

Bioeconomy claims its place in international climate action

Key messages:

- *Bioeconomy is essential yet often overlooked in climate change adaptation and mitigation policy and actions.*
- *A sustainable and circular bioeconomy offers a holistic approach for a more impact-focused cross-sectoral climate policy and action, especially in achieving reduced carbon emissions economy, new sustainable and climate-resilient pathways for growth, and mobilizing citizen participation in climate action.*
- *Bioeconomy should be integrated in international climate action and its cross-sectoral feature makes it a gamechanger in further COP deliberations.*

2 November 2022: The 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) summit in Sharm el-Sheik, Egypt will review countries' efforts to meet their climate commitments. The conference will also discuss actions needed to reduce the impact of rising temperatures. As President Abdel Fattah El-Sisi¹ has observed in his welcome message, "we are now able to better understand the science behind climate change, better assess its impacts, and better develop tools to address its causes and consequences". In our view, one of these "tools" in the climate change adaptation and mitigation toolkit that would be a gamechanger in the COP deliberations is the bioeconomy and its integration in international climate action.

The Intergovernmental Panel on Climate Change (IPCC) featured "bioeconomy" for the first time in their Sixth Assessment Report on climate change; and we recently reiterated the significance of cross-sectoral feature of international bioeconomy policies in climate action (see [Nature 610, 630 \(2022\)](#)).

Bioeconomy is "the production, use, conservation, and regeneration of biological resources to provide sustainable solutions (including information, products, processes, and services) in and across all economic sectors." It is a vital tool for a coordinated climate response that incorporates production and consumption systems in agriculture, food, forestry, regenerative mining, manufacturing, marine, urban and land ecosystems, energy, biotechnology, healthcare, information and communication technologies, water, transport, and housing, etc. Bioeconomy allows economic and social value to be added to biological resources (i.e., animals, plants, insects, and microorganisms) in a sustainable, renewable, and circular manner.

Numerous efforts are underway to integrate bioeconomy into climate actions around the world, e.g., optimizing circularity, enforcing resilience of landscapes, adaptive breeding of crops, trees and livestock, added value through innovation, and supply chains modification, biomanufacturing, etc. Here we share just **three** examples that the ongoing COP deliberations should consider.

Reduced carbon emissions economy

Bioeconomy complements decarbonization efforts like carbon capture and storage, or recycling fossil-based materials to achieve a reduced carbon emissions economy. Biological systems are being used to

¹ <https://cop27.eg/#/speeches/president-speech>

improve energy efficiency, minimize waste generation, and design recyclable materials and chemical products.

New pathway for growth

More than 60 countries have developed dedicated bioeconomy strategies to foster new sustainable, climate-resilient, and circular pathways for growth and job creation. Major corporations as well as small and medium-sized businesses are developing sustainability strategies to deliver climate and nature positive products, processes, and services for society.

Citizen participation in climate action

Citizen mobilization is necessary to keep a planetary temperature increase below 2.0 degrees Celsius by 2050. Bioeconomy-related citizen actions encompass carbon farming and greening for resilient cities and rural landscapes, biodiversity conservation, and responsible consumption.

A call upon COP to action

A sustainable and circular bioeconomy offers a holistic approach for more impact-focused climate policy and action, especially in reducing carbon emissions, developing new sustainable, and climate-resilient pathways for growth, and mobilizing citizen participation in climate action. Therefore, we call upon the COP to:

- a. Shine a focused spotlight on the holistic and cross-sectoral feature of the bioeconomy and advance its integration in international climate policy and action.
- b. Discuss ways to effectively measure the contribution of bioeconomy to climate adaptation and mitigation at different geographic scales.
- c. Consider quantitative targets such as a share of the bioeconomy in GDP to facilitate decision making on policies for transition to sustainable climate and nature-positive global societies.

About the IACGB

The [International Advisory Council on Global Bioeconomy \(IACGB\)](http://www.iacgb.net) is an independent think tank composed of about forty high-level bioeconomy leaders and experts from all hemispheres, representing different backgrounds and expertise (www.iacgb.net). While the members of the IACGB serve in their personal capacity, many of them also advise the bioeconomy landscapes and governments of the countries or regions to which they relate. The IACGB intends to act like a platform of platforms to facilitate international collaboration and mutual exchange in all aspects of relevance for sustainable and circular bioeconomy development by working together with multiple stakeholders across the globe, through leading representatives from policy, science, civil society, and the business sector. The IACGB initiates, designs, and organizes the Global Bioeconomy Summit (GBS), a leading global conference and platform for exchange and discussion of recent developments for a sustainable and circular bioeconomy worldwide.