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Macroregional framework conditions report



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1. The status of circular bioeconomy in the Danube macro-region

1.1. Policies on circular bioeconomy¹ at macro-regional level: the EU Strategy for the Danube Region

The EUSDR² (European Commission, revised Action Plan from 2020) is a macro-regional strategy for the Danube Region, which was launched by the European Commission in December 2011. The strategy was developed jointly by the European Commission and various countries and stakeholders and is intended to create synergies and coordination between existing policies and initiatives³. Within the macro-regional strategies, it is the largest and most diverse, involving nine EU member states (Austria, Bulgaria, Croatia, Czech Republic, parts of Germany, Hungary, Romania, Slovakia, Slovenia), three Accession Countries (Bosnia and Herzegovina, Montenegro, Serbia) and two Neighbouring Countries (Moldova, parts of Ukraine)⁴.

The EUSR⁵ has five strategic objectives and the first two are relevant for this report. The **first objective (“Counteracting Climate Change”)** is something that can be tackled by the bioeconomy. The bioeconomy aims to reduce the use of fossil resources. By using biomass as a feedstock, additional CO₂ emissions can be prevented from being added to the atmosphere, as only plant-bound CO₂ is released. In addition, the circular economy helps to reduce emissions in general - a key component of this is the reuse and recycling of materials. A particularly good example of a bio-based circular economy is provided, for example, by the raw wood material. With regard to the **second objective (“Stimulating Sustainable Development”)**, the bioeconomy can support sustainable development or even enable it. Through the circular economy, resources can be used more sustainably. This can also be ensured through appropriate communication to change awareness of the population in this field.

The field of bioeconomy refers to many sectors and different types of application. In this regard, the EUSDR is composed of four different pillars: 1) Connecting the region; 2) Protecting the Environment; 3) Building prosperity; and 4) Strengthening the region. Within these, there are 85 different actions associated to 12 Priority Areas (PA). GoDanuBio is addressing mainly PA 8 and 10, thus there are direct links with Pillars 3 and 4, but Pillars 1 and 2 should not be overseen, as reported below:

Pillar 1: Connecting the region

The transformation to a circular bioeconomy is definitely supported by **PA 2 (“Sustainable Energy”)**. In most cases, hydropower, wind, solar and geothermal energy are not included in the definition of bioeconomy. This depends on the different understandings of the bioeconomy in the respective regions and their policies. For example, the European Union's bioeconomy strategy includes only "all sectors and systems that rely on biological resources (animals, plants,

¹ The principles of the circular economy are included here. Bioeconomy is not circular by nature, this is why circular economy and bioeconomy are combined in this definition. This will be covered throughout the whole text.

² <https://danube-region.eu/wp-content/uploads/2020/04/EUSDR-ACTION-PLAN-SWD202059-final.pdf>, last accessed 23/04/2021

³ <https://danube-region.eu/about/>, last accessed 23/04/2021

⁴ https://ec.europa.eu/regional_policy/en/policy/cooperation/macro-regional-strategies/danube/, last accessed 05/07/2021

microorganisms, and derived biomass, including organic waste)⁵. However, there are forms of energy that are produced directly from biomass. Action 2 from PA 2 (“To promote energy efficiency and use of renewable energy in buildings and heating systems”) can be directly applied to the use of biorefineries; ideally, waste heat from other unit operations or energy from a biogas plant is directly used. Low-carbon technologies (PA 2, Action 4) also fall within the scope of the bioeconomy.

Pillar 2: Protecting the environment

While the topic of environmental protection is not directly associated to bioeconomy, it is important to comply with its framework. Since the bioeconomy uses biological feedstocks, it certainly poses a risk of biodiversity loss or causing high environmental impacts through intensification of agriculture if overexploitation of resources continues. The plate versus tank issue also plays a major role here. **PA 6 (“Biodiversity and Landscape, Quality of Air and Soils”)** provides an important backbone to mitigate these potential negative effects. Action 2 (“Build capacities of national and local authorities, non-governmental organizations, expert and scientific community in the environment related matters”) should be highlighted here. Especially with regard to bioeconomy, it is important that all actors are involved in the protection measures and that a transfer of knowledge is guaranteed.

