

D.T1.1.1.

Capitalisation of existing results

Croatia

Ministry of Economy and Sustainable Development
Croatian Wood Cluster

December 2020

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: PP12, PP11

Deliverable nr.: D.T1.1.1

Submission date: 10th December 2020

Dissemination level: Public

| Version | Date | Content | Elaborated by | Reviewed by |
|---------|------------|-------------|-------------------------------------|-----------------------------|
| 1. | 2/12/2020 | 1st draft | Helia Kovačević Grčić | Nirvana Kapitan Butković |
| 2. | 3/12/2020 | 2nd draft | Ana Dijan | Marijan Kavran |
| 3. | 8/12/2020 | 3rd draft | Helia Kovačević Grčić | Ana Dijan |
| 4. | 21/12/2020 | Final draft | Helia Kovačević Grčić, Ana Dijan | Nirvana Kapitan Butković |
| | | | | |

Table of content

| | |
|---|----|
| 1. Short description of the region and its economic situation in general..... | 4 |
| 2. Objectives and identification | 5 |
| 2.1. Capitalisation of EU-funded projects..... | 5 |
| 2.2. Capitalisation of macroregional documents | 6 |
| 3. Findings | 8 |
| 3.1. Demographic change | 8 |
| 3.2. Bioeconomy..... | 9 |
| 3.3. Rural development..... | 10 |
| 4. Consequences for GoDanuBio | 11 |

Disclaimer:

The information and perspectives set out in this document are those of the authors and do not necessarily reflect the official opinion of the European Commission. 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.

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

Location: Southeastern Europe, bordering the Adriatic Sea on the east (with Italy), surrounded in the North with Slovenia and Hungary, in West with Serbia and Southwest with Bosnia and Herzegovina

Area (square km): total: 56,594 km² (land: 55,974 km², water: 620 km², country comparison to the world: 128)

Terrain: geographically diverse; flat plains along Hungarian border, low mountains and highlands near Adriatic coastline and islands

Natural resources: oil, some coal, bauxite, low-grade iron ore, calcium, gypsum, natural asphalt, silica, mica, clays, salt, hydropower

Land use: agricultural land: 23.7%, arable land 16%; permanent crops 1.5%; permanent pasture 6.2%, forest: 34.4%, other: 41.9% (2011 est.)

Population (million): 4,067 (2019), country comparison to the world: 127. Over 60% lives in rural areas, which is relatively high compared to the rest of Europe. Only close to 20% lives in urban areas, which is relatively high considering that only 1% of the land area is predominantly urban. The population density is also lower than the European average. **Population – distribution** more of the population lives in the northern half of the country, with approximately a quarter of the populace residing in and around the capital of Zagreb; many of the islands are sparsely populated

Largest urban centers: Zagreb, Split, Rijeka, Osijek, Zadar with 0.79; 0.18; 0.13; 0.11 and 0.08 million inhabitants¹.

GDP (million EUR, current prices): 54.270 (2019), dropping at the sharpest pace in more than 25 years. This year before rebounding solidly in 2021, on the back of reviving foreign demand and strengthening domestic activity. That said, the uncertain trajectory of the pandemic and its impact on the tourism industry, which also faces stronger competition from other destinations, poses a key risk to the outlook

GDP per capita (in EUR): 13.344 (2019) below the European average, the second most developed economy of the Balkan region, after Slovenia. The World Bank estimated that 19.4% of the population was living below the national poverty line in 2017 (latest data available).

Exports of goods and services (as of % GDP): 52,0 (2019). The export value expressed in €/capita is still relatively low.

General government debt (as % of GDP): 72,8 (2019). Despite increased expenditures and a tangible reduction in tax revenues due to reforms in VAT and personal income tax systems, the general government budget is expected to remain close to balance in the foreseeable future, reaching -0.3% in 2020 and -0.2% in 2021. Inflation declined from 1.5% in 2018 to 0.8% in 2019, mostly due to the aforementioned VAT reduction, and should slightly increase this year (at around 1.3%) and the next one (at 1.2%)².

Gross public debt (%of GDP): 72,8 (2019) should maintain a downward trend in the next few years (68.3% in 2020 and 65.5% in 2021, IMF), on the back of nominal GDP growth and fiscal surpluses.

