



Position Paper:

Revising the EU Bioeconomy Strategy

– Aligning the Circular
Economy and the
Bioeconomy at EU
and National
level

Introduction

The European Union's Bioeconomy Strategy is at a pivotal point of revision. As the EU seeks to advance its transition towards circular economy, civil society organizations – backed by academic insights – are calling for a bioeconomy strategy that equally boosts sustainability and environmental resilience, and social well-being. This paper provides a multi-actor perspective prepared by the Leadership Group on Bioeconomy perspective on these challenges, focusing on sustainability, economic development, especially in rural areas, and regulatory frameworks. It highlights gaps in the existing strategy and proposes policy recommendations for policymakers and research institutions.

Overview of the Current EU Bioeconomy Strategy

The EU Bioeconomy Strategy is undergoing a significant review, necessitating a broader focus beyond research and innovation (R&I) to include industrial development, environmental policy, and agricultural policy. This expansion aims to ensure the circular bioeconomy is implemented across Europe, enhancing policy coherence and contributing to Europe's strategic autonomy.

The EU's first Bioeconomy Strategy was launched in 2012 and updated in 2018 under the title „A sustainable bioeconomy for Europe: strengthening the connection between economy, society and the environment.“ The strategy seeks to balance the scaling up of bio-based sectors, respecting ecological boundaries, and developing the bioeconomy at local and regional levels.

Key Challenges and Gaps in the Existing Strategy

1. The Need for EU Global Leadership

- 1.1. Use the opportunity for the EU to be a global leader by capitalising on highly ambitious, coherent bioeconomy strategy.
- 1.2. Develop a clear policy framework that integrates circular bioeconomy principles such as waste hierarchy and cascading use of resources, across industrial, agricultural, and environmental sectors. Interlinked circularity legislative package should ensure consistency with EU and bioeconomy targets.
- 1.3. Leverage upcoming international events (like BIOEAST, the Global Bioeconomy Summit, and the G20 Summit and COP30) to strengthen its role as a global leader in bioeconomy.
- 1.4. Create new structures or leadership to ensure policy coherence. For examples include a high-ranking policy officer or commissioner responsible for bioeconomy, or an inter-directory steering group.
- 1.5. Ensure Europe's Open Strategic Autonomy. Local and regional initiatives should replace international dependencies to provide essential food and non-food products from local resources, increasing local welfare and resilience.
- 1.6. Introduce financial mechanisms—such as tax exemptions, VAT reductions for bio-based products, and renewable energy support schemes—to accelerate market uptake of sustainable alternatives within planetary boundaries.

2. The Need for Clear Definition and Direction

- 2.1. Establish a widely agreed-upon definition of bioeconomy, clarifying its role as a tool for achieving sustainable development. The definition should be aligned with definitions adopted by the G20¹ and the United Nations to support coherence and uniformity in strategies implemented across regions. It should explicitly connect bioeconomy to environmental, social, and economic aspects and be used in integrated policies that effectively leverage bioeconomy as a sustainable development driver.
- 2.2. Establish circular principles as a core foundation of the EU bioeconomy strategy, rather than treating circularity and bioeconomy as separate agendas. Ensure consistency of the new bioeconomy strategy with circularity principles, especially with the principle of cascading use of biomass.
- 2.3. Emphasise prevention strategies as the main driver of circularity, in line with the waste hierarchy. Apply a systemic approach to waste hierarchy implementation taking into account i.a. economies of scale aspects, sustainable management of material flows within planetary boundaries and eco-design of goods.
- 2.4. Prioritize the use of existing resources such as residues, by-products, co-products, bio-waste, and secondary materials and reduce demand for primary resources.. Ensure demand and maximize the use of resources already circulating within systems, i.a. with the use of public procurement.

1. G20 High-Level Principles on Bioeconomy: <https://www.g20.org/en/news/g20-reaches-consensus-and-establishes-high-level-principles-on-bioeconomy>

