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BIOECONOMY STRATEGIES IN LATIN AMERICA AND THE CARIBBEAN LESSONS LEARNED AND FUTURE CHALLENGES

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SUMMARY

- Latin America and the Caribbean has entered a new phase in terms of bioeconomy policies. Beyond its biodiversity and biomass potential, the region is now designing and implementing bioeconomy strategies, and several bioeconomy pathways are showing signs of maturity.
- The bioeconomy is on the active policy agenda in at least ten processes across the region, at stages ranging from initial awareness to implementation and monitoring.
- Costa Rica, Colombia, Uruguay, and Brazil have completed their national strategies and are moving into implementation. Ecuador, Peru, and Panama are formulating theirs. Mexico has proposed a sectoral strategy for agriculture, the Brazilian state of Pará has a subnational plan, and the eight Amazon countries are advancing a supranational one.
- The priority has shifted from creating science- and technology-based ventures to scaling them up and building markets for their products. This requires policies grounded in a sound assessment, a long-term vision, clear priorities for pathways and industries, and projects that can deliver early results.
- Agricultural biotechnology, biological inputs, and liquid biofuels already operate at commercial scale, which shows that bioeconomy pathways can mature in the region.

FROM PROMISES TO IMPLEMENTATION

Until recently, discussions of the bioeconomy in Latin America and the Caribbean focused on the region's biological and agricultural potential and on its first sectoral or national strategies. Over the past three years, several countries and regional organizations have built comprehensive bioeconomy policy frameworks that include action plans, institutional responsibilities, indicators, financing mechanisms, and portfolios of concrete projects. The region is thus moving from bioeconomic potential to implementation (Chavarría et al., 2024).

This transition does not depend on a single actor. Recent experience points to a model that several countries are replicating, with adaptations: national or intergovernmental authorities retain political leadership and ownership of the process; development finance institutions and cooperation agencies provide resources and complementary capabilities; and international organizations such as the Inter-American Institute for Cooperation on Agriculture (IICA) provide specialized technical and methodological support for strategy development and implementation.

POLICY DEVELOPMENTS ACROSS THE REGION

As of September 2026, bioeconomy policy processes across Latin America and the Caribbean show different levels of maturity. In every case, political leadership and technical cooperation rest with different actors.

Countries Implementing National Strategies.

Costa Rica adopted its National Bioeconomy Strategy in 2020, the first in the region.

Colombia's 2021 National Bioeconomy Strategy organizes policy around five strategic areas: biodiversity and ecosystem services, "bio-intelligent Colombia," productive and sustainable agriculture, biomass and green chemistry, and health and well-being. In 2024, **Uruguay** presented its National Sustainable Bioeconomy Strategy together with a Sustainable Bioeconomy Action Plan 2024–2026 that sets out implementation and monitoring, making it a reference for bioeconomy planning in the region. **Brazil** established its National Bioeconomy Strategy through Decree No. 12.044 of June 2024. Two flagship plans followed: the National Socio-Bioeconomy Plan (*Plano Nacional da Sociobioeconomia*) and the National Bioeconomy Development Plan (*Plano Nacional de Desenvolvimento da Bioeconomia*, PNDBio), presented in April 2026, which set out actions, targets, indicators, and resources for implementation (Ministério do Meio Ambiente e Mudança do Clima do Brasil, 2026).

Countries in the process of formulating National Strategies

In **Peru**, the Ministry of the Environment (MINAM) is leading the development of the Bioeconomy Roadmap, with technical and methodological support from IICA and funding from the Inter-American Development Bank (IDB). The roadmap, which was open for public consultation in June 2026, combines a 2050 vision, a 2030 programmatic horizon, strategic pathways, and an action and monitoring plan. **Ecuador** began in 2024 with a White Paper on the Sustainable Bioeconomy. Between 2025 and 2026, the national environmental authority led a process to refine, localize, and validate a National Sustainable Bioeconomy Strategy and a Ten-Year Agenda. The French Development Agency (AFD) financed the process, and the Sustainable Environmental Investment Fund (FIAS) administered it, with IICA carrying out the core technical and methodological work. **Panama** is developing its National Bioeconomy Strategy 2026–2040 under the leadership of the National Secretariat of Science, Technology and Innovation (SENACYT), with support from CAF

(Development Bank of Latin America and the Caribbean). IICA coordinates the technical and methodological work, drawing on lessons from earlier regional processes. The work is organized around four interconnected outputs: a strategic assessment, a participatory national vision, the national strategy itself, and an implementation roadmap.

