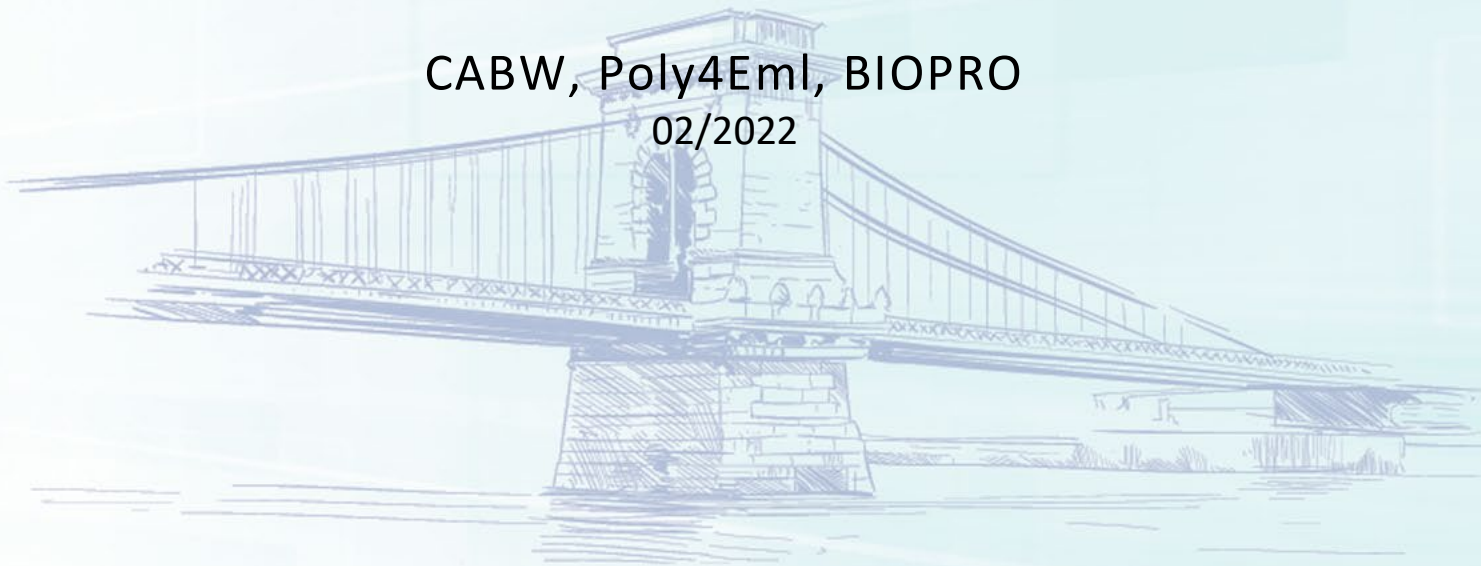


D.T3.2.1

Regional Ecosystems Mapping

CABW, Poly4Eml, BIOPRO
02/2022



Project Information

Project Title: GoDanuBio - 'Participative Ecosystems for fostering the revitalization of rural-urban cooperation through governing Danube Circular Bioeconomy'

Project code: DTP3-471-4.1

Lead partner: BIOPRO Baden-Württemberg GmbH

Start of the project: 01/07/2020

Duration: 30 months

<http://www.interreg-danube.eu/approved-projects/godanubio>

Deliverable Information

Author/-s: CABW, Poly4Eml, BIOPRO

Deliverable no.: D.T3.2.1

Submission date: 17/02/2022

Dissemination level: Public

Version	Date	Content	Written by	Reviewed by
01	12/12/2021	Regional Ecosystems Mapping	Gerd Meier zu Köcker (CABW), Michael McManus, Mateja Novak and Mateja Dermastia, (Poly4Eml)	BIOPRO
02	12/01/2022	Regional Ecosystems Mapping	Gerd Meier zu Köcker (CABW), Michael McManus, Mateja Novak and Mateja Dermastia, (Poly4Eml), Sergi Costa (BIOPRO)	BIOPRO
03	11/02/2022	Regional Ecosystems Mapping	Gerd Meier zu Köcker (CABW), Michael McManus, Mateja Novak and Mateja Dermastia, (Poly4Eml), Sergi Costa (BIOPRO)	Joachim Glatz-Reichenbach (ISC), Helia Kovačević Grčić (MEEC), Ana Dijan (CWC), Zorica Marić, Milica Vračarić (ALMA MONS), Dominika Pancakova (BEC), Lenka Podjuklova, Pavla Bruskova, Jiri Herinek (NCA)

04	17/02/2022	Regional Ecosystems Mapping	Gerd Meier zu Köcker (CABW), Michael McManus, Mateja Novak and Mateja Dermastia, (Poly4Eml), Sergi Costa (BIOPRO)	Poly4Eml, BIOPRO
----	------------	-----------------------------	---	------------------

Rationale

The regional ecosystem mapping aims at the identification of regional influencing schemes of existing or potential governance, and actors of circular (bio)economy. It aims to provide interactions scenarios. The data was collected by the project partners according to methodology provided by WPT3 lead Anteja/Poly4eml till October 2021.

This report presents the main gaps that hamper regions of the Danube macro-region to define cross-regional agendas of mutual interest to cope with key challenges. A strategic mismatch among EUSDR¹, national, and regional circular (bio)economy strategies and support mechanisms have been identified as a critical bottleneck that must be removed if Danube macro-regional partners want to implement actions with mid-term impact. Based on discussions conducted with project partners and GoDanuBio Brain trust² meetings some positive changes are expected. The new Smart Specialisation Strategies of the Danube regions might put more attention to circular bioeconomy, and COVID 19 recovery funds requested more investments in circular and bio-related topics. To this end the Regional Policy Agendas (D.T3.1.1) will be updated based on methodology provided by Anteja/Poly4eml.

