

WP T3: Transnational Strategy for Circular Bioeconomy Governance Structure

DANUBE REGION WHITE PAPER

Cross-Border Collaboration in the Danube Region with focus on circular (bio)economy – Wishful thinking or a realistic option? –

Executive Summary

The EU Strategy for the Danube Region (EUSDR) was adopted by the European Union in 2011 aimed at developing the economic potential of the Danube region, improving environmental conditions, and enhancing the overall prosperity and quality of life of the population. The circular (bio)economy's major focus, i.e., accelerating the transition from a fossil-based to a bio-based economy, addresses important challenges in the Danube region and plays an important part in the new Danube Transnational Programme (DTP) 2021-2027. Sustainable economic development and environment, energy and climate change are important pillars of the new DTP. Among others, the DTP shall support smart regions/cities solutions as well as advanced technologies regarding circular (bio)economy.

The COVID-19 pandemic has placed tremendous pressure on the region and badly disrupted normal patterns of economic, cultural, social, and environmental life. It may take years for the region to fully return to pre-pandemic life. In the meantime, as new COVID-19 variants emerge, further disruption and lockdowns, possibly at short notice, cannot be entirely ruled out. Fortunately, Europe has reacted strongly to the pandemic, with most Member States seeing high levels of vaccination, and both the EU and most Member States providing emergency support, funding, and regulatory changes to soften the blow of COVID-19. The pandemic demonstrates more than ever the need to modernize Europe's value and supply chains, move towards greater sustainability and maintaining cross border solidarity. All of these are consistent with the goals of the EUSDR.

The rationale behind this "White Paper" is to kick-off discussions on how the EUSDR can be better aligned with regional strategies with a dedicated focus on the circular (bio)economy. Since the DTP places significant attention on aligning regional strategies of the partner regions and facilitation of cross-border cooperation, the key question is "Do the framework conditions currently exist?" This White Paper represents and discusses the status quo in this regard.

While the EUSDR is ambitious in terms of sustainability, circular economy and the circular (bio)economy, there is a serious gap between what is planned on the macro-regional level and what is being delivered on the regional level. Only two regions (Baden-Württemberg and Bavaria) have a fully-fledged circular (bio)economy strategy in place, whilst the other Danube regions (and countries) do not have any such strategies and related programmes¹. It is hard to understand how on the macro-regional level circular-(bio)economy can seriously be promoted if the participating regions do not have any 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. This causes a lack

¹ It shall be noted that Germany and Austria do have a national Circular Bioeconomy strategy in place.

of cross-sectoral cooperation possibilities due to missing regional strategies and related programmes in the field of the circular (bio)economy. It also leads to a gap between policy makers, civil society, and economic actors. In order to better align regional strategies among the Danube partner regions and the Danube Transnational Programme (DTP) there is a need for several key reforms;

More links between regional strategies and the Danube Transnational Programme (DTP)- The primary problem appears to be a lack of regional policies in the DTP. In an ideal case the DTP synthesizes all the different regional policies on the macro-regional level. The issue is that the responsible 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. There is also a lack of communication and dialogue between governmental groups. The regional programmes and funds for cross-regional cooperation are managed by programme owners in various Ministries. If the programme owners are not involved in the macro-regional strategy development, the problems will remain.

Incentivize regional programme owners to align with macro-regional strategies and cross-border and cross-sectoral cooperation - Cross-regional cooperation, which is always requested within the macro-regional strategies, must be financed from regional programmes. However, there are no incentives for programme owners to align or synchronize their programmes towards cross-regional support schemes. If there is no added value for regional programme owners, they would not make any additional efforts. This is especially true since the burdens of the ERDF-Funds are already very high. 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.

Skill development on a policy level on cross-border cooperation that is easier to implement and emulates best practices - There is recent evidence (synchronized call Innovation Express 2021) 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 broader policy makers' audience. 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.

Support the uptake of new technologies and promoting RDI development– There must be supported uptake of technologies related to smart infrastructure and integrating smart cities and regions solutions in the planning, management, and development of the Danube Region cities and regions. The sharing of innovation capacities and the uptake of innovation and advanced technologies must be encouraged. Exchanging experiences and capacity building between innovation actors such as industrial and technology hubs and parks, private enterprises, professional clusters, universities, and RDI centers is also important.

Stimulate vertical and horizontal development– Interventions should focus on sectors that use the highest number of 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.

Current Situation in the Regions

In December 2019, COVID-19 was detected in China. By spring 2020, it had spread to Europe and quickly became the most serious global pandemic in a century. Over 35 million cases of COVID-19 and 746,566 COVID-19 deaths had been recorded in the EU/EEA region². Every region of Europe has been hit hard by the pandemic and its effects on the economy. European Commission statistics estimate that there was a GDP contraction in the regions of -6.4%³.

