

BIOECONOMY CONCEPT PAPER

EXECUTIVE SUMMARY



ROMANIA



EXECUTIVE SUMMARY OF THE STRATEGIC CONCEPT PAPER FOR BIOECONOMY: ROMANIA

Authors: Dan-Marius Voicilas, Monica-Mihaela Tudor, Lucian Luca and Anca-Marina Izvoranu

Editors: Lívia Kránitz and Zsófia Kunya

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Executive summary

1.1. Context and objectives

Main aim of the concept paper is to initiate and encourage bioeconomy-related approaches in Romanian governance processes and to inspire the process of creating the national bioeconomy strategy covering key bio-based sectors related to EU Green Deal. Based on the work done by the team from the Institute of Agricultural Economics, together with the national experts (stakeholders), there were identified the main strengths and opportunities, also weaknesses and threats of the bioeconomy in Romania, in order to facilitate the elaboration of the national bioeconomy strategy and identification of the best niches for development.

For Romania, we analysed the niche of organic agriculture, with high potential of development and important in bioeconomy structure. At the end of the concept paper, we proposed a few strategic options for policy makers, in order to help the construction and implementation of the national bioeconomy strategy.

The research was done in frame of H2020 Project BioeastUp (Advancing Sustainable Circular Bioeconomy in Central and Eastern European countries), which was developed by Bioeast Initiative partners, being one of its first important “product”, a result of their long cooperation in the field of bioeconomy in its macro-regions.

The main aim of this paper is to present the results of the first attempt to initiate the development of a national bioeconomy strategy in Romania through the form of a concept paper that could be used as a basis for further developments. It is part of WP1 (Framework for National Bioeconomy Strategies Development), Task 1.5 (National Bioeconomy Strategies Concept Papers).

The methodology used was based on desk research, focus groups and on-line surveys. In this frame, multiple interactions with multi-actors representing quadruple helix were conducted during the BioeastUp implementation. The main steps conducted during this process consisted of: investigation of SWOT factors, then conducting AHP analysis, pairwise comparisons, definition of agents-actors, determined most powerful facilitators and obstacles, formulating strategies, policy coherence analysis, and conclusions with recommendations and strategic actions.

1.2. The state of bioeconomy

Romania does not have a national definition for bioeconomy. There are several definitions from different Romanian authors but no one general accepted by authorities, academic and business field.

Checking the literature, the use of the term “bioeconomy” has a long history among Romanian researchers. For example, the scientist Grigore Antipa published in 1933 one of his works in the “Bulletin of the scientific section” of the Romanian Academy entitled “La biosociologie et la bioeconomie de la Mer Noire”. Many years after, from the early 70’s, Nicolae Georgescu-Roegen used the term to summing up the most important conclusions he had come to in a lifetime of research. But the term “bioeconomy” in the present concept was developed and used after 2000, and it was promoted especially by Christian Patermann.

Also, Romania does not have a national strategy for bioeconomy. According to the European Commission web site (https://knowledge4policy.ec.europa.eu/visualisation/bioeconomy-different-countries_en), Romania is in the group of countries with “Other policy initiatives dedicated to the bioeconomy”. There are currently nine different bioeconomy related strategies existing at national level. A closer look reveals that all of the EU bioeconomy strategy (2018) objectives are somehow covered by the objectives of the bioeconomy-related strategies. At regional level, there is only one region (Sud-Muntenia) that has strategy fully dedicated to Bioeconomy.

The lead ministries for developing the bioeconomy strategy are: Ministry of Agriculture and Rural Development, Ministry of Economics, Ministry of Water and Forests, but other ministries are involved, as well. Similar with majority of the countries, Ministry of Agriculture is one of the leaders in preparation of the national strategy, and this shows the importance of the agriculture in bioeconomy.

1.3. The potential of bioeconomy

Romania has high potential and biomass resources from agricultural and forestry production (quantitative and qualitative). Agricultural livestock and crop production is diverse and provides an important source of biomass. Being a country, whose agri-food industry is a key sector of the economy, and one of the largest in Europe, Romania has a large potential for developing organic farming and, also, large potential for residual biomass potential (Hamelin et al., 2019). Organic residues are still under-used in the domestic production of biogas or biofuels in Romania. While the availability of biomass from primary sectors or production processes is a strong asset, its logistics are challenging.

According to the JRC, the bioeconomy of Romania generated in 2017 about 38.88 billion € turnover (13% of overall turnover of non-financial corporations - including agriculture - in the country, compared with 9% EU average) and 12.48 billion € value added. In 2017 the bioeconomy employed 2.4 million persons (28% of total people employed compared to the EU average - 9%). Romania had the highest share of people employed in bioeconomy sectors among Bioeast countries. Unfortunately, the average productivity per person, if we calculate the turnover and value added, are below the EU average. Also, it is important to say that, during the 2010-2017 period, Romania was above average among Bioeast countries in terms of real growth of whole bioeconomy. The forestry was the leader, but also there were important contributions from agriculture, fishing, and aquaculture.