This report serves as an input to engage relevant stakeholders from the EC level, Danube macro-region (EUSDR), and Danube national / regional levels in policy dialogues, to be executed during 2022. The approach to transnational and regional dialogues will be developed and implemented from January – October 2022 in close collaboration with the Brain Trust.

Acknowledgement

This deliverable was produced within the framework of the GoDanubio project funded by the Danube Transnational Programme (DTP) of the European Commission. The authors would like to thank the Brain Trust members for their feedback, comments, and support. We are deeply grateful for the information and intellectual guidance provided by Dr. Barna Kovacs (BIOEAST), Prof. Dr. Ralf Kindervater (BIOPRO), and Pavla Bruskova (NCA) in a serial of meetings taking place from June to November 2021.

¹ EU Strategy for the Danube Region; <https://danube-region.eu/>, last accessed 10/01/2022

² The GoDanuBio Brain Trust is the main counselling board of the project and core part of the Deliverable DT3.2.4.

Table of content

1. Current situation in the regions	6
1.1. European Union context	6
1.2. The European Union Strategy for the Danube Region (EUSDR)	6
1.3. Circular bioeconomy in the Danube regional context	7
1.4 Good practice	13
2 Gap between the EUSDR and regional/national circular (bio)economy strategies	14
3. Call for actions.....	15
4. Conclusion	17

Disclaimer:

The information and perspectives set out in this Regional Ecosystem Mapping are those of the authors and do not necessarily reflect the official opinion of European Commission or the GoDanuBio project partners' regions. Neither the European Commission institutions and bodies nor any person acting on their behalf may be held responsible for the use that may be made of the information contained therein. Reproduction is authorized, provided the source is acknowledged, unless otherwise stated. For use/reproduction of third-party material specified as such, permission must be obtained from the copyright.

1. Current situation in the regions

1.1. European Union context

Articles 191 to 193 of the Lisbon Treaty make the protection, preservation, and quality of the environment an obligation of the EU. The EU environment policy operates on the principles of precaution, prevention, and rectifying pollution. The precautionary principle³ may be invoked when there is scientific uncertainty about potential risks to human health or to the environment emanating from a certain action or policy. If doubts arise concerning the potentially harmful effects of a product, and uncertainty persists following scientific investigation, production and distribution of the product may be halted. These measures must be non-discriminatory and proportionate and must also be reviewed when additional scientific information is available.

The 'polluter pays' principle is implemented by the Environmental Liability Directive⁴. It aims to prevent or remedy environmental damage to protected species and/or natural habitats, water, and soil. Operators of certain occupational activities such as transporting dangerous substances, or activities causing discharge into waters must take preventive measures in case of an imminent threat to the environment. If damage has already occurred, they must take appropriate measures to remedy this.

The EU is competent to act in all areas of environment policy, including air and water pollution, waste management and climate change. Its scope for action is limited by the principles of subsidiarity and the requirement for unanimity in the European Council in the fields of fiscal matters, town and country planning, land use, quantitative water resource management, choice of energy sources, and structure of energy supply. The responsibility for this is categorized as a shared competency between the Member States and the EU.

The European Green Deal was proposed in March 2020, and has three primary goals:

1. Zero net emissions by 2050
2. Economic growth decoupled from resource use
3. No person or place left behind

The European Green Deal came about in March 2020, just as the COVID-19 pandemic and associated lockdowns and economic damage were starting to take hold. Around one-third of the €1.8 trillion from the Next Generation EU Recovery Plan and the EU budget will finance the European Green Deal⁵.

1.2. The European Union Strategy for the Danube Region (EUSDR)

The **EUSDR** intends to develop coordinated policies and actions in the area of the river basin, reinforcing the commitments of Europe 2020 strategy towards the smart, sustainable and inclusive growth based on four pillars and twelve priority areas. These shall tackle key issues as mobility, energy, biodiversity, socio-economic development, and safety. In line with the goals of the territorial cooperation objective, the strategy focuses **on enhancing closer cooperation within the concerned territory**. A key element of the strategy is coordination, by encouraging the increase in the level and quality of network activities, strengthening the existing regional and interregional cooperation but also fostering new cooperation.

³ https://eur-lex.europa.eu/summary/glossary/precautionary_principle.html, last accessed 10/12/2021

⁴ The *Environmental Liability Directive* 2004/35/EC (ELD)

⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en, last accessed 10/12/2021

The EUSDR addresses a wide range of issues; these are divided among **4 pillars** and **12 priority areas**. In addition, concrete targets are defined for each priority area. Each priority area is managed by 2 **Priority Area Coordinators (PACs)**. Steering groups advise and assist the work of the PACs. In addition, some priority areas created working groups around sub-themes and tasks. The **National Coordinators (NCs)** coordinate the participation of their country in the implementation of the EUSDR. The role of the NC is to promote the strategy and inform relevant stakeholders on the national level of key developments⁶.

The four pillars of the EUSDR are⁷;

1. Connecting the Region
2. Protecting the Environment
3. Building Prosperity
4. Strengthening the Region

1.3. Circular bioeconomy in the Danube regional context

This chapter describes the status-quo of policies and support schemes intended to develop circular bioeconomy further in the GoDanuBio participating regions with an addition (Bavaria, Germany). The information given consider all related developments by October 2021. Since many Danube Regions are still in the development phase of their Smart Specialisation Strategies for the programming period 2021 – 2027 the related strategies might be subject of change over the next months. References to the two other core topics of GoDanuBio (rural development and participative governance) and specific mentions to demographic change have been briefly added according to the methodology. Existing bottom-up regional and/or local initiatives related to circular (bio)economy have not been included in this analysis, but are described in chapter 3 of Deliverable D.T.3.1.1 (Regional Policy Agendas).