Europe's efforts to reduce pollution have been badly undermined by the COVID-19 pandemic. Single-use items used in medical Personal Protection Equipment (PPE) have become a major source of pollution, with 166 million items of PPE needed each month globally to meet medical needs. Carbon emissions associated with the production and transport of PPE in the first wave of the crisis amounted to between 2.4-5.7 million tons of CO₂ above the usual rate for the same period the previous year⁴. Other forms of plastic pollution include single-use items used for takeaway food, which European hospitality sector businesses had to use during lockdown periods where takeaway food was the only permitted form of service.

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 principle⁵ 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 Directive⁶. 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

² <https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea>

³ <https://ec.europa.eu/jrc/en/news/jrc-analyses-covid-19-impact-economy-and-labour-markets-help-guide-eu-response>

⁴ <https://www.eea.europa.eu/publications/impacts-of-covid-19-on>

⁵ https://eur-lex.europa.eu/summary/glossary/precautionary_principle.html

⁶ The Environmental Liability Directive 2004/35/EC (ELD)

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 NextGeneration EU Recovery Plan and the EU budget will finance the European Green Deal⁷.

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.

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 developments⁸.

The four pillars of the EUSDR are⁹;

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

⁷ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁸ <http://www.interreg-danube.eu/about-dtp/eu-strategy-for-the-danube-region>

⁹ <https://danube-region.eu/about/targets/>

Circular Bioeconomy in the Danube Regional Context

Austria

Austria's Council of Ministers passed the "Bioeconomy – A Strategy for Austria" in March 2019¹⁰. 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 €1095, citizens can purchase universally accepted public transport tickets, valid for one year on all forms of public transport¹¹.

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 DTP¹². In the federal state of Upper Austria, for example, 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 concrete measures that are related to the circular (bio)economy. Upper Austria is a federal state of Austria, so it must be noted that there is no regional circular (bio)economy strategy, but a national one as mentioned above.

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)¹³. 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

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

¹¹ <https://platform2020redesign.org/countries/austria/>

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

¹³ <https://www.euractiv.com/section/elections/news/eyeing-eu-stimulus-bulgarian-parties-pledge-green-transformation/>

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.

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. Special attention will be dedicated to the improvement of vocational education for occupations in projects co-funded by the European Union Funds (ERDF and IPA). 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.

Czech Republic

The Czech Bioeconomy Concept in the Czech Republic from the Perspective of the Ministry of Agriculture (2019-2024)¹⁴ is the main governing principle. This has three main aims; 1) steering the bioeconomy concept at the national level 2) making use of international cooperation to boost the bioeconomy of the country 3) reinforce technological developments and innovations. The schemes target rural development, the food industry, innovation and research and economic development. There is also a "Bioeconomy Platform of the Czech Republic" which brings together academic institutions and business associations active in the field of the circular bioeconomy¹⁵. In 2018, the Czech Republic launched the "Enough with the Plastics" initiative aiming to reduce the use of single-use plastic. A €2.3m subsidy was directed to 23 projects of cities and towns, to prevent over consumption of single use products and replace them with reusable ones¹⁶.

Germany (Baden-Württemberg and Bavaria)

At the federal national level is the German Resource Efficiency Programme¹⁷. This 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 is included, e.g., efficiency advice for SMEs, support for environmental management systems, technical standardization processes, stressing resource

¹⁴ http://eagri.cz/public/web/file/658143/Leaflet_Bioeconomy_concept_in_the_Czech_Republic.pdf

¹⁵ <https://bioeconomy.czu.cz/en/r-14285-members-and-partners>

¹⁶ <https://unece.org/sites/default/files/2021-04/17%20Czechia.pdf>

¹⁷ <https://www.bmwi.de/Redaktion/DE/Publikationen/Energie/energieeffizienzstrategie-2050.html>

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, Bavaria has developed its own circular bioeconomy strategy¹⁸. 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, biobased technologies, processes, and products. It also hopes to use innovation and technology to help catalyze this process. It is ultimately aimed at reducing the consumption of fossil resources by implementing a sustainable and viable economic system and developing sustainable, biobased technologies, processes and products.

Baden-Württemberg's bioeconomy strategy¹⁹ aims to be an example for a sustainable and closed loop-oriented economic system. 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 fibers, 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 CDU/Green coalition government. This coalition has a strong commitment to green policies. The coalition agreement also called for new photovoltaic projects along motorways and train routes²⁰. 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.

