

D.1.1.1

Capitalisation of existing results

Slovenia



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Author/-s: Mateja Dermastia, dr. Maja Berden Zrimec, Mateja Novak, dr. Peter Kumer, Ursula Konečnik, Tanja Senekovič

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1. Short description of the region and its economic situation in general

Slovenia is a central European country, which covers an area of 20,273 km² and has a population of 2.100.126 inhabitants (on 1.7.2020). It became independent country in 1991 and became part of the European Union in 2004.

Before covid-19 epidemics Slovenian economy was growing strongly, although in 2019 decelerated considerably, but still the efficiency of the economy is improving. After growing by more than 4% in 2017 and 2018, the economy was expected to grow at the slower rate in years 2019-2021. Growth was mainly driven by domestic demand. Consumption was expected to continue to grow at a robust pace, supported by rising employment and disposable income. Although growth of investment in dwellings and other construction remained quite strong, investment growth in machinery and equipment had weakened substantially in 2019, primarily due to global trade uncertainty. With exports growing more slowly than imports, the external sector had a negative impact on growth. Due to covid-19 epidemics Slovenia's economic output is expected to contract by 6.7% in GDP this year.

The labour market has improved to record levels, with a continued increase in the employment rate accompanied by a decrease in both the overall unemployment rate and the long-term unemployment rate. Helped by economic growth, the unemployment rate fell to 4.6% in 2019. However, the long-term unemployment rate of older workers remains a concern, and at the same time certain sectors face labour market shortages. However, investment remains below EU averages, dragging down productivity growth. Due to covid-19 epidemics, the unemployment rate in the third quarter of 2020 was higher by 7.7 % compared to 2019.

On the indicators of the Social Scoreboard supporting the European Pillar of Social Rights, Slovenia is performing well. **Income inequality is low and the risk of poverty and social exclusion has decreased** in recent years. The indicators of social exclusion and income inequality have improved after a deterioration in 2009–2013 and are close to the Slovenian development strategy (SDS) 2030 targets. The early leaving rate from education and training is very low but significant gender gaps exist, with males achieving worse educational outcomes at the age of 15 and lower tertiary attainment rates. The labour market participation of older workers and low-skilled workers is low, and old-age poverty remains a challenge.

The overall assessment of the trends in the recent period is summarised by the European Innovation Index (from the European Innovation Scoreboard)¹ which ranked Slovenia to the **moderate innovator group with index 92,42**. The innovation system of Slovenia (see Table 1) is relatively strong in the area of indicative factors that affect corporate innovation, but weak especially in the area of investments in research, development and innovation activity and their effects. When compared to the EU average, the innovation system of Slovenia is strongest in the area of HR, company investments in RDA and cooperation between innovation actors, while it is relatively weaker in public investments in RDA, effects of the innovation activity and innovation-active companies. Although the business environment has improved, problems remain regards public procurement and administrative/regulatory burden.

¹ <https://bit.ly/3a5011e>

Table 1: Basic indicators for Slovenia compared to EU average in 2019

	SI	EU
Performance and structure of the economy		
GDP per capita (PPS)	25,500	29,100
Average annual GDP growth (%)	3.25	1.84
Employment share manufacturing (NACE C) (%)	25.3	16.6
of which High and medium high-tech (%)	39.4	37.5
Employment share services (NACE G-N) (%)	35.9	41.4
of which Knowledge-intensive services (%)	34.4	34.3
Turnover share SMEs (%)	45.9	38.3
Turnover share large enterprises (%)	32.6	43.2
Foreign-controlled enterprises – share of value added (%)	13.0	11.1
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.8	1.1
Total Entrepreneurial Activity (TEA) (%)	7.0	6.7
FDI net inflows (% GDP)	2.8	2.6
Top R&D spending enterprises per 10 million population	9.7	16.2
Buyer sophistication (1 to 7 best)	3.4	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	76.4	76.5
Basic-school entrepreneurial education and training (1 to 5 best)	2.0	1.9
Govt. procurement of advanced technology products (1 to 7 best)	2.6	3.5
Rule of law (-2.5 to 2.5 best)	1.1	1.1
Demography		
Population size (millions)	2.1	446.2
Average annual population growth (%)	0.36	0.14
Population density (inhabitants/km ²)	102.7	108.6

Source: European innovation scoreboard 2020

With forests covering a large part of the country, a large proportion of protected areas and moderate agricultural intensity, **the natural environment in Slovenia remains, on average, well preserved**. During the latest period of economic upturn (2014–2019), resource and energy consumption started to increase again and with it greenhouse gas emissions. **The efficiency of resource and energy consumption has otherwise improved**, but it still lags behind the EU average in the area of material, energy and emission productivity and thus behind the SDS 2030 target. The Slovenian economy is also **dependent on the import of raw materials** which – combined with the relatively low material/energy productivity – increases the vulnerability of Slovenian companies to eventual fluctuations in the prices of raw materials and/or disruptions in their supply.