Austria

Austria's Council of Ministers passed the "Bioeconomy – A Strategy for Austria" in March 2019⁸. This lays out Federal Government goals to decarbonize and encourage sustainability whilst preserving economic growth. Austria hopes to generate 100% of its electricity from renewable sources by 2030 and ranks 3rd highest in terms of renewable electricity generation of all 30 International Energy Agency (IEA) members. Austria has devoted €750 million to decarbonize district and local heating, with a focus on reducing fossil fuel dependency in low-income households by switching them to non-fossil fuel alternatives. Austria has earmarked €260 million to build 1 million roofs with photovoltaic panels and is investing €300 million for research and development into climate action and future technologies.

There is a VAT incentive scheme valued at €100 million for consumers to have appliances repaired rather than discarded, to encourage circularity in the economy. Between 2021-2022, €540 million will be invested into environmentally friendly public transport. For €1,095, citizens can purchase universally accepted public transport tickets, valid for one year on all forms of public transport⁹.

As a federal state, certain policies are handled at the state (Land, plural, Länder) level and all Länder appear to have at least one policy touching on the thematic areas of the DTP¹⁰. In the federal state of Upper Austria, that is part of the GoDanuBio project, the economic and research strategy #upperVISION2030, was 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

⁶ <http://www.interreg-danube.eu/about-dtp/eu-strategy-for-the-danube-region>, last accessed 10/12/2021

⁷ <https://danube-region.eu/about/targets/>, last accessed 10/12/2021

⁸ <https://www.bmbwf.gv.at/en/Topics/Research/Research-in-Austria/Strategic-focus-and-advisory-bodies/Strategies/Bioeconomy-Strategy.html>, last accessed 10/12/2021

⁹ <https://platform2020redesign.org/countries/austria/>, last accessed 10/12/2021

¹⁰ https://s3platform-legacy.jrc.ec.europa.eu/documents/20182/223684/AT_RIS3_201611_Final.pdf/bbd4d208-e5bf-44c0-972b-b900857d78b3, last accessed 10/12/2021

concrete measures that are related to the circular (bio)economy. Upper Austria, as federal state of Austria, has no regional circular bioeconomy strategy, but a national one as mentioned above.

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027). At the regional level the Upper Austrian Spatial Development Strategy is partly related with rural development. In regards to participative governance there is a programme for promotion of public participation, that is funded at the national level. Local initiatives like the “Linz Innovation Main Square” in the city of Linz¹¹ are specifically addressed to participative governance.

Bulgaria

Bulgaria is one of the largest beneficiaries of EU funds per capita, which makes it mandatory to invest in climate and environmental initiatives and policies. Bulgaria is also set to be a major beneficiary of the EU’s €1.8 trillion budget largely aimed at post COVID-19 recovery. Bulgaria is set to receive up to €10.4 billion from the Recovery and Resilience Fund (RRF)¹². Elections in April 2021 saw all the major parties make strong green pledges, indicating that there is a bipartisan appetite for green issues. The country has a plan for a National Waste Management (2021-2028) and a plan to transition to a circular economy (2021-2027).

Bulgaria has a policy in the planning stage named the “Draft Strategy for Transition to the Circular Economy of the Republic of Bulgaria for the period 2021-2027”. The strategy is part of the European Commission’s package of measures aimed at stimulating the transition to a circular (bio)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. It is drafted by the Ministry of Environment and Water of the Republic of Bulgaria.

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027). Besides, there is a “Strategy for digitalization of agriculture and rural areas of the Republic of Bulgaria”, pending from the same Ministry. The updated “National strategy for demographic policy in Bulgaria” (2012-2030) sets the strategic goal, priorities and directions in the demographic policy.

Croatia

Croatia has two policies related to regional economic development. The first is the Croatian Smart Specialisation Strategy (S3) (2016-2020) of the Government of the Republic of Croatia, which covers food and the circular (bio)economy, which are priority areas of the S3 strategy. The second is the National Development Strategy of the Republic of Croatia until 2030. This policy is in line with horizontal policies to strengthen education and training in the fields relevant for this project. Special attention will be dedicated to the improvement of vocational education for occupations in projects co-funded by the European Union Funds (ERDF). These will fund agriculture and aquaculture to strengthen skills related to modern, environmentally sustainable production and aquaculture, including the circular (bio)economy and the use of digital technology.

In accordance with its EU Accession Treaty, Croatia should be fully compliant with the Urban Waste Water Treatment Directive by the end of 2023. The new ordinance on waste management implementing the waste management plan set out the priorities for infrastructure planning, including support for separate collection and composting. It also introduced a waste tax on landfilling. Croatian municipalities will have to meet landfill diversion targets and set up ‘pay-as-you throw’ schemes. In the country’s marine network, more protected areas need to be designated.

¹¹ <https://innovationshauptplatz.linz.at/de-DE/pages/information>, last accessed 10/01/2022

¹² <https://www.euractiv.com/section/elections/news/eyeing-eu-stimulus-bulgarian-parties-pledge-green-transformation/>, last accessed 10/12/2021

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027). A background document of the World Bank Group called “Strategic transformation in Agriculture and Rural Space; Building a sustainable and circular bioeconomy in Croatia: Opportunities and challenges”¹³ (STARS RAS), was funded by the European Agricultural Fund for Rural Development but it has still not been transposed into an action plan.

Czech Republic

The Czech Republic’s State Environmental Policy 2030 with outlook to 2050, together with the Strategic Framework of the Circular Economy 2040 “Circular Czechia 2040” (approved in December 2021) are the key policy instruments that will lead the Czech Republic towards the transition to climate neutrality and circular economy.

