

D T.2.1.1 Missing Links for Regional Circular Bioeconomies Republic of Croatia

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1. Introduction

Results of the first output from the GoDanuBio project (“Analysis of Circular Bioeconomy Framework Conditions (WP T1)”) provide an overview of current strategies and governance structures in the Danube macro-region and offer a hint on the existing gaps of circular bioeconomy, in terms of concentration (critical mass of relevant actors), capacity (skills), conditions (rules, legislation procedures) and culture (social acceptance and impact of circular-bioeconomy approaches). The outputs from WP T1 should serve as a basis for the identification of actors that are currently neglected in the bioeconomisation of the respective regions.

2. Methodology

The aim of this report is to create an overview of actors that are neglected in the circular bioeconomy so far but are needed to co-create sustainable development models. To also serve as inspiration source, good practice examples (projects/initiatives/business models) that already exist in individual regions of GoDanuBio or outside the consortium area were collected.

The methodology encompassed the following steps:

Step 1. Analysis of the regional reports T.1.2.1 Development of regional stakeholder reports

Each region has identified the existing actors involved in the bioeconomisation process. They have been divided into 4 categories:

- Industry (chambers of commerce, clusters, cluster organisations, enterprises, professional associations)
- Academia & Research (universities, research institutes, competence centers)
- Public (state agencies, local government, regional/central government, regional development agencies)
- Society (NGOs, informal civil organisations)

These represent the maximal typology of actors to be considered in the elaboration of the Integration Plan for prospective actors for developing a sustainable and holistic circular economy (T2.1).

Some categories of actors are currently involved in the bioeconomisation process in all regions (e.g., universities), others are not and hence the regional gaps occur.

The current situation and the pre-identified gaps are shown in a google drive shared document (Annex 1)

Step 2. Identification of good practice examples

When adding a missing actor in the list, the partners have relied on the shared experience from other partners that have identified that specific missing actor.

The following table shows the shared experience for Republic of Croatia.

Type of stakeholder	Pre identified actors	Examples/Type of cooperation
Industry		
Chamber of commerce	Agriculture, Economy, Forestry and Wood processing Industry Engineers, Civil Engineers, Architects	-Vision and implementation plan of strategic transformation and agriculture and rural area Croatia 2020-2030; -Participation in some Interreg projects; -New national S3 strategy 2021-2029.
Clusters	Wood, Intelligent energy, Food	-Vision and implementation plan of strategic transformation and agriculture and rural area Croatia 2020-2030; -Participation in some Interreg projects -New national S3 strategy 2021-2029
Cluster organisations		

Enterprises	Private producers	-Strategy for energy development of the Republic of Croatia until 2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029.
Professional associations	Biomass, Producers organisations	-Vision and implementation plan of strategic transformation and agriculture and rural area Croatia 2020-2030; -Participation in some Interreg projects -New national S3 strategy 2021-2029
Universities	Agriculture, Food Technology and Biotechnology, Civil Engineering, Textiles Forestry and Wood Technology., Chemical Engineering and Technology, Pharmacy and Biochemistry	-Interreg projects, Horizon projects, Strategy for energy; -Development of the Republic of Croatia until 2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029.
Research institutes	Forest, Energy, Development and International Relations,	-Interreg projects, Horizon projects, Strategy for energy; -Development of the Republic of Croatia until 2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029.
Competence centres		
Public		
State Agencies	Agency for Agriculture and Food, Agency for SMEs, Energy and Efficiency Fund	-Interreg projects, Horizon projects, Strategy for energy; -Development of the Republic of Croatia until 2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029.
Local Government	Association of Cities, Association of Counties	Interreg projects, Horizon projects, Strategy for energy; -Development of the Republic of Croatia until 2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029
Regional/Central Government	Ministries: for Agriculture, Construction, Economy, Science, County (all 21),	Interreg projects, Horizon projects, Strategy for energy; -Development of the Republic of Croatia until

	Croatian Waters, Croatian Environmental and Nature Agency, Fund for Environmental Protection and Energy Efficiency, Ministry of Economy and Sustainable Development	2030 with a view of 2050; -Draft National Strategic Plan of Common Agriculture Policy (CAP) 2023-2027; -New national S3 strategy 2021-2029.
Regional Development Agencies		
Society		
NGOs	LEADER/LAGs, environment and sustainable development NGOs	Mostly environmental topics, rural and local development
Formal and informal civil organizations		Circular economy (recycle, reuse, zero-waste)

Step 3 Identification of the potential stakeholders

In Republic of Croatia the pre-identified gaps are: cluster organisations, competence centres, regional development agencies, informal civil organisations as shown in Annex 1 (google drive shared document). The potential stakeholders are fill in Annex 2 (google drive shared document).

Step 4 Identification of good practices

The identified good practices are listed in Chapter 4 and will be further described in a dedicated template which will be integrated into the Best Practice Brochure (D.T2.1.2).

