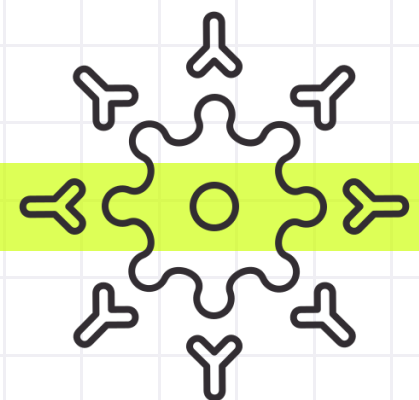


Capacity-Building Program for Policymakers in Emerging Biotechnologies

Guatemala 2024

Results and future perspectives

September-December 2024



allbiotech



Biotechnology is transforming the world.



We are living in a **biorevolution** that is **transforming industries** and accelerating the **global transition** toward a **sustainable bioeconomy**.

Rapid advancements in **emerging biotechnologies** such as **genome editing** and **synthetic biology** are providing innovative solutions to global challenges like **climate change, food security, and health**.

Latin America has a unique opportunity to play a pivotal role in this revolution by leveraging its rich **biodiversity** and developing strong capacities in biotechnology. Achieving this requires well-informed decision-makers equipped to promote responsible, safe, and ethical development.

Strengthening Capacities in Biotechnology in Latin America

About the program

It is an initiative designed by Allbiotech and the Biotechnology Program for Latin America and the Caribbean of the United Nations University, aimed at **raising awareness and strengthening the capacities of policymakers** by providing them with the necessary tools to understand and evaluate the applications of emerging biotechnologies in an informed manner.

- **8 virtual seminars.** Classes on the fundamentals and applications of biotechnology and bioeconomy through case studies.
- **In-person workshop.** A collaborative space to define strategies for accelerating the bioeconomy.

An interdisciplinary approach is used, featuring dynamic and interactive sessions to apply technical knowledge to the design of public policies.

The Program was implemented in 2024 in Mexico and Guatemala.



Strengthening Capacities in Biotechnology in Latin America

Program Goals

- **Raise awareness** among decision-makers about the potential of biotechnology and bioeconomy.
- **Promote informed decision-making based on scientific evidence.**
- **Encourage the design and implementation of public policies** that foster the responsible and safe development of emerging biotechnologies.
- **Build regional collaboration networks** to address common challenges in agriculture, health, and the environment.

Target Audience

- Policymakers, congresspersons and political advisors
- Government officials and regulatory agency staff.
- Public officials interested in bioeconomy and biotechnological innovation.



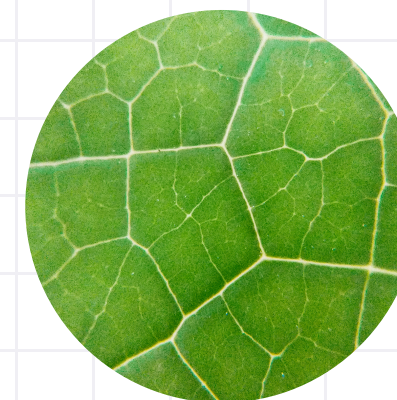
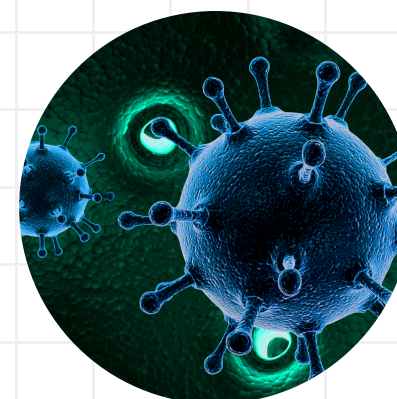
Strengthening Capacities in Biotechnology in Latin America

Bioliteracy

It is the fundamental pillar of the Program and a key concept for the bio-revolution. It refers to the ability to understand, critically evaluate, and apply the concepts of biotechnology and bioeconomy, considering their social, ethical, economic, and environmental implications.