On the opposite side, the major problem being the very low business activity in RDI in most bioeconomy industries with exception of manufacture of pharmaceuticals and chemicals. So, the gap between high and low technology industries and RDI in these industries exists.

Briefly, the main **Strengths in bioeconomy**, after the SWOT analysis are:

- Romania has a great potential in developing the value chains for organic products given the limited chemicalization of primary sector, especially in small farms;
- High potential for biofuels and biogas production given the variety of existing natural resources and significant quantities of under-used forestry and agriculture organic residues;
- Increased demand for RDI in light of technological changes regarding smart capitalization of bioresources.

Also, the **opportunities** foreseen in bioeconomy are:

- Bioeconomy as a priority of sustainable development in the EU;

- Recent global crises that require rapid bio-based solutions to ensure food and energy security and safety;
- Strong 'conventional' bioeconomy-related industries plays an important role in building and supporting the development of regional bioeconomy clusters.

1.4. Institutions, RDI and financing

In Romania there are public and private research and higher education bodies with a wider research portfolio, actively engaging in bioeconomy-related RDI, but there is no specific institution dedicated exclusively to bioeconomy. The highest proportion of RDI funds invested by businesses in Romania was spent on RDI performed by the business sector and a very small share was provided to the public sector, that indicated a low level of science-business collaboration and a weak commercialisation of public research results. Government policies also sought to create clusters of companies that specialise in a particular technology to build an “industrial ecosystem” (there were identified 34 clusters).

Romania does not have a strategy for the purpose of fostering bioeconomy and bioeconomy related RDI. However, there are RDI regulations, developmental targets and priorities that directly and implicitly touch upon the topics of bioeconomy and are encompassed in several national strategies and policies that serve as a general support for bioeconomy related RDI in Romania. RDI intensity in Romania was much lower than the EU-27 average and in innovation leader countries with developed innovation systems.

Following the SWOT analysis done, there were identified priorities and groups of needs for Romania’s bioeconomy-related RDI: funding and support, policy, collaboration, knowledge transfers and education, and innovations. Romanian experts rely more on public support and funds than on private one to mobilize the potential of the bioeconomy. As such, policy commitment and availability of public funding for supporting the bioeconomy-oriented projects represent one of the most relevant and important assets in Romania, even more important compared to the BIOEAST macro-region level. It seems that the bioeconomy is perceived, rather, as a political desideratum and, therefore, as in the case of other political objectives, “compliance” with the bioeconomy principles must be supported through specific programs and public funds.

1.5. Expectations and pathways of growth

The surveys conducted in Romania showed that there is a significant expectation for political signal and public financial support for bioeconomy-oriented projects in all considered economic sectors.

There is a significant expectation for a greater involvement of different actors in the **transfer of innovation** especially in Agriculture, Fishery and Aquaculture, as well as in the Green care, Nature, Tourism and recreation sector, sectors where the small and medium sized business access to innovation is limited due to the lack of targeted consulting and transfer services.

In general, in the perception of the respondents, the **importance of the infrastructure** is higher compared to the average of the respondents from the Bioeast macro-region due to the deficit in the development of the supporting infrastructures in Romania.

Most Romanian respondents appreciate that strong 'conventional' bioeconomy-related industries play an important role in building and supporting the **development of regional bioeconomy clusters**, relying on the economic strength of large agricultural or "traditional" manufacturing companies to become cluster nodes.

The business environment in Romania is dominated by very small enterprises, the **consolidation of companies** is considered a necessity which makes the importance of this asset for the development of bioeconomy to be perceived more strongly in Romania, compared to whole Bioeast micro region.

The need for business initiatives to **support and develop circular bioeconomy** technologies and promote bioeconomy business models is more acutely perceived by respondents in Romania, compared to those in the whole Bioeast macro-region, especially in the processing and other bioeconomy related sectors, especially due to the perceived lack of good practice implementation and sharing.

Romania still needs to face some consumers' practices in order to be more engaged in **ecosystem valorisation** and in order to add more value to sustainable products. The survey confirms that, in Romania, there is still a need for organic waste adaptability skills. Also, although significant efforts are being made within few sectors in Romania, (e.g. organic agriculture, cultural and environmental tourism, labelling in food sector) there is still untapped potential in the majority of bioeconomy sectors. An example of this is **organic farming**, which occupies only about 3.7% of the total agricultural area and has seen a constant development in recent years.

According to the synergy matrix performed during the study, the strongest potentials for successful **vertical integration** into bioeconomy value chains / bioeconomy clusters are:

- Agriculture sector - Forestry and hunting sector - Manufacture of food products, beverages, and tobacco - Green care, nature tourism and recreation sector - Renewable energy - Organic waste management.
- Forestry and hunting sector - Wood and wood products - Green care, nature tourism and recreation sector - Renewable energy - Agriculture.
- Green care, nature tourism and recreation – Agriculture - Forestry and hunting - Fisheries, aquaculture & algae - Renewable energy - Organic waste management.