The bioeconomy-dedicated policy document of the Czech Bioeconomy Concept in the Czech Republic from the Perspective of the Ministry of Agriculture (2019-2024)¹⁴ aims to move the concept of bioeconomy at the national level, use international cooperation to strengthen the country's bioeconomy and strengthen technological development and innovation. The scheme targets rural development, the food industry, innovation and research and economic development.

A bottom-up initiative of the “Bioeconomy Platform of the Czech Republic” brings together academic institutions and business associations active in the field of the circular bioeconomy¹⁵.

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027); it includes measures and actions to support rural development by stimulating regional competitiveness and eliminating disparities between rural and more developed regions in that country.

Germany (Baden-Württemberg and Bavaria)

For the purpose of this report, two national strategies will be mentioned: the National Bioeconomy Strategy¹⁶ and the German Resource Efficiency Programme (ProgRes III)¹⁷, both updated in 2020. The latter sets the goal of decoupling as much as possible economic growth from resource use. This has the twin goals of reducing environmental burdens and to strengthen the sustainability and competitiveness of the economy. A wide range of support measures are included, e.g., efficiency advice for SMEs, support for environmental management systems, technical standardization processes, stressing resource efficiency in procurement, strengthening voluntary product labelling and certification systems and enhancing closed cycle management.

Germany is a federal republic, with different *Bundesländer* (Federal States), each with a degree of autonomy from the German national government in Berlin. At the Länder level, Baden-Württemberg’s bioeconomy strategy¹⁸ aims to be an example for a sustainable and closed loop-oriented economic system since 2019. The increased material and energetic utilization of secondary and residual products from the agricultural and food sector, as well as wood from sustainable domestic silviculture, all offer important potentials. Another core theme is the future-oriented enhancement of existing biogas facilities, as they make for inexpensive interfaces to drive the universal, decentralized conversion of biomass into a multitude of products such as fibres, platform chemicals, food, and energy products. The circular bioeconomy will play an increasingly important role for industry and urban regions. Wastes and wastewater, for example, contain useful resources which can be recovered. In March 2021, elections in Baden-Württemberg delivered a Green/CDU coalition

¹³ <https://poljoprivreda2020.hr/wp-content/uploads/2019/12/Bioeconomy-Assessment.pdf>, last accessed 10/01/2022

¹⁴ http://eagri.cz/public/web/file/658143/Leaflet_Bioeconomy_concept_in_the_Czech_Republic.pdf, last accessed 10/12/2021

¹⁵ <https://bioekonomy.czu.cz/en/r-14285-members-and-partners>, last accessed 10/12/2021

¹⁶ https://bioekonomie.de/sites/default/files/files/2020-08/bmbf_national-bioeconomy-strategy_en.pdf, last accessed 01/02/2022

¹⁷ <https://www.bmuv.de/en/download/the-german-resource-efficiency-programme-iii>, last accessed 10/12/2021

¹⁸ <https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/documents/Bioeconomy-strategy-barrierefrei.pdf>, last accessed 10/12/2021

government. This coalition has a strong commitment to green policies. The coalition agreement also called for new photovoltaic projects along motorways and train routes¹⁹. Baden-Württemberg has a well-developed strategy for the circular (bio)economy and sustainable development aiming to create synergies between economic, social development along with environmental protection.

Bavaria published in 2021 its own circular bioeconomy strategy²⁰. The Bavarian strategy aims to foster a sustainable circular bioeconomy encompassing all industrial and commercial sectors that produce, process, and use biogenic resources. It aims to reduce the consumption of fossil resources by implementing a sustainable and viable economic system and developing sustainable, bio-based technologies, processes, and products. It also hopes to use innovation and technology to help catalyse this process. It is ultimately aimed at reducing the consumption of fossil resources by implementing a sustainable and viable economic system and developing sustainable, bio-based technologies, processes and products.

Dedicated policy support schemes related to rural development are based in the Rural Development Programmes for Bavaria and Baden-Württemberg, respectively (2021-2027). In the latter region two further strategies, the "Innovation Strategy Baden-Württemberg" (2020), as well as "Digitisation Strategy Baden-Württemberg" (2017), partly cover the aspects of circular bioeconomy, demographic change and rural development by defining them as key topics or areas of concern. In Baden-Württemberg there is a long tradition in participative governance with a "Participation portal"²¹ existing since 2013. In 2018 there was a participatory process²² collated to the drafting of the bioeconomy strategy. Citizens and civil organisations can also be involved in the area of land readjustment²³ or general issues²⁴. Other local initiatives for participatory governance on climate and bioenergy related topics have been unveiled in cities like Constance²⁵ or in the Metropol Region Rhein-Neckar, just to name a few.

Hungary

In 2020, Hungary passed a law committing the country to carbon neutrality by 2050, in line with EU targets on carbon neutrality. The Hungarian Central Bank is one of the most active stakeholders in Central Europe for its green bond market and has issued a €1.5 billion bond, mostly intended to upgrade the railway network. Hungary plans to close the country's last remaining coal power station in 2025, bringing forward the original closure date by five years. It also plans to increase photovoltaic energy within the national grid. This would increase renewable sources by 3%.

