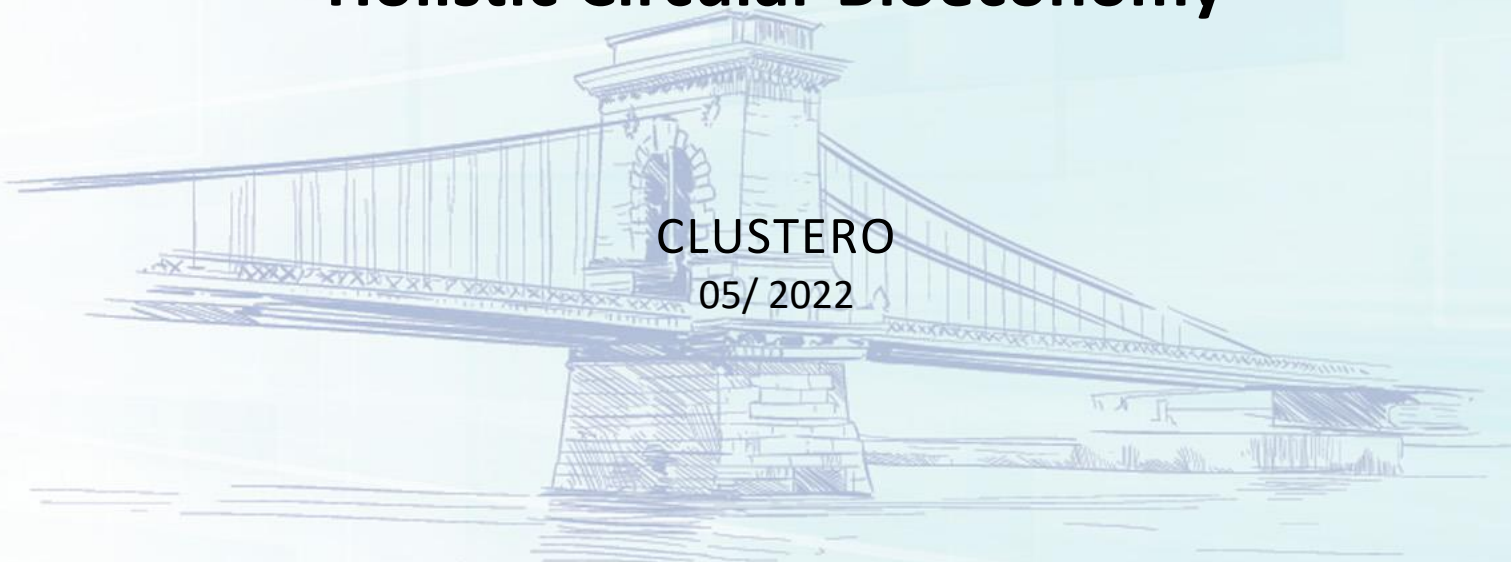


# **T2.1 Integration Plan**

## **Integration Plan for Prospective Actors for Developing a Sustainable and Holistic Circular Bioeconomy**



CLUSTERO  
05/ 2022

### Project Information

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## 1 Introduction

Danube regions and cities face major societal transitions regarding the demographic change. The rural exodus is caused by better employment opportunities for the youth and the prospect of a better life in cities. Circular-bioeconomy is used as a tool, which promises to foster the regional development: It is a concept focusing on the transition of a fossil-resource-based economy towards an economy making use of sustainable production of biological resources and processes to develop new products, thus setting rural areas and their development into focus. The concept catalyses interdisciplinary cooperation also between different policy areas/levels to actively address demographic change, by enhancing value creation through new collaboration, business models, and value chains raising the attractiveness to stay and even move to rural areas. Based on the above, GoDanuBio, a project in the frame of the Interreg Danube Transnational Cooperation Project aims to establish participative ecosystems for fostering the revitalisation of rural-urban cooperation through governing Danube circular bioeconomy.

One of the main objectives of the project is to unleash and mobilize bioeconomy regional excellence potential and aggregate into coherent actions through an Integrated Plan. A fair and integrated approach should include the interest of all actors concerned to develop transparent and reliable policy and implementation strategies; both those already active and new ones identified as missing. Their inclusion into the decision-making is of high importance to allow cross-sectoral co-creation of new forms of rural development and rural-urban cooperation.

The activities aim at mapping/identifying societal actors, which are neglected in the bioeconomisation process.

NB! The bioeconomy includes all biomass-related applications and valorisation routes, including human food and animal feed. A circular economy is a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing energy and material loops. In this document both terms bioeconomy and circular bioeconomy are used being interchangeable to a considerable extent.

## 2 Methodology

The elaboration of the Integration Plan has been based on the fulfilment of several project steps, as follows:

### Step 1: Analysis of Circular Bioeconomy Framework Conditions

Results of the first output from the GoDanuBio project (“Analysis of Circular Bioeconomy Framework Conditions (WP T1)”) provided an overview of current strategies and governance structures in the Danube macro-region and offered a hint on the existing gaps of circular bioeconomy, in terms of concentration (critical mass of relevant actors), capacity (skills), conditions (rules, legislation procedures) and culture (social acceptance and impact of circular bioeconomy approaches). The outputs from WP T1 should have served as a basis for the identification of actors that are currently neglected in the bioeconomisation of the respective regions.

In particular, the Regional Stakeholder Reports<sup>1</sup> have identified the existing actors involved in the bioeconomisation process. They have been divided into 4 categories:

- Industry (chambers of commerce, clusters, cluster organisations, enterprises, professional associations)
- Academia & Research (universities, research institutes, competence centers)
- Public (state agencies, local government, regional/central government, regional development agencies)
- Society (NGOs, informal civil organisations)

**These represent the maximal typology of actors which have been considered in the elaboration of the Integration Plan for prospective actors for developing a sustainable and holistic circular economy.**

Some categories of actors are currently involved in the bioeconomisation process in all regions (e.g., universities), others are not and hence the regional gaps occur.

*Table 1 Missing actors in circular bioeconomy ecosystems*

Actor	AT (UA)	DE (BW)	BG	HR	CZ	HU	RO	RS	SK	SI
Industry										
Chambers of commerce	Green	Red	Green	Green	Red	Green	Red	Green	Green	Green
Clusters	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

<sup>1</sup> [https://www.interreg-danube.eu/uploads/media/approved\\_project\\_output/0001/44/ccf91f7e139fdf8bf461f20a23ab5c7ea5d0e2ee.zip](https://www.interreg-danube.eu/uploads/media/approved_project_output/0001/44/ccf91f7e139fdf8bf461f20a23ab5c7ea5d0e2ee.zip), last accessed 29/04/2022

Actor	AT (UA)	DE (BW)	BG	HR	CZ	HU	RO	RS	SK	SI
Cluster organisations (networks)	Red	Green	Red	Red	Green	Red	Green	Red	Green	Red
Enterprises	Green	Green	Green	Green	Green	Red	Green	Red	Green	Green
Professional associations	Red	Green	Red	Green	Green	Green	Green	Red	Green	Red
Academia & Research										
Universities	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Research Institutes	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Competence Centres	Red	Green	Red	Red	Red	Red	Red	Red	Red	Red
Public										
State Agencies	Green	Green	Green	Green	Red	Green	Green	Red	Red	Green
Local Government	Red	Green	Red	Green	Red	Red	Green	Red	Red	Green
Regional/Central Government	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Regional Development Agencies	Red	Green	Red	Red	Green	Red	Green	Red	Red	Red
Society										
NGOs	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Informal civil organisations	Red	Green	Red	Red	Red	Red	Red	Red	Red	Red

Legend: red corresponds to missing actors, green to existing ones

The document was available in Google Drive. When filling it in with the existing actors, partners have been encouraged to give examples so that others can be inspired in terms of organisations and type of corporations.

## Step 2. Identification of high potential actors

Based on the experience of other partners, the missing actors that have been neglected in the circular bioeconomy so far but are crucially needed to co-create sustainable rural development models could be identified.

