BioGov.net
Governance & Upskilling for a Stronger Bioeconomy

Adult education in Estonia

The way forward

Technical specifications document

This document presents findings on opportunities for advancement in the bioeconomy sector in Estonia, highlighting the needs for skills, existing education, gaps and needs in promoting education. It also includes 3 relevant case studies collected from the country.

Opportunities for Advancement

Smart Agriculture and Food Sector

Use of biotechnological breakthroughs and Estonia's developed digital background in meat and milk production; application of novel technologies.

Energy Sector & Green Transition

Exploitation of the full potential of plant biomass to create maximum added value and contribute to the green transition.

Sustainable Forestry

Implementation of sustainable techniques in forestry due to the fact that Estonia's wood resources will decrease significantly by 2050.

Sustainable Blue Economy

Utilization of the great potential of aquaculture and marine farming which represent a great development engine opportunity for the country (e.g. the region of Saaremaa); use of residues and by-products as a valuable resource; creation of new business models in the field; setting up biorefineries suitable for primary producers; developing technologies and innovation in marine resources.

Technology Transfer and Academia-Business Cooperation

Support of innovation cooperation between companies and R&D institutions; exploitation of the applied research results (projects implemented by the BIOEAST HUB members).

Needs for Skills

On educational/academic level

The need for further education and retraining in bioeconomy; the need for learning by doing/learning by practice and more multidisciplinary/interdisciplinary system; the need for harmonization of policies/governance mechanisms through all educational levels.

On private sector level

Since the country wants to focus more on providing added value in bioeconomy, there is the need for skills in digital technology, risk management, product development, marketing, and communication; high demand for expertise in biorefineries, bioplastics, biomass energy, aquaculture, etc.; the need for providing retraining in sectors that the country wishes to reduce in light of green transition (e.g. oil shale industry).

On governmental level

Awareness raising and promotion of public dialogues to increase the understanding of bioeconomy; the need for holistic approach of governance - balancing short term and long term.

- There is a dedicated governmental strategy comprising several action plans and having a solid structure and governance (the Action Plan for Environmental Education and Awareness, the Education Policy Development Plan, and several other operate at multiple educational levels).

Existing Education

Higher education:

There are very good existing educational opportunities in bioeconomy in the country - 3 Universities and several education and research centres offer education in bioeconomy or related to bioeconomy; institutions of higher education and universities offer flexible forms of study.

- European Master in 'Biological and Chemical Engineering for a Sustainable Bioeconomy' is 2-year joint master programme training;
- Master programme in 'Biology and Eco-innovation' at the University of Tartu
- Bachelor in 'Sustainable Technologies in Blue Economy' at the Tallinn University of Technology;
- Substantial overlapping between bioeconomy education institutions and art related institutions;
- 1-year Master programme 'Leveraging Green Economy Innovation' in Estonian Business School.

Vocational training:

Schools/institutions/associations provide lifelong learning and vocational training options, as well as various stationary and non-stationary study options for adults who have jobs and families based on their needs and demands; refresher training helps to improve professional knowledge and skills.

- Teeme Ära SA offers training, which gives a broader overview of what environmental issues and green skills mean in today's world and how they are related to other issues;
- Museums and their educational programs are closely related to national curricula and contribute to raising awareness in society.

Gaps & Needs in Promoting Education

On educational/ academic level

Although existing educational strategies are well defined and structured, there is the need for further development of educational activities for marginalized groups; not available advanced research on bioeconomy education; further exploitation of existing interaction among the institutions in Bioeconomy-Art subjects.

On governmental level

Lack of a unified national strategy on bioeconomy; lack of an organizational umbrella; lack of implementation opportunities for setting strategic goals (e.g. local governments participation in national procurements); lack of incentives for private sector to implement national and international strategies.

On training level

Inadequate training programs in the field of bioeconomy for marginal groups; the need for flexible training programs for retraining and continuous education.

On private sector level

Lack of promotion of entrepreneurship and entrepreneurial activity on the countryside; need for the comprehensive development of the business environment of rural areas; further exploitation of the country's developed digital background and innovations; potential decrease of resources due to dynamic harvesting.

On societal level

Bioeconomy is not fully aligned with socioeconomic priorities; lack of promotion of job opportunities for inclusion of marginal groups - young adults, NEET youth and rural communities (esp. Ida-Viru County and island communities); potential brain-drain due to the lack of motivation.

3 Case Studies

Case Study 1

Bioeconomy education, training and retraining in Entrepreneurial Education | Master's programme in 'Biology and Eco-innovation' at the University of Tartu
Estonian Life Sciences University, Estonia

Purpose: The curriculum gives students the ability to orientate in problems related to global changes and to think eco-innovatively. It gives a comprehensive knowledge of the diversity of Estonian and European nature, and the functioning and protection of ecosystems.

Case Study 2

Bioeconomy education, training and retraining in Vocational Education and Training (VET). Occupational Qualification Standard: 'Biogas plant operator, EstQF Level 5'
Järvamaa Vocational Education Centre, Estonia

Purpose: The centre offers occupational qualification standards for biogas plant operators. Before, the management and training of biogas plants in Estonia was carried out only at the request of the technology supplier, skills and capabilities.

Case Study 3

Art to elicit new ways of thinking and develop skills needed in bioeconomy education | CHEMART of the Aalto University
Aalto University, Estonia

Purpose: Acknowledging the importance of the coordinated approach and tackle the issue of bioeconomy education in the BIOEAST macro region, BIOEAST UP Net is a network of the bioeconomy universities from the Central and Easter Europe. Its main goal is to maximise the efforts in increasing knowledge sharing, networking, mutual learning, and development of joint activities.

Consortium

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Funded by the European Union

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