Unemployment rate (ILO, persons above 15 years of age): 6,6, dropped to 7.8% in 2019 (from 9.9% in 2018), its lowest point since 2000. However, the IMF expects this trend to be heavily affected by the negative economic impact of the COVID-19 pandemic, the rate being currently estimated to increase to 11.5% in 2020 and decrease to 8% in 2021.

¹ <https://celebio.eu/wp-content/uploads/2020/07/Croatia-Country-Report.pdf>

² <https://www.nordeatrade.com/en/explore-new-market/croatia/economical-context>

Economic sectors (%GDP) Agriculture - 2.78 percent, industry - 20.17, the services sector- 59.09 (2019).³ Forest area makes up 40% of Croatia's land area, mostly located in the central and northern parts of the country. Agricultural land makes up 27% of the land area, mostly in the southern parts with a typical Mediterranean agriculture and on the North, grain and industrial crops (sugar beet, oil crops) and vineyard.⁴

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](https://lifterproject.eu/) 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. Capitalisation of EU-funded projects

2.1.1. DanuBioValNet (Cross-clustering partnership for boosting eco-innovation by developing a joint bio-based value-added network for the Danube region)

- Coordinator: BIOPRO Baden-Württemberg - Interreg-Project (01/01/2017-30/06/2019)
- Main objective: the development of new methods, strategies and tools to connect the Danube actors in a bio-based industry with focus on three different value chains: Phytopharma, Ecoconstruction and bio-based packaging.
- Measures related to demographic change, circular bioeconomy and/or rural development: DanuBioValNet is mainly related to circular bioeconomy, since it is focused on 3 Value Chains. The

³ <https://www.hnb.hr/en/statistics/main-macroeconomic-indicators>

⁴ <https://celebio.eu/wp-content/uploads/2020/07/Croatia-Country-Report.pdf>

drafted cluster policy strategy, if implemented, should have a positive impact on rural development and help to tackle demographic change issues in the Danube macroregion.

- Ministry of Economy, Entrepreneurship and Crafts of the Republic of Croatia took part in the project
- Results to be capitalized in Croatia: a) Joint Bio-Based Industry Cluster Policy Strategy (June 2019); b) Common Action Plan towards better framework conditions for bio-based eco-innovation in Danube region (June 2019); c) Cluster Tool Box “New Cluster Services to support SMEs in bio-based industries” (December 2018)

2.1.2. FORESDA (Forest-based Cross-sectoral value chains fostering Innovation and Competitiveness in the Danube region)

- Coordinator: CyberForum e.V. - Interreg-Project (01/01/2017-30/06/2019), Project co-funded by the European Union Funds (ERDF and IPA) 6
- Main objective: to tackle the transformation of the forest-based industries into attractive and sustainable industry sectors and to develop a cross-sectoral approach for developing innovative products and services. - Measures related to demographic change, circular bioeconomy and/or rural development: In the fields of circular bioeconomy, activities for further improvement of the forest-based industry sector on federal state and national levels were implemented. In the field of demographic change and rural development, it was worked out that it is important to raise awareness via regional development agencies to tackle brain drain in rural areas and that models have to be created for SMEs on how to attract young people.
- Results to be capitalised in Croatia: a) Transnational Strategy on Cross-sectoral Level (September 2018)

2.1.3. Made in Danube project (Transnational Cooperation to transform knowledge into marketable products and services for the Danubian sustainable society of tomorrow)

- Coordinator: Steinbeis Innovation GmbH, Steinbeis-Europe-Center (01/01/2017 -30/06/2019)
- Main objective/s: the project aims to improve the framework conditions for this collaboration process in order to transform ideas into marketable products and services by making local scientific knowledge available at transnational level in the field of bioeconomy.
- Measures related to demographic change, circular bioeconomy and/or rural development: in the project 3 domains (smart agriculture, sustainable forestry and bioenergy) were addressed, which are priorities identified for the Danube territory by the JRC. Pilot actions benchmarked the developed instruments in different regional environments, which are representative for other Danube regions and relevant for the entire area.

Results to be capitalized in Croatia: 3 viable innovation hubs in bioeconomy and involving companies and building a total of 15 sustainable bioeconomy-based innovation partnerships involving 40 regional companies. Made in Danube will not only contribute to the competitiveness of SMEs in the South-Eastern Danube Region but also generate significant change for the entire area by supporting regional Smart Specialization Strategies.