Pillar 3: Building prosperity

Research and innovation are of great importance for the bioeconomy sector, which is constantly developing and unfolding. The third pillar works towards this. For example, **national, regional and EU funds shall be coordinated to stimulate excellence R&I (PA 7, Action 1)**. A sustainable bioeconomy can only be implemented if as many stakeholders as possible are included along the value chain. Different regions have different visions regarding the bioeconomy. There are different priorities, different value chains and drivers. But regardless of the particular vision of the bioeconomy, R&I forms a core element of any resulting strategy⁶. To drive this forward, the countries of the Danube region can participate in the R&I programmes of the EU (**PA 7, Action 2**). Prominent examples are Horizon Europe (2021-2027), the R&I framework programme of the EU with a budget of 95.5 billion euros. Pillar 2 of Horizon Europe (“Global Challenges and European Industrial Competitiveness”) includes Climate, Energy and Mobility, but also Food, Bioeconomy, Natural Resources, Agriculture and Environment⁷. Another example is the European Regional Development Fund (ERDF), which promotes innovation and research, but also provides support for small and medium-sized enterprises (SMEs). Furthermore, the ERDF promotes a low-carbon economy⁸. Action 3 and 5 from **PA 7** describe a stronger cooperation between research institutions and SMEs. As already mentioned above, knowledge and technology transfer is indispensable for bioeconomy. **PA 8 (“Competitiveness of enterprises”, Action 1)** is also working

⁵ European Commission (2018): “A sustainable bioeconomy for Europe: strengthening the connection between economy, society and the environment: updated bioeconomy strategy”

⁶ Henchion, Maeve & Devaney, Laura, 2018. "Innovation for transition: is the EU R&I landscape supportive of the bioeconomy?," 166th Seminar, August 30-31, 2018, Galway, West of Ireland 276194, European Association of Agricultural Economists.

⁷ https://ec.europa.eu/info/horizon-europe_de, last accessed 26/04/2021

⁸ https://ec.europa.eu/regional_policy/en/funding/erdf/, last accessed 26/04/2021

on this area, and the framework conditions, funding and support programmes and digitization are to be improved for SMEs (Action 2-4). SMEs serve as innovation drivers in the bioeconomy. Highly innovative products and services need to be invented. Smaller companies can implement ideas and innovations faster than large companies. A special focus here is also on SMEs in rural areas, which are working at the beginning of the value chain. As explained above, for a successful bioeconomy, all stakeholders must be involved. Regional development cannot be seen as a process separate from SMEs' competitiveness. No industrial transformation can take place without new models of cooperation. In this area, clusters also play an important role in enabling cross-sectoral collaboration and supporting companies to bring bio-based products to market⁹.

Pillar 4: Strengthening the region

In this pillar, **PA 10 (“Institutional Capacity and Cooperation”)** is of project’s interest. This is on strengthening institutional capacities to improve decision-making and administrative performance, to increase the involvement of civil society and local actors for effective policy-making and implementation and to enhance cooperation and knowledge for better use of funding and to develop needs-based funding instruments¹⁰. Of particular note here is Action 1, which describes that strengthening the cooperation capacities of all stakeholders in the multi-level system is crucial to contribute to better policy coordination and mutual learning, which can align policies of different countries and increase knowledge. This is important in the field of bioeconomy as it is a very diverse and wide-ranging area. Competences are distributed across many stakeholders, which is also due to the different priorities. Ideas and capacities need to be pooled, which is why stakeholders need to be brought together. This includes not only governmental actors (Action 6). One way to achieve successful cooperation between actors is through participatory governance, which is explained in more detail in Chapter 2 of this report. This also includes civil society, especially younger people, and local actors (Action 7 and 8). In general, stakeholders can be brought together by tailoring engagement activities to a national and regional context, e.g. to existing policy debates or strategies, but also through events that link different topics to ongoing political debates¹¹.

1.2. Overview on existing policies in the Danube region

This section aims to provide a brief overview of existing, planned or missing policies in the field of bioeconomy in the Danube macro-region. On the one hand, the Danube Region represents a perfect platform for the development of the economy built on the bio-based products. On the other hand, there is a lack of the supporting framework, which could facilitate that process¹².

⁹ <https://competitiveness.danube-region.eu/danube-region-as-a-region-of-excellence-bioeconomy-is-a-process-and-cannot-be-avoided/>, last accessed 26/04/2021

¹⁰ <https://danube-region.eu/wp-content/uploads/2020/04/EUSDR-ACTION-PLAN-SWD202059-final.pdf>

¹¹ Gerdes et al. (2018) „Engaging stakeholders and citizens in the bioeconomy: Lessons learned from BioSTEP and recommendations for future research”, within the frame of the Horizon 2020 project “BioSTEP”

¹² <https://competitiveness.danube-region.eu/danube-region-as-a-region-of-excellence-bioeconomy-is-a-process-and-cannot-be-avoided/>, last accessed 26/04/2021

a) Regions with a circular (bio)economy strategy/policy in place

Region / Country	Name of the strategy	Initiator/s	Description
Baden-Württemberg	“The Baden-Württemberg government’s sustainable bioeconomy strategy” (2019)	Ministry of Rural Affairs and Consumer Protection and the Ministry of the Environment, Climate Protection and the Energy Sector	With the strategy, Baden-Württemberg is pursuing four fundamental goals that are to be achieved with the help of 37 measures. Innovative biological concepts should be used to tap renewable or recyclable raw materials, reduce greenhouse gas emissions and strengthen biodiversity. Baden-Württemberg is thus to become an exemplary state for a sustainable and cycle-oriented form of economy.

