

What's Next for Bioeconomy education



VET and Life-long learning perspectives workshop insights

This factsheet presents key insights and recommendations from a collaborative workshop on bioeconomy education. The workshop addressed education-focused recommendations and policy-focused recommendations. It featured contributions from multiple EU projects and initiatives, involving over 60 participants from 34 different initiatives and 28 countries.

About the workshop

Held on 29 October 2024, the **BioGov.net European Policy Workshop** "What's next for bioeconomy education? VET and Life-long Learning Perspectives" brought together experts to discuss vocational training (VET) and life-long learning in the bioeconomy sector.

Key Highlights:

- Expert Contributions:** Presentations from leading EU projects provided insights into innovative training approaches and policy recommendations.
- Interactive Dialogue:** A collaborative **Miro session** facilitated discussions on shaping educational and policy frameworks.

Key Presentations:

- Selenia Marinelli (FVA – New Media Research)** – Findings from **8 Communities of Practice (CoPs)**, addressing regional barriers and opportunities.
- Viola Pinzi (European Association for the Education of Adults) – Engage4BIO Educational Guidelines** supporting regional bioeconomy hubs.
- Nadia Sansone (Unitelma Sapienza)** – Lessons from the **Circular Bricks project**, focusing on **train-the-trainer materials** for VET teachers.
- Eddy Grand-Meyer (European Schoolnet)** – STEM education recommendations from **Scientix**, fostering collaboration across sectors.
- Han van Osch (AVANS)** – Takeaways from the **ICA CoP Bio-Edu workshop** on life-long learning for bioeconomy professionals.

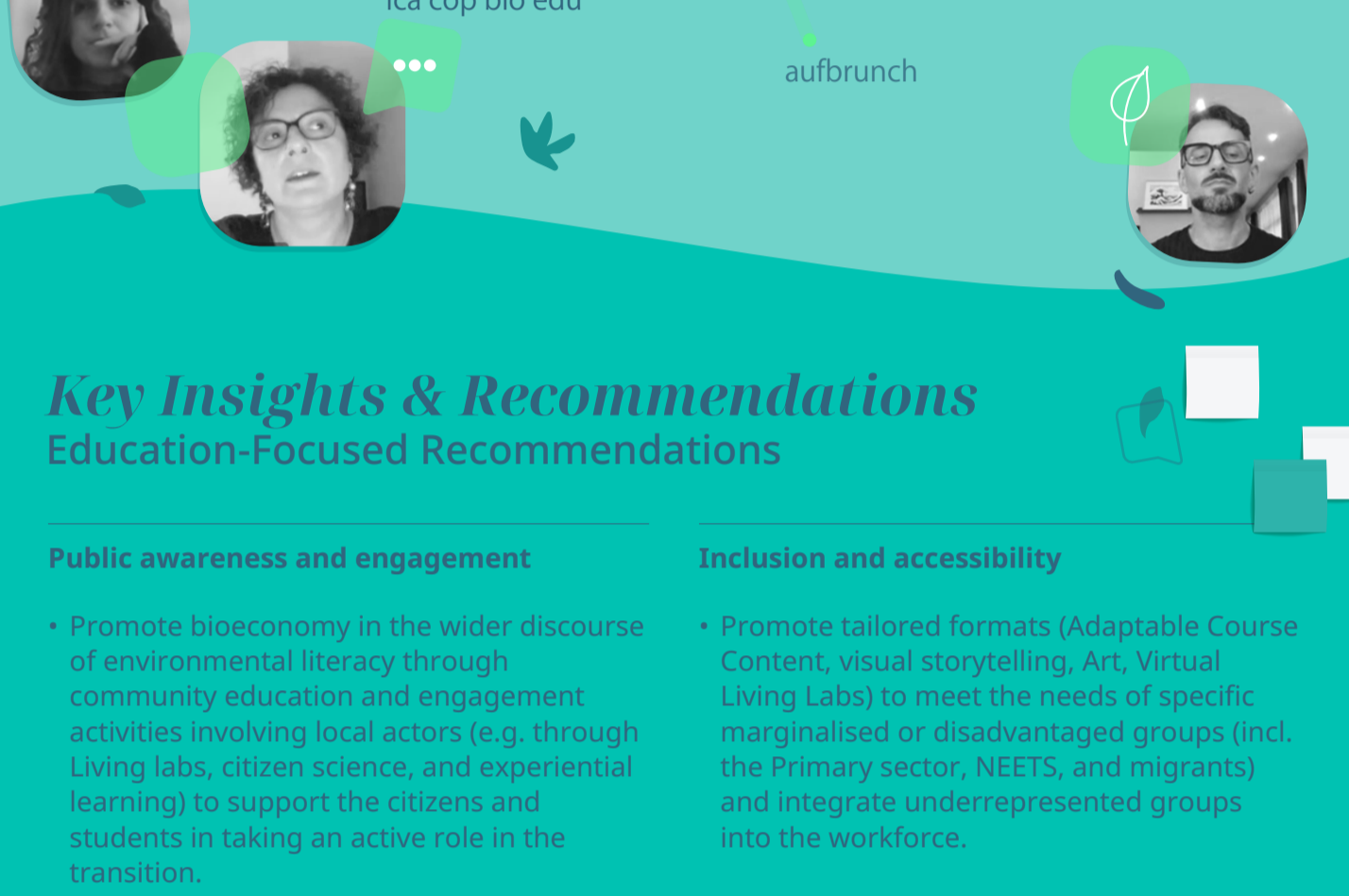
The workshop played a vital role in co-developing strategies to enhance bioeconomy education and policy implementation across Europe.