For example, Baden-Württemberg was the only participating region to identify “competence centres” as actors involved in the bio-economisation process. However, several partners (Upper Austria, Hungary, Romania, Slovakia, and Slovenia) identified additional actors as potential ones. The situation of bioeconomy actors after the identification of missing actors is given in the following table:

Table 2 Potential new partners in circular bioeconomy ecosystems

Actor	AT (UA)	DE (BW)	BG	HR	CZ	HU	RO	RS	SK	SI
<b>Industry</b>										
Chambers of commerce	Green	Yellow	Green	Green	Yellow	Green	Yellow	Green	Green	Green
Clusters	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cluster organisations (networks)	Yellow	Green	Yellow	Red	Green	Yellow	Green	Red	Green	Red
Enterprises	Green	Green	Green	Green	Green	Yellow	Green	Yellow	Green	Green
Professional associations	Yellow	Green	Red	Green	Green	Green	Green	Yellow	Green	Yellow
<b>Academia &amp; Research</b>										
Universities	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Research Institutes	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Competence Centres	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Yellow
<b>Public</b>										
State Agencies	Green	Green	Green	Green	Yellow	Green	Green	Yellow	Yellow	Green
Local Government	Yellow	Green	Yellow	Green	Red	Red	Green	Red	Yellow	Green
Regional/Central Government	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

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Actor	AT (UA)	DE (BW)	BG	HR	CZ	HU	RO	RS	SK	SI
Regional Development Agencies	Yellow	Green	Red	Yellow	Green	Red	Green	Red	Yellow	Yellow
Society										
NGOs	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Informal civil organisations	Yellow	Green	Yellow	Yellow	Red	Yellow	Yellow	Red	Yellow	Yellow

Legend: green corresponds to existing actors, yellow to potential ones, as identified by the partners, red to missing ones

### **Step 3. Webinar on “Enhancing stakeholders’ participation to regional bioeconomy ecosystems”**

The webinar was part of the Activity “Enabling regional specificities and excellencies to take part in participative governance” and aimed to identify ways of developing circular bioeconomy ecosystems and to enhance the participation of several types of actors acting at regional level.

The webinar contained a moderated discussion on ways to strengthen regional circular bioeconomy ecosystems, alongside following topics:

- The general concept of bioeconomy
- Prior involvement in bioeconomy projects
- SWOT analysis of circular bioeconomy at regional level
- Ways to foster circular bioeconomisation at regional level

Prior to the webinar, a web-based **questionnaire** has been made available, containing the same questions. 34 respondents shared their opinion on the topics raised by the online questionnaire while other 32 participated to the moderated discussion within the webinar (externals in relation to the project partnership). Regional Development Agencies (29%), regional/central government (17%), enterprises (14%) and research institutes (10%), clusters (7%), cluster networks (7%), university (5%), chamber of commerce (4%), state agencies (4%), and NGO (3%). The enterprises were among the best represented types of participants.



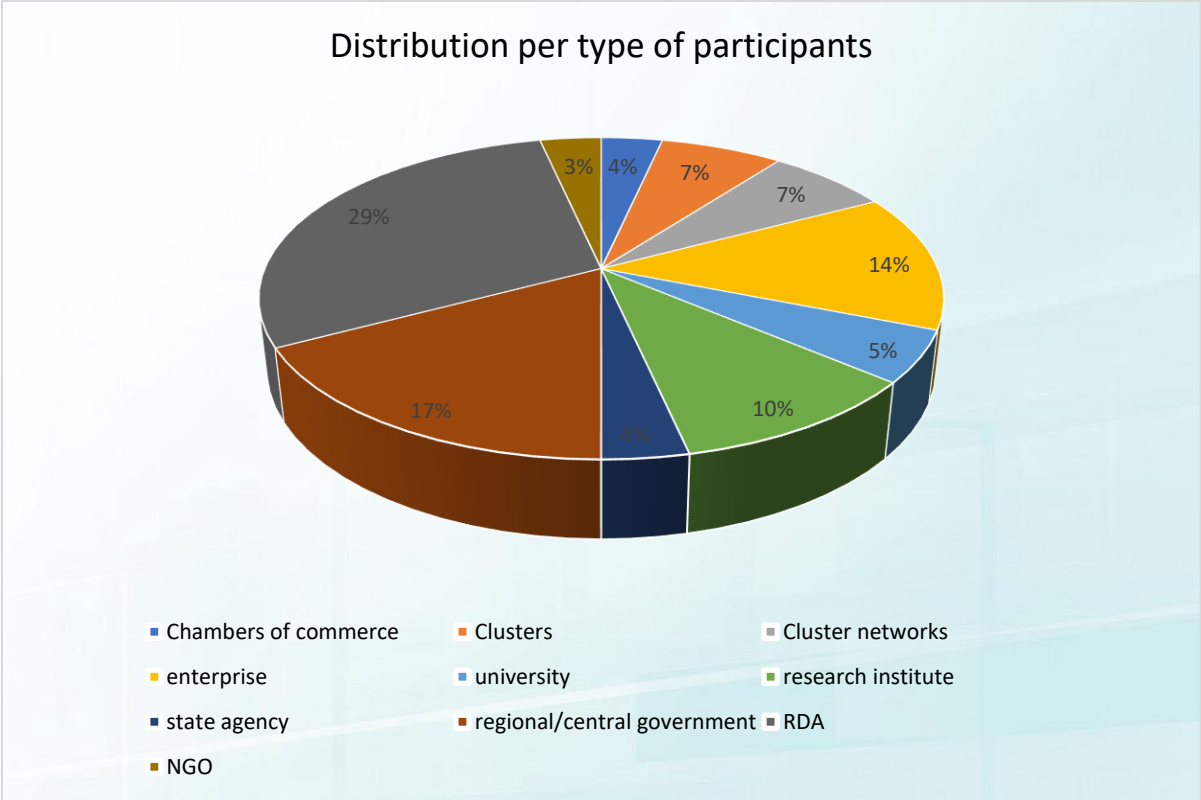


Figure 1. Distribution of respondents to the 3<sup>rd</sup> webinar per type of participant

When asked about the concept of bioeconomy, 55% of the respondents indicated the sustainable use of resources, followed by 14% which see bioeconomy in relation with the environment and 12% which regard it as a business opportunity. Other answers referred to agriculture, health, and innovation.

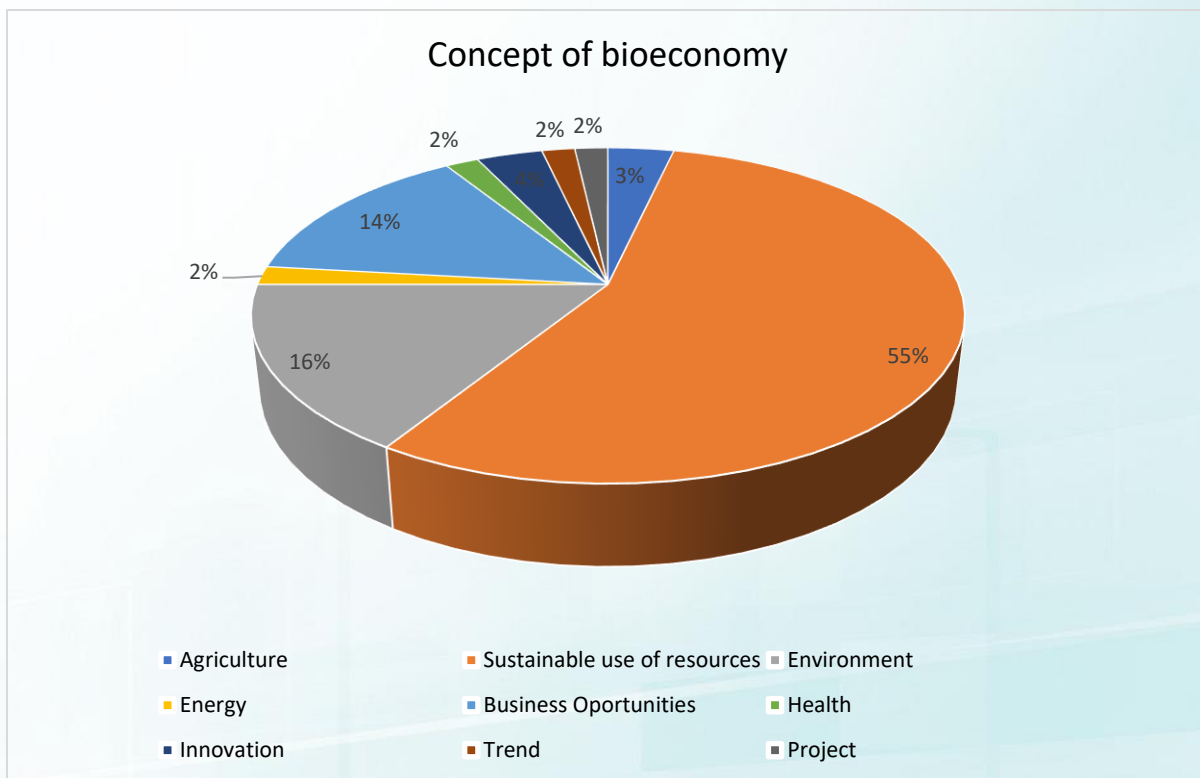


Figure 2. Answers to the question regarding the concept of bioeconomy

53% of the respondents have been involved in bioeconomy projects so far, either as partners in publicly funded projects (47%), education & training activities (18%) and as individual experts (17%).