2.2. Capitalisation of macroregional documents

2.2.1. “European Commission Report on the Impact of Demographic Change” (2020), European Commission; Within the report, a list of the drivers of demographic change in Europe (longer life expectancy, fewer births, an ageing population, smaller households, a more mobile Europe and a changing population size) is presented and the influence on the quality of life in a region (natural environment, access to services, availability and quality of infrastructure) is analysed. The report presents measures related to demographic change, but also indirectly in relation to rural development, since the two topics are directly linked.

2.2.2. “EUSDR Revised Action Plan - Commission Staff working document” (2020), European Commission. The EUSDR Action Plan is intended to help to exploit the full potential of the Danube area. Its revision has three objectives. First, there is a need to update it to take account of new developments. Second, there is consensus to make the new action plan into a document that provides more strategic guidelines for the implementation of EUSDR. The third objective is to make the action plan of the European Union Special Representatives (EUSR)⁵ more compatible with other programmes and, above all, financial instruments.

2.2.3. “How to use RDPs to support rural bioeconomy?” (2019), European Network for Rural Development. This document summarizes the recommendations developed by the thematic group (TG) on "Mainstreaming the Bioeconomy" on the use of rural development programs (RDPs) to support the development of sustainable bioeconomy value chains in rural areas. The work of this TG is rooted in the use of the EU's Common Agricultural Policy (CAP) and one of its funding instruments, the European Agricultural Fund for Rural Development (EAFRD). The different elements of rural value chains that can benefit from the development of the bioeconomy are identified.

2.2.4. BIOEAST Vision Paper” (2018), BIOEAST Initiative

The BIOEAST initiative is a cornerstone for the promotion and deployment of circular bioeconomy in Central and Eastern European countries. The initiative is politically seconded by the Visegrad Presidencies, follows a macroregional approach and is a strong driver on the strategic research and innovation agendas of the participating countries. This vision paper has its focus on circular bioeconomy, but it also presents an action plan that serves as a boost for rural areas, so enhancing sustainable rural development. For the rural areas at regional level, potential new value chains should be mapped and a sustainable biorefinery concept has to be launched at small and big scale.

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

The thematic focus of the report is circular bioeconomy. In European countries and regions, no clear territorial patterns for bioeconomy Research & Innovation (R&I) emerge and only some trends can be identified in the area of agro-food. A focus on biorefinery and biochemicals is mostly located in countries that are not in Danube region and, most frequently, the set priorities are on bioenergy and food. Only low levels of specialization according to bioeconomy value chain approaches are reached in European regions and a lot of regions have different bioeconomy value chain approaches. The report presents a Bioeconomy R&I maturity index for different regions.

⁵ https://eeas.europa.eu/headquarters/headquarters-homepage_en/3606/EU%20Special%20Representatives

3. Findings

The findings section has been collated in three thematic fields that are considered crucial for the deployment of the bioeconomy at regional and local level: demographic change, circular bioeconomy and rural development.

3.1. Demographic change

The impact that demographic change has on EU society also affects the Republic of Croatia (RoC) to a great extent, in social and economic dimensions. Long-term process of negative demographic movements is reflected in diverse segments, first and foremost in the decrease of birth rate, ageing of population and emigration of citizens. Recently, the COVID-19 pandemic, social distance and lockdown, that have affected the global society, especially the elderly being the most vulnerable, will most likely shatter the demographic situation in Croatia. Based on projections, by 2020 every 5th citizen and by 2030 every 4th citizen will be in the age of 65 or more (Faculty of Economics and Business, Department of Demographics). Demographic ageing and lower fertility lead to lower productivity, consumption and economic growth, more expensive elderly care and increased expenses for pension and health system. According to information from the Central State Office for demographics and youth, the Strategy of demographic revitalization of the RoC is under preparation, for the first time after 13 years. The Council for demographic revitalization has been founded. Some ongoing demographic measures, to name just a few, are as follows: subsidies for housing loans for the young, capital investments, prolonged working hours and additional programs in nursery schools, parental remuneration for the next 6 months of maternity leave, personal deduction on the salary for the 2nd, 3rd child or more, co-financing school textbooks or meals, scholarships for studying etc. To sum up, without a combination of immigration policy on a local and pro-natality policy on a state level as a solution for depopulation and the lack of work force, the decrease in the number of inhabitants is inevitable.