b) Regions with a circular (bio)economy strategy/policy in the planning stage

Region / Country ¹³	Name of the strategy	Initiator/s	Description
Bulgaria	“Draft Strategy for Transition to the Circular Economy of the Republic of Bulgaria for the period 2021-2027”	Ministry of Environment and Water of the Republic of Bulgaria	The strategy is part of the European Commission's package of measures aimed at stimulating the transition to a circular economy as an engine for global competitiveness and sustainable economic growth. The covered fields are production, consumption, waste management, and the transition from waste to resources.
Hungary	Circular Economy strategic framework	Ministry of Innovation and Technology	Under preparation. It will include a study on the potential of the circular economy in industry, agriculture, and the service sector
Republic of Serbia	Circular Economy Programme	Ministry of Environmental Protection	Adoption planned in 2022. Based on the findings of “Roadmap for the circular economy in Serbia” (2020) and the “Ex ante effects analysis for a circular economy.”

¹³ The peer review exercise of the Košice Self-governing region has not been taken in consideration here, since it is considered a first step towards developing an effective framework for the support of the circular economy in its territory. <https://docplayer.net/209611734-Interreg-europe-policy-learning-platform-peer-review-kosice-self-governing-region-2020.html>, last accessed 29/09/2021

c) Regions without circular (bio)economy strategy but with topic-related policy

Region / Country	Policy	Relation to circular bioeconomy
Croatia	Croatian Smart Specialization Strategy (S3) (2016-2020), Government of the Republic of Croatia	Food and bioeconomy are one priority area in in the S3 strategy.
	National development strategy of the Republic of Croatia until 2030	In line with horizontal policies to strengthen education and training, special attention will be dedicated to the improvement of vocational education for occupations in agriculture and aquaculture to strengthen skills related to modern, environmentally sustainable production and aquaculture including the bioeconomy and the use of digital technology.
Czech Republic	“Bioeconomy concept in the Czech Republic from the perspective of the Ministry of Agriculture” (2019-2024), Ministry of Agriculture of the Czech Republic	This policy document constitutes, jointly with waste management and raw material policies, the core of the circular economy policy landscape in the Czech Republic within the strategy policy document of Circular Czechia 2040 prepared by the Ministry of Environment for the adoption by the Czech government in the second half of the year 2021.
Hungary	Circular economy strategic framework is currently under preparation, coordinated by the Hungarian Ministry of Innovation and Technology	As a result of the cooperation amongst OECD, the European Commission’s DG Reform and the Hungarian government this work started in 2021. It will include a study on the potential of the circular economy in industry, agriculture and the service sector.
	Hungarian Smart Specialization Strategy (S3)	In this strategy the agro-food and bioeconomy-related sectors are mentioned within several aspects such as: a) advanced technologies in the vehicle and other machine industries, including agricultural, food processing; b) agricultural innovation and agricultural knowledge centers; c) clean and renewable energies, including the use of bio-energy (biomass, biogas, bio-refinery methods); d) healthy local food, healthy diet, functional foods and Hungarian specialities, shortening of food chains and food safety. ¹⁴
	National Environmental Programme (2020-2025), currently under preparation	The 5 th national environmental protection programme defines the future development goals of Hungary, taking

¹⁴ Smart Specialization Platform (EC), 2021

		into account its capabilities and long-term environmental interest.
Romania	National Strategic Plan on Common Agricultural Policy in Romania (2021-2027)	The Strategic plan points out that there is a need to finance integrated projects, regardless of the size of enterprises in the agricultural sector, forestry and food industry. The bioeconomy, especially the circular economy, is considered to be a central driver for the sustainable development of rural areas, in correlation with the development of farms which are acting in an organised producing system.
Slovakia	Greener Slovakia – Strategy of the Environmental Policy of the Slovak Republic until 2030 , Ministry of Environment of the Slovak Republic	Objectives of the strategy: To achieve a better quality of the environment and also a sustainable and circular economy, based on consistent protection of the environmental components and using the least possible non-renewable natural resources. The strategy contains a section “Green economy” that deals with the topics of circular economy, waste management and energy.
Slovenia	Development Strategy of Slovenia 2030 by the Government of the Republic of Slovenia (2017)	The need of transition to a circular economy is mentioned in this strategy, but the term “bioeconomy” is not explicitly defined. The strategy is in line with the 17 Sustainable Development Goals (SDGs), in particular the Slovenia’s development goals related to circular economy (8. Low carbon circular economy and 9. Sustainable natural resource management).
Upper Austria ¹⁵	The economic and research strategy #upperVISION2030 , commissioned by the Department of Economic Affairs and Research of Upper Austria	In the strategy, there is a field of action called “efficient and sustainable industry and production”. In this field, there are some concrete measures that are related to bioeconomy.