A circular economy strategic framework is currently under preparation by the Hungarian Ministry of Innovation and Technology. As a result of the cooperation amongst OECD countries, 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. There is also a Hungarian Smart Specialisation Strategy (S3), in which the agro-food and bioeconomy-related sectors are also mentioned in the case of several objectives: advanced technologies in the vehicle and other machine industries. These include agricultural, food processing; agricultural innovation, agricultural knowledge centres, clean and renewable energies including the use of bio-energy (e.g. biomass, biogas and bio-refinery methods). It also encompasses healthy local food - high-quality foods of high added value, healthy diet,

¹⁹ <https://www.cleanenergywire.org/news/climate-protection-cornestone-govt-coalition-agreement-baden-wuerttemberg>, last accessed 10/12/2021

²⁰ https://www.stmwi.bayern.de/fileadmin/user_upload/stmwi/Publikationen/2021/2021-02-15_FutureBioeconomyBavaria_BF_2020_02_15.pdf, last accessed 10/12/2021

²¹ <https://beteiligungportal.baden-wuerttemberg.de/de/startseite/>, last accessed 10/02/2022

²² <https://www.bio-pro.de/projekte/abgeschlossene-projekte/beteiligungsprozess-nachhaltige-biooekonomie>, last accessed 11/01/2022

²³ <https://fno-verfahren.lgl-bw.de/FISInternet/>, last accessed 11/01/2022

²⁴ <https://allianz-fuer-beteiligung.de/foerderprogramme/beteiligungstaler/>, last accessed 11/01/2022

²⁵ http://blog.zukunftswerkstadt-konstanz.de/wp-content/uploads/2015/01/Projekt%C3%BCberblick_ZWS.pdf, last accessed 11/01/2022

functional foods and Hungarian specialties, shortening of food chains, and food safety. Finally, there is the 5th National Environmental Programme (2020-2025), currently under preparation. It defines the future development goals of Hungary, considering its capabilities and long-term environmental interest.

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027); “Hungary’s Digital Agricultural Strategy” (2019-2022) has the circular bioeconomy on focus. The “Hungarian Village Programme” (2019-ongoing) is a long-term programme from the national Government together with small villages (less than 5,000 inhabitants) to mitigate depopulation. It aims at coupled positive effects for demographic change and rural development.

Romania

Romania has sought World Bank assistance in hitting its climate goals. Romania plans to reduce GHG (Greenhouse gas) emissions by 40% based on 1990 levels and achieve a 27% increase in energy efficiency²⁶. This will be challenging given that Romania is simultaneously attempting to raise the standard of living of its rural poor, particularly in terms of their access to electricity. Since 2019, the Government has encouraged the installation of photovoltaic panels on houses. The plan aims to provide electricity to consumers, with any surplus generated being put back into the national energy grid²⁷.

Romania has the policy “National Strategic Plan on Common Agricultural Policy in Romania” (2021-2027). This 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 circular (bio)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 organized producing system. Besides, the “Strategy for agri-food development in the medium and long term-Horizon 2020-2030” looks for an enhanced rural development. Regionally speaking, the Smart Specialisation Strategies of South Muntenia, North East and Central Development Region 2021-2027 have the (bio)economy as one of their core topics.

Serbia

Serbia is not an EU Member State, although it has been a candidate country since 2013. Serbia has the policy “Agriculture and Rural Development Strategy of the Republic of Serbia” (2014-2024). The main aim of the strategy is improving the quality of life in rural areas and reducing poverty. Its specific objectives are: 1) Production growth and income stability for the producers; 2) Market-driven competitiveness growth of the agricultural sector; 3) Sustainable resource Smart Specialisation Platform²⁸; 4) Improving the quality of life in rural areas and reducing poverty; 5) Efficient management of public policies and improvement of institutional framework for agricultural and rural development. Although the circular (bio)economy is not mentioned, the 3rd and 4th objectives are indirectly related with it. Moreover, the “National Programme for Revival of Serbian Villages” (2020-ongoing) supports village development and rural digitalization, among others. There is some specific support for development and implementation of local strategies for rural development in line with the LEADER approach too.

Serbia has defined a “Circular Economy Programme” with an action plan for the period 2022-2024. The goal of this document is to create a stimulating environment for the development of the circular economy in order to support the green transition in the Republic of Serbia. It covers the most relevant areas for circular economy: waste management; water management; renewable energy and energy efficiency; chemical management; green public procurement and voluntary instruments; economic policy; innovation and raising

²⁶ <https://documents1.worldbank.org/curated/en/739151468184789529/pdf/103921-WP-P145943-PUBLIC-Summary-of-Climate-Change-Strategy.pdf>, last accessed 10/12/2021

²⁷ <https://platform2020redesign.org/countries/romania/https://platform2020redesign.org/countries/romania/>, last accessed 10/12/2021

²⁸ <https://s3platform.jrc.ec.europa.eu/en/serbia>, last accessed 11/01/2022

public awareness. To meet the general goal, five specific objectives are defined, with measures and activities to be implemented in the period 2022-2024.

Serbia has received support for its green policies from the World Bank's Public Sector Efficiency and Green Recovery Development Policy Loan. This will provide €82.6 million to solidify its green reform agenda and quicken Serbia's recovery from the COVID-19 pandemic. This will be buttressed by support from Agence Française de Développement.

Participatory governance is as of the date of writing constricted to transparency in the decision-making process on urban development and improving citizen participation and stakeholder involvement.

Slovakia

The Slovakian Ministry of Agriculture and Rural Development has responsibility for the development and implementation of agriculture, food, forestry, wood processing, hunting and aquaculture policy. Some of its main foci in the area of the circular (bio)economy include sustainable land management, effective utilization of biomass from soil, plant, forest and animal production, added value of agricultural and food production and waste management²⁹. Dedicated policy support schemes related to rural development are based in the national Rural Development Programme.

The Ministry of Agriculture and Rural Development has two research institutions – the National Agricultural and Food Centre (NPPC) and the National Forest Centre (NLC). Their activities cover agricultural, food and forestry research, innovation and knowledge transfer. They are engaged in comprehensive research on the sustainable use and protection of natural resources in plant and animal production, food production, soil management, grassland and mountain agriculture, agroecology and agro-food economy. They also perform a research and advisory service oriented towards sustainable forest management and its implementation in practice.