The **carbon intensity of the economy is rather high**, primarily due to transport, electricity production, and heating. In order to reduce carbon intensity, the infrastructure for cleaner and renewable energy sources will need to be built. Besides, a comprehensive strategy for climate change adaptation has not yet been drawn up.

According to Commission staff working document² (published in February 2020), **Slovenia lacks comprehensive and consistent multi-sector strategic framework for sustainable development**. While some relevant strategies already exist, like the Slovenian development strategy 2030 or the sustainable urban strategy, there is currently no medium- or long-term strategy for climate adaptation, the green energy transition or the coal phase-out. However, from beginning of 2020 an early work to begin drafting such strategies is being under way.

² <https://bit.ly/3ncjuAN>

2. Objectives and identification

The main objective of this deliverable is to gain good knowledge and, when possible, to capitalize results from a selected list of EU-funded projects and macroregional documents that are related with demographic change, circular bioeconomy and/or sustainable rural development.

The first research batch, focused on Horizon 2020 projects, was delivered by MIZS; BIOPRO made a first selection from this batch and extended the search in October 2020 with a focus on Interreg projects (Danube Transnational Programme, Alpine Space and Interreg Europe, including ARPAF) using the keep.eu database. Further research related to Horizon 2020 projects was done through [CORDIS](https://cordis.europa.eu) and the database of the Bio-Based Industries/BBi JU funded [LIFT project](#) that encompasses the results of up to 34 coordination and support actions funded mainly by Horizon 2020.

As search criteria, projects starting from 2016 onwards were considered and it was intended that most of the selected projects had at least one of the countries participating in GoDanuBio in their consortia. From each relevant project, its deliverables and outputs that could be interesting for the development of GoDanuBio were identified using the project websites. In some particular cases, the deliverables were not available and, if relevant, were requested by other means.

The search has delivered 19 EU-funded projects and 12 transregional documents. Only a handful of them have a focus on the deployment of the bioeconomy in the Danube macro-region; some of the outputs can be used as inspiration or even guideline to gain insight in the transnational approach aimed by the project. Complementary to this search, all partners are invited to identify further transregional projects and macroregional documents that are relevant for their regions with regard to the implementation of GoDanuBio and to include them in their reports.

2.1 Projects to be capitalised

A. DanuBioValNet

Coordinator: BIOPRO; Link: <http://www.interreg-danube.eu/approved-projects/danubiovalnet>; Duration: 2017-2019; Funding programme: Interreg DTP; Thematic focus: Bioeconomy

Main objective: To develop new methods, strategies and tools to connect Danube actors (SMEs, farmers, universities, research institutes, etc.) in a bio-based industry.

Main results to capitalise: Joint BioBased Cluster Policy Strategy, which identified key assets to contribute to bioeconomy vision in Danube region and a Common Action Plan towards better framework conditions for biobased eco-innovations. Some good practices of cluster initiatives/projects are presented in Cluster Tool Box „New Cluster Services to support SMEs in bio-based industries“. Cluster mapping reports on selected clusters and cluster initiatives. Country reports on current situation in the region.

B. BioTHOP

Coordinator: Slovenian Institute of Hop Research and Brewing; Link: <https://www.life-biothop.eu>; Duration: 2019-2022; Funding programme: LIFE; Thematic focus: Bioeconomy.

Main objective: Focus on hop agricultural sector. They will use non-compostable twine and biomass that stays after harvesting on the field with compostable twine and biomass. The compostable biomass will be used in demo-region and used as a fertilizer and as a material.

Main results to capitalize: Survey on the attitude and opinion of respondents to the issue of non-degradable plastics, the introduction of biodegradable products in agriculture, sustainable development and the circular economy.