High-level summary of the workshop participants' recommendations

Raise Public Awareness of the bioeconomy through wide-reaching educational and community engagement activities.

Modernise Curricula to embed circular bioeconomy knowledge and transversal skills at all educational levels.

Strengthen Policy Integration by aligning bioeconomy education with broader sustainability goals and multi-ministerial approaches.



Key Insights & Recommendations

Education-Focused Recommendations

Public awareness and engagement

- Promote bioeconomy in the wider discourse of environmental literacy through community education and engagement activities involving local actors (e.g. through Living Labs, citizen science, and experiential learning) to support the citizens and students in taking an active role in the transition.
- Take stock of previous EU-funded and regional experiences (including materials, educational packages, guidelines for training and mentoring programmes, platforms, etc.)

Skills needed

- Bioeconomy transition requires transversal skills like critical thinking, innovation thinking, entrepreneurship, and system thinking.
- Foster holistic understanding to meet the complexity of the bioeconomy education.
- Connect bioeconomy education response with real-world issues and local skill needs for the circular bioeconomy and bio-based sectors.

Curriculum modernisation

- Circular bioeconomy should be treated as a meta skill in existing curricula across all educational levels.
- Promote interdisciplinarity and crossover programs with education providers, industry and local administration to respond to evolving industrial and market demands.
- Foster co-creation of innovative curricula.

Innovative teaching approaches

- Promote innovative approaches to address challenges and respond to opportunities such as: Ideas incubators, problem-solving oriented teaching, coaching, Lab Works, simulations, Arts-based methods, site visits, experiential learning, peer learning and interdisciplinary learning and collaborative learning communities).

Inclusion and accessibility

- Promote tailored formats (Adaptable Course Content, visual storytelling, Art, Virtual Living Labs) to meet the needs of specific marginalised or disadvantaged groups (incl. the Primary sector, NEETS, and migrants) and integrate underrepresented groups into the workforce.

Continuous monitoring & evaluation

- Promote the regular assessment of bioeconomy education programs to ensure that they remain relevant and effective and to inform the design of innovative curricula.
- Developing assessment tools to measure the impact of bioeconomy education on students' knowledge and skills.

Train the trainers & lifelong learning

- Support continuous professional development for educators at various levels, including informal and non-formal education recognised with micro-credentials and certifications.
- Teachers should be the first to be educated on these complex topics and equipped with actionable lesson plans, resources and toolkits (in local languages).