A supranational Bioeconomy Plan for the Amazon

In 2023, the eight member countries of the Amazon Cooperation Treaty Organization (OTCA) launched an intergovernmental process focused on value addition and certification for Amazonian products, payments for ecosystem services, and coordinated research and innovation that brings together scientific and traditional knowledge. On August 21, 2025, the Strategy for a Sustainable Development Economy in the Amazon was formally approved, and a regional implementation mechanism was established to integrate initiatives related to value chain development, markets, finance, science and technology, and regulation. OTCA retains political governance and coordination among countries; the IDB supports implementation through its *Amazonia Forever* program; and IICA provides the core operational, technical, and methodological capacity. This is one of the first cases of bioeconomy governance at the biome and multi-country level to move from strategy to implementation (OTCA, 2025).

Sectoral and subnational strategies

The region also has sectoral instruments, such as the Proposed Sectoral Strategy for Agricultural Bioeconomy in **Mexico** (ESBAM, for its Spanish acronym), which shows that bioeconomy policy can also be built at the sector level. The proposal defines five strategic pillars, nine lines of action, and 36 actions, with specific monitoring indicators for each action. At the subnational level, the State Bioeconomy Plan of **Pará**, in Brazil, promotes an inclusive, forest-based bioeconomy with a strong socio-biodiversity component. It aims to integrate

biological resources and the knowledge of traditional peoples and communities into a development model that values the standing forest.

already treat STI as a condition for implementation: Uruguay has a dedicated pillar; Peru places technological sophistication at the center of its Roadmap; Ecuador includes a strategic line on STI and technology transfer; Panama's process is anchored in SENACYT; and the Amazon framework explicitly includes regional research and innovation.

Figure 1. At least ten bioeconomy policy processes under way.



Source: authors' elaboration based on official documents from the countries and ACTO.

WHERE THE REGION STANDS NOW: MATURE PATHWAYS AND THE SCALE-UP GAP

The countries of Latin America and the Caribbean have significant science, technology, and innovation (STI) capabilities for the bioeconomy, but these capabilities are highly uneven across countries. Regional investment in research and development (R&D) is comparatively low and concentrated: the region accounts for only 2.5% of global R&D investment, and Brazil, Mexico, and Argentina together account for 83% of the regional total (RICYT, OEI, & UNESCO, 2024). The region also shows strong sectoral specialization. Of 626 scientific, technological, and productive capabilities mapped worldwide, it holds nearly 35%; in AgTech specifically, it holds almost 92% of the 96 capabilities mapped (RICYT, OEI, & UNESCO, 2024).

The main gap for the region is increasingly translating research into products and scaling them up, rather than scientific potential. The most recent national and regional strategies

At the same time, regional support for bio-based entrepreneurship is becoming more structured. Through open calls, the Bio-Emprender platform runs an integrated model that combines capacity building, mentoring, incubation, and acceleration. Its 2025 regional competition received more than 1,100 applications from 20 countries (Blanco et al., 2025). Scale remains the bottleneck. Bio-based ventures often face a “valley of death” between validation in the laboratory, the field, and pilot plants on one side, and international product registration, scale-up, and access to global buyers on the other.