C. EFFECTIVE

Coordinator: Aquafil; Link: <https://www.effective-project.eu/>; Duration: 2018-2022; Funding programme: H2020; Thematic focus: Bioeconomy

Main objective: Focus on bio-based materials. The project will demonstrate the production of bio-based materials and their applications in various sectors of the economy.

Main results to capitalize: Survey about intentions to integrate biobased products into businesses.

D. URBAN SOIL 4 FOOD

Coordinator: City of Maribor; Link: <https://www.uia-initiative.eu/en/uia-cities/maribor> ; Duration: 2017-2021; Funding programme: Urban Innovative Actions (UIA), Thematic focus: Bioeconomy

Main objective: The use of biological waste for the production of new soil (urban agriculture).

Main results to capitalize: Establishment of local food chain. Bringing circular economy closer to people through Agri-living lab.

E. APPLAUSE

Coordinator: SNAGA - waste management public utility; Link: <https://www.uia-initiative.eu/en/uia-cities/ljubljana>; Duration: 2017-2020; Funding programme: Urban Innovative Actions (UIA); Thematic focus: Bioeconomy

Main objective: Focus on circular economy model to develop new products out of plants. IT platform for identification and lifelong of invasive alien plant species monitoring System.

Main results to capitalize: IT platform for identification and lifelong of invasive alien plant species monitoring System.

F. CARE4CLIMATE

Coordinator: Ministry of the Environment and Spatial Planning; Link: <https://www.care4climate.si/en>; Duration: 2017-2026; Funding programme: LIFE; Thematic focus: Capacity building

Main objective: Capacity building for the transition to a low-carbon society

Main results to capitalize: Not available yet

G. SYMBI

Coordinator: Foundation FUNDECYT Scientific and Technological Park of Extremadura; Link: <https://www.interregeurope.eu/symbi/>; Duration: 2016-2021; Funding programme: Interreg Europe; Thematic focus: Industrial Symbiosis and Circular Economy
Project co-funded by the European Union Funds (ERDF and IPA)

Main objective: To empower regions to build sustainable economies, resilient to environmental pressures and climate change.

Main results to capitalize: Training for representatives of regional support institutions in the field of circular economy (one workshop) and in the field of industrial symbiosis (set of comprehensive workshops). Mapping of SMEs to establish cooperation and to spread industrial symbiosis. Developing a strategy for communicating with SMEs. Preparing an open invitation to work with SMEs in the field of industrial symbiosis. Establishment of consortiums for participation in industrial symbiosis.

2.2 Macroregional documents to be capitalised

A. “Bioeconomy development in EU Regions” (2017), European Commission

The report, among others, explains what are the drivers and factors that stimulate the deployment of the bioeconomy in the EU regions/countries. These mainly depend on the regional resources and assets available, not only natural but also industrial and scientific knowledge, which can be used to add value to those resources and assets. Besides, the bioeconomy has been stimulated by external factors, such as strategic and political decisions to increase the competitiveness and promote economic development.

B. The biobased status in the Danube Region (2017), DanuBioValNet Consortium

This report provides the overview of the regional situation in 10 countries in 2017 regarding the strengths and weaknesses associated with bio-based products, suppliers and markets as well as innovation opportunities and R&D competences. It also provides preliminary information on the regional bio-based strategies and government policies already in place. The partners from those countries found out that there is still a lack of supportive policies in most of the regions, except for the Strategies for Smart Specialisation (S3), which have been implemented in most countries. Although, only a few of them (Croatia, Slovakia and Slovenia) specifically dedicate to the bioeconomy.

C. How to use RDPs to support rural bioeconomy? (2019), European Network for Rural Development

This paper published by the European Network for Rural Development summarises the recommendations on the use of Rural Development Programmes (RDPs) to support rural bioeconomy based on the identification of the different element of rural value chains that can benefit from the development of the bioeconomy, how these benefits can be delivered in rural areas and how they can be made sustainable and self-supporting, particularly through the use of the European Agricultural Fund for Rural Development (EAFRD).