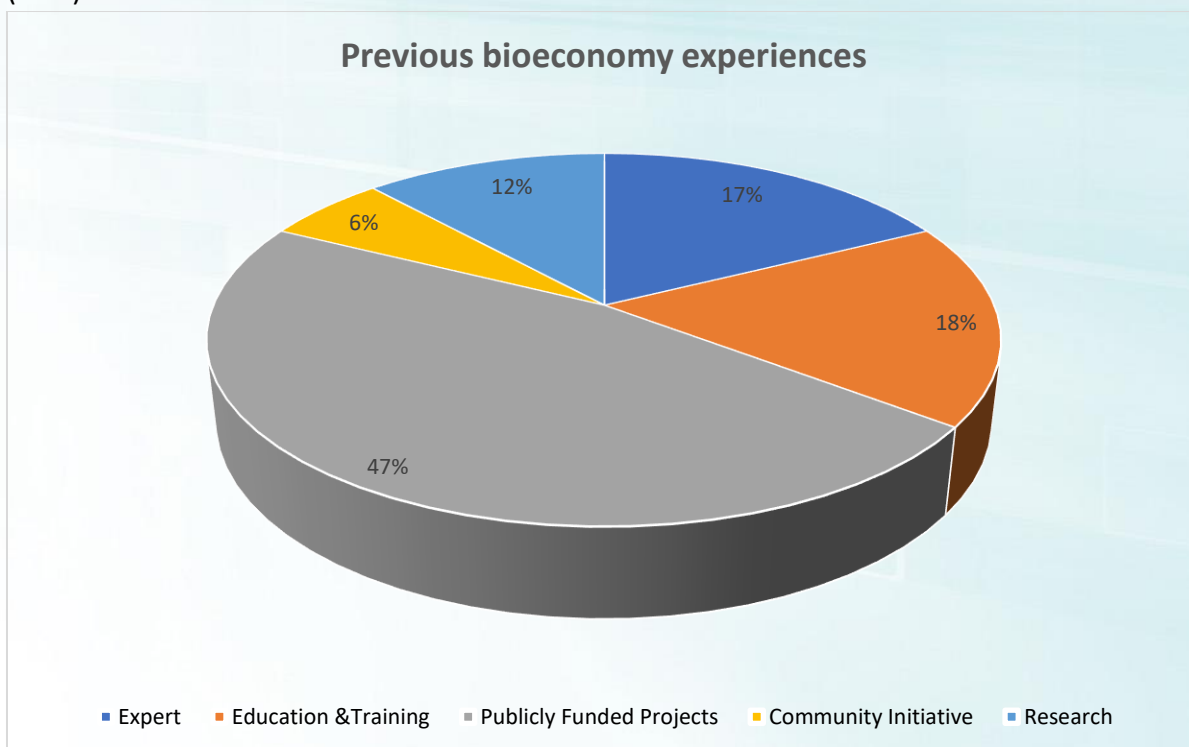


Figure 3. Involvement in previous bioeconomy initiatives

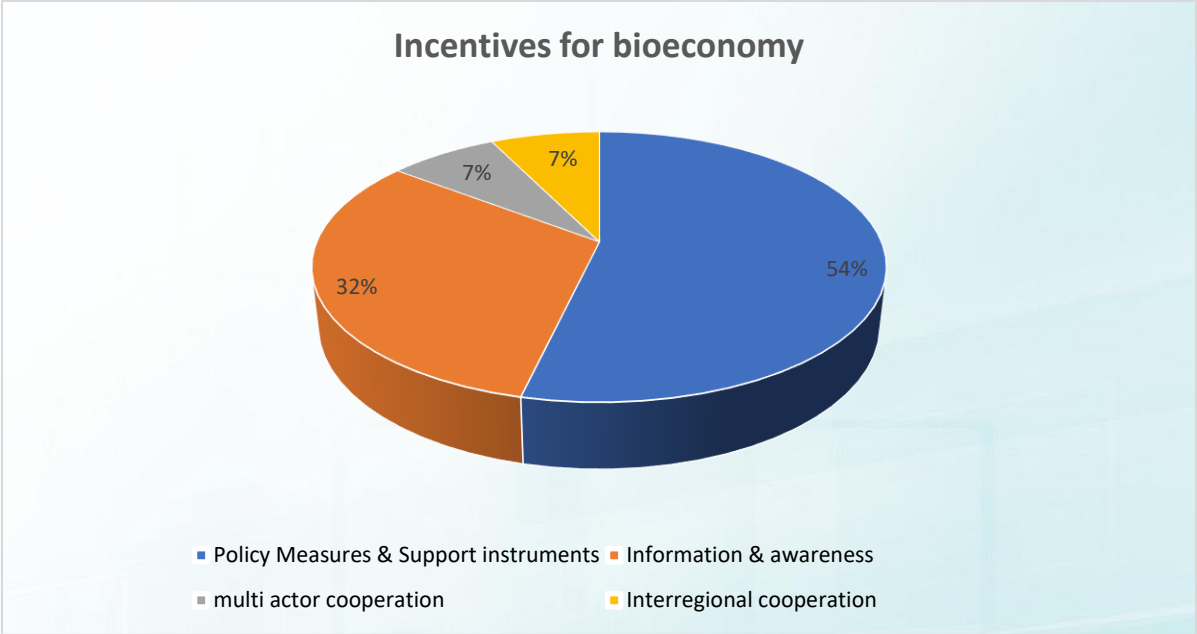
The results of the “mini” online SWOT analysis are summarised in the following table:

Project co-funded by the European Union Funds (ERDF and IPA)

Table 3. SWOT of circular bioeconomy

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Availability of natural resources</li> <li>- Mitigation of climate change</li> <li>- New jobs and business opportunities</li> <li>- Availability of funds</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient awareness among decision makers</li> <li>- Lack of knowledge about bioeconomy leading to lack of interest</li> <li>- Too expensive; fuel-based economy is more competitive in terms of costs</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- Higher added value for farmers</li> <li>- Healthier lifestyle</li> <li>- Raising awareness about bioeconomy</li> <li>- Improved access to EU funds</li> <li>- Scarcity of fossil resources will boost bioeconomy</li> <li>- Replacement of conventional materials with organic products</li> <li>- Implementation of existing RDI results into business</li> </ul>	<ul style="list-style-type: none"> <li>- Polarisation of society in pro and against bioeconomy processes</li> <li>- Lack of adequate policies</li> <li>- Rural depopulation</li> <li>- Bureaucratic barriers</li> <li>- Energy crises</li> <li>- (Lack of) availability of bio-resources</li> <li>- Lack of funds</li> <li>- “Greenwashing” of older technologies</li> </ul>

The best instruments to incentivise a better participation of stakeholders in circular **bioeconomy** processes would be **policy measures & support instruments** (strategy, taxation, investments, funding) (**54%**) followed by **awareness raising** (32%), **multi-actor cooperation** (clusters, cooperation platforms, Public Private Partnerships, etc.) (7%) and **interregional cooperation** (7%).