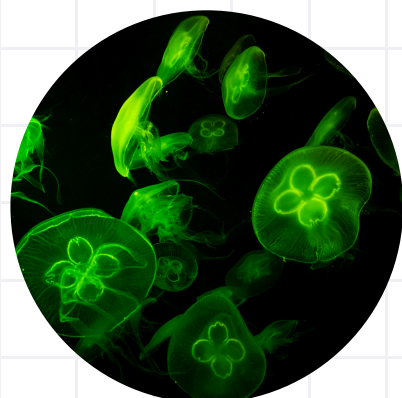
Key components of the concept

- **Scientific Knowledge:** Understand the fundamentals of biology and biotechnology.
- **Critical Thinking:** Objectively and ethically evaluate scientific information.
- **Interdisciplinarity:** Integrate perspectives on sustainability, economics, and policy.
- **Responsible Action:** Make informed decisions that promote social justice and sustainable development.
- **Active Participation:** Lead public dialogue and the formulation of inclusive policies.



Program content**Virtual Seminars**

- **Session 1:** Bioeconomy: Opportunities and Challenges for Latin America
- **Session 2:** Fundamentals of Biotechnology
- **Session 3:** Evolution of Biotechnology: From Traditional to the Biorevolution
- **Session 4:** Synthetic Biology: Accelerating the Transition to a Biology-Based Economy
- **Session 5:** Gene Editing: Applications and Implications
- **Session 6:** Emerging Biotechnologies: Case Studies and Applications
- **Session 7:** Ethical, Legal, and Social Implications of Biotechnology
- **Session 8:** Regulatory Landscape for Biotechnology Applications

**In-Person Workshop: How to Build a Bioeconomy Strategy?**

- **Case Studies:** National Bioeconomy Strategies
- **Innovation Ecosystems** in Biotechnology
- **Panel Discussion:** Local Challenges and Opportunities
- **Collaborative Exercise:** Defining Priority Areas and Guiding Principles for a National Bioeconomy Strategy

**Capacity-Building Program in
Biotechnology in Guatemala**

With the support of the National Secretariat of Science and Technology (SENACyT) and the Ministry of Economy, the program was implemented in Guatemala with a comprehensive approach aimed at training decision-makers and enhancing their capacity to lead the transition toward a sustainable bioeconomy.

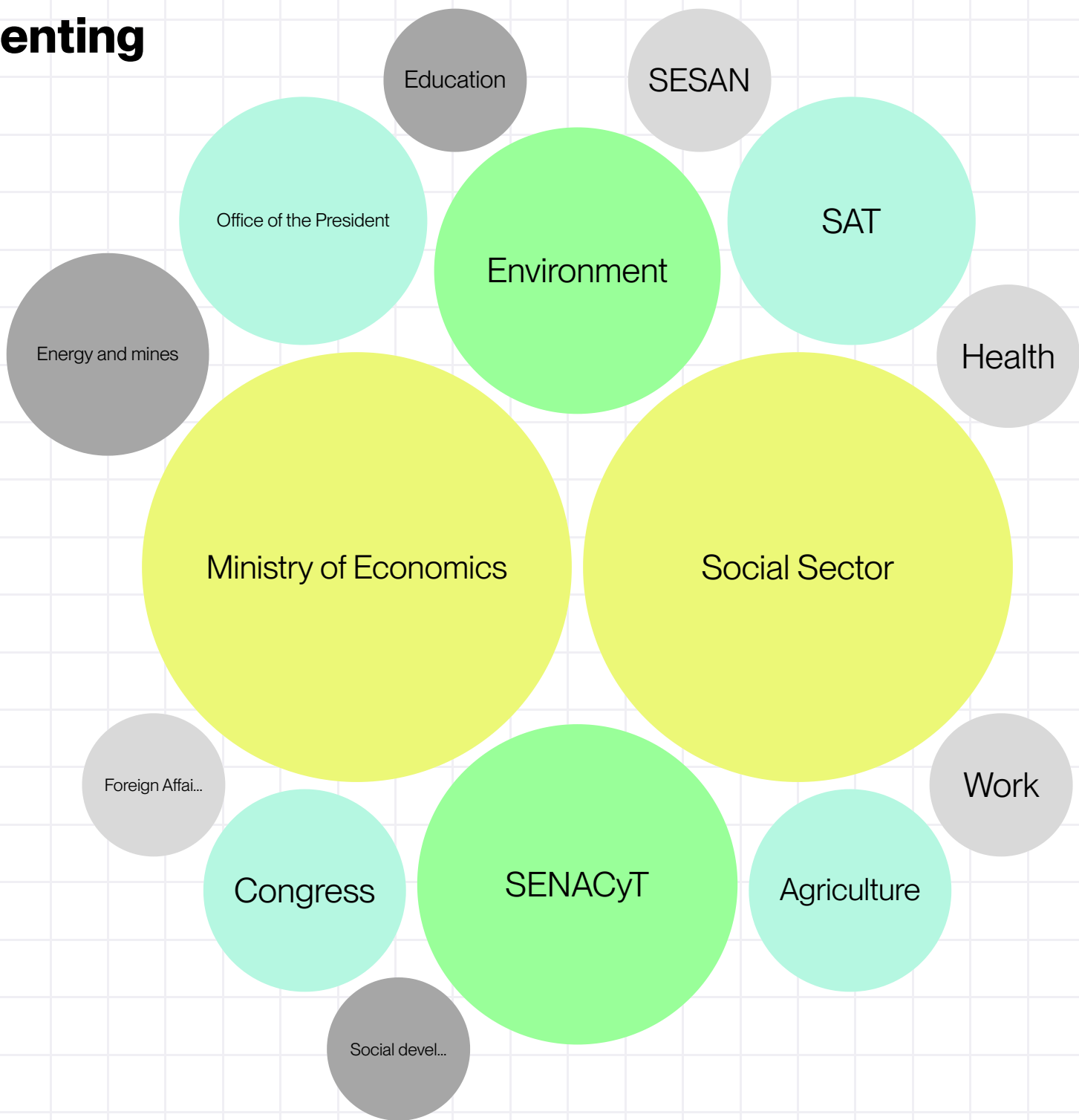
The program engaged 45 public officials from various government agencies throughout the 8 virtual seminars and the in-person workshop. Participants actively contributed to defining the guiding principles for a potential National Bioeconomy Strategy