1.3. Instruments and stakeholders for the circular bioeconomy transition

a) Definition of circular bioeconomy

The only two regions that have a bioeconomy definition are Baden-Württemberg and Upper Austria. Baden Württemberg's definition is based on "The Baden-Württembergs government’s sustainable bioeconomy strategy" (2019)¹⁶, the Upper Austrian definition is based on

¹⁵ Austria has a national bioeconomy strategy since 2019; for the purpose of this deliverable only regional strategies have been considered in countries organized politically in federal states e.g. Austria and Germany.

¹⁶ <https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/documents/Bioeconomy-strategy-barrierefrei.pdf>, last accessed 17/06/2021

“Bioeconomy - A strategy for Austria” (2019)¹⁷. For administrative purposes, other regions mostly adopt the definition of the European Commission¹⁸ whereas several regional policies cover different aspects of it. However, none of the regions have made totally clear what circular bioeconomy actually is, they either speak of circular economy or bioeconomy. The following table shows how regions differ in their definitions regarding circular bioeconomy.

Country	Circular bioeconomy definition	
	Own definition	Using another definition ¹⁹
Baden-Württemberg	»The bioeconomy is understood as a method of economic organization that provides products, processes and services across all economic sectors through the generation and use of knowledge-based biological resources, procedures and principles within the framework of a sustainable economic system« ²⁰	
Bulgaria	The Bulgarian Agricultural Academy has developed a "Strategy for strengthening the role of the agricultural sector in the bioeconomy" with recommendations to the Strategic Plan for Development of the Rural Areas 2021-2027. The plan is still under development and the strategy will likely become a part of this document in the end of 2021. A national definition of the bioeconomy is written in this strategy.	
Croatia		EC
Czech Republic		EC
Hungary		EC
Republic of Serbia		A general definition is missing
Romania		EC
Slovakia		EC
Slovenia		EC
Upper Austria		»Bioeconomy stands for an economic concept that aims to replace fossil resources (raw materials and energy sources) with renewable raw materials

¹⁷ <https://www.bmbwf.gv.at/en/Topics/Research/Research-in-Austria/Strategic-focus-and-advisory-bodies/Strategies/Bioeconomy-Strategy.html>, last accessed 17/06/2021

¹⁸ European Commission (2018): A sustainable bioeconomy for Europe – Strengthening the connection between economy, society and the environment: updated bioeconomy strategy

¹⁹ EC = Definition from the European Commission, see last footnote

²⁰ Ministry of Rural Affairs and Consumer Protection and the Ministry of the Environment, Climate Protection and the Energy Sector: „The Baden-Württemberg’s government’s sustainable bioeconomy strategy“ (2019)

		in as many sectors and applications as possible. It encompasses all industrial and economic sectors that produce, process or use biological resources.« ²¹
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b) Political and legal conditions

Political conditions

Although most regions, as can be seen from the last chapters, do not have their own bioeconomy strategy or policy, the topic is addressed in other documents. In most cases, this refers to the same type of policies, which will be described in more detail below.

Development strategies

It is often a matter of incorporating the concept of the bioeconomy into national/regional structures and increasing the knowledge and skills of the actors involved. The involvement of public bodies provides a basis for bioeconomy development.

The topic of the bioeconomy is also addressed in rural development programmes.

- Croatia: Proposal of the National development strategy of the Republic of Croatia until 2030
- Republic of Serbia: “Sustainable Urban Development Strategy of the Republic of Serbia until 2030”
- Slovakia: “Strategy of Economic Policy of the Slovak Republic until 2030”

Innovation strategies / Smart specialization strategies

The bioeconomy is often listed as a growth or future area in the respective region. This is usually related to the marketable innovations it offers, but also the potential for change in the area of strong industries in the respective countries.

- Baden-Württemberg: „Innovation Strategy“ (Update 2020)
- Bulgaria: The Ministry of Economy is implementing the project "Effective and transparent policy for smart specialization of Bulgaria 2021-2027", precursor of the Innovation Strategy for Smart Specialization (ISIS) 2021-2027, to be adopted until the end of 2021.
- Romania: “National Strategy for Research, Innovation and Smart Specialization” (2021-2027) and “Regional Smart Specialization Strategy” (2021-2027)
- Slovakia: “Research and Innovation Strategy for Smart Specialization of the Slovak Republic” (2017)
- Slovenia: “Slovenia’s Smart Specialization Strategy” (2014-2020)

²¹ Austrian Federal Ministry for Sustainability and Tourism, Federal Ministry for Education, Science and Research, and Federal Ministry for Transport, Innovation and Technology: „Bioeconomy – a Strategy for Austria” (2019)

Strategies in the field of (sustainable) agriculture

In these, the bioeconomy is described as a way to use renewable resources sustainably and to ensure environmental protection. Most of them also address that R&D is important for the implementation of a rural bioeconomy. New technologies can also be used for resource-efficient work in agriculture. Bioeconomy can be seen here as a central driver for sustainable development in rural areas.