D. State of play of Central and Eastern Europe’s bioeconomies (2018), Nova Institute

The study covers the BIOEST macro-region which is divided in the Baltics (Latvia, Lithuania, Estonia), Central-Eastern Europe (CEE; Poland, Hungary, Czech Republic, Slovakia) and South-Eastern Europe (SEE; Romania, Bulgaria, Croatia, Slovenia). This report identifies this macro-region as a biomass-rich region, with traditionally high importance of primary sectors agriculture, forestry and fishery. The

food industry and bioenergy and biofuels are important bioeconomy sectors, however, there are unused or underutilised biomass potentials from side streams.

3. Findings

All projects listed in chapter 2 are either ongoing or have finished only recently therefore it is yet impossible to estimate their importance long-term implications. Their importance lies especially in the thematic focus which is bio-economy, circular economy and in one case capacity building. However, the projects include deliverables that might be used also after the end of the projects. For example, BioTHOP aims to deliver Guidelines for hops farmers for on-site hop biomass composting process. EFFECTIVE will develop a new collaboration model based on a multi-stakeholder approach to foster the link between the bio-economy and the circular economy. URBAN SOIL 4 FOOD produced a roadmap that gives step-by-step instructions on how to prepare and certify urban soil, how to make urban gardens and how to run co-creation processes with citizens in order to speed up circular economy. APPLAUSE developed a Circular Business model for the city of Ljubljana. CARE4CLIMATE will focus also on capacity building for the transition to a low-carbon society. SYMBI will implement the regional action plan which will set up a systemic approach at supporting the industrial symbiosis process. No outcomes of the projects have so far been used at the policy level.

Probably the most comprehensive results to be capitalised within GoDanuBio are provided by the project DanubioValNet. **Joint BioBased Cluster Policy Strategy** identifies assets with the most potential to contribute to bioeconomy vision in Danube region. These are: biomass, existing clusters, specific value chains and existing regional policies aiming at fostering the bioeconomy. For example, forests cover 63,3% of landscape in Slovenia, representing a great potential for biomass production and thus implementing the bioeconomy principles. The value chains to be further developed in the region are: phytopharma, ecoconstruction, and bio-based packaging, but the challenges hindering the progress are: gaps in the value chains, the need for synchronised funding and making better use of cluster-based regional innovation policies. **Cluster mapping report** provides the results of the research on selected clusters and cluster initiatives in Slovenia in the field of Eco-Construction, Bio-based Packaging and Phytopharmaceuticals. This document, as well as Country report on current situation in the region, will be useful resources for identifying the stakeholders for deliverable DT1.2.1.

The term “bioeconomy” is not widely used in Slovenian jargon at the national level and is not represented as a self-standing priority in strategic documents³, however, Slovenian National policy has addressed the topics from the field of bioeconomy in these strategies: Resolution on Strategic Guidelines for the Development of the Slovenian Agriculture and Food Industry by 2020 – “Ensuring the Food for Tomorrow” (2011) and in the strategy on implementing the resolution (2014), in the Slovenian Framework Programme for the Transition to a Green Economy (2015), in the Slovenia’s Development Strategy 2030 (2017), in the Slovenian Strategy on Smart Specialisation (2017), in the Roadmap towards a Circular Economy in Slovenia (2018)⁴ and in the Resolution “Our Food, Rural and Natural Resources from 2021” (2020).

³ <https://bit.ly/37bYIRE>

⁴ <https://bit.ly/37RAvtK>

Through the Rural Development Programme 2014-2020 Slovenia supports **the strengthening of short supply chains and food self-sufficiency, which has especially been highlighted during the epidemic COVID-19. The result is a wide range of implemented projects aimed at bringing together and integrating different sectors and stakeholders in the local area** (LEADER⁵/CLLD⁶ projects). There are 37 Local Action Groups (LAGs) which play a major role in connecting and addressing local needs (bottom-up approach), and thus bringing together different partners in the field. LAGs encourage the development of short supply chains and the marketing of locally produced products linking together local cuisine, wines, the tradition of apiculture and other traditional local products through their local development strategies. Such projects are highly interdisciplinary and complex in nature, have multiplier effects, and are closely intertwined in terms of content. More than 500 projects have been approved so far, of which 12% share of projects is related to agriculture, forestry and food. These cover a very wide sphere, particularly in the context of complementary farm activities, where programmes, services and products are supported to increase local self-sufficiency.