Slovakia also has a "Bioeconomy Cluster" which aims to promote cooperation, networking, innovation and mutual exchange of information between cluster members and other stakeholders in the agri-food and bio-based sectors³⁰. These are primarily representatives of the business sector, representatives of research, development and education, representatives of regional and local governments, and civil society. Slovakia has a policy "Greener Slovakia – Strategy of the Environmental Policy of the Slovak Republic" until 2030, drafted by the Ministry of Environment of the Slovak Republic. Objectives of the strategy are 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 the section "Green Economy" that deals with the topics of the circular economy, waste management and energy.

At the regional level there are some climate- and environmental-related initiatives e.g. the "Low-Carbon Development Strategy" of Košice self-governing region and a similar one in the Trnava county. In the former region a peer-review process related to the circular economy took place in October 2020, commissioned by the Interreg Europe Policy Learning Platform³¹. With the outputs of this exercise the Košice region would like to develop an effective framework for the support of the circular economy in its territory.

²⁹ <https://bioeast.eu/slovak-republic-ministry-of-agriculture-and-rural-development-of-the-slovak-republic/#>, last accessed 10/12/2021

³⁰ <https://bioeconomy.sk/en/>, last accessed 10/12/2021

³¹ <https://www.interregeurope.eu/policylearning/expert-support/>, last accessed 11/01/2022

Slovenia

Slovenia has ambitious and wide-ranging green goals in line with the country's National Adaptation Strategy of 2016. Slovenia has a "Roadmap towards a Circular Economy" since 2018. This outlines the strategy for a circular (bio)economy on three dimensions in the "Circular Triangle". Firstly, Circular Economy (business models), secondly, Circular Change (government policies) and finally, Circular Culture (amongst citizens). Several pieces of legislation and strategies govern the goals of Slovenia's circular (bio)economy. Topics from the field of circular bioeconomy are addressed in the Resolution on Strategic Guidelines for the Development of the Slovenian Agriculture and Food Industry by 2020 – "Ensuring the Food for Tomorrow" (2011). The strategy on implementing the resolution (2014), is outlined in the Slovenian Framework Programme for the Transition to a Green Economy (2015). Further details and goals are outlined in the "Slovenian Development Strategy 2030" (2017), in the Slovenian Strategy on Smart Specialisation (2017) and in the "Roadmap towards a Circular Economy" in Slovenia (2018)³², that has not been transposed to an action plan yet. The need to facilitate the transition to a circular economy is mentioned in the "Slovenian Development Strategy 2030", but the term "bioeconomy" is not explicitly defined. The strategy is in line with the 17 Sustainable Development Goals (SDGs), in particular Slovenia's development goals related to the circular (bio)economy.

Slovenia aims to reach net-zero GHG emissions and the transition to renewable energy use by 2050. The construction sector will be modernized with new buildings using 20% less energy, a 70% decrease in GHG emissions from the sector, and two-thirds of energy used in buildings to be from renewable energy sources by 2030³³. In the second half of 2021, Slovenia held the rotating presidency of the EU Council. It aimed to use this to promote digitalization and the electric smart grid.

Dedicated policy support schemes related to rural development are based in the national Rural Development Programme (2021-2027). Local initiatives related to participatory governance have been developed in the city of Maribor since 2013 e.g. participatory budgeting³⁴, whereby local citizens determine by themselves which are the most urgent investments in the community.

1.4 Good practice

Baden-Württemberg Bioeconomy Strategy

In 2019, Baden-Württemberg unveiled an ambitious and comprehensive "State strategy for bioeconomy and sustainable development"³⁵. The strategy has identified four key objectives to target:

1. To use innovative biological concepts to identify renewable or recyclable raw material sources. This aims to reduce the use of fossil resources and permanently minimize dependence on energy and raw material imports.
2. To achieve a reduction in GHG emissions in Baden-Württemberg to protect natural resources and contribute to conserving regional biodiversity.
3. Baden-Württemberg will turn into a role model for the transformation towards sustainable economic organization based on a circular economy.
4. 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.

³² <https://bioeast.eu/slovenia-ministry-of-agriculture-forestry-and-food-of-slovenia/>, last accessed 10/12/2021

³³ <https://platform2020redesign.org/countries/slovenia/>, last accessed 10/12/2021

³⁴ <https://participedia.net/case/5583>, last accessed 11/01/2022

³⁵ <https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/documents/Bioeconomy-strategy-barrierefrei.pdf>, last accessed 10/12/2021

Interestingly the state strategy does not aim to replace any sectoral policies. Instead, it aims to support cross-sectoral cooperation and the interdisciplinary involvement of social actors. Biological resources are to be integrated within value-added chains for industrial and energy products. Opportunities are to be created to utilize organic waste and wastewater as raw material sources with bio-based methods and biological processes. Also, it plans to efficiently and affordably exploit non-renewable, abiotic raw materials and to recover these from industrial, consumer and energy products. This should result in a raw material transformation of “closing the loop”, so that as many raw materials as possible are fed back into circular economies and with as much value as possible at a high cascade level (without downcycling) in consideration of environmental and economic criteria. The state has identified five conditions to achieve this:

1. Economy, science, and society must act in cooperation as a single system, creating new links between value-added chains and returning other products and materials into the circular economy at the end of their life cycles while retaining as much value as possible.
2. New value-added chains and networks across all economic sectors must be developed with new production and logistics processes and products.
3. Material flows between rural, urban, and industrial areas must be optimized to achieve a higher degree of inclusion for raw materials and foods into the circular economy.
4. Qualified jobs must be created to utilize regional biological resources.
5. Legal obstacles to the bioeconomy system must be identified and assessed in terms of the extent to which adjustments to existing laws are possible.