- Croatia: Draft Strategy of Agriculture (2020-2030)
- Hungary: “Digital Agricultural Strategy” (2019-2022)
- Hungary: Rural Development Programme 2014-2020 (The document for programming period 2021-2027 is still in the process of preparation.)
- Republic of Serbia: “Agriculture and Rural Development Strategy of the Republic of Serbia” (2014-2024)
- Romania: “National Strategic Plan on Common Agricultural Policy” (2021-2027)
- Slovenia: Resolution on the National Programme on Strategic Directions for the Development of Slovenian Agriculture and Food – “Our Food, Rural and Natural Resources from 2021”
- Slovenia: “Rural Development Programme of the Republic of Slovenia for the period 2014-2020”; the document for the programming period 2021-2027 is still in the process of preparation.

Strategies in the field of climate, energy and environment

In these strategies, the topic of the circular bioeconomy is mostly mentioned in connection with biobased economic cycles and the transition to climate neutrality.

- Croatia: “Strategy for energy development of the Republic of Croatia until 2030 with a view of 2050”
- Czech Republic: “State Environmental Policy of the Czech Republic 2030 with the view to 2050”
- Hungary: “National Energy Strategy 2030 – with outlook to 2040”
- Slovakia: “Greener Slovakia – Strategy of the Environmental Policy of the Slovak Republic until 2030”
- Upper Austria: „#mission2030: Die österreichische Klima- und Energiestrategie“

Strategies in the field of circular economy and low-carbon economy

In circular economy, the goal is often to transform linear industrial processes into circular ones. In this context, the aim is also to build a climate-resilient economy in agriculture, forestry and the food sector. The focus should also be on innovations.

- Republic of Serbia: “Industrial Policy Strategy of the Republic of Serbia from 2021 to 2030”

In the cases of Bulgaria, Hungary and Republic of Serbia have a dedicated circular economy strategy in stage of planning, as described in Table 1.2 (b) in page 7.

Legal conditions

In the project regions, there are, apart from strategies, different types of laws and regulations that can promote or hinder the transition towards the circular bioeconomy. Laws and regulations in the field of energy, nature conservation and climate protection are particularly conducive. These set targets for the expansion of renewable energies, ensure the sustainable production of biomass and guarantee integrated systems to ensure a balanced relationship between economic development and the environment. In the field of waste management, there are also different regulations across the Danube Region, such as laws on food prevention and reduction of food waste. But also waste management acts, which regulate how to manage and reduce waste. However, there are also different regulations that can have an inhibiting effect on the bioeconomy. Due to its innovative character, the bioeconomy is not yet well anchored in existing regulations. In most cases, this is also due to the inertia of political-social systems, e.g. the defence of existing interests and structures, which lead to adherence to the status quo and prevent further reforms. Waste management laws can have a promoting effect, but in Austria, for example, it is the case that they prohibit some types of waste from being used for other purposes. In the animal sector, protective measures against animal diseases can also have an inhibiting effect on the development of e.g. insect biotechnology, which is also part of the bioeconomy.

c) Stakeholder groups

The mapping of exemplary stakeholders resulted in the list of stakeholders grouped in 10 categories. Below is explained their manifold importance for implementing the results of the GoDanuBio project and facilitating the bioeconomy transition:

Industry:

- **Clusters** can have an important role in networking with relevant stakeholders. They can help to implement the concept of bioeconomisation. The cluster managers can work as a mediator between e.g. state agencies, ministries and companies
- **SMEs** are important for knowledge generation. They can help to generate innovative approaches and raise the knowledge/experiences of workers. SMEs can be innovation drivers and must be integrated in the process of bioeconomisation to generate new innovations
- The identification of stakeholders can be done by **industrial chambers**. They know how to identify actors that are neglected in the regional circular bioeconomy; they can take part in mapping regional ecosystem to identify regional influencing schemes of governance and actors of circular bioeconomy
- **Private producers** can be helpful in the identification of good practices and challenges

Academia:

- **Research and educational institutions** are an important link between business and research and thus play a strong role in the network. For example, trainees can get into cooperation with potential future employers through academic thesis. Another possibility

for the transfer of knowledge is the involvement in research projects, where also other actors can be involved.

- **Teachers, students, pupils** can participate in circular bioeconomy-related workshops and contribute their aspects and ideas.
- **Researchers** can help linking society and industry by participating in the process of transition into circular bioeconomy; exchanging ideas, experiences and information that may subsequently lead to the development of business activities in rural areas; creation of new value chains within the circular bioeconomy and strengthening cross-sectoral links

Public:

- The **regional government** has knowledge about the specific regional policy agenda. Ministries play a strong role in public relations and communication of the individual topic and they are ultimately the ones making decisions, and adopting strategies and funding schemes
- **State agencies** can have a mandate from the government and act on its behalf. Hence, they can help strengthening the innovative power of regions and can be catalysts for the competitiveness of SMEs through networking between science, industry and society.

