



CONCLUSION OF THE BIOEAST PEER REVIEW

ON BIOECONOMY EDUCATION

STRENGTHENING POLICY ENGAGEMENT,
SKILLS DEVELOPMENT AND REGIONAL
COOPERATION IN THE BIOEAST
MACRO-REGION



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Within the framework of the BOOST4BIOEAST, the BIOEAST HUB Czech Republic, in close cooperation with BIOEAST UniNet and the Thematic Working Group on Bioeconomy Education (TWG BE Edu), organised a peer review dedicated to advancing bioeconomy education across the BIOEAST macro-region.

The peer review brought together a distinguished group of experts and stakeholders:

- Zuzana Weisgarberova, Ministry of Education, Youth and Sports, Czech Republic
- Nelo Emerencia, (BIC) Bio-based Industries Consortium, Brussels, Belgium
- Izabela Rzepczynska, Ministry of Science and Higher Education, Poland

alongside representatives of universities:

- Elena Preda, ASE, Bucharest, Romania
- Danka Moravcikova SUA, Agricultural University Nitra, Slovakia
- Vanja Jurisic, University of Zagreb Faculty of Agriculture, Croatia
- Denis Dobrynin, EBU – University of Eastern Finland
- Mariusz Maciejczak, University of Life Science Warsaw, Poland
- Nikos Monokrousos, International Hellenic University, Greece
- Stanislaw Bielecki, Lodz University of Technology, Poland
- Teodor Vintilă & Andrea Feher, University of Life Sciences "King Michael I" Timisoara, Romania

And research organisations:

- Adrianna Pawlik, (NCBR) National Centre for Research and Development, Poland
- Steliana Rodino, (INCDSB) National Institute of Research and Development for Biological Sciences, Romania

Their combined expertise ensured a comprehensive and multi-perspective discussion on the role of education in supporting the bioeconomy transition.

The peer review built upon a comprehensive preparatory process carried out between 2024 and early 2026 provided in the Boost4BIOEAST project. This process included the development of a structured methodology for stakeholder engagement, interviews facilitated by members of the BIOEAST Thematic Working Group Bioeconomy Education (TWG BE Edu) and also targeted surveys addressed both to



policy makers and to representatives of the BIOEAST UniNet. These **activities were complemented by continuous dialogue with national stakeholders, which together created a solid evidence base for the discussions.** The objective of the peer review was not only to validate the findings from this preparatory phase, but also to create a space for exchange of experiences among countries and to identify common challenges, opportunities and priorities for future action.

The peer review **enabled an open and structured dialogue, combining the presentation of key findings with expert reflections and interactive discussions. Participants shared national experiences, compared different approaches and jointly reflected on the role of education in supporting bioeconomy development.**

A strong consensus emerged that bioeconomy education is gaining increasing importance across the region. It is progressively recognised as a key component of the green transition, sustainable economic development and innovation. However, this recognition has not yet been translated into coherent and well-structured education systems. As highlighted during the discussion, *“bioeconomy education is already happening, but it is often scattered and not framed under a common strategic vision,”* noted **Zuzana Weisgarberova** (Ministry of Education, Youth and Sports, CR), pointing to the need for stronger coordination and visibility.

The discussions confirmed that fragmentation remains one of the key challenges. Bioeconomy-related topics are spread across disciplines such as agriculture, environmental sciences and biotechnology, but are rarely integrated into a unified framework. This lack of systemic approach limits the ability of education systems to respond effectively to the needs of the bioeconomy. Reflecting on this issue, **Nelo Emerencia** (BIC, Belgium) emphasised that *“we need to move from isolated initiatives towards structured systems that connect education, research and innovation in a coherent way.”*

One of the most significant findings of both the preparatory work and the peer review discussions is the limited involvement of policy makers, in particular Ministries of Education. Despite repeated outreach efforts, engagement at policy level remains uneven and often dependent on individual motivation rather than institutional frameworks. This gap was clearly articulated during the discussion, where **Adriana Pawlik** (National Centre for Research and Development, Poland) highlighted that *“without stronger ownership from the ministries, bioeconomy education will remain a marginal topic rather than a strategic priority.”*

The need for stronger policy integration was repeatedly stressed. Bioeconomy education sits at the intersection of multiple policy domains, including education, environment, agriculture and innovation. However, coordination between these domains is often limited. As **Izabela Rzepczynska** (Ministry of Science and Higher Education, Poland) pointed out, *“bioeconomy is inherently cross-sectoral, but our*

policy structures are still largely siloed. Bridging this gap is essential if we want education systems to play their full role.”

The discussions also revealed that in many countries bioeconomy education is not yet supported by dedicated strategies or clearly defined policy frameworks. There is often no direct linkage between national bioeconomy strategies and education systems, and long-term planning for skills development remains insufficient. This creates a disconnect between policy ambitions and implementation capacities, limiting the effectiveness of current efforts.

At the same time, the peer review highlighted significant opportunities, particularly in the area of lifelong learning. Participants agreed that **lifelong learning plays a crucial role in enabling the bioeconomy transition, as it allows for continuous upskilling and reskilling of the workforce.** Mariusz Maciejczak (University of Life Science Warsaw, Poland) reflected *“Business as usual is no longer an option, if we would like to build a serious, competitive and sustainable bioeconomy, I think we need to go beyond the traditional educational models.* **“Flexible learning pathways and modular education formats were identified as key tools to address rapidly evolving labour market needs.** Lifelong learning is therefore not an optional complement, but a fundamental component of education systems supporting the bioeconomy and needs also policy support as reflected by Denis Dobrynin (EBU – University of Eastern Finland) who introduced the event organized by EBU in Warsaw focuses on lifelong learning. *“We need to better understand how European Universities and BIOEAST UniNet can develop rescuing and upskilling. As an outcome of this event next week we are going to shape EBU's position on lifelong learning and also produce a policy brief.”*

Another important dimension discussed during the peer review was the **need to strengthen collaboration across sectors and stakeholder groups.** Effective bioeconomy education requires close cooperation between academia, policy makers, industry and society. Participants stressed that engagement with the private sector is particularly important in order to ensure that education and training programmes are aligned with real needs and future skills demands.

In this context, the BIOEAST TWG BE Edu was acknowledged as a key platform for fostering cooperation, dialogue and coordination. The peer review demonstrated the value of bringing stakeholders together in a structured setting, allowing for the identification of common challenges and the exploration of shared solutions. It also confirmed strong interest in continuing such activities and strengthening the science-policy interface across the region.

Overall, the peer review confirmed that bioeconomy education is a critical enabler of the transition towards a sustainable and circular economy, yet its development across the



BIOEAST region remains uneven and faces significant challenges. **At the same time, the process revealed a strong willingness among stakeholders to collaborate and to move towards more coordinated and strategic approaches.** The outcomes of this peer review will contribute to strengthening bioeconomy education at both national and regional levels, supporting more effective integration of education into bioeconomy strategies and reinforcing cooperation across the BIOEAST macro-region. In doing so, they support the broader ambition of building a knowledge-based, sustainable and resilient bioeconomy in Central and Eastern Europe.