Participant profile

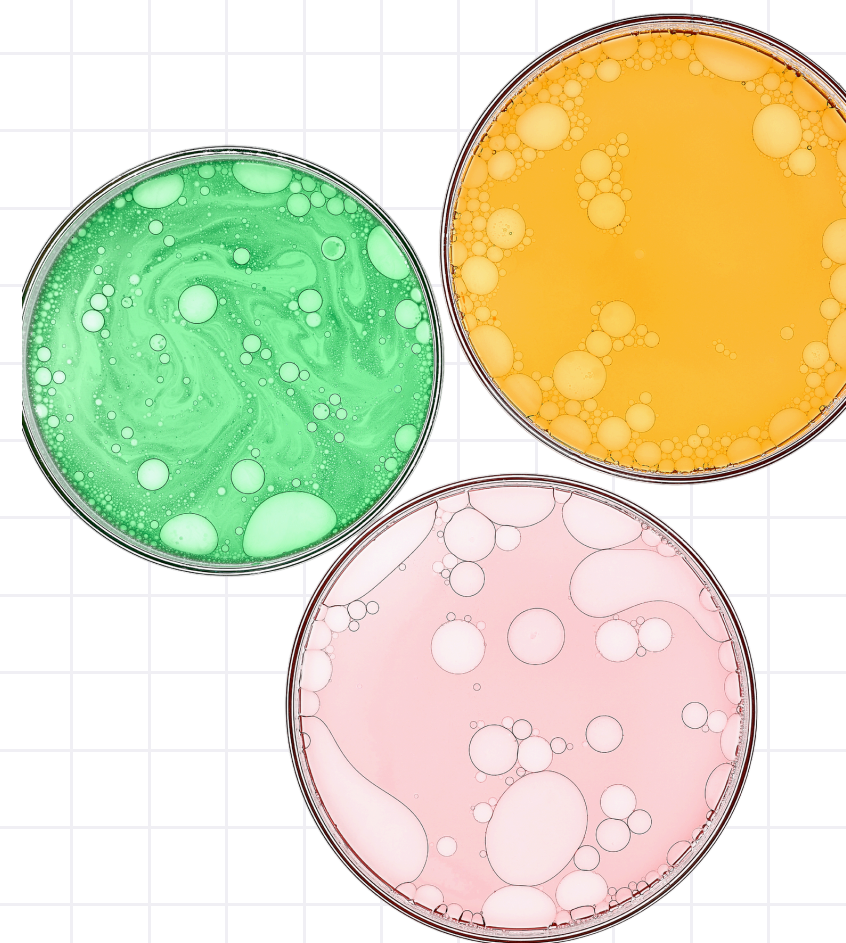
**45 participants representing
15 public agencies.**