*Figure 4 Incentives for the establishment of circular bioeconomy ecosystems*

### 3 Measures in support to regional circular bioeconomy ecosystems

Empowering rural-urban cooperation requires individual and institutional learning processes that facilitate the involvement of innovation actors, including the ones that have been neglected so far. As discovered in the process of identifying missing actors, the most effective measures would be:

- Setting up the regional/national policy framework with support instruments for SMEs including a financial and non-financial incentive system in support of circular bioeconomy
- Implementing awareness raising and educational campaigns on the topic of bioeconomy
- Development of multi-actor cooperation in the bioeconomy
- Strengthening the interregional cooperation and exchange of good practices

Each of these selected effective measures are further developed in the following pages, including examples of best practices in the Danube Region to counteract existing challenges.

#### 3.1 Regional/National Policy Framework. Support Instruments for bioeconomy-related SMEs

The development of national/regional dedicated policies and strategies is vital for the generation of circular bioeconomy ecosystems. The strategies are influenced by or are in alignment with the EU policy on bioeconomy<sup>2</sup> that calls for participatory approach that engage citizens and end-users. These must be accompanied by financial and non-financial support instruments, in integrated manner and based in a continuous dialogue with the most relevant actors of the bio-based value chains. Support measures can range from administrative simplifications and fewer regulatory requirements to energy/waste taxation levels and fiscal incentives such as tax exemptions, lower social contributions on innovative processes related to bioeconomy. Finally, direct financing in the form of grants is an important instrument to involve companies, especially SMEs, in the bio-economisation processes.

##### 3.1.1 Challenges and best practice examples

Challenge: Elaboration of the bioeconomy strategy

In the Danube regional context, only Austria, Baden Württemberg and Bavaria have a fully-fledged **bioeconomy strategy** while other regions/countries are still in planning (Bulgaria, Croatia, Romania, Serbia, Slovenia)<sup>3</sup> or refer to bioeconomy in other related policy documents (Bosnia and Herzegovina, Czech Republic, Hungary, Moldova, Montenegro, Slovakia, and Ukraine).

Austria's Council of Ministers passed the "[Bioeconomy – A Strategy for Austria](#)" in March 2019. [Baden-Württemberg's bioeconomy strategy](#) aims to be an example for a sustainable and closed loop-oriented economic system since 2019.

<sup>2</sup> [https://knowledge4policy.ec.europa.eu/publication/updated-bioeconomy-strategy-2018\\_en](https://knowledge4policy.ec.europa.eu/publication/updated-bioeconomy-strategy-2018_en), last accessed 29/04/2022

<sup>3</sup> Bulgaria, Croatia, Serbia and Slovenia are developing strategies on circular economy

Bavaria published in 2021 its own [circular bioeconomy strategy](#). The Bavarian strategy aims to foster a sustainable circular bioeconomy encompassing all industrial and commercial sectors that produce, process, and use biogenic resources.

#### Best Practice Example: Circular Bioeconomy strategy in Baden Württemberg (DE)

The Baden-Württemberg (BW) sustainable bioeconomy strategy<sup>4</sup> pursues following objectives:

- To use innovative biological concepts to identify renewable or recyclable raw material sources. This aims to reduce the use of fossil resources and permanently minimise dependence on energy and raw material imports
- To achieve a reduction in Greenhouse Gas (GHG) emissions in Baden-Württemberg to protect natural resources and contribute to conserving regional biodiversity
- Baden-Württemberg will turn into a role model for the transformation towards sustainable economic organisation based on a circular economy
- To strengthen rural areas in Baden-Württemberg by increasing regional added value based on innovative bioeconomy solutions and the creation of attractive, future oriented jobs

#### Challenge: Participative Approach of the strategy elaboration process

One of the weak points in the strategy development process is the insufficient consultation of beneficiaries; often strategies are being elaborated on topics that are “in trend” or pushed in a “top-down” manner as they represent conditionalities for the access to funds (e.g., structural funds). To assure the **representativeness and relevance of policy documents**, the Ministry of Economy in Latvia is implementing the so-called “policy hackathons.”

#### Best Practice Example on Strategy Building Process: Latvian Policy Hackathons (LV)

Starting from the classical “hackathon” concept, The Latvian Ministry of Economy has organised so far industrial and IT sector hackathons, public service hackathons and policy maker hackathons.

Policy maker hackathons gather public bodies responsible for the elaboration of strategic documents and final beneficiaries seeking to find the most suitable solution to address a certain challenge.

The instrument is about to be tried out in Romania regarding the continuous evaluation and monitoring of the National Strategy for Competitiveness. This comes due to the activities of an INTERREG Europe Project, “Inno Industry.”<sup>5</sup>

<sup>4</sup> <https://www.biooekonomie-bw.de/en>, last accessed 29/04/2022

<sup>5</sup> <https://projects2014-2020.interregeurope.eu/innoindustry/>, last accessed 29/04/2022

## Challenge: Financial and non-financial support instruments for SMEs

**SME Support measures** for bioeconomy can be both financial and non-financial. Often, the non-financial ones are neglected although they bring much added value in terms of knowledge sharing, improved management processes leading indirectly to positive monetary impact for the SMEs.

### Best Practice Example on Financial Support for SMEs: Hungarian Green National Champions Programme (HU)

The Green National Champions Programme aims to financially support the developments of those Hungarian SMEs with high growth potential operating in an environmental-conscious way and producing products related to the green industry.

The first phase was managed during the second half of 2020. Manufacturing SMEs were able to apply for 4 topics:

- producing an energy efficiency product, e.g., solar panel system, boiler system (including biomass boilers), heat pumps and heat recovery systems, building boundary structure like a door and window structure, lighting system, shading, and shading structure
- producing a product related to water efficiency, e.g., water-saving tools and technologies, water retention, and/or recycling equipment
- producing a product related to electro-mobility
- producing a product from secondary raw material

The second phase focused on the SMEs which are affected by the Single-Use Plastics directive or those manufacturing substitute products instead of single-use plastic.

The third phase is in progress and contains all topics (a mix of 1<sup>st</sup> and 2<sup>nd</sup> phases).

More details about the best practice, documented by IFKA (Public Benefit Non-profit Limited Company for the Development of the Industry, a partner of GoDanuBio consortium) can be found in the [Best Practice Brochure](#).

### Best Practice Example on Non-financial support for SMEs: The Moldovan Green Self-Assessment Tool for SMEs (MD)

In the frame of the National SMEs Greening Program, implemented by the Organisation for SME Sector in the Republic of Moldova – ODIMM, a set of tools was developed with the purpose to promote, support, and develop entrepreneurial capacities of SMEs, adopting production processes and services providing the greening practices.

The Greening Self-Assessment Tool provides the scoring for interested SMEs on 4 fields of greening in the frame of the enterprise:

- Water management
- Waste management
- Energy efficiency

- Greening management system

The purpose of the questionnaire is to conduct an overall analysis of the level of resource efficiency in the company. This tool allows to give a quick and useful answer on what the company should do to grow its business more efficiently and optimize the production costs. More details about the best practice, documented by ODIMM can be found in the [Best Practice Brochure](#).

#### Challenge: Access of SMEs to public funded projects

Challenged by the daily workflow, SMEs find it difficult to find **information** regarding available funding sources and they lack **skills in accessing public funded projects**. In that regard, the Regional Development Agency Centre in Romania published a monthly financing catalogue.

#### Best Practice Example on Information for SMEs: The Monthly Catalogue of Funding Sources by the Regional Development Agency Centre in Romania (RO)

Each month, the Regional Development Agency Centre in Romania publishes an online catalogue<sup>6</sup> of all available funding sources in the country according to the type of beneficiary (enterprises, local public authorities, NGOs, universities) and programme (structural funds, national projects, National Resilience and Recovery Plan) (RO language only).

#### Best Practice Example on Consultancy Services for SMEs: Integrated Cluster Services by Romanian Textile Concept (RO)

To increase the level of innovation in SMEs, Romanian Textile Concept has been applying the Integrated Cluster Services. The methodology follows a 3 step “funnel” approach: 1) a presentation seminar where benefits of cluster membership, available financial and non-financial instruments for SME development and international best practices are presented 2) first company meets together with the cluster manager, in which an innovation audit or business review is performed, followed by recommendations accompanied by proposed measures and according to deadlines. The recommendations include orientation towards specific financial (Structural Funds, Horizon Europe, SME Instrument, INTERREG programmes) and non-financial support services (Europe Enterprise Network, Senior Expert Services, etc.). 3) Enhanced support for selected measures, such as competence mapping, project generation seminars, IMPROVE innovation audits, etc.