Society:

- **NGOs** can be a link between citizens, interest groups and administration. They can help to reach the citizens and can be a platform for dissemination on local level (awareness raising, promotion of sustainable production). NGOs can identify the gaps in the regional ecosystem concerning the neglected stakeholders as well as regional best practices.

1.4. Challenges and opportunities

There are several **challenges** that lie ahead of the regions in the field of circular bioeconomy.

First, the concept of bioeconomy has not been entirely understood. Therefore, there is a wide need to communicate about its meaning and importance. In some regions, local and regional authorities lack a common approach and synergies between regional policies. To enable a well-functioning innovation ecosystem and effective bioeconomisation, it is necessary to achieve a multi-stakeholder cooperation. In this sense, clusters in its regional diversity play an important role as mediators for this cooperation.

Second, up to now there is little to no existing regional policies regarding mitigation of the depopulation and exodus of rural areas. Also, the support by state and/or federal state (depending on the political structure of the analysed country) is not sufficient in some regions. Therefore, the dialogue among policy makers and other stakeholders has to be strengthened and there should be more attention given to the relation between demographic change and bioeconomy.

Some regions lack on high professionals, so the regional (or national) educational system should be adapted to provide professionals, according to existing or potential local labor market demand

on circular bioeconomy. Furthermore, the improvement of the living conditions for the local young professionals is needed. They have their specific demands and search for local childcare services, healthy rural environment, smart mobility, connection with urban areas or recreation possibilities. This aspect is embedded in the potential of the rural-urban synergies that are also scope of GoDanuBio.

Regions also face different **opportunities**:

Previously implemented projects (e.g. DanuBioValNet, MOVECO, FORESDA, Be-Rural) have produced several important outputs that can contribute to and streamline existing and new macroregional policy documents. Using their information, successful stories, especially for local young generations, are waiting to be communicated and disseminated. This can be implemented by workshops and round table discussions which can be organized in order to present new social innovation approaches and best practices from domestic and foreign regions. In this way, young people can be involved for local decision making through brainstorming sessions.

Local community-building initiatives e.g. Local Action Groups²² should be established. They may comprise workshops for elaboration of new business ideas, open innovation platforms or local business development points. In general, collaboration is encouraged between local and traditional bio-based sectors in order to enable innovation. GoDanuBio will organise co-creation workshops in all participating regions during the first semester of 2022, that could promote cross-sectoral collaboration and generate motivation to initiate new projects. This is also why investor events should be launched to promote startup ideas in local bioeconomy sector.

Finally, the capacity-building and implementation of participative governance, to be developed in WPT4 of GoDanuBio, is needed in order to bring actors together in a targeted way and to enhance the socio-economic status of the Danube regions.

2. Participative governance in the Danube macro-region²³

Participative Governance describes the involvement of various interest groups (citizens, local communities, NGOs, SMEs and other stakeholders) into policy and decision making. It aims to harmonize views along all participants based on bottom-up principles instead of a top-down policy making. This makes the interest groups not only passive recipients but also active participants which contributes to a governance that is more dynamic, transparent and democratic. Through the input of regional and local knowledge, the quality of political decisions can be improved, and their acceptance can be increased. This is especially beneficial for local and rural development, as it takes the specific needs into account. When participants in a participative governance process accept decisions as their own, the sustainability of policies can be achieved. Since the process becomes transparent and it tends to involve as many authorities and stakeholders as possible, participative governance can improve the cooperation between the respective actors if it is fully established as such. This can be achieved through establishing

²² https://enrd.ec.europa.eu/leader-clld/lag-database_en, last accessed 29/06/2021

²³ Participative governance has not been addressed per se in Deliverables 1.1.1, 1.1.2 and 1.2.1, but it has been included in this synthesis report to be used as input for the sake of efficacy of the work to be undertaken in WP T4.

cooperative platforms or networks between public institutions and civil society. If the actors have the feeling that they can influence the overall situation, they will be motivated to push various topics themselves. Thanks to the participative governance, public bodies can be aware about the preferences of citizens and stakeholders and can then bring solutions that meet the expectations.