- 9 Federal Ministries
- 4 Secretariats
- Office of the President
- Congress of the Republic
- Social and Academic Sectors



Overall results

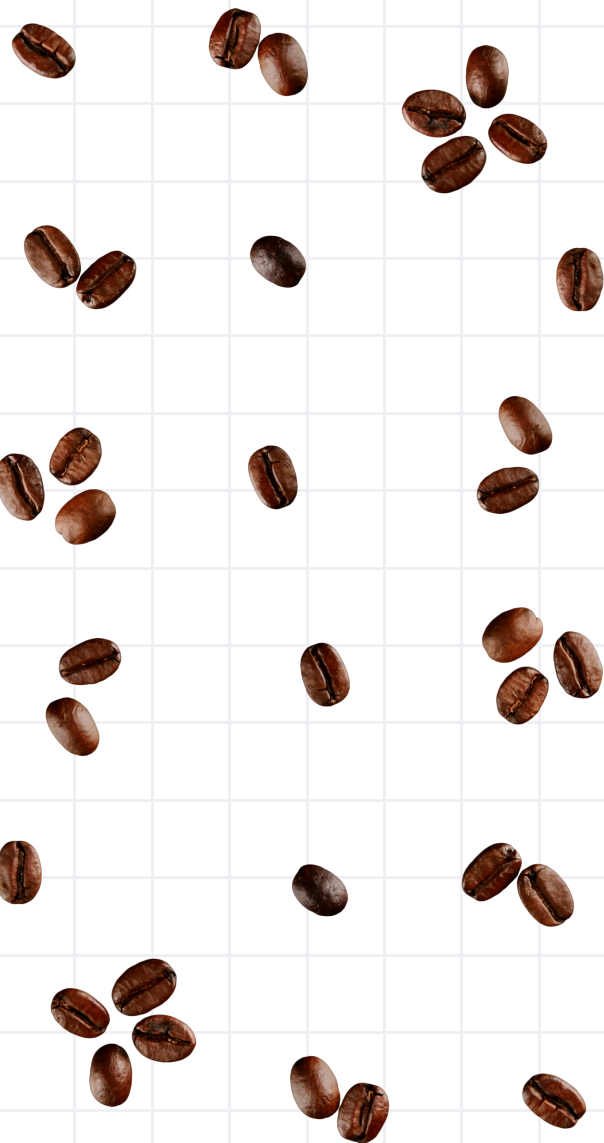
- **Increased Knowledge and Awareness:** Participants gained tools to integrate biotechnology into public policy design.
- **Collaboration Networks:** Connections among key stakeholders within the country and region were strengthened.
- **Initiation of Discussions Toward a National Bioeconomy Strategy:** The groundwork was laid for the development of a cohesive national strategy.



In-Person Workshop

Toward a Bioeconomy Strategy for Guatemala

During the workshop, participants engaged in a collaborative exercise where they shared their **perspectives and priorities** to **define the guiding principles for a future National Bioeconomy Strategy in Guatemala.**



Fundamental Principle:
Integrated and innovative development, combining science and technology with inclusive and sustainable approaches to address Guatemala's social, economic, and environmental challenges.

- Proposed Strategic Foundations:**
- Leverage the country's agricultural tradition as a starting point.
 - Strengthen capabilities in agro-industrial systems.
 - Explore new opportunities based on the country's rich biodiversity.

- Decision-Making Criteria:**
- Prioritize projects that deliver direct and tangible benefits to local communities.
 - Promote initiatives aligned with the Sustainable Development Goals (SDGs), integrating environmental, economic, and social solutions.

As part of the exercise, participants identified the economic sectors with the greatest potential for developing a robust bioeconomy in Guatemala. These sectors reflect national priorities in terms of impact, feasibility, and alignment with existing resources and capacities.