More details about the best practice are documented in the frame of the INTERREG Europe Project “Clusterix 2.0.”<sup>7</sup>

<sup>6</sup> <http://www.adrcentru.ro/catalog-surse-finantare>, last accessed 29/04/2022

<sup>7</sup> <https://www.interregeurope.eu/good-practices/integrated-cluster-services>, last accessed 29/04/2022



### 3.1.2 Action Plan

Based on the potential new actors identified in each region and against available best practices from other regions, several actions could be undertaken to mobilise their participation to regional circular bio-economy processes, as shown in the following table.

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Austria	Bioeconomy Strategy already in place	Support access of SMEs to bioeconomy related available public funding	Monthly Catalogue. Romanian Textile Concept	Cluster organisations (networks), professional associations, competence centres
Baden-Württemberg (DE)	Bioeconomy strategy already in place	Support access of SMEs to bioeconomy related available public funding	Monthly Catalogue. Romanian Textile Concept	Chambers of commerce
Bavaria (DE)	Bioeconomy strategy already in place	Support access of SMEs to bioeconomy related available public funding	Monthly Catalogue. Romanian Textile Concept	n/a
Bosnia Herzegovina	Elaboration of the bioeconomy strategy	Organisation of bioeconomy related conferences, thematic fora (via RS, HR, SI partners)	Circular Bioeconomy Strategy in Baden-Württemberg	n/a
Bulgaria	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level.	Policy Hackathons Circular Bioeconomy Strategy in Baden-Württemberg	Cluster organisation (networks) Informal Civil Organisations

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
		<p>Integration of bioeconomy into the cluster development strategies</p> <p>Support access of SMEs to bioeconomy related available public funding</p>	<p>Green Self-Assessment Tool</p> <p>Green Champions Programme</p> <p>Monthly Catalogue</p> <p>Romanian Textile Concept</p>	
Croatia	Elaboration of the bioeconomy strategy & adjacent support instruments	<p>Intensification of dialogue between policy actors at national level</p> <p>Integration of bioeconomy into the cluster development strategies</p> <p>Support access of SMEs to bioeconomy related available public funding</p>	<p>Policy Hackathons</p> <p>Circular Bioeconomy Strategy in Baden-Württemberg</p> <p>Green Self-Assessment Tool</p> <p>Green Champions Programme.</p> <p>Monthly Catalogue</p> <p>Romanian Textile Concept</p>	Regional Development Agencies
Czech Republic	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level	Policy Hackathons	Competence centres, State Agencies

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
		<p>Integration of bioeconomy into the cluster development strategies</p> <p>Support access of SMEs to bioeconomy related available public funding</p>	<p>Circular Bioeconomy Strategy in Baden-Württemberg</p> <p>Green Self-Assessment Tool</p> <p>Green Champions Programme</p> <p>Monthly Catalogue</p> <p>Romanian Textile Concept</p>	
Hungary	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level	<p>Policy Hackathons</p> <p>Circular Bioeconomy Strategy in Baden-Württemberg</p>	Informal civil organisations
Moldova	Elaboration of the bioeconomy strategy & adjacent support instruments	Organisation of bioeconomy related conferences, thematic for a (via RO partners)	Circular Bioeconomy Strategy in Baden-Württemberg	n/a
Montenegro	Elaboration of the bioeconomy strategy & adjacent support instruments	Organisation of bioeconomy related conferences, thematic fora (via RS, HR, SI partners)	Circular Bioeconomy Strategy in Baden-Württemberg	n/a

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Romania	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level	Policy Hackathons Circular Bioeconomy Strategy in Baden-Württemberg Green Self-Assessment Tool. Green Champions Programme	Informal civil organisation
Serbia	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level.	Policy Hackathons Circular Bioeconomy Strategy in Baden-Württemberg Green Self-Assessment Tool Green Champions Programme Monthly Catalogue	State agencies, professional associations
Slovakia	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level	Policy Hackathons	State agencies, Regional Development Agencies, informal civil organisations

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
		<p>Integration of bioeconomy into the cluster development strategies</p> <p>Support access of SMEs to bioeconomy related available public funding</p>	<p>Circular Bioeconomy Strategy in Baden-Württemberg</p> <p>Green Self-Assessment Tool</p> <p>Green Champions Programme</p> <p>Monthly Catalogue</p> <p>Romanian Textile Concept</p>	
Slovenia	Elaboration of the bioeconomy strategy & adjacent support instruments	Intensification of dialogue between policy actors at national level	<p>Policy Hackathons</p> <p>Circular Bioeconomy Strategy in Baden-Württemberg</p> <p>Green Self-Assessment Tool</p> <p>Green Champions Programme</p>	Regional Development Agencies, informal civil organisations
Ukraine (Chernivetska Oblast, Ivano-Frankiviska Oblast, Zakarpatska Oblast and Odessa Oblast)	Elaboration of the bioeconomy strategy & adjacent support instruments	Organisation of bioeconomy related conferences, thematic fora (all partners)	Circular Bioeconomy Strategy in Baden-Württemberg	n/a

### 3.2 Raising awareness about circular bioeconomy processes

The success of circular bioeconomy processes at regional level is strongly related to the community involvement. In that respect, experience shows that bioeconomy initiatives should be of a bottom-up nature. However, as bioeconomy is part of the wider innovation concept, it is not possible without individual and institutional learning efforts which should be driven but systematic education initiatives of a top-down character. In addition to that, the exchange of best practices from other regions/countries facing similar problems is the most effective way in driving structural changes.

Many regions have developed small or large-scale awareness-raising and dissemination activities to support the deployment of the bioeconomy. Events are also a valuable tool to bring together all stakeholders of the bioeconomy innovation ecosystems.

#### 3.2.1 Challenges and best practices

##### Challenge: Raising awareness for the local community in circular bioeconomy processes

The bioeconomy is both an opportunity and a need for the local community involved in all bioeconomy processes. In particular, the bioeconomy is of fundamental importance as a forward-looking approach for economies and rural areas, which find themselves needing to review their strategies for integrating into the global economy and defining new productive pathways that will generate jobs and income. The bioeconomy provides interesting alternatives for more balanced and inclusive territorial development, which is vital to combat the persistent problems of rural poverty effectively. On the other hand, since biomass is a cheap and voluminous resource in most of its forms, the rate of return is much greater when value is added close to the point of origin. This is especially true if the goal is to optimize its utilization through the development of new value chains associated with the use of “waste” biomass in productive activities with positive territorial externalities (e.g., the energy supply, generation of jobs, reduction of pollutants).

##### Best Practice Example: Food for Earth (BG)

Food for the Earth was born in 2013 in Knyajevo, Sofia, Bulgaria, as an initiative for community composting in the neighbourhood. This initiative aims to raise awareness, inform, and form communities in urban and rural areas about composting, compost, and its benefits of them. In December 2020 “Food for the Earth – Composting Communities for Climate” was awarded in the contest of Climate Community Lab, launched by EIT Climate-KIC and its partners in October 2020 to spark climate impact partnerships in the region. The teams and volunteers working for the initiative, adapt and transfer knowledge about soil’s health in urban and peri-urban areas and raise awareness about composting and recycling green waste and scrap among citizens and municipalities.

More details about the best practice, documented by the Bulgarian Small and Medium Enterprises Promotion Agency, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Best Practice Example: Hiša Mandrova, a youth-led entrepreneurship in a rural area (SI)

Hiša Mandrova is the most publicized example of youth-centered rural transformation in Slovenia. They established a project named after a former house name to which they moved after a successful career in Amsterdam. They renovated a house that was built as a school in 1953 and used wood fibre insulation, locally sourced wood and a combination of lime and clay plasters. In this way they combine traditional knowledge of regenerative agriculture and woodworking. With their story they wish to inspire young people to start producing their food and to teach about local woodworking heritage. To promote traditional wood-making and traditional and sustainable food production they established a website and use different social media platforms. They aim to attract visitors to apply for their workshops which represents one of their incomes.