In general, the involvement of a broad range of stakeholders can be beneficial. Concerning this, it is important to conduct regular dialogue, to listen to the ideas and opinions of interested stakeholders and also take this information into further consideration. The professional side should remain in the hands of experts. However, participative governance brings also challenges with it. If several interest groups are addressed, it might be the case that some of them are really strong in terms of economic and human resources and some have scarce resources. This might cause an imbalance and could be tackled by financial support. In some fields, it is also difficult to address all stakeholder groups. This is connected to different levels of interest in specific topics, but also to other factors, like the “not-in-my-backyard” phenomenon. In the case of citizens, the age might cause problems. This shows again the need for a high level of communication and dissemination activities to spread the concept of participative governance and to give insights to the topics which are of concern. The processes are therefore lengthy, and specialists are needed. Both causes high time, financial and administrative expenditures. The above-mentioned challenges could be overcome by the following recommendations:

- promote the transmission of skills and knowledge from one generation to the next, as well as their innovative use and mutual learning through scientific and technological developments;
- use digital media to extend access to and participation in governance to all interest groups;
- to clearly communicate the concept
- promote research based on concrete elements on the impact of participatory approaches on policies and governance in order to contribute to the development of strategic approaches (for example in the field of bioeconomy);
- to continue the dialogue with civil society organizations and platforms in policy areas related to the bioeconomy

Following these recommendations, participative governance can be seen as a long-term tool in the Danube macro-region. It might also be a promising tool regarding the implementation or the development of bioeconomy policies, as shown with the participatory process in Baden-Württemberg during years 2018/2019²⁴. If citizens and stakeholders that are not familiar with bioeconomy are approached from the beginning, they will be engaged for a long term and thus improve the sustainability of such strategy. This includes that they have to be informed about the topic since in many cases, there is no common understanding. Mostly, the term “bioeconomy” is not known to large parts of the citizens or it is misunderstood. It is important to think about what society’s expectations are and that the voice of citizens (as prosumers or final consumers) should have right from the beginning. Moreover, since the bioeconomy involves the

²⁴ <https://www.biooekonomie-bw.de/bw/beteiligungsprozess-nachhaltige-biooekonomie>, last accessed 11/05/2021

processing of side streams and residual materials and extensive cascade use, many different stakeholders are affected along a value chain. For example, companies that are otherwise not familiarized to approach the bioeconomy.

2.1. Examples of best practices in participative governance

In the following, 4 examples within the project regions will be presented as existing best practices in the field of participative governance.

a) “Policy Learning Platform”, Interreg Europe (Europe wide)

The Policy Learning Platform, as a core action of the Interreg programme, was launched in 2015. The platform’s objective is to ensure that all the knowledge and inspiration generated by the Interreg Europe projects is widely shared and exploited²⁵. The platform offers services like community, knowledge hub, good practices database and expert support and is mainly addressed to policy-makers e.g. managing authorities. They can access the support and expertise via the exchange with experts and peers or the support in the form of online discussions and webinars. Knowledge is shared by the platform experts by regular publishing of news articles and policy briefs²⁶. Elsewhere, the platform is described as a “shortcut to smart regional solutions”²⁷.

b) “Participation portal”, Baden-Württemberg (Germany)

In Baden-Württemberg, participative governance is highly valued and has been under implementation for a long time. Since 2013, the participation portal Baden-Württemberg exists, in which citizens can participate online²⁸. As a current example, interested citizens and stakeholders can currently (May 2021) participate in the update of the raw materials strategy of the Ministry of the Environment²⁹. The draft, which was created with the participation of the administration, interest groups from industry, as well as environmental and nature conservation associations, can be viewed via the participation portal and commented on over a certain period of time. After this phase, the state government issues a statement and finally finalizes the draft. The "Corona Citizens' Forum" also takes place via the participation portal. A random selection of 50 to 60 citizens meets monthly to express needs and expectations to the state administration. In Baden-Württemberg, citizens are also involved in the area of land readjustment. These are agri-structural reorganization measures. An example of this could be the construction of a new road. This fragments land ownership, but it can be reunited during the process to facilitate working conditions in agriculture. A platform³⁰ provides information about current procedures, and citizens can actively give comments and opinions and participate in workshops or events.

²⁵ https://www.interregeurope.eu/fileadmin/user_upload/plp_uploads/PLP_brochure/Policy_Learning_Platform_brochure.pdf, last accessed 11/05/2021

²⁶ <https://www.interregeurope.eu/policylearning/what-is-policy-learning-platform/>, last accessed 11/05/2021

²⁷ <https://aer.eu/the-policy-learning-platform-take-the-shortcut-to-smart-regional-solutions/>, last accessed 11/05/2021

²⁸ <https://beteiligungportal.baden-wuerttemberg.de/de/startseite/>, last accessed 03/05/2021

²⁹ <https://beteiligungportal.baden-wuerttemberg.de/de/mitmachen/lp-16/entwurf-rohstoffkonzept-nachhaltige-nutzung-mineralischer-rohstoffe-in-baden-wuerttemberg/>, last accessed 03/05/2021

³⁰ <https://fno-verfahren.lgl-bw.de/FISInternet/>, last accessed 03/05/2021

c) “Linz Innovation Main Square”, Upper Austria (Austria)