Priority areas

Agriculture and Livestock:

- Enhance agricultural productivity through biotechnological applications.
- Strengthen value chains to ensure sustainability and competitiveness.



Renewable Energy and Biofuels:

- Develop clean energy sources to diversify the energy matrix.
- Promote biofuels derived from biomass to reduce reliance on fossil fuels.



Water and Water Resources:

- Foster sustainable water management as a strategic resource.
- Implement technologies for water conservation and reuse.



Conclusions

The program successfully laid the groundwork for advancing biotechnology and bioeconomy strategies in Guatemala. Key outcomes include:

- **Strengthened Knowledge and Awareness:** Participants gained essential tools and understanding to incorporate biotechnology into public policy design, fostering evidence-based decision-making.
- **Collaborative Networks:** The program facilitated stronger connections among key stakeholders from government, academia, and social sectors, enhancing collaboration and dialogue.
- **Strategic Vision Development:** Through interactive exercises, participants contributed to defining guiding principles and priority areas for a National Bioeconomy Strategy.
- **Focus on Local Needs:** The workshop provided a platform for addressing Guatemala's specific challenges and opportunities, aligning the program with national priorities.

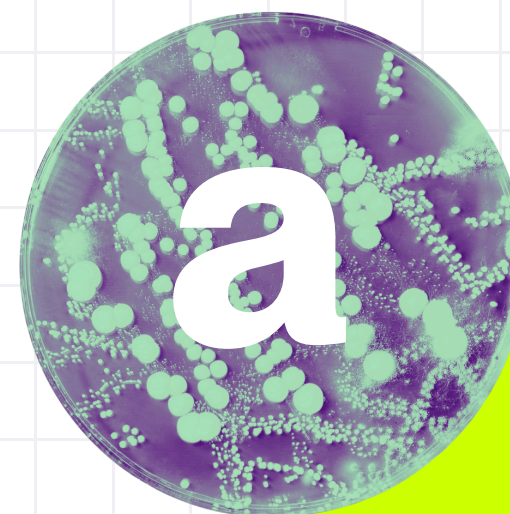


About Allbiotech

Allbiotech is a nonprofit organization dedicated to catalyze biotechnology development in Latin America and accelerate the transition to a sustainable bioeconomy in the region.

Allbiotech promotes capacity-building, innovation, and cross-sector collaboration to address social, economic, and environmental challenges.

Futuro.bio is a new initiative by Allbiotech aimed at fostering research, strategic advisory, and capacity-building for the design of public policies focused on bioeconomy, science, technology, and innovation.



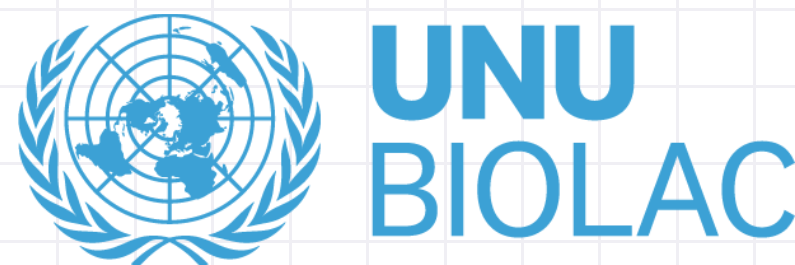
About UNU-BIOLAC

The Biotechnology Program for Latin America and the Caribbean of the United Nations University (**UNU-BIOLAC**) focuses on **training graduate students, young researchers, and decision-makers in biotechnology**, promoting their potential to drive social change and contribute to achieving the Sustainable Development Goals.

Its activities include:

- Fellowships for research and training.
- Advanced courses in biotechnology.
- Workshops to train policymakers.
- Discussion groups on the ethics and responsible use of biotechnology.

As of 2023, the program has supported over 403 researchers and organized more than 342 workshops, seminars, and conferences, impacting thousands of professionals across the region. UNU-BIOLAC champions the ethical and responsible use of biotechnology to enhance human well-being and preserve biodiversity.



Special thanks

To the National Secretariat of Science and Technology (SENACyT) and the Ministry of Economy for their support in the organization and execution of the Program, and their great work promoting scientific progress and sustainable development in Guatemala.



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Ciencia y
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Ministerio de
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