

- **Future forecast:** Education should not only satisfy the current market necessities but should look for a step future.
- **Educational organisation capabilities:** E.g. for bioeconomy training, it proved to be very useful for the coaching and supervision of trainees in the laboratory of pilot plants. Although enterprises seek workers with high expertise and practical skills in specific bioeconomy areas, many of them are not willing to allow training events on their pilot cases, due to safety and confidential issues.
- **Regional factors:** The differences between the countries of the **BIOEAST** region provide opportunities for mutual learning.
- **Awareness raising and promotion of vocational training events and lifelong learning:** The **BIOEAST** region is lagging behind the practice of lifelong learning. Environmental agencies, businesses, agriculture and forestry chambers can contribute to awareness-raising by boosting their role as communicators.



The study was commissioned by the **BIOEAST** Thematic Working Group on Bioeconomy Education, funded by the **BIOEASTsUP** project and performed by Neven Duić, Tomislav Pukšec and Ana Lovrak.

The study will contribute to the **BIOEAST Strategic Research and Innovation Agenda (SRIA)** being developed in 2022.

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Read the full study on the **BIOEAST** website



This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 862699



# BIOEAST #2 THEMATIC STUDIES

## BIOECONOMY EDUCATION IN THE BIOEAST COUNTRIES



## What is the study about?

Education in the circular bioeconomy must be transdisciplinary, including complex systems thinking. The main objective of the study is to present the current status of bioeconomy education in the **BIOEAST** countries. It displays an initial list of current and future **needs in the agricultural practices, the industry and policy makers**, it presents the mapping of the **capacity of educational organisations** and provides a **gap analysis**. The study concludes with an **action plan** for the **BIOEAST** macro-region on how to optimise the educational practices and also how to improve the bioeconomy outcomes through education.

## Main findings

It is expected, that new types of bioeconomy industries will strengthen in the **BIOEAST** region, and there is a great threat that the existing educational organisations will not be able to address the needs of those new industries. In order to shift to circular Bioeconomy, it is necessary to consider a multidisciplinary education system, multi-level education of specialists in the domains, and to establish a systemic programme so to raise the environmental awareness of society in **BIOEAST** countries. From the results obtained in the study, it is clear that in many **BIOEAST** countries, educational organisations have a lack of capacity in satisfying future needs of bioeconomy. From the gap analysis, it is clear that **Universities/Faculties** address most of the needs of the agricultural practice, industry and policy makers. However, the capacity to address those bioeconomy needs is not provided in one unique course but is rather fragmented and often partly addressed in many different courses. It is therefore highly encouraged for universities to **cooperate with the European Bioeconomy University** or other Educational Institutions and to gain from the existing experience. The educational programmes on the

**Vocational Education and Training level**, in most cases, they are not specifically focused on bioeconomy education. The high schools in the **BIOEAST** region are still not sufficiently addressing the needs of the bioeconomy and the topics related to bioeconomy are only addressed in the scope of the “general” subjects, such as biology, physical sciences, environmental education etc. Regarding the educational agencies, the greatest barrier is that there is a **low number of educational agencies** in the **BIOEAST** regions, as the countries of the **BIOEAST** regions are underperforming in life-long learning practice.

## Overview of the Action plan for the BIOEAST macro-region on how to improve bioeconomy through education

### 1. Common action in bioeconomy education



**Education in primary and high schools:** teaching principles of circularity, acting local and global at the same time and raising interest for bio-based careers;



**At universities:** a systematic curriculum is needed, combining life science, engineering, economics and marketing, and enabling the dynamics for the development of transversal skills, capable to support the students to become bioeconomy entrepreneurs or management. Most of the universities in the **BIOEAST** region cover to a great extent the bioeconomy educational aspects, but through different faculties and/or modules, therefore they are not providing a comprehensive and inclusive bioeconomy education to the students;



**Vocational training:** there is a need to match requirements for skills in various sectors involving regional and local actors. In the same perspective the sectorial factor should be included.

Research and educational organisations should **form a synergistic network with business initiatives and public bodies** that work together on sustainable solutions for bioeconomy education. Some of the key areas for providing a secure future for succeeding generations are:

- Addressing the gap between the capacity of educational organisation and needs of industry, agriculture practice and policy makers;
- Investment in relevant research areas, both within each of the sectors and by encouraging multidisciplinary programs;
- Promoting entrepreneurship practices (and education) within the Bioeconomy a desirable career option;
- Providing a skilled workforce by making the various sectors of the bioeconomy an attractive career option through secondary, tertiary and vocational education;

### 2. Tailored training events in bioeconomy to support the implementation of it in the BIOEAST region.

To support the implementation of tailored training events in bioeconomy in the **BIOEAST** region, the following factors must be considered:

- **The training model definition:** define specific processes that should achieve a professionally competent trainee, having the expected qualification in terms of knowledge, skills, qualities, experience and individual activity style.
- **The regional labour market analysis:** Training events should adapt to market necessities.