The capital of Austria, Linz, offers the participation platform "Innovation Capital Linz" (since 2019), on which interested citizens can inform themselves about projects, but also contribute comments and ideas. Other citizens can then vote on these and give their opinion. Thus, citizens can actively participate and contribute ideas for the future³¹. Some of the goals of the Linz Innovation Main Square are the following:

- Promotion of innovative ideas and projects with the help of cooperation, infrastructure, assistance services and/or public relations work
- Development and implementation of own proposals, projects and events to establish the idea of innovation among the population of Linz - preferably in public urban spaces
- Contributions to the implementation and further development of the 1st Linz Innovation Programme adopted by the City Council in May 2018.

d) “Participatory Budgeting”, Maribor (Slovenia)

Slovenia's second largest city, Maribor, adopted various forms of direct democracy, notably participatory budgeting³², following political and economic struggles. Participatory budgeting is an increasingly common method of democratic innovation broadly described as a decision-making process through which citizens deliberate and negotiate over the distribution of public resources. There are many benefits associated with participatory budgeting including increased civic and democratic education and increased government transparency; and an increased opportunity for participation by historically marginalized populations.

Participatory budgeting gives people real power over real money. Most simply, it is a democratic process of allocating public funding, whereby local citizens determine by themselves which are the most urgent investments in the community. In this way the realized investments respond concretely to the needs of the community. An example is a measure that aims to preserve the natural environment.

3. Conclusions

Through the three previous [deliverables of WP T1](#) (Capitalisation of existing results, Mapping of governance structures and Development of regional stakeholder reports), the existing framework conditions for circular bioeconomy, sustainable rural development, demographic change and participative governance were mapped and analysed; main stakeholders groups were identified. With this wealth of information, the aim of this report was to draw conclusions on the readiness level of the 10 studied regions (Baden-Württemberg, Bulgaria, Croatia, Czech Republic, Hungary, Romania, Republic of Serbia, Slovakia, Slovenia and Upper Austria) and try to answer the question “How ready are the project regions to face the necessary transition and transformation towards circular bioeconomy?”.

³¹ <https://innovationshauptplatz.linz.at/de-DE/pages/information>, last accessed 03/05/2021

³² <https://participedia.net/case/5583>, last accessed 15/06/2021

Through these pages the potential of some regions was unveiled, while the pathway for some others looks far more arduous. A closer look to the strategies and policies already in place draws a clear picture: there are regions like Baden-Württemberg that are some miles ahead (with a specific bioeconomy strategy, but rather more important, with areas of action, measures and funding resources in place to implement it) or Upper Austria (who as federal state can benefit from the launch of a national bioeconomy strategy in 2019). The rest of assessed regions are mostly handling the bioeconomy within other more generic policies, like circular economy, innovation (S3), rural development or climate/energy/environmental programmes. In all cases, lack of synergies between demographic change policies (at national level) and bioeconomy-related policies (at national/regional level) currently in place is shown.

The “reconciliation” of the concepts of bioeconomy and circular economy as one of the outcomes of the EU Updated Bioeconomy Strategy (2018) has evidently paved the way for the approaches shown in chapters 1.2 (a-c) and 1.3b, where bioeconomy, though sometimes explicitly mentioned, is normally enclosed within the term of circular economy. The status of the existing policy frameworks somehow draws a blur picture, to know in a certain way if some of these more generic policies will be mainstreamed into concrete roadmaps and action plans of the circular bioeconomy. A common definition of the term within the Danube macro-region is still an issue as shown in chapter 1.3a.

In the field of participatory governance, it can be stressed that some of the regions have already gained experience in this field. Baden-Württemberg (with a long tradition back to 2011³³), Slovenia (i.e. municipalities like Maribor or Ljubljana) or Upper Austria show a steady progress on implementing governance schemes with participative approaches; in all of them some best practices can be drawn. In some cases, these experiences relate more to citizen participation than to multi-stakeholder approaches. In other assessed regions, mutual learning activities between peers (i.e. managing authorities, civil servants) seem to be needed to strengthen the culture of participation in their governance systems; best practices collected all over Europe, thanks to the Policy Learning Platform of Interreg Europe since 2015, could be an inspiration for most of them.

This synthesis report, that at large extend brings insights on the framework conditions in the Danube macro-region, paves the way for the identification of gaps in the regional circular bioeconomy ecosystems and further best practices in WPT2. It should definitely bring valuable input for more efficacy on the design and implementation of the trainings on participative governance and co-creation workshops in WPT4 to be undertaken from Autumn 2021 onwards in the 10 analyzed regions. The report also supports the underlying idea of linking transitional and transformational processes with upgraded governance models, that are about to be multi-level, participatory and systematic.

³³ <https://beteiligungportal.baden-wuerttemberg.de/de/informieren/zehn-jahre-politik-des-gehoertwerdens/>, last accessed 18/06/2021