More details about the best practice, documented by the Ministry of Education, Science and Sports of Slovenia, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Challenge: Systemic Education Programmes for Bioeconomy

Bioeconomy is complex and involves interdisciplinary knowledge. In Europe, only few countries have adopted specific measures related to the improvement of education on bioeconomy in schools and universities. Bioeconomy as a concept is a long-term process and requires the concentrated cooperation of many scientific disciplines, as well as political and economic decision-making process. All the above-mentioned aspects need to be analysed under the prism of the education to be better adapted to specific audiences, countries, regions, and processes. The transition towards bioeconomy is a challenging process and requires cooperation of different stakeholders. Universities, one of the main stakeholders in creation of innovation and sustainable invention, play a key role in implementation of bioeconomy goal through preparation of bioeconomy professionals. Bioeconomy programmes graduates will be the protagonists of a transformation to sustainable bioeconomy and will need to apply acquitted competences and knowledge in creation of new technologies and green innovations in general. The need for skilled people and for specific education and training offers is an issue in many regions and countries. This is sometimes not a bioeconomy specific need, but a general problem linked to innovation capacities in research and science institutions and in businesses.

#### Best Practice Example: INCIEN (Institute of Circular Bioeconomy) (CZ)

INCIEN was established in 2015 to raise awareness of the circular economy concept and demonstrate it in practice. INCIEN promotes more efficient ways of managing raw materials in the Czech Republic. Since 2015, it has contributed to the fact that the circular economy has become much more widely known in the Czech Republic, but above all, much is being done for it. INCIEN promotes this change both from above (in working groups of ministries, etc.) and from below (through the media, social networks, blogs, or newsletters).

INCIEN operates as a think-tank whose activities are at the intersection of government, academia, and business. It provides information and data on current materials management in the country and proposes recommendations to the government, regions, cities, or other players. It supplies the necessary expertise, educates, prepares expert studies, and engages in research. Most of its activities are developed within the framework of long-term thematic programmes, which it implements in cooperation with partners.

More details about the best practice, documented by the Czech National Cluster Association, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#)

#### Best Practice Example: ÖKOLOG (AT)

The ÖKOLOG programme aims to encourage and motivate schools to become active in the field of environmental education. Step by step, concrete topics such as saving energy, avoiding waste, ecological school grounds design, healthy snacks, etc. are made visible at the schools. Now in more than 600 ÖKOLOG schools of all school types and 10 teacher training colleges teachers, students and pupils learn and work together on environmental and bioeconomic themes.

More details about the best practice, documented by Business Upper Austria – OÖ Wirtschaftsagentur GmbH, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### 3.2.2 Action Plan

Based on the potential new actors identified in each region and against available best practices from other regions, several actions could be undertaken to mobilise their participation to regional circular bio-economy processes, as shown in the following table.

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Austria	Increase number of stakeholders involved in the bio-economisation process	Exchange of best practices	INCIEN	Cluster organisations (networks), professional associations, competence centres, local government, Regional Development Agencies



Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Baden-Württemberg (DE)	Increase number of stakeholders involved in the bio-economisation process	Exchange of best practices	INCIEN	Chambers of commerce
Bavaria (DE)	Increase number of stakeholders involved in the bio-economisation process	Exchange of best practices	INCIEN	n/a
Bosnia Herzegovina	Increase community involvement into bioeconomy processes	Exchange of best practices	Food for Earth, Hiša Mandrova	n/a
Bulgaria	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Competence centres
Croatia	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	competence centres
Czech Republic	Increase number of stakeholders involved in the bio-economisation process	Exchange of best practices	Food for Earth, Hiša Mandrova	Chambers of commerce, competence centres, state agencies,

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Hungary	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Enterprises, competence centres
Moldova	Increase community involvement into bioeconomy processes	Exchange of best practices (via RO partners)	Food for Earth, Hiša Mandrova	n/a
Montenegro	Increase community involvement into bioeconomy processes	Exchange of best practices (via RO partners) (via RS, HR, SI partners)	Food for Earth, Hiša Mandrova	n/a
Romania	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Chambers of commerce, competence centres
Serbia	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Enterprises, professional associations
Slovakia	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Competence centres

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Slovenia	Development of education/training courses/materials on the topic of bioeconomy	Exchange of best practices	ÖKOLOG	Professional associations
Ukraine (Chernivetska Oblast, Ivano-Frankiviska Oblast, Zakarpatska Oblast and Odessa Oblast)	Increase community involvement into bioeconomy processes	Exchange of best practices (all partners)	Food for Earth, Hiša Mandrova	n/a

### 3.3 Multi-actor cooperation in the bioeconomy

Multi-actor partnerships within the bioeconomy value chain in the countries of the Danube Region is of particular importance. Systemic and systematic change requires complex cooperation interactions between local authorities and businesses on the local level. There are several ways of mobilising local actors such as the generation of bioeconomy clusters or the set up and management of a (web-based) bioeconomy cooperation platform to advocate opportunities and link policy and financial streams.

Collaboration between clusters, sectors, technologies, and knowledge fields is needed to promote bioeconomic principles in the European macro-regions, such as the Danube one.

#### 3.3.1 Challenges and best practices

**Challenge: Mobilisation of local actors in the bioeconomy process**

Mobilisation of different local stakeholders in the bioeconomy is needed to have an integrated suite of channels and to design dedicated contents tailored to their interests. Business incubators, clusters, hubs, etc. as drivers of local innovation ecosystems contribute to a better understanding of bioeconomy in connection with the European Green Deal and the best practices in this field.

**Best Practice Example: Business Incubator in Sf. Gheorghe (RO)**

Started in 2006 with the support of the UNDP, the Business Incubator of Sf. Gheorghe has become one of the major actors in the regional innovation ecosystem. Besides the

incubation services (49 companies as of 2021), the incubator hosts a business accelerator and a digital innovation hub.

Of particular importance is the role of the business incubator as a generator of the regional clusters. Since 2010 all regional clusters have been residing in the business incubator, e.g.:

- Pro-Wood Regional Clusters in forest-based industry,
- Green Energy Innovative Biomass Cluster in the field of bioenergy
- Wellness tourism Cluster Transylvania in the field of sustainable tourism,
- Agro-food Innovative Cluster in Central Region of Romania – in the field of agro and food sector
- Transylvania Textile and Fashion Cluster in the field of circular economy in the textile sector

This approach fostered the exchange of best practices, institutional and individual learning processes and resulted in the establishment of valid cluster business models.

In addition to that, all clusters in the incubator embarked on a “bioeconomy” journey and are committed to creating and implementing new innovative projects applying the sustainable development, circular economy principles and to raising the general awareness of the stakeholders, through the involvement of local public authorities, regional public entities, and R&D entities.

More details about the best practice, documented by Ghelinta Commune, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Best Practice Example: Rural Hub (RS)

In the village of Vrmdža, the prime mover (an enthusiast from the city of Belgrade) has started 2010 a Centre for Socially Responsible Entrepreneurship with Rural HUB as a co-working place. The development strategy was based on their rural model of a sustainable eco-village and is achieved through collaboration between people from an urban background and traditional farmers from this village. The collaboration is based on preserving, enhancing, and retrofitting the existing village, its values and lifestyle, while introducing selected modernization.

Rural HUB is used for networking, sharing knowledge and experience, capacity building, mentorship and organizing various kinds of activities and events important for the promotion of this idea and the concept of sustainable communities. In the HUB space, innovative, environmentally responsible individuals and organizations can work, meet, learn, and connect.

The activities are diverse: comprehensive educational programmes, business design training and application; assistance and advice, how to use social media education; fundraising; workshops on the development of unique touristic offers and specific domestic products and services, development of sustainable farms, green jobs preparation, and service-learning opportunities. Rural HUB also works on the development of its local community by using and developing its products and services: food locally produced and organic, eco-tourism facilities and accommodation capacities, services, craftworks, etc. New people come with innovative ideas establishing new businesses like adrenalin tourism, eco-

construction, and manifestations – such as climbing festivals, eco and ethnic-culture film festivals. The initiative is financed with private resources mainly and to a lesser extent with donor funds through projects.