Despite these constraints, some pathways already operate at a significant commercial scale. In agricultural biotechnology, the region has a long record of large-scale adoption and is now a reference point for gene-editing regulation. Biological inputs are becoming a mainstream option for farmers, with Brazil emerging as a major center for their development and large-scale adoption. Liquid biofuels are the clearest case of large-scale bio-based industrialization: in 2025, the Americas produced more than two-thirds of the world's

liquid biofuels, including 79% of global bioethanol and 40% of global biodiesel, with Brazil as the world's second-largest producer, ranking second in bioethanol and third in biodiesel (Torroba & Chiara, 2026). These three pathways show how scale emerges when science and innovation are combined with infrastructure, finance, and demand development.

THE LATIN AMERICAN BIOECONOMY NETWORK: FROM REGIONAL DIALOGUE TO COLLECTIVE ACTION

The Latin American Bioeconomy Network was launched in Buenos Aires in July 2023 with 30 founding members and IICA as its Technical and Executive Secretariat. In 2024, its members adopted the Guiding Principles for the LATAM Bioeconomy through a participatory process involving more than 60 institutions from 10 countries (Latin American Bioeconomy Network, 2024). The Network has since grown to more than 100 institutions from 18 countries. Its role now goes beyond convening to include thematic working groups, capacity building, methodological development, and coordinated regional positioning. This includes contributions to the G20 bioeconomy process, dialogues with the OECD, and participation in the Global Bioeconomy Summit, CBD COP16, and UNFCCC COP29.

The Network is also working on turning country experience into transferable methodologies. Within this Network, a guide was developed to formulate and implement bioeconomy strategies and policies, distilling lessons from national and subnational processes into a practical sequence covering institutional setup and baseline assessment, strategy formulation, action plans, subnational rollout, governance and financing, and monitoring and evaluation. The Network has thus become a multi-stakeholder platform that produces regional public goods, facilitates peer learning, and gives

the region a voice in global bioeconomy discussions, without replacing national ownership or existing institutions.

LESSONS LEARNED AND CHALLENGES AHEAD

These experiences, together with policy workshops organized by the Latin American Bioeconomy Network drawing lessons from past and current strategic planning processes, point to several insights for those designing or supporting bioeconomy strategies and action plans at the national, subnational, regional, or sectoral level.

Getting the institutional setup right from the start is critical. Whoever leads the planning process tends to shape its orientation. Regardless of who leads, the process needs a broad vision so that the bioeconomy is not reduced to a narrow set of sectors or applications. Because the bioeconomy is a long-term agenda, it should be treated as state policy that outlasts any single administration; leadership changes without technical justification can undermine implementation of what has already been agreed.

Financing must be addressed at the start of the process, not at the end. Otherwise, countries risk reaching technical consensus without the tools to implement it. Involving finance ministries early lays the groundwork for mobilizing domestic resources. Funding sources should also be diversified (international cooperation, multilateral development banks, and the private sector) to avoid dependence on a single funder.

Identifying narratives and champions early can help position the bioeconomy as a development model. The best narratives combine a concrete economic opportunity, such as job creation or productive diversification, with social and territorial inclusion, without subordinating one to the other. Narratives, however, need champions:

people or institutions that actively drive the process.

Expert and multilateral support should be part of the process from its earliest stages. It is essential to involve experts with a rigorous, evidence-based perspective from the start so they help build the plan. International cooperation organizations such as IICA, FAO, or the Economic Commission for Latin America and the Caribbean (ECLAC) can provide technical and methodological support, while multilateral development banks such as CAF and the IDB can help link the strategy to financing instruments. Their early involvement also brings lessons from other countries in the region into the design of the plan.

Institutional stability is the signal investors look for. Crowding in private investment requires lowering perceived risk, which depends on clear governance and a consistent message to external stakeholders that the policy will last. Without credible signs that the strategy will survive a change of government, attracting medium- and long-term capital is difficult.

Data generation remain the main outstanding challenge. Countries at every stage, from early formulation to implementation, report a lack of bioeconomy satellite accounts, biodiversity inventories, impact assessments, and monitoring systems. Without robust metrics, it is hard both to make the case to policymakers and to track progress under the strategies.

Figure 2. Lessons and challenges ahead.



Source: authors' elaboration based on the policy workshops held by the Latin American Bioeconomy Network with the countries.

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