against the proliferation of structures while supporting a continuation of bioeconomy work under the G20 umbrella.

2. Integrated bioeconomy, and circular and just transition policy coordination and harmonisation

Discussions also focused on **prioritisation of integrated policy approaches** that promote synergies between national bioeconomy and circular economy strategies , just and inclusive transitions frameworks, and existing climate and biodiversity and land degradation neutrality commitments such as Nationally Determined Contributions (NDCs) and National Biodiversity Strategies and Action Plans (NBSAPs) as well as voluntary Land Degradation Neutrality Targets, while ensuring food and nutritional security. This alignment is foundational to advancing the HLPs on Bioeconomy.

It was further discussed how **establishing clear regulatory distinctions between bio-based and fossil-based products** could enable clearer measurements, regulations and incentives for bio-based products, enabling trade classifications to prioritise bio-based products which demonstrate verifiable benefits via internationally recognised standards, programs or mechanism, such as reduced carbon emissions, biodegradability, reduced toxicity and sustainably sourced inputs. It was also discussed that these policies should ensure the allocation of biomass to achieve the highest environmental, social and economic benefit.

The South African 2025 GIB Presidency raised the benefit of G20 members working toward the creation of a **Bioeconomy Cooperation Framework, to work towards establishing common criteria for authentic bio-based products, as well as cooperation on the recognition of the certification schemes**. Such efforts could explore interoperability and regulatory fragmentation, facilitate trade, increase market predictability, and unlock new opportunities for investment, economic growth, and job creation in the bioeconomy. Some members noted duplication of work should be avoided and existing agreements should be leveraged as a first point of call.

Likewise, the South African 2025 GIB Presidency also raised **strategic investment in robust science-based monitoring, reporting, and verification (MRV) systems** for bioeconomy goods and services, to reduce operational costs for bioeconomy enterprises while improving market confidence through transparent sustainability metrics. These systems should be designed to minimise compliance burdens on enterprises, particularly SMMEs, while providing

credible assurance about sustainability claims. Moreover, it was discussed that developing countries will require enhanced technical and financial support to build these capacities, which could come from all sources.

3. Trade infrastructure and market access

It was debated how G20 members could explore in more depth how to **leverage existing multilateral, regional and bilateral trade mechanisms and established frameworks,** to create enabling policy environments for sustainable bio-based goods and services and promote bioeconomy development.[6] Additionally, how the G20 can leverage **bilateral and regional free trade agreements** as vehicles for promoting sustainable bioeconomy development.

4. Financial incentives and subsidy reform

GIB members discussed how further work and more successful examples are needed to better understand how to unlock opportunities for the bioeconomy either by leveraging strategic incentives and financial tools such as **public procurement policies, industrial and innovation strategies, tax or other fiscal incentives, such as subsidy reforms and export credit instruments** to support higher-value bio-based products and services, while bearing in mind international trade obligations.[7] The role of public procurement as a particularly powerful driver of bioeconomy development, was also discussed, because of its potential for enabling governments to identify economically viable bio-based alternatives to fossil-based fuels, materials, chemicals and synthetic agricultural products while creating stable demand signals for emerging industries.[8]

5. Data and standards harmonisation and interoperability

Inconsistent definitions, measurement protocols, and certification systems fragment markets, undermine investor confidence and limit cross-border commerce. These disparities, (especially regarding how countries classify bio-based products, measure sustainability impacts, and verify carbon removal claims) lead to high transaction costs and regulatory uncertainty, impeding the development of integrated global bioeconomy value chains. GIB members discussed how to address this, including preliminary reflection about exploring the potential establishment of a cooperation platform that would promote the development of **comprehensive and science-based global standards as well as work towards measuring, reporting, and verification criteria for bioeconomy activities across member countries**. This could build upon the Bioeconomy Cooperation Framework referenced in policy integration efforts (See ***Point 3*** above). The framework could consider data-sharing protocols that support sustainability outcomes, and market development trends. This transparency is essential for evidence-based policymaking and building investor confidence.