This strategy is comprehensive, detailed and enjoys strong political support. It focuses on a wide range of areas and seeks to leverage cultural, economic, social, and political action to support the strategy as a whole.

2 Gap between the EUSDR and regional/national circular (bio)economy strategies

There is currently a gap between what is needed, what is planned and what is actually happening. The Danube regions must take concrete actions to address the circular (bio)economy as well as environmental protection and address the damage done by the COVID-19 pandemic. The EUSDR/DTP represent an excellent opportunity to address all these but must be adapted to reality. Strategies of the partner regions of Danube must be addressed more urgently than currently appears to be the case. There appears to be a sharp divide in the field of circular (bio)economy policies and programmes between the EUSDR approach and the regions. If this divide is not taken away, any strategy developed under the DTP will not and cannot be implemented in practice. There is no possibility to meet some of the objectives of the DTP, especially to initiate cross-border collaboration in the field of circular (bio)economy, since there are insufficient regional policies and programmes that can finance this cross-border collaboration. Only a small number of Danube regions have a circular (bio)economy strategy/policy in place.

One good way to close the gap between the EUSDR and regional/national circular (bio)economy strategies is to examine good practices in the fields of regional cooperation, policies, budgets, and innovations. The new DTP defines several pillars with a close relationship to the low-carbon economy, including circular (bio)economy (e. g. Sustainable Economy Development or Environment, Energy and Climate Change)³⁶. However, this strategic approach is undermined by the regions of the Danube, that mostly do not have this topic properly considered in their strategies.

³⁶ Danube Transnational Programme, 2021 - 2027

Table 1: Regions/countries of the Danube macro-region with a circular (bio)economy strategy or similar policies in place³⁷

Country/Region	Circular (bio)economy strategy/policy currently in place	Circular (bio)economy strategy/policy currently in planning stage	No Circular (bio)economy strategy/policy but topic-related policies
Baden-Württemberg (DE)	√		
Bavaria (DE)	√		
Bosnia Herzegovina			√
Bulgaria		√	
Burgenland (AT)			√
Carinthia (AT)			√
Croatia		√	
Czech Republic			√
Hungary			√
Lower Austria (AT)			√
Moldova			√
Montenegro			√
Romania			√
Salzburg (AT)			√
Serbia		√	
Slovakia			√
Slovenia		√	
Styria (AT)			√
Tyrol (AT)			√
Ukraine			√
Upper Austria (AT)			√
Vienna (AT)			√

3. Call for actions

There is currently a mismatch between the EUSDR and the reality on the ground at Member State level with regards to circular (bio)economy strategic approaches.

There is the risk of the ambitious EUSDR failing to hit its targets and stimulate cross-border cooperation among the Danube region in the field of circular (bio)economy. This would have an obvious impact on both the economic life of the region and the efforts of the region to achieve environmental targets.

This can be avoided through careful and determined alignment of policy actions on both the regional and EUSDR levels. Political support for green policies, the circular (bio)economy, economic development, cross-border cooperation, and COVID-19 recovery all remain high at both the regional and macro-regional level.

³⁷ Austria has a national bioeconomy strategy since 2019 (as described on page 6) but for the purpose of this paper only regional strategies have been considered in countries organized politically in federal states e.g., Austria and Germany.

This means that all challenges will enjoy strong political support, which will be critical given the scope and scale of the programme goals. Whatever other challenges may be present, one can draw encouragement from the high-level support that exists.

That said there is clearly need for change and for action:

- **More links between regional strategies and the Danube Transnational Programme (DTP)**

The primary problem appears to be a lack of regional circular (bio)economy related policies to be aligned in the DTP. In an ideal case the DTP synthesizes all different regional policies at the macro-regional level. The issue is that the policy makers or the Ministries responsible for regional strategies (e. g. Smart Specialisation Strategies) are different from those being involved in the development of the DTP. Furthermore, other departments in these Ministries are responsible for the implementation of such regional programmes and funds. There seems to be a lack of communication and dialogue between these three different governmental groups. In addition, practice has shown that some Danube regions did not actively contribute to the DTP development at all. If the programme owners are not involved in the macro-regional strategy development, the problems will remain. **Thus, these three ministerial / policy groups (smart specialisation developers, DTP developers and regional programme owners) must work more hand-in-hand to assure proper alignment.**

- **Incentivize regional programme owners to align with macro-regional strategies and cross-border cooperation**

Cross-regional cooperation, which is always requested within the macro-regional strategies, must be increasingly financed from regional programmes. The DTP is important but it is not the right approach to rely on when it comes to cross-regional cooperation, since it is neither SME-friendly nor allows for real R&D collaboration. So far, there are no incentives for regional programme owners to align or synchronize their programmes towards cross-regional support schemes. If there is no added value for these regional programme owners, they would not invest sufficient efforts. There is a tendency to over-compartmentalize initiatives which means that there is a lack of joined up action and a lack of impact at a wider level. Whilst individual initiatives are to be welcomed, the tendency to compartmentalize must be integrated instead into a more wide-reaching policy. The preferred approach should cross different economic sectors, and a good example to emulate would be the strategy employed by Land Baden-Württemberg, as described in chapter 1.4.

- **Towards better policy implementation**

While a lot attention has been given in the recent past to support policy makers and regional developers on how to develop (better) regional (smart specialisation) strategies, the challenges of policy implementation have been overlooked. In many Danube regions effective programme implementation remains a challenge. Frequently ministries implement regional programmes themselves although skills and competencies are limited. Only some regions appoint regional funding agencies or management authorities (e.g. Baden-Württemberg or Bavaria), which are specialized in programme design development, implementation and financial management of such funds. Due to limited competencies at the ministerial level, there is a reluctance to apply new funding schemes that better address current industrial transformation challenges. There is recent evidence (e.g. the Innovation Express 2021 implemented in the Alpine Region³⁸) that existing regional programmes can be easily synchronized so that cross-border cooperation is possible without the need to change administrative procedures. Such experiences shall be promoted and made available for a

³⁸ <https://innovation-express-2021.b2match.io/>; last accessed 11/01/2022

broader policy makers' audience, combined with skills development regarding modern funding programme design and financial management of funding programmes.