In January 2020 the National Assembly of Slovenia adopted the Resolution "Our Food, Rural and Natural Resources from 2021"⁷, which specifically emphasises the development of a sustainable circular bio-economy as a great opportunity for rural development with the key role of sectors that recognize and provide biomass as an important input. Thus, the opportunity to make a transition to the bio-economy as a new paradigm of business process organization has been highly recognized for Slovenia. The LEADER approach is therefore recognized in this Resolution as one of the effective cooperation measures supporting innovative approaches in the integration and marketing of produce and other products. The measures implemented by local communities are important in terms of support for the specific initiatives of rural populations and will have an even more important role of agricultural policy in the future, as awareness of the importance of local supply is increasing.

This Resolution provides the foundations for national measures and sets guidelines for elaborating the **Strategic Plan for the implementation of the Common Agricultural Policy** set out in the EU legislation on the reform of the Common Agriculture Policy 2021-2027. The Strategic plan has been currently under development; the working document "Analysis of the agriculture situation in Slovenia" was published in November 2020 and will be the basis for further discussions and elaboration.

On the basis of the Smart Specialisation Strategy (RIS 3 - S4)⁸, Slovenia set up Strategic Research and Innovation Partnerships (SRIPs), which bring together companies, knowledge institutions, the

⁵ **LEADER** (Liaison Entre Actions de Développement de l'Économie Rurale) is a local development method which has been used for 20 years to engage local actors in the design and delivery of strategies, decision-making and resource allocation for the development of their rural areas.

⁶ **CLLD** (Community-Led Local Development) is a broader term for LEADER method. Namely, for the 2014-2020 funding period, the applicability of the LEADER approach was further extended as Community-Led Local Development (CLLD) in rural, fisheries and urban areas. CLLD was proposed by the European Commission in order to achieve multiplier effects in combining actions and resources from several Structural Funds simultaneously.

⁷ <https://bit.ly/3m8biQZ>

⁸ RIS3 stands for Research and Innovation Strategies for Smart Specialisation, while S4 is the name of Slovenia's Smart Specialisation Strategy; <https://bit.ly/3ma9M0r>

government and other relevant stakeholders (e.g. NGOs). S4 priorities were structured around three pillars⁹, where bioeconomy principles can be found in four (of nine) priority areas. S4 has shown positive results mainly in significant improvement of the innovation ecosystem. Namely the most evident effects of the RIS 3 - S4 are:

1. Slovenia has got for the first time in history, an institutionalized system of prioritization that is systemically supported;
2. Priorities have been in practice supported by measures which are significantly more targeted, comprehensive and adapted;
3. Slovenia introduced a new model of development cooperation among the key stakeholders, which has been used in most successful regions and countries in the world and has already been recognized as a good practice within the EU;
4. Based on the RIS 3 - S4 Slovenia has managed to better integrate into the international development and innovation networks, platforms and consortia.

Currently, the S4 has been under revision and the basic foundations are planned to be published by the end of 2020, however, the focus areas in the new S4 are supposed to remain the same. According to the optimistic variant, for the new financial period, S4 will be adopted by the Government of the Republic of Slovenia in the first half of 2021.

4. Consequences for GoDanuBio

Since the two very important strategic documents (the Strategic Plan for the implementation of the Common Agricultural Policy and Smart Specialisation Strategy) have currently been under development, it will be crucial to follow the steps and results of this process in order to identify the stakeholders and measures relevant for GoDanuBio and embed them in the project activities. Especially, it will be crucial to find out how the Strategic Plan for the implementation of the Common Agricultural Policy addresses the demographic challenges related to rural areas and how could the bioeconomy principles contribute to tackling these challenges through participative multi-level governance concepts.

The findings from previous chapter will help with identifying which actors and strategies are currently in place and should be embedded in developing new demographic strategies. These findings will be used in further steps of implementation of GoDanuBio. It will help us frame the deliverable D.T1.2.1 which will include the development of a regional stakeholder report. We will learn from the outcomes of the above mentioned projects to identify governance structures and network of stakeholders, their strengths, weaknesses and missing links in participative governance.

Some of the activities of GoDanuBio until 2022 will help to communicate the concept of bioeconomy (as mentioned in documents above) at local level or gaining new regional stakeholders for the cause of bioeconomy. The findings of previous chapter will also help with delivering activities of WP2 (for example identifying the role of clusters in the bioeconomisation process), WP3 (policy processes) and WP4 (capacity building/co-creation schemes).

⁹ Digital, Circular, (S)Industry 4.0