Looking ahead to incoming GIB Presidencies and other bioeconomy fora

The 2025 South African GIB Presidency acknowledges the upcoming COP30 in Belem, Brazil, where the bioeconomy continues to feature among key thematic priorities, and the upcoming GBS, to be hosted by Ireland in 2026, and parallel International Bioeconomy Forum (IBF), and World Bioeconomy Association (WBA) discussions, as key convenings to continue the work undertaken in the GIB in growing and scaling the bioeconomy. Participants declared their interest in remaining actively engaged across these and other fora to advance bioeconomy development at both technical and political levels, aiming for these efforts and

recommendations to be taken up, and for coordination mechanisms to enhance and strengthen, with the shared goal of developing a sustainable and just global economy of the future. Proposed GIB member technical body convenings, and a pilot phase entrepreneur incubation and acceleration in Africa were also presented by the South African Council for Scientific and Industrial Research (CSIR), and are under consideration to ensure that momentum is maintained to achieve the ambitious work envisioned for the GIB and its collective vision.

Participants concluded the 2025 GIB meetings on the vibrant continent of Africa, in one of South Africa's capital cities, Tshwane, with a clear and urgent vision of the future we are charting together. Discussions throughout the final meeting, and indeed throughout the entire year, reflected our shared commitment to creating a more sustainable and equitable world. The South African Presidency looks forward to supporting the continued implementation of these recommendations under the incoming G20 presidencies and remains committed to the collective endeavour of building a sustainable and just world for future generations.

ENDNOTES

[1]NatureFinance and World Bioeconomy Forum. 2024. Financing a Sustainable Global Bioeconomy.

[2] JRC Publications Repository - Brief on the role of the forest-based bioeconomy in mitigating climate change through carbon storage and material substitution

[3] *FAO. 2025. Indicators for sustainable bioeconomy – Towards building a monitoring and assessment framework. Rome. https://doi.org/*10.4060/cd6761en

[4] NatureFinance and the Sustainable Finance Coalition. 2025. Mapping Finance Solutions and Instruments Across the Three Bioeconomy Types.

[5] The Hub will address four critical barriers currently limiting finance flows into sustainable bioeconomy development for Africa:

1) Financial market failures: The absence of enabling financial sector policies and incentives to internalise the value of Africa's natural capital and drive investment in conservation, restoration, and sustainable management.

2) Capacity constraints: Limited technical expertise and market insights among investors and stakeholders regarding bioeconomy opportunities.

3) Investment risks and cost perceptions: Bioeconomy investments being perceived as high-risk and uncompetitive due to the lower immediate returns, small-scale projects, extended gestation periods, and climate-related risks.

4) Data and measurement challenges: Difficulties in accurately assessing the monetary environmental and social impacts of bioeconomy projects due to inherent complexities and a lack of consistency in monitoring, target-setting, and credible valuation, particularly for co-benefits such as carbon sequestration, biodiversity conservation, and social equity.

Established in collaboration with the African Natural Capital Alliance (ANCA) and NatureFinance, the Bioeconomy Finance Hub is designed to address these systemic barriers by mobilising finance at scale and from all sources to regenerate landscapes, strengthen sustainable bio-industries, and foster innovation. By working to align financial systems with national bioeconomy strategies and facilitating nature-positive transitions, the Hub aims to catalyse sustainable finance flows into bioeconomies across the African continent.

[6] *For example, the EU–Kenya Economic Partnership Agreement (EPA), the most ambitious EU trade deal with a developing country to date, provides duty-free access to products derived from the sustainable use of natural resources, including botanicals, plant extracts, and agro-products, aligning closely with bioeconomy and sustainability objectives.*

[7] *The OECD's paper on "Financing instruments and policy levers to harness biomanufacturing for climate, biodiversity and growth" makes clear recommendations on how policymakers can cooperate in private investment, including blended finance, de-risking mechanisms, market-based instruments, and public-private partnership frameworks, principal among them being R&D, price guarantees and contracts-for-difference. Examples such as the Germany's Feed-In Tariff and the U.S. Inflation Reduction Act demonstrate, countries can begin creating incentives for sustainable development even in the continued presence of harmful subsidies.*

[8] *The potential of coordinated procurement strategies is demonstrated in successful examples such as the US' BioPreferred Program exemplifies systemic implementation, introducing mandatory public purchasing requirements for national agencies and their contactors of bio-based as opposed to fossil-fuel based products, as well as encouraging biobased labelling.*