Practical experiences & industry collaboration

- Break down silos, promoting partnerships and alliances with industry, educators, local communities, environmental organisations, etc. to identify systemic interrelations, better align education with real labour market needs and implement hybrid education programs.
- Support the creation of multi-actor Regional Hubs to connect education with local policy priorities.



Policy-Focused Recommendations

Strategic policy integration

- Facilitate a multi-ministerial approach to ensure cross-sectoral collaboration and coherence for bioeconomy education at local, regional, and EU level.
- Embed bioeconomy knowledge into the curricula across all educational levels to ensure students gain practical and theoretical skills.
- Specific policy recommendations must coincide with curriculum reform to be actionable.

Inclusive policy measures

- Maximise the opportunities for inclusive growth through bioeconomy education.
- Include bioeconomy education in public schools at all levels to make bioeconomy and sustainability topics accessible to students across diverse socioeconomic backgrounds.
- Target educational offers to attract individuals from rural and underrepresented communities, ensuring a diverse talent pipeline.

Stakeholder engagement

- Engaging stakeholders in defining educational priorities to respond to different needs along the whole value chain.
- Support the creation of Interdisciplinary Learning Hubs, fostering collaboration across disciplines, promoting knowledge transfer from industry to education and ensuring that educational opportunities are aligned with bioeconomy political and industrial agendas.

Work experience and vocational training

- Foster partnerships to facilitate more adaptive systems like collaborative learning hubs, apprenticeships, and vocational training focused on bioeconomy.

Supportive networks and structures

- Support the dissemination of success stories, tools and resources, through knowledge platforms supported by governments.
- Multidisciplinary bioeconomy HUBs can play the role of mentors to support industries, policymakers and educators in integrating the bioeconomy into their practice.
- Enhance the role of connectors and ecosystem facilitators promoting dialogue and mutual learning among stakeholders.

Funding and incentives

- Bioeconomy LLL and VET education should be a priority for future EU Funding.
- In addition, new business models and public-private partnerships should be used to support long-lasting initiatives.
- Simplify legislative processes to unlock funding for smaller, local initiatives.
- Provide a recognition scheme through certificates and credits for educators and professionals

Data support for policy

- Boost awareness and empowerment of policy actors with regard to the circular bioeconomy.
- Provide systematic data collection for better strategic planning and evidence-based guidance for future policies and initiatives in bioeconomy education (mapping impacts of successful policies, regional needs and gaps, training programs, initiatives, case studies and good practices).

Monitoring and Skill Alignments

- Monitoring labour market trends and local bioeconomies through observatories and platforms to bridge skill gaps.



Concluding Remarks

The bioeconomy transition requires coordinated efforts from educators, industries, policymakers, and communities. By embedding bioeconomy literacy and transversal skills across all educational levels, we can foster an inclusive, innovation-driven workforce that supports sustainability goals. The outcomes of this collaborative workshop were showcased to around 100 experts in bioeconomy education participating in the high-level event "Bioeconomy education to enable the transition to a competitive, regenerative, and fair (bio)economy. Building the next union of skills in the bioeconomy", organized in Brussels by the European Commission's DG Research & Innovation on 20 November 2024, towards the revision of the European Bioeconomy Strategy.

Further Resources

Workshop Materials: Aggregated PPTs and resources shared during the event.

[DOWNLOAD](#)

Key EU Projects:

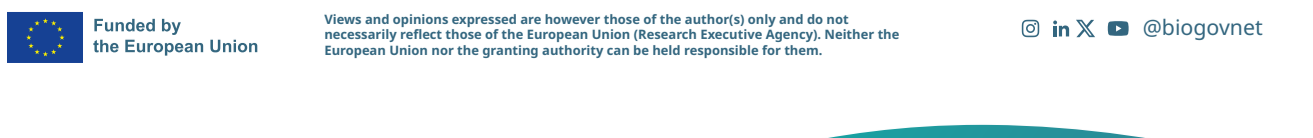
- BioGov.net
- Engage4Bio
- Circular Bricks
- Scientix
- ICA-CoP Bio-Edu

For more information, please contact:

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This factsheet was compiled from inputs gathered during the 29 October 2024 VET and Life-long Learning workshop.

Consortium



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