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

¹⁸ https://www.stmwi.bayern.de/fileadmin/user_upload/stmwi/Publikationen/2021/2021-02-15_FutureBioeconomyBavaria_BF_2020_02_15.pdf

¹⁹ <https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/documents/Bioeconomy-strategy-barrierefrei.pdf>

²⁰ <https://www.cleanenergywire.org/news/climate-protection-cornestone-govt-coalition-agreement-baden-wuerttemberg>

is also a Hungarian Smart Specialization Strategy (S3), in which the agro-food sector 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 centers, clean and renewable energies - energy produced locally - including the use of bio-energy (including biomass, biogas, bio-refinery methods). It also includes healthy local food - high-quality foods of high added value, healthy diet, functional foods and Hungarian specialties, shortening of food chains, food safety. Finally, there is the 5th National Environmental Programme (2020-2025), currently under preparation. It defines the future development goals of Hungary, taking into account its capabilities and long-term environmental interest.

Romania

Romania has sought World Bank assistance in hitting its climate goals. Romania plans to reduce GHG emissions by 40% based on 1990 levels and achieve a 27% increase in energy efficiency²¹. 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. Romania instituted the “Rabla” initiative, which pays a 6500 Lei payment to individuals who buy a less polluting car and exchange a more polluting one in the process. To build on this, the “Rabla Plus” offers a payment of 45,000 Lei for the purchase of electric or hybrid vehicles, and unlike the Rabla programme, is not conditional upon exchanging an older vehicle. 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 grid²².

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.

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” and has a Circular Economy Roadmap in place. A Roadmap for Circular Economy in Serbia is a process intended to get to know, promote and put together the recognized stakeholders able to contribute their knowledge, innovation and creativity to a faster transition to circular economy²³. The roadmap is guidance for a transition to a model of circular economy focusing not just on profit, but on the protection of the environment and the preservation of resources. The economic, social and ecological dimensions are viewed as equally valuable.

²¹ <https://documents1.worldbank.org/curated/en/739151468184789529/pdf/103921-WP-P145943-PUBLIC-Summary-of-Climate-Change-Strategy.pdf>

²²

<https://platform2020redesign.org/countries/romania/>
<https://platform2020redesign.org/countries/romania/>

²³ <https://www.rs.undp.org/content/serbia/en/home/library/mdg/roadmap-for-circular-economy-in-serbia.html>

The objectives of the strategy are: 1) Production growth and income stability for the producers; 2) market-driven competitiveness growth of the agricultural sector; 3) Sustainable resource Smart Specialization Platform (EC) 2021 Project co-funded by the European Union Funds (ERDF and IPA) 9 (2014-2024), Ministry of Agriculture and Environment Protection management and environmental protection; 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.

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.

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 focuses 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 management²⁴.

The Ministry 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 sectors²⁵. 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 (bio)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 (bio)economy, waste management and energy.

Slovenia

²⁴ <https://bioeast.eu/slovak-republic-ministry-of-agriculture-and-rural-development-of-the-slovak-republic/#>

²⁵ <https://bioeconomy.sk/en/>

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. 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 citizens²⁶). Several pieces of legislation and strategies govern the goals of Slovenia's circular bioeconomy. 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)²⁷

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 2030²⁸. 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.

Slovenia has a policy of the Development Strategy of Slovenia 2030 by the Government of the Republic of Slovenia (2017). The need to facilitate 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 Slovenia's development goals related to the circular (bio)economy.

Good Practice

Baden-Württemberg Bioeconomy Strategy

In 2019, Baden-Württemberg unveiled an ambitious and comprehensive state strategy for bioeconomy and sustainable development²⁹. 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 greenhouse gas 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.

²⁶

https://circulareconomy.europa.eu/platform/sites/default/files/roadmap_towards_the_circular_economy_in_slovenia.pdf

²⁷ <https://bioeast.eu/slovenia-ministry-of-agriculture-forestry-and-food-of-slovenia/>

²⁸ <https://platform2020redesign.org/countries/slovenia/>

²⁹ <https://um.baden-wuerttemberg.de/fileadmin/redaktion/m-um/intern/Dateien/documents/Bioeconomy-strategy-barrierefrei.pdf>

- 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.

Interestingly the “State Strategy for a Sustainable Bioeconomy” does not aim to replace any individual technical 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 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 greater 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.

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 represents 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)³⁰. However, this strategic approach is undermined by the regions of the Danube region that mostly do not have this topic properly considered in their strategies.