More details about the best practice, documented by Alma Mons Ltd, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Best Practice Example: Hungarian Circular Economy Platform (HU)

Circular Economy Platform was officially established in Hungary on the 29<sup>th</sup> of November 2018 as an initiative of the Business Council for Sustainable Development in Hungary (BCSDH), the Embassy of the Kingdom of the Netherlands and the Ministry for Innovation and Technology. Fostering the shift to a circular economy is a fantastic opportunity and the platform promotes this way of thinking.

The main aim of the platform is to accelerate the transition to a circular economic model by sharing knowledge, creating joint projects and collaborations.

More details about the best practice, documented by IFKA Public Benefit Non-profit Limited Company for the Development of the Industry, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Best Practice Example: Landscape Recovery Programme of the Košice Region (SK)

On the 22<sup>nd</sup> of October 2018, the Council of Košice Self-Governing region approved the Landscape Recovery Programme. The action plan was accepted in 2019, whereby the meeting was held with mayors, agriculturists, forest agriculturists, representatives of state administration, activists, and volunteers in individual regions under the named establishment of Water councils.

The plans of the Water councils of Košice Region within the Landscape Recovery Programme 2021-2030 of individual regions are open to topics for comprehensive solutions for the WEF (water, energy, food) approach; it deals with climate change and its risks, water supply, soil fertility, and sustainable rural development at a considerable extent.

More details about the best practice, documented by Košice Self-Governing Region, a partner of GoDanuBio consortium, can be found in the [Best Practice Brochure](#).

#### Challenge: Strengthening the local businesses in bioeconomy

The availability of bioeconomy resources in the Danube Region represents a solid base for the development of valid business models and of a flourishing enterprising spirit. However, lack of knowledge about bioeconomy in general, limited funding opportunities, lack of involvement from the local authorities lead to a reduce interest of the producers to shift towards a bio-based economic model.

#### Best Practice Example: Miret Ltd (HR)

Miret is an innovative ecological brand and development company for natural fibres with a focus on sustainable solutions founded by two brothers - Hrvoje and Domagoj Boljar.

Developed with new technologies and modern bio-based materials, their sneakers substitute the classical approach, and -according to the producers- outperform in comfort. Their main target is to reduce the use of petroleum derivatives and toxic chemicals in material production processes and the final product.

Their methodology includes using bio-based materials made from 9 plants and wool, keeping the supply chain localized (most of their manufacturing partners are in the EU, and their production facilities are in Croatia), using CO<sub>2</sub> neutral deliveries, and optimization of production processes to reduce CO<sub>2</sub> emissions, as well as materials and energy consumption.

More details about the best practice, documented by Croatian Wood Cluster, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### Best Practice Example: AgroRings (SK)

The goal of growing vegetables in an environmentally and economically sustainable way has been around for more than 30 years.

One AgroRing works by creating circular fields with a spiral-shaped row that machines an electrically driven swivel arm. This is a small "revolution" in vegetable growing. Unlike heavy machinery, the AgroRing does not damage the soil and healthy food from domestic production gets on the table. During the year, under suitable climatic conditions, it is possible to grow 52 types of vegetables, several types of herbs or flowers in the fields.

It is an ecologically and economically sustainable way of growing vegetables for young growers and small farms. The farm model is easily reproducible and is based on the principle of supporting community agriculture. The system of this crop cultivation is beneficial for humans as well as for the soil. It can help to avoid soil compaction, and to reduce energy consumption.

More details about the best practice, documented by Košice Self-Governing Region, a partner of GoDanuBio consortium, can be found in the [Best Practice Brochure](#).

#### Best Practice Example: Closing the production chain for low value fish species – Nowa Pasłęka, Poland (PL)

This is the case of a fisherman in a small village who decided to extend his activity and start fish processing on a small scale. This unusual production facility offers products from small bream, roach, ruffe, smelt and other not commonly used fish species. Exploiting to the maximum his own endowments, this small entrepreneur manages to convince customers to go for low added value fish instead of perch, eel, etc. He chose his own bistro as distribution channels as well his own logistic service, which allowed the extension of his

market size for canned fish production in this phase. This will of course result in an increased workforce.

More details about the best practice can be found in Be Rural. Be Rural is a Horizon 2020 project aimed at elaborating Bio-based strategies and roadmaps for enhanced rural and regional development in the EU.<sup>8</sup>

### 3.3.2 Action Plan

Based on the potential new actors identified in each region and against available best practices from other regions, several actions could be undertaken to mobilise their participation to regional circular bio-economy processes, as shown in the following table.

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Austria	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Košice Region	Cluster organisations, professional associations, competence centres, local government, regional development agencies, informal civil organisations
Baden-Württemberg (DE)	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub	Chambers of commerce

<sup>8</sup> <https://be-rural.eu/resources/>, last accessed 29/04/2022

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
			Landscape Recovery Program of the Košice Region	
Bavaria (DE)	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination Via BW partners	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Košice Region	n/a
Bosnia Herzegovina	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination Via RS, HR, SI partners	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Košice Region	n/a
Bulgaria	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform	Cluster organisations, competence centres, informal civil organisations



Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
			Rural Hub Landscape Recovery Program of the Kosice Region	
Croatia	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Kosice Region	Competence centres, regional development agencies, informal civil organisations
Czech Republic	Entrepreneurship in bioeconomy	Several types of workshops, seminars, and other kind of info dissemination	Miret Ltd, AgroRings, Low Value Fish Species	Chambers of commerce, competence centres
Hungary	Entrepreneurship in bioeconomy	Several types of workshops, seminars, and other kind of info dissemination	Miret Ltd, AgroRings, Low Value Fish Species	Cluster organisations, enterprises, competence centres

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Moldova	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination Via RO partners	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Kosice Region	n/a
Montenegro	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination Via RS, HR, SI partners	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Kosice Region	n/a
Romania	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Kosice Region	Chambers of commerce, competence centres, informal civil organisations

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Serbia	Entrepreneurship in bioeconomy	Several types of workshops, seminars, and other kind of info dissemination	Miret Ltd, AgroRings, Low Value Fish Species	Enterprises
Slovakia	Entrepreneurship in bioeconomy	Several types of workshops, seminars, and other kind of info dissemination	Miret Ltd, AgroRings, Low Value Fish Species	Competence centres
Slovenia	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub Landscape Recovery Program of the Kosice Region	Professional associations, competence centres, informal civil organisations
Ukraine (Chernivetska Oblast, Ivano-Frankiviska Oblast, Zakarpatska Oblast and Odessa Oblast)	Mobilisation of local actors in bioeconomy actions	Several types of workshops, seminars, and other kind of info dissemination  (All partners)	Business Incubator Sf Gheorghe Hungarian Circular Bioeconomy Platform Rural Hub	n/a

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
			Landscape Recovery Program of the Kosice Region	

### 3.4 Interregional Cooperation

The interregional cooperation contributes to a considerable extent to awareness raising about the necessity of changing the economy system from a fossil-based towards a bio-based one. Via best practice sharing and interregional cooperation projects (Horizon, INTERREG, etc.) it helps to overcome the competitiveness gaps between more and less developed regions supporting the harmonisation process at EU level. GoDanuBio project is itself an example.

#### 3.4.1 Challenges and Best Practices

**Challenge: Strengthening the interregional cooperation and exchange of best practices**

The bioeconomy relies on systemically networked thinking and reinforced interdisciplinary cooperation along supply chains. The interdisciplinary usage of all competences constitutes the basis for the successful transformation towards the bioeconomy by means of knowledge and technology transfer. Closer interregional cooperation and an interdisciplinary exchange between players from politics, society, science, and industry are essential success factors for the development of the bioeconomy. The bioeconomy addresses numerous industries and sectors. For transferring new insights into practical applications, it is necessary to promote a comprehensive and cross-sectoral exchange of information and knowledge between all players, specifically between research and industry as well as among individual industry branches. The interregional cooperation creates important synergies for advancing the bioeconomy. Networking and the search for cooperation partners is increasingly performed via virtual platforms. Specific platforms with virtual formats for exchanging information and B2B partnering provide the opportunity to strengthen networking across industries between technology providers and producers.

#### Best Practice Example: DanuBioValNet (DE)

DanuBioValNet was a project, launched in 2017 through a cross-regional partnership involving 16 partners from 10 Danube regions, aimed at enhancing transformation from fossil-based economy towards an economy using renewable resources by creating Danube bio-based value-added networks.