The impact of Europe's demographic change ("**European Commission Report on the Impact of Demographic Change**", 2020) has implications also for the Croatian budget projections, housing and infrastructure needs, availability and quality of services. Covid-19 recovery measures taken up by the EC through various initiatives and financial support will speed up demographic recovery of the Croatian territory. Investment in digitalization will boost productivity and economic growth, thus reducing generation gaps. The National Strategy for the Digitalization of the Croatian Economy is in the final phase of drafting. The Strategy e-Croatia 2020 (2017) is a strategic document composed with the intention to enhance the quality of life of citizens in the RoC by raising the competitiveness of economy with the help of information and communications technology using high quality electronic public services. The purpose of the Strategy is to create strategic framework for a coherent, logical and efficient information system of the state public administration.

All approaches of the EC to tackle the implications of demographic change and to provide guidance in shaping the transition towards a more human, socially inclusive society need an active participation of Croatian politics, economy, and research stakeholders to reduce negative trends of Croatian depopulation processes for a common interest on a European and Croatian scale.

3.2. Bioeconomy

Although the current bio-based industry is relatively small and there is no national bioeconomy strategy, Croatia has great potential to foster bioeconomy development and is already engaged in bioeconomy activities. With a strong foothold in wood processing and food and beverage industry, there is room for significant innovation activities and new business models.

It is important to begin the process of preparation of a Bioeconomy strategy, as an umbrella document and a national framework to bring consistency and structure along a common vision and across multiple stakeholders and sectors, both public and private, as the path for a sustainable bioeconomy.

In order to utilize the opportunities and potentials available in the country, the Ministry of Agriculture took the lead in the development of a Bioeconomy Strategy and Action Plan with the plan to start drafting those documents in 2021. These documents will encompass the regulations, strategic goals and priorities that are already existing in different national strategies, taking into account the financing aspect, which is currently insufficiently keeping up with the requirements of bioeconomy development.

Regarding the **DaNuBioValnet** project, one of the project results (Joint Bio-Based Industry Cluster Policy Strategy), indirectly provided incentive for forming the Committee for drafting the Bioeconomy Strategy in Croatia. Croatian project partners were invited into this committee and had an opportunity to present the results of this project.

Bioeconomy priorities are predominantly centered on biomass supply and waste. Due to lack of knowledge on bioeconomy principles and its possibilities, a significant amount of waste ends up in landfills and unused. Biomass from agricultural sector has a large potential for future development (primary and secondary residues and unused lands), since agro-food is the broad thematic focus area. The structure of the total turnover of the bioeconomy indicates low productivity of bio-based sectors. There are different possible funding schemes, but the most significant problems are slowness of the system and unrealistic goals. A set of factors identified that guide the choice of investing in bio-based economy: supply price and quality, regulations/legislation, financing, taxes and tariffs, by-product valorization (heat, CO₂), infrastructure, logistics, technology and sustainability. Given its quality agricultural land, forest, fresh water and marine resources, Croatia has a significant potential to transition of existing value chains into sustainable and circular bio-economies. Moreover, recent technological developments are creating increasing opportunities to use waste and residues from agriculture, fishery, aquaculture and forestry value chains to raise productivity, lower costs, reduce risks, produce value added products, and develop new markets.

Regarding the **Made in Danube** project results to be capitalized in Croatia, the Competence Center for the Wood Sector has been created connecting stakeholders from the wood sector from the area of Vukovar-Srijem County (VSC) and the Danube Region, through the implementation of the Local Action Plan. This generated further outputs in the form of various research, feasibility studies, marketing plans, designs. 5 Innovation Partnership Agreements were signed between wood stakeholders sector from the area of VSC and the Danube region and 16 Cooperation Agreements, which open the opportunity for expansion of cooperation and transfer of knowledge and technology in this area. This new knowledge will provide a solid base for future Bioeconomy Strategy and Action Plan.