Table 1: Regions/Countries with a circular (bio)economy strategy or similar policies in place³¹

Country/Region	Circular (bio)economy strategy/policy currently in place	Circular (bio)economy strategy/policy currently in planning stages	No (bio)economy strategy/policy but topic-related policies	Circular
Baden-Württemberg (DE)	✓			
Bavaria (DE)	✓			
Bosnia				✓
Bulgaria		✓		
Burgenland (AT)				✓
Carinthia (AT)				✓
Croatia				✓
Czech Republic				✓
Hungary				✓
Lower Austria (AT)				✓
Moldova				✓
Montenegro				✓
Romania				✓
Salzburg (AT)				✓
Serbia		✓		
Slovakia				✓

³⁰ Danube Transnational Programme, 2021 - 2027

³¹ Austria has a national bioeconomy strategy since 2019 (as described on page 5) 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.

Slovenia		✓	
Styria (AT)			✓
Tyrol (AT)			✓
Ukraine			✓
Upper Austria (AT)			✓
Vienna (AT)			✓

Recommendations

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 the regional and EUSDR levels. Political support for green policies, the circular (bio)economy, economic development, cross-border cooperation and COVID-19 recovery remains high at both the regional and macro-regional level. 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 government and society

The primary problem appears to be a lack of policies planned at governmental level being actualized and delivered at the ground level. This could be indicative of a lack of communication and dialogue between government, civil society, and the wider population. There is clearly a communication bridge and other forums where representatives can meet and work together. The European Strategy for the Alpine Region (EUSALP) strategy provides an interesting template³² whereby this could be bridged and may be something that the EUSDR could emulate. There is a lack of regional policies in the DTP. In an ideal case the DTP could synthesize all the different regional policies on the macro-regional level. The issue is that those policy makers or Ministries responsible for regional strategies (e. g. Smart Specialisation Strategies) are different from those being involved in the development of the DTP. There is also a lack of communication and dialogue between governmental groups. If these programme owners are not involved in the macro-regional strategy development, the problems will remain.

³² <https://www.alpine-region.eu/alpine-region-network>

Maintain Policies That Work

There is no need to replace any individual technical policies. Whilst it would be preferable to integrate them into a wider whole, one must avoid jettisoning a policy that contributes to wider change simply because it is not (currently) part of a wide-ranging strategy. One example of an individual policy that is not part of a wider whole, but which is still useful is Romania's "Rabla" and "Rabla Plus" schemes for replacing polluting cars.

Foster Cross-Sectoral and Cross Border Cooperation

There is a tendency to over-compartmentalize initiatives with 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. This should cross different economic sectors, and a good example to emulate would be the strategy employed by the Baden-Württemberg Bioeconomy Strategy. Exchange experiences and capacity building between innovation actors such as industrial and technology hubs and parks, private enterprises, professional clusters, universities, and RDI centers should be fostered. The cross-border aspects of the strategy help foster greater solidarity between Member States. It also acts to more deeply integrate supply and value chains and serve as a mechanism for exchanging best practices. Other Interreg programmes have shown that the cross-border cooperation aspects are a key feature to cultivate rather than have successful schemes confined to national borders. There is recent evidence 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 broader policy making audience.

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 congruency. 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 strategy, 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.

Conclusion

Europe's efforts to promote interregional and cross border cooperation, and to promote more sustainable economic practices have been badly undermined by the COVID-19 pandemic. Border closures, forced business lockdowns, travel bans, and cancellations of events have become a bitter reality of life for European citizens. Furthermore, if new variants of COVID-19 were to emerge, or if vaccines were to cease to provide adequate protection, then new lockdowns and restrictions could inflict further damage to Europe's schemes. The Danube macro-region would probably be no exception in such a scenario.

That said there are clearly signs of encouragement. There has been a gradual easing of restrictions and the beginnings of a recovery to pre-pandemic life. Additionally, the EU and Member States have provided generous support in many areas and remain sympathetic to the challenges that COVID-19 has created to the economy and wider society. Europe remains firmly committed to creating a more sustainable economic model, and to promoting more regional and cross border cooperation. This political will is important and will remain important in the months and years to come. This can lead to much needed “top down” support that will be needed, as COVID-19 has weakened the capacity of the private sector to push a “bottom up” approach. The pandemic exposed more than ever the vital role a more integrated circular (bio)economy could play in lessening “shocks” in the future, as well as creating a more robust and integrated economic ecosystem that will be economically, ecologically and socially successful and sustainable in “normal” times as well.

The bioeconomy and circular economy are 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 slowly the case 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 to revive 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 given 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.

The Danube macro-region remains committed to a future that is more environmentally friendly, less polluting, and more circular in nature. Political will and popular support for this remains high. Despite the challenges, there is room for optimism. Post-COVID-19 Europe will be greener, more digital, more resilient and better prepared for the current and forthcoming challenges.