- **Setting up a network of regional funding / programme implementation agencies**

Network can stimulate experience exchange and trust building. Such agencies play a decisive role for the implementation of EUSDR and for facilitating cross-regional collaboration across the Danube regions. Despite the fact that not each Danube region has regional funding / programme implementation agencies in place, those that do exist shall be gathered in a network of funding practitioners. The TAFTIE Network on the European level can serve as a blueprint. The TAFTIE Network has been established since 1992 and gathers more than 30 national funding / implementation agencies and plays an important role in the implementation of the European Research Area. The TAFTIE Network not only serves as an important platform for its members, but it has also implemented a training academy for professional funding programmes management and implementation. Starting with a similar Danube region wide network of regional funding / programme implementation agencies that manages R&D, innovation and entrepreneurial support programmes related to circular (bio)economy could be a first step.

- **Stronger role of the Priority Area Coordinators (PACs) under the DTP**

The PACS are in place to create working groups around sub-themes and tasks as well as to coordinate the participation of their country in the implementation of the EUSDR. However, current practice shows that their position is comparably weak. Given the fact that these PACs can play an important role, strengthening their role seems to be advisable.

- **Share and emulate best practices and stimulate vertical and horizontal development**

The policies that work in one region are not being shared with others, despite the obvious potential congruence. Whilst individual policies that are effective are to be commended, they must be shared with partner regions that are struggling. Every region has at least one scheme, policy or model of action that could be emulated and applied by at least some of the other partner regions. Within the EUSDR, several regions have developed schemes, policies and methodologies which are highly effective. Other regions must take advantage of these by emulating models of best practice as closely as possible where the local conditions permit. Stimulating partnerships among regions and cities with different performance levels would be a good example. Interventions should focus on sectors that use the most resources and where the potential for circularity and transnationality is highest. Examples include ICT, electronics, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food, and nutrients.

4. Conclusion

The circular (bio)economy is clearly vital for Europe, both at the economic level and the ecological level. It is encouraging to see countries/regions increasingly moving in this direction, however slow the pace may be in some regions. There are signs that some “late comers” to this are starting to catch up. The circular (bio)economy presents a golden opportunity to reduce waste, revive declining regions and make better use of biological resources. It will help for a revival of these regions economically and ecologically and is a strong compliment to the circular (bio)economy goals of the Member States and regions. Sustainability is critical regarding Europe's commitment to a greener and more environmentally stable future. Perhaps the key ingredient is the skill and commitment of the people of the Danube region, and their involvement will be critical to the success of the circular (bio)economy and sustainability. They can be guided by governments at the European, national and local level, as well as by educational institutions, professional associations,

clusters and civil society. In this sense, participatory governance processes are of relevant importance, and as read in chapter 1.3. they are actually not numerous in regards to circular (bio)economy.

While the EUSDR is ambitious in terms of sustainability and the circular (bio)economy, there is a serious gap between what is planned at the macro-regional level and what is being delivered at the regional level. Only two regions (Baden-Württemberg and Bavaria) have a fully-fledged circular (bio)economy strategy in place, Upper Austria is covered by a national one, whilst the other Danube regions (and countries) do not have such strategies and related programmes³⁹. It is hard to understand how on the macro-regional level circular-(bio)economy can seriously be promoted if most of the participating regions do not have specific strategies of this nature. If the core idea of a macro-regional approach is to facilitate cross-regional cooperation and bundling of critical mass in certain areas, this will struggle to succeed if parts of the macro-regional strategies are disconnected from what the partner regions focus on. In case the EUSDR shall be seriously implemented, this causes a lack of cross-regional cooperation possibilities due to missing regional strategies and related programmes to be aligned in the field of the circular (bio)economy. In chapter 3 main actions to counteract this situation have been appointed, one of them being the improvement of skills related to effective programme implementation.

This above-mentioned mismatch is not only valid for the initiatives funded by the DTP, but also for many other macro-regional approaches. It might be time to better articulate this issue towards key stakeholders involved, such as smart specialisation developers, DTP developers and regional programme owners. Macro-regions are too important to just exist on paper or just be wishful thinking.

The idea behind the establishment of a Danube Circular Bioeconomy Brain Trust (as one of the main outputs of WP T3) relies on the effective dialogue and exchange of good practices among the regional actors; this would incentive a common policy agenda aligned with the vision of EUSDR. The findings of this deliverable, and to some extent the ones drawn by D.T.3.1.1 (Regional Policy Agendas), show an ill-defined picture, in which more is suggested than evident. It is still soon to know if the circular economy strategies in preparation (e.g. in Bulgaria, Serbia and Slovenia) will be turned into action plans one day, with financial support for real implementation. Moreover, the reported regional policy agendas shall be updated once all smart specialisation strategies are rolled out by mid of 2022; it is also recommended to assess any effect that the Next Generation funds could have, once invested on the ground. With this in mind, the position of circular (bio)economy and its potential positive effects on the rural renaissance and demographic change could be upgraded.

To conclude, the Danube macro-region remains committed to a future that is more environmentally friendly, less polluting, and more circular in nature, in line with the EU Green Deal. Political will and popular support for this remains high. Despite the challenges, there is room for optimism. At least post-COVID-19 Europe will be greener, more digital, more resilient, and better prepared for the current and forthcoming challenges.

³⁹ It shall be noted that Germany and Austria do have a national Circular Bioeconomy strategy in place.