Developing a cohesive national bioeconomy strategy, which is still not in place in Croatia, taking into account **“Bioeconomy development in EU Regions” (2017)**, European Commission, requires the cooperation between different sectors, coordination between diverse stakeholders and interlinkages across regions. The impact of bioeconomy policies on EU and national level including investments to improve the efficiency of production, reduce energy consumption and assessment of environmental implication is yet to be seen.

3.3. Rural development

Croatia's land area is classified as predominantly rural, considerably more than the EU-27 average. As regards strategic and planning documents at the local level, financial and administrative capacities of the local self-government units vary greatly.

According to a common vision, increased quantity of nutritious and high-quality food with competitive prices will be produced, natural resources will be managed sustainably in variable climate conditions, the quality of life will be improved and employment increased in rural areas. The importance of increased agricultural production and need for creating a growth model for agricultural-food sector that contributes to balanced territorial development has been recognised (Draft Strategy of Agriculture 2020-2030). Increase of added value of the sector will result in opening new workplaces in rural areas, increased incomes and diversification of Croatian products. It is necessary to harmonise investments in basic public services in rural areas (i.e. biologic waste management, vocational education, service to enterprises, improvement of digital technology), investment in agricultural research directed to finding solutions for sustainable food production and processing and assessment of biomass potential in the service of circular bioeconomy and their alignment with goals of bioeconomy, taking into account the concept of 'smart villages'.

The objective of the EU to "encourage the development of sustainable bioeconomy value chains in rural areas" (**“How to use RDPs to support rural bioeconomy?”**, 2019) is also partially taken up in the Rural Development Programme of the RoC for the period 2014-2020, which envisages specific agri-environmental measures/incentives that can make a significant contribution to the production of renewable energy from biomass and preservation of natural resources. It tackles the problem of lack of general information of the rural communities about the importance and benefits of sustainable management of ecosystems in agriculture and forestry and preservation and restoration of high levels of biodiversity. Fostering cooperation between the research system and rural economy will facilitate the supply and use of renewable sources of energy, of by products, wastes, residues and other non-food raw material for the purposes of bioeconomy.

The deliverables of all aforementioned projects, depending on the maturity and complexity of a project, will be very beneficial for further interventions in Croatian bioeconomy and contribute to expand knowledge and experience level in this area. Regardless of the size of contribution, they will definitely increase overall competency levels and interaction among project partners and stakeholders.

Chapter 4: Consequences for GoDanuBio

All previously implemented projects, such as DanuBioValNet (Joint BioBased Cluster Policy Strategy, 2019) and FORESDA (Transnational strategy on Cross-sectoral level, 2018), as well as the macroregional document of the EU Commission "Bioeconomy development in EU regions" (2017) will serve as a basis for the implementation of the GoDanuBio project. The stakeholders identified in those projects, as well as implemented activities and documents, can be used by the national authorities in forming of the working group and planning of the actions that will lead towards development of the national bioeconomy strategy.

In that process, it is recommended that the accents are put on the following challenges/consequences for Croatia:

- At the moment, there is no national cluster strategy. Bio-based industries are still not managed as a cluster of industries which will contribute to the development of bio-based industries.
- The Transnational Strategy (FORESDA) could be used as a basis to create the national strategy on cross-sectoral cooperation, which will be a supportive policy document to develop bio-based economy.
- The current S3 strategy ends in 2020 so it is recommended that during the development of the S3 strategy for the upcoming period, the Made in Danube project results are considered.
- Some of the implemented activities and delivered outputs are tackling indirectly the topics of demographic changes. It is recommended to include those project outcomes in improving of the ecosystems and regional strategies.

The interaction of the topics and Croatian project partners on those and other EU projects leads therefore to the proposal to involve them into the working group or counseling body which will work on the development of the Croatian Bioeconomy Strategy. Their experience and knowledge on the topic, as well as experience gathered through the projects' implementation could be of significant importance in the process of development of a complex document such as the national bioeconomy strategy.

Accordingly, all activities that will be implemented within GoDanuBio project in Croatia should consider participative and holistic approach to be able to tackle the ongoing demographic changes that are mirrored mostly in emigration of the active labour force. The new and improved policies, based on the before mentioned project outcomes should result with new forms of rural development and cooperation models among circular bioeconomy stakeholders, that will motivate people to stay in Croatia by offering them good employment opportunities at local, regional and national level.