- 2.5. Consider the costs of ecosystem services and natural capital degradation in result of bioeconomy development. It is crucial to ensure that agricultural and forest management practices are sustainable and do not lead to land-use changes that cause harm to the environment also in comparison to currently used non-renewable alternatives, Ensure stronger environmental integration and careful coordination between related policy instruments, to prevent the bioeconomy risks unintentionally exacerbating climate change and resource depletion instead of mitigating these global challenges.
- 2.6. Ensure that biobased products and materials are kept in technical and biological cycles at their highest value for as long as possible, with the goal of maximizing the total net present utility of goods. This necessitates a common quality standard for biobased materials (residues, by-products, co-products, bio-waste, and secondary materials) across European countries, enabling a safe secondary bio-based material flows across countries.
- 2.7. Increase value creation from existing resources by design-led approaches and circular business models.
- 2.8. Only consider the pathway to recirculating biobased materials back into the biosphere through biodegradation when products cannot be collected or kept in technical or biological cycles or their use in a cascading manner has been optimal. In such cases ensure that the materials will not harm water, soil, or biodiversity. Special precautions are necessary with bioplastic products, as they can produce microplastics during biodegradation.
- 2.9. Recognise the need to restore and improve natural capital. This can be achieved through regenerative practices in agriculture, aquaculture, and forestry, which provide food and materials in a way that supports biodiversity and improves natural capital, including soil fertility. This includes developing new products or redesigning existing ones to incorporate outputs from regenerative systems that currently lack strong market demand or are too costly at current production scale.

3.

The need for policy coherence and Sustainable Development Goals

- 3.1. Recognise that Europe operates within a global context and cannot achieve a truly circular economy in isolation.
- 3.2. Address the need for fair and responsible relationships throughout global value chains, with particular attention to social impacts at both the start and end of these chains, including those outside Europe and in rural or non-EU regions. Take into account the spatial limits of usable farming land in highly urbanised regions and potential conflicts of interest.
- 3.3. Prioritise the integration of social considerations into bioeconomy strategies, especially where bioeconomy activities are closely linked to community development and livelihoods. Ensure that efforts to close material loops do not overlook the well-being of affected communities. Focus on rural areas in developing a bioeconomy, as emphasized by the 2023 Council Conclusions and the Letta Report. Use the EU Bioeconomy Strategy as an opportunity to lay the groundwork for a vision for rural Europe, taking into account the well-being of those living in rural areas and prioritising the complementary principles of circularity that promote shorter supply chains, repair and reuse. Also, the importance of bioeconomy in rural areas to generate green jobs and stabilize the population and young generations.
- 3.4. Ensure coherence between policy initiatives such as the EU Bioeconomy Strategy and related policies, notably the European Green Deal (COM/2019/640 final), the Paris Agreement (2015, UNFCCC), the Circular Economy Action Plan (COM/2020/98 final), and the 2030 Agenda for Sustainable Development (UN, 2015). Additional relevant EU initiatives include the Certification Framework for Carbon Removals (COM/2022/672 final), the EU Nature Restoration Law (COM/2022/304 final), and the provisional agreement concerning packaging, bio-based

plastic packaging, and food-related legislation (Proposal for a Regulation on Packaging and Packaging Waste, COM/2022/677 final).²

- 3.5. Align the development of a Bioeconomy Action Plan with the recent Clean Industrial Deal, forthcoming Circular Economy Act and the Biotech Act. It could ensure that the EU bioeconomy significantly contributes to achieving the Union's climate neutrality and biodiversity protection targets as outlined in the European Climate Law (Regulation (EU) 2021/1119). It could also support the self-sufficiency in the region due to lesser need of import. Both for the biotech as for the bioeconomy solutions, it is imperative that they lead to circular systems, and this link with the circular economy strategy should remain strong.
- 3.6. Integrate circular principles³, through bioeconomy, into the creation of a resilient food system in the EU. The European Commission and Member States should coordinate agriculture-related policies, such as the Common Agricultural Policy (CAP), EU Forest Strategy, Biodiversity Strategy, European Green Deal, Renewable Energy Directive, and Waste Framework Directive, at both EU and national levels. This coordination should also extend to third countries to ensure a levelled playing field for all producers operating on the common market.
- 3.7. Address competitiveness comprehensively and in alignment with previously agreed positions of the European Economic and Social Committee (EESC). This alignment ensures that economic initiatives support sustainable growth and inclusive development, respecting environmental integrity and social equity as stated in the recent Draghi report, which underscores the imperative of integrating sustainability considerations into competitiveness strategies, thereby achieving balanced and durable economic resilience and prosperity.⁴
- 3.8. Create strong peer-to-peer and multi-stakeholder learning facility or network such as open-shared facilities, which actively facilitate and coordinate all actors engaging in the bioeconomy to learn from each other and to develop an iterative learning model, with finance and funding easily accessible.
- 3.9. Consider using existing initiatives such as the BIOEAST and CEE2ACT and their activities in the CEE macro-region as a model for cooperation in the sector. Cooperation and strategic planning are closely linked to a likely future biomass gap, between demand and supply, which would need to be tackled.
- 3.10. Promote symbiosis (industrial, urban, and terrestrial) and biohubs to advance circularity. Consider using as example the BioHubCat, Catalonia's dedicated „one-stop shop” for the bioeconomy, a platform connecting companies and entrepreneurs with the resources, services, and expertise they need to advance their bioeconomy projects.