Three bio-based value chains were analysed and generated, e.g., phytopharma, eco-construction and bio-based packaging.<sup>9</sup>

#### Best Practice Example: South Bohemian Bioeconomy Association - SBAB (CZ)

The SBAB was established in 2020 as an institutional outcome of the POWER4BIO project (10/2018–3/2021; Horizon 2020) by its Czech partner, the University of South Bohemia in Ceske Budejovice. Its primary mission is to support the sustainability of the POWER4BIO project results, respectively the creation of a regional bioeconomy strategy and implementation-of bioeconomy in practice in the South Bohemian Region. It aims to build on local traditional bio-based resources and sectors and connect them with innovative technologies with high added value ensuring the sustainability of the region's development.

More details about the best practice, documented by the National Czech Cluster Association, a partner of GoDanuBio consortium can be found in the [Best Practice Brochure](#).

#### 3.4.2 Action Plan

Based on the potential new actors identified in each region and against available best practices from other regions, several actions could be undertaken to mobilise their participation to regional circular bio-economy processes, as shown in the following table.

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Austria	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Cluster organisations, professional associations, competence centres, local government, regional development agencies, informal civil organisations

<sup>9</sup> <https://www.interreg-danube.eu/approved-projects/danubiovalnet>, last accessed 29/04/2022

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Baden-Württemberg (DE)	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Chambers of commerce
Bavaria (DE)	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc. Via BW partners	DanuBioValNet, POWER4BIO	n/a
Bosnia Herzegovina	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc. Via RS, HR, SI partners	DanuBioValNet, POWER4BIO	n/a
Bulgaria	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Cluster organisations, competence centres, local government, informal civil organisations
Croatia	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Competence centres, regional development agencies, informal civil organisations
Czech Republic	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Chambers of commerce, competence centres, state agencies

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Hungary	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Cluster organisations, competence centres, informal civil organisations
Moldova	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.  Via RO partners	DanuBioValNet, POWER4BIO	n/a
Montenegro	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.  Via RS, HR, SI project partners	DanuBioValNet, POWER4BIO	n/a
Romania	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Chambers of commerce, competence centres, informal civil organisations
Serbia	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Professional associations, state agencies
Slovakia	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Competence centres, state agencies, local government, regional development agencies, informal civil organisations

Country/Region	Aim	Proposed measures	Related Best Practices	Missing actors
Slovenia	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc.	DanuBioValNet, POWER4BIO	Competence centres, regional development agencies, informal civil organisations
Ukraine (Chernivetska Oblast, Ivano-Frankiviska Oblast, Zakarpatska Oblast and Odessa Oblast)	Foster interregional cooperation	Joint project proposals: Horizon Europe, INTERREG, etc. (all partners)	DanuBioValNet, POWER4BIO	n/a



## 4 Conclusions

Following the analysis performed on an Integration plan for prospective actors for developing a sustainable and holistic circular bioeconomy at national and Danube macro-regional level, the results are focused on:

- a) ***A strategic planning and governance are crucial to deploy the bioeconomy.*** The development of a common national/regional vision for the bioeconomy, priority-setting, and coordination among research, industrial, agricultural, and regional policies is key to develop regional bioeconomy support frameworks that can be co-funded by national and EU funds. In some of the analysed countries, ongoing policies on circular economy could be an open gate to the deployment of circular bioeconomy approaches.
- b) ***Integrative bioeconomy ecosystems must be developed.*** Specific 'bridging links' (e.g., thematic platforms, regional networks, specialised innovative clusters, incubators, etc.) must support the interaction of stakeholders and ensure knowledge transfer, knowledge management and communication, so contributing to the so-called bioeconomisation. Rural innovation partnerships, linking existing local action groups and regional innovation systems, can help to promote innovation in most prominent subsectors (agriculture, fisheries, forestry, food) of the bioeconomy.
- c) ***Partnerships and interregional cooperation*** between regions with the same bioeconomy profile/approach can facilitate learning and knowledge transfer. Cooperation projects and partnerships with a bioeconomy focus shall be promoted within existing cooperation programmes and in the Danube macro-region strategy (EUSDR).
- d) ***There is a need for capacity-building and support schemes for participation in existing networks and platforms*** for countries of the Danube Region with a low bioeconomy maturity.
- e) ***Local and regional policymakers must be aware of the potential benefits and approaches to the bioeconomy in their region*** and should increase their knowledge on how existing funds (Horizon Europe, New Single Market Programme, LIFE, etc.) can be used and synergies generated to stimulate the bioeconomy at regional level. A better communication of good practices and project results might be necessary.
- f) ***Raise public awareness and acceptance of bioeconomy.*** Regions and countries need guidance and support to engage civil society and consumers. Activities are needed to raise awareness on potential benefits of new/modified value chains in industrial/agricultural sectors, as well as on the benefits of a circular economy. Negative perceptions should be better analysed and addressed. Bioeconomy standards and labels should be developed to give an overview on positive and negative features of bio-based and recycled products. Protection of consumer rights must be considered as an important aspect to enhance acceptance of bio-based and recycled products. Overall, advancing towards citizen-friendly value chains should be one objective of bioeconomy deployment.

- g) To optimise/convert existing value chains and to integrate different chains into regional value chains, **all local/regional stakeholders – SMEs, in particular – must be actively engaged and supported**, e.g., through voucher programmes for the use of pilot facilities and demo plants, or open access to demo infrastructure. Not only the primary producers (farmers, farmer associations and agri-cooperatives) must be involved, but also stakeholders upstream and downstream of the core bioeconomy business (supplies, machinery, equipment, energy, water, processing, logistics, local energy suppliers as clients for bioenergy, wastewater treatment, retail, and distributors, etc.).

Several types of actors are missing or are still insufficiently involved in the circular bioeconomy processes at regional level. These vary from region to region and so does their potential involvement. The actions to be undertaken by various partners are suggested in the following table.

Table 4 Integration Actions

Action	Involvement of missing actors	Country/Region
Support access of SMEs to bioeconomy related available public funding	Chambers of Commerce	DE (BW),
Involvement in bioeconomy processes	Chambers of Commerce	DE (BW), CZ,
	Cluster organisations (networks)	AT (UA)
	Competence Centres	AT (UA), CZ
	State Agencies	CZ
	Local Government	AT (UA)
	Regional Development Agencies	AT (UA)
Mobilisation of local actors	Chambers of Commerce	DE(BW)
	Cluster organisations (networks)	AT (UA), BG
	Professional associations	SI
	Competence Centres	AT (UA), BG, HR, RO, SI
	Local Government	AT (UA)
	Regional Development Agencies	HR, SI

Action	Involvement of missing actors	Country/Region
	Informal Civil Organisations	AT (UA), BG, HR, RO
Involvement in inter-regional projects	Chambers of Commerce	DE (BW), CZ, RO
	Cluster organisations (networks)	AT (UA), BG, HU
	Professional associations	RS
	Competence Centres	AT (UA), BG, HR, CZ, HU, RO, SK, SI
	State Agencies	CZ, RS, SK
	Local Government	BG, SK
	Regional Development Agencies	HR, SK, SI
	Informal Civil Organisations	AT (UA), BG, HR, HU, RO, SI
Foster entrepreneurship in bioeconomy	Chambers of Commerce	CZ
	Cluster organisations (networks)	HU
	Enterprises	RS
	Competence Centres	CZ, HU, SK
Development of educational/training courses and material for bioeconomy	Chambers of Commerce	RO
	Enterprises	HU, RS
	Professional associations	RS, SI
	Competence Centres	BG, HR, HU, RO.SK
Support access of SMEs to bioeconomy related available public funding	Cluster organisations (networks)	AT (UA), BG
	Professional associations	AT (UA)
	Competence Centres	AT (UA), CZ
	State Agencies	CZ, SK
	Regional Development Agencies	HR, SK
	Informal Civil Organisations	BG, SK

Action	Involvement of missing actors	Country/Region
Elaboration of the bio-economy strategy & support instruments	Cluster organisations (networks)	AT (UA), BG
	Professional associations	RS
	State Agencies	CZ, RS, SK
	Regional Development Agencies	HR, SK, SI
	Informal Civil Organisations	BG, HU, RO, SK, SI