1.6. Strategic directions

- Policy commitment and availability of public funding for supporting the bioeconomy-oriented projects represent one of the most relevant and important triggering factor in Romania. Set up a Romanian Bioeconomy interministerial body will have the role of facilitating the vertical and horizontal integration of related bioeconomy policies and funding programs.
- Development and deployment of technologically advanced biobased solutions mostly in the "novel" processing sectors and the other sectors related to the bioeconomy will significantly contribute to the transformation of bioeconomy in a knowledge-base sustainable system.
- Increasing awareness regarding the producers' and consumers' practices in order to be more engaged in ecosystem valorisation and to add more value to sustainable products.
- Increasing the integration of the Romanian AKIS in the European research and knowledge transfer networks will contribute to closing the gaps in the field of bio-economy. BIOEAST

Strategic Research and Innovation Agenda plays an important role in supporting this strategic direction for Romania.

1.7. The niche sector analysis - organic agriculture

The bioeconomy sectors in Romania that have untapped potential for development or require improvement of efficiency were selected for analysis in this concept paper, among them organic agriculture. This has untapped potential for development and is key sector for biomass production. The current regulations, including the provisions of the European Green Deal, pose a number of challenges for agriculture (Fortea et al., 2022; Jitareanu et al., 2022). Despite numerous barriers to development, strengthening the importance and role of organic farming in Romania may be the answer to the current challenges contributing to food safety, population' health, environment protection, resource and landscape conservation, employability, new business opportunities (Fortea et al., 2022; Jitareanu et al., 2022).

Based on the experts' and the stakeholders' opinions, the system of organic farming has been recognised as one of the promising niche sectors in Romania for the development of country's bioeconomy. Even if organic agriculture has registered a sinuous development, the general trend is upward, the potential is huge, the development of ecological agriculture being driven, for the most part, by the financial support granted through the CAP.

In the last phase of the project, a SWOT analysis was conducted among stakeholders. It had two stages. In the first stage, they were asked to mention the strengths, weaknesses, opportunities and threats for organic agriculture.

In the second stage of this phase, the stakeholders were asked to give points of importance (on a Likert scale) to all factors identified and make correlations between them. The results highlighted which are the most important four factors for each quadrant that interacted and influenced the organic agriculture.

1.8. Synthesis of actions and strategic options

Based on stakeholder's inputs, there were identified a few strategic options that could help the development of the organic agriculture. We selected the main four options, and they are synthesized in the next paragraphs.

1. Organization of markets for organic farming, including production certification and association of farmers (producer groups and organizations)

Farmers' interest in organic farming and favourable conditions for conversion lead to the creation of opportunities for rapid certification of farmers and thus to the increase of the number of certified farmers (S2S3O4). Also, the presence of control bodies oriented towards the needs of farmers can contribute to overcoming some difficulties related to the application of ecological technologies (W1O4). The growing trend in the consumption of organic products can also be hoped for in correcting the chronic imbalance of Romanian agriculture between vegetable products and animal products (W4O2O3). On the other hand, increasing the number of certified producers will limit the constraints of lower yields, which will facilitate the development of the national market, including by ensuring a stable and predictable financial support (W2T1T4).

2. Income support for farmers practicing organic farming, including for the conversion period and for maintaining certification

The possibility of providing support for organic farming (conversion and maintenance of certification) creates a synergy for strengthening the economic situation of organic farms (S1S2S3O1) that complements the income obtained from the sale of production. This synergy compensates for the lower level of ecological production (compared to conventional production), as well as the higher labour consumption (W2W3O1).

3. Promotion of ecological products, including through public procurement

The wider recognition of the positive health effects of organic products is an element that can contribute decisively to the integration of organic production in the retail networks that dominate the modern food trade (S4O2O3). This will also contribute to the development of the national market of organic products, but also to the elimination of confusion between products certified and labelled as organic and other categories of products (S4T1T2).

4. Public technical assistance for organic farming business development, including dissemination of research results

Although included in the NSP, as part of AKIS, the need for technical assistance for farmers who practice ecological agriculture must be operationalized with priority in order to meet farmers' interest in this niche (S2T3).

Similar with organic agriculture must be analysed each sector of the bioeconomy, and the results, the conclusions and recommendations are going to be basic and useful parts of the Romanian national strategy for bioeconomy.

Romania is in the early stages of developing the bioeconomy with a particular emphasis on the quality and availability of raw materials from the primary sectors, especially agriculture and forestry, whose production has been targeted by specific policies through CAP and rural development programs. Through our approach, within the BioeastsUp Project, we tried to create the strategic development directions of the niches (organic agriculture) and to support the authorities in making the best political decisions.

