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Why bioeconomy is actual for Latvia. Research achievements in Institute of Energy Systems and Environment

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Abstract

In order to achieve EU defined aims in its bioeconomy strategy, a constructive approach and aimful action in every institution is needed. By following this research paper's authors' offered method, the development of bioeconomy is promoted and its aims in one certain structure is reached. The method consists of 4 levels: information to society; research, selection of indicators, analysis of results; modelling of processes; creation of innovative products. Combining all these levels with the EU bioeconomy's strategies main implementation levels, a matrix is created. With help of its implementation in bioeconomy's development related institution, it is possible to achieve bioeconomy's basic principle achievement in life, implemented activities interaction and sustainability, and EU bioeconomy's aims achievements at the national and international level. The Institute of Energy Systems and Environment (IESE) at the Riga Technical University (RTU) was taken as an example for the verification of this method in the achievement of the aims of the bioeconomy strategies.

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1. Introduction

Bioeconomy is the future of Europe. It focuses on how to use bioresources more sustainably than we are using them now [1]. In the last 100 years (1900–2000) the human population has grown by about 4.6 billion people; it is predicted that in 2050 the number of people will reach 9.5 billion and will keep growing in further future [2]. To keep up with this inevitable future it is needed to come up with new solutions on how to get from a fossil fuel lifestyle to bioeconomical thinking because bio-based products and bioenergy can be “bio-based versions” of traditional products or novel products with entirely new and innovative functionalities and potential for new and existing markets [3].

Europe’s bioeconomy strategy has been developed in 2012 and is part of the foundation for European Union’s country strategies [4]. There are countries that have already developed and are implementing bioeconomy strategies, e. g., Sweden, Germany, Finland, Belgium and others [3, 5–8]. The main focus on Europe’s bioeconomy strategy is – research, innovation, education and training, management and dialogue with society.

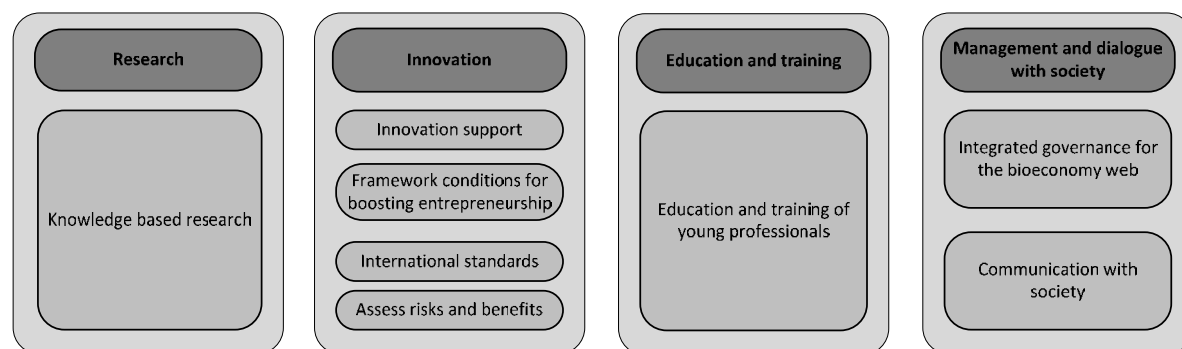


Fig. 1. Europe’s strategy for bioeconomy.

The base of the bioeconomy is educated and trained professionals that can and will develop new ideas. Belgium In their bioeconomy strategy plan Belgium emphasizes that technical potential and professionals of bioeconomy have increased, but it is necessary to improve it and raise potential of new professionals by providing them with the knowledge base and enabling technologies, so that the future potential of bioeconomy can keep growing and developing [7]. In order to build professional capacities, it is required to support the growth and further integration of bioeconomy sectors by organizing university fora for the development of new bioeconomy curricula and vocational training schemes [3].

The next step for bioeconomy implementation is to conduct researches. Germany, which is one of the leading countries of bioeconomy technologies, considers that technology cooperation should be expanded globally as well as partners from developing countries need to be able to use these technologies [5]. Qualitative researches are available to receive from academic researches that are innovative and can be used in the industrial sector [7].

A bioeconomy dialogue that improves the knowledge base and fosters informed interaction between policy measures at the EU, Member State and regional levels will also provide further stimulus for growth and incentives for investments [3].

Equity financing and investments in innovation will be required to ensure bioeconomy development and attract investments. By developing equity financing for bioeconomy, companies we can create prerequisites for the establishment and fast growth of new business and growth companies. The challenge lies in generating innovative fast-growing businesses and companies in the bioeconomy that aim for a pioneering role in new markets. International, European, regional or federal agreements will be made on harmonization between different policy objectives and requirements and the removal of barriers in regulations [7].

The Bioeconomy Strategy will support better alignment of EU research and innovation funding with established priorities of bioeconomy-related policies. The existing international cooperation on bioeconomy matters will need to be driven by research and innovation and facilitate exchange of scientific knowledge and sharing of best practices on

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