4. Importance of Emissions Reduction Across Agri-food Value Chains and Markets⁵

- 4.1. Position the bioeconomy as crucial to combatting climate change, safeguarding ecosystem resilience, and restoring nature. It must be underlined that this goes hand in hand with

2 Ronzon, T., & Sanjuán, A. I. (2020). Friends or foes? A compatibility assessment of bioeconomy-related Sustainable Development Goals for European policy coherence. *Journal of Cleaner Production*, 254, 119832. <https://doi.org/10.1016/j.jclepro.2019.119832>

3 Based on Strategic Dialogue on the Future of EU Agriculture https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/main-initiatives-strategic-dialogue-future-eu-agriculture_en#strategic-dialogue-report

4 European Commission. (2023). *The future of European competitiveness: Part A – A competitiveness strategy for Europe*. Publications Office of the European Union. https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf

5 Based on Strategic Dialogue on the Future of EU Agriculture https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/main-initiatives-strategic-dialogue-future-eu-agriculture_en#strategic-dialogue-report

promoting economic development and creating new jobs, especially in rural and remote areas of Europe.

- 4.2. Establish long-term policies for the bioeconomy to offer sustained contribution to tackling climate challenges. These policies should attract young people to rural areas, develop new skills, and implement innovative solutions for sustainable, locally sourced biomass.
- 4.3. Included circular bioeconomy solutions (certification of ecosystem services, responsible forest management, carbon farming, regenerative agriculture, etc.) in agricultural and forestry policy.
- 4.4. Help farmers reduce emissions by improving their access to effective practices and technologies. This support should include limiting barriers to farmers integration into circular economy strategies, such as waste-to-energy systems and recycling of agricultural by-products in alignment with bioeconomy principles.
- 4.5. Ensure access for primary producers and food processors to actively participate in the entire policymaking process.
- 4.6. Build on producers' cooperatives as key stakeholder entities in bioeconomy development. Strong public private partnerships in which rural actors actively participate can help turn niche into norm to support the development and implementation of bioeconomy initiatives.

5. Importance of Sustainable Land Usage & Nature Based Solutions

- 5.1. Strengthen safeguards within Europe's bioeconomy strategy to address the gap between bioeconomy ambitions and ecosystem realities. Prioritize sustainable land use to prevent deforestation, soil depletion, and habitat loss.⁶
- 5.2. Prioritise biodiversity as a fundamental goal that the bioeconomy must actively support defining the bioeconomy as a system that contributes to the protection and restoration of biodiversity.
- 5.3. Shift from economic growth to economic development as the strategic goal of circular bioeconomy. Integrate the concept of sufficiency into bioeconomy strategies, focusing on meeting societal needs within planetary boundaries.
- 5.4. Address the unintended consequences of bioenergy incentives, which have sometimes resulted in monoculture plantations or intensified logging practices. Implement stringent sustainability criteria for biomass sourcing, enhance environmental impact monitoring, and integrate contemporary ecological research into bioeconomy frameworks.⁷
- 5.5. Enhance and encourage natural systems as carbon sinks. Recognize the multiple sustainability benefits of biodiverse forests managed under continuous cover forestry (CCF), as practiced in many EU Member States. Support farms and forest owners already using nature to sequester carbon, such as those employing regenerative practices that increase carbon storage in soils and creating hedgerow habitats as field boundaries and forest owners working to improve water quality or biodiversity habitats. Reward these practices under a bioeconomy strategy as they provide means of achieving climate and sustainability targets.
- 5.6. Foster the integration of zero pollution in circular bioeconomy by ensuring the use of healthy soil and pollutant free water for biomass & food production. Consider when appropriate the use of nature-based solutions to eliminate chemical and biological pollutants. We urge the European Commission to recognize environmental biotechnology not as an adjunct to the bioeconomy, but as one of its essential foundations.

6 Ronzon, T., & Sanjuán, A. I. (2020). Friends or foes? A compatibility assessment of bioeconomy-related Sustainable Development Goals for European policy coherence. *Journal of Cleaner Production*, 254, 119832. <https://doi.org/10.1016/j.jclepro.2019.119832>

7 Ronzon, T., & Sanjuán, A. I. (2020). Friends or foes? A compatibility assessment of bioeconomy-related Sustainable Development Goals for European policy coherence. *Journal of Cleaner Production*, 254, 119832. <https://doi.org/10.1016/j.jclepro.2019.119832>

6. Economic Feasibility and Supporting Traditional Practices

- 6.1. Recognize the bioeconomy's significant contribution to the EU economy, supporting over 17 million jobs and generating approximately €1.5 trillion, about 10% of EU GDP (JRC, 2023). Achieving cost competitiveness for bio-based products, which are often more expensive than fossil-based alternatives, requires continued R&D, economies of scale, and strategic public support. Increased funding for pilot projects, scale-up facilities, and green investment funds is essential to foster bio-innovation.⁸
- 6.2. Stimulate innovation in the processing of end-of-life bioplastics, as they are currently often incinerated.
- 6.3. Create well-paid, sustainable jobs, opportunities, training and social benefits through careful development of a bioeconomy that aligns with circularity and sustainability principles, prioritise rural, coastal and remote areas.
- 6.4. Enhance market demand through policies like public procurement initiatives and consumer incentives to overcome market barriers and encourage adoption. Improve financial support by offering accessible and flexible funding options for SMEs and startups to mitigate financial risks associated with scaling bio-based technologies.⁹
- 6.5. Support both high-tech innovations and traditional, nature-based solutions, particularly in the agricultural sector.

7. Promoting Inclusiveness and Multi-Stakeholder Engagement Including Youth

- 7.1. Ensure that bioeconomy policies involve diverse stakeholders, including private sector representatives, academia, NGOs, and civil society and foster dialogue through regular forums and workshops to align interests and strategies.
- 7.2. Drive innovation and address systemic challenges through cross-sectoral collaboration, leveraging networks and partnerships to enhance the bioeconomy ecosystem.
- 7.3. Launch education campaigns to increase public awareness about bioeconomy benefits, reduce consumer confusion, and promote sustainable practices.¹⁰
- 7.4. Use the European Circular Economy Stakeholder Platform (ECESP) with its strong network, and specifically its Coordination Group, to achieve peer-to-peer learning and knowledge sharing.
- 7.5. Draw on the successful work of the EU Bioeconomy Youth Ambassadors, establishing a permanent, participatory platform or network to represent the voice of young people within the bioeconomy. Include young people as stakeholders in the decision-making process to acknowledge their voice. Outline supportive measures to empower young people to become transformative changemakers in shaping the future of the bioeconomy.
- 7.6. Existing frameworks, such as the GreenComp Sustainability Competence Framework, can be used to support educational initiatives.

8 Labiotech.eu. (2023). *The Bio-Based Economy: What's Holding It Back?* Retrieved from <https://www.labiotech.eu/in-depth/sustainability-circular-economy-bioeconomy/>

9 Sustainability-directory. (2024). *What Are The Challenges of Bioeconomy Scaling?* Retrieved from <https://sustainability-directory.com/question/what-are-the-challenges-of-bioeconomy-scaling/>

10 Jiang, T.-H., & Yang, M. (2022). *A Literature Review of International Bioeconomy Strategies*. *Open Journal of Biotechnology and Sustainable Systems*, 7(2), 1–9. Retrieved from <https://www.biolscigroup.us/articles/OJBS-7-132.pdf>

8. Fostering Innovation, Data and Technology Access

- 8.1. Recognize the importance of the high technology element of the bioeconomy. This includes technological advances and innovation that develop biologically-based components for products to replace those that are currently fossil-fuel based or otherwise unsustainable.
- 8.2. Support open data initiatives and alignment to improve the monitoring and evaluation of bioeconomy progress and to ensure consistency and comparability.

9. Monitoring and Evaluation

- 9.1. Implement a stepwise approach to monitoring the bioeconomy sustainability. Draw from existing practices on evaluating stakeholder engagement to select appropriate system boundary definition and relevant indicators.
- 9.2. Promote the recognition and harmonization of established certification schemes and standard-setting frameworks within the bioeconomy. This includes the development and adoption of aligned criteria, minimum sustainability requirements, and quality standards to ensure transparency, comparability, and trust across bio-based value chains.
- 9.3. Leverage existing bioeconomy monitoring systems like the EU Bioeconomy Monitoring System developed by the JRC to systematically track economic, environmental and social progress
- 9.4. Publish monitoring and evaluation (M&E) results in accessible formats for both stakeholders and the general public. Communicate findings clearly to ensure that all bioeconomy stakeholders in the EU, including citizens, understand the current status of bioeconomy implementation. Highlight areas needing improvement to foster transparency, accountability, and informed participation in the ongoing development of the bioeconomy.

10. Final remarks

- 10.1. The revised EU Bioeconomy Strategy must set a clear, ambitious, and long-term direction to ensure the EU's global leadership in sustainability — environmental, social, and economic. It should drive deep greenhouse gas emissions reductions across value chains, promote sustainable land and water use, and mainstream nature-based solutions. The strategy needs to reiterate inclusiveness and multi-stakeholder engagement, with particular attention to rural areas and youth participation, fostering broad societal ownership and resilience.

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