3. Missing Actors

Stakeholder group	Industry
Stakeholder subgroup	cluster organisation
Position in the network	Clusters could be one of the most important tools to facilitate the development of bio-based products. They provide the easiest access to information and establishment of cross-sectoral as well as cross-regional and transnational collaboration, which are the three most often used approaches in the development of bio-based products. Clusters offer support related to the standards and regulation which are often among main obstacles in the process of development of new bio-based products. While there is currently no cluster programme in place in Croatia, setting up a support to clusters will be encouraged in the future in different national policies. Stronger coordination would be established between the scientific research sector, clusters and the participants in the implementation of the national innovation policy. It is envisaged that business internationalization and territorial branding would strengthen the internal growth potentials of Croatian regions/counties and enable the introduction of structural changes in the economy and industrial transition of Croatian regions.
Importance for GoDanuBio	Clusters can disseminate information about the project and act as hubs to connect industries, R&D community and financial sector on different bioeconomy projects.

Stakeholder group	Academia & Research
Stakeholder subgroup	Competence centres
Position in the network	<p>Competence centres are creators of a stimulating, innovative, technological and economic system whose activities support the development of innovative and competitive entrepreneurship at the local and regional level.</p> <p>They represent a type of research infrastructure necessary for the development of an economy based on knowledge, innovation and new technologies that will specialize in supporting the business sector in research and development activities and the commercialization of innovations.</p> <p>The purpose of the centers is to provide support in strengthening the capacity of the business sector (mainly SMEs that lack internal capacity for research and development) to implement RDI projects.</p> <p>Economic and social goals of the centres are: increase production and employment, increase innovation, improve quality and productivity, better use of productivity potentials, improve access to new technologies, better capacity utilisation.</p>

	<p>Competence centre Ltd. for research and development, Vinkovci</p> <p>Vision: Promote and support bioeconomy – smart and sustainable use of natural resources.</p> <p>Mission: Strengthen innovation potential for an advanced, competitive and climate-neutral economy.</p>
Importance for GoDanuBio	GoDanuBio results could be directly transferred to SMEs and local NGOs

Stakeholder group	Public
Stakeholder subgroup	Regional Development agencies
Position in the network	<p>Activities: - strategic planning as a precondition for directed economic development, agriculture and rural development, and human resources development.</p> <ul style="list-style-type: none"> -Initiation and implementation of strategic projects -Assistance in the identification, development and implementation of projects co-financed from national and EU programs -Preparation and implementation of EU projects related to our areas of work -Organization and implementation of education for the public and private sector -Informing about available support and programs (including EU funds) for entrepreneurs and advising on project proposals -harmonization of the activities of local self-government units from the area of the county related to regional development
Importance for GoDanuBio	Raising awareness of the importance of bioeconomy for local area to all types of stakeholders

Stakeholder group	Society
Stakeholder subgroup	Formal and informal civil organizations
Position in the network	<p>Activities:</p> <ul style="list-style-type: none"> - publicity of activities, - cooperation and dialogue of all stakeholders in the community, - networking, partnership and cross-sectoral cooperation. -encouraging local communities to be proactive through the implementation of designed social programs, fostering social innovations, encouraging public participation in environmental decision-making - contribute to solving the problems of a particular local community -protection of the environment and nature and encouraging development towards a low-carbon society, guided by the principles of systemic change.

	-participation in the creation, implementation and monitoring of public policies that affect the environment and nature
Importance for GoDanuBio	Increase awareness of the importance of bioeconomy and environmental protection to general public, on national and local level, improving 'Zero waste' society based on prevention, reuse and sustainable waste management, dissemination of project results

4. Good Practice Examples

4.1 Agroproteinka

Agroproteinka is a modern Croatian company and a market leader in the ecological disposal of by-products of animal origin and biodegradable waste. In three separate plants, the company processes animal and plant by-products, biodegradable and cooking oil waste. By processing by-products, the company obtains raw materials for the production of pet food and raw materials for biodiesel or energy sources.

4.2 Networked wool

Wool is a valuable and neglected raw material. On the island of Cres, about 10 tons of wool are cut and thrown away every year, thus becoming an environmental problem. Therefore, the goal of the project "Networked wool" (<http://ruta-cres.hr/>) is education on the issue of throwing wool and processing methods through creative workshops on the topic of wool recycling. The direct beneficiaries of this project are children and young people who are educated by the Ruta Group through creative workshops on: the problem of throwing wool, its value, the technique of processing wool by felting, recycling old nets and introduces the traditional story of sheep and fishing. The project is co-financed by INA-medium-sized European oil company.

4.3 Eko-kotor

The EKO Kotor biogas plant was put into operation in 2018 and produces one megawatt of electricity. Until now, manure was used for the production of biogas, which was delivered to EKO Kotor by Međimurje farmers with whom it has a contract, and soon the company will also use those from its poultry houses.

In addition, the use of this raw material in biogas production significantly reduces CO₂ emissions into the environment. During these processes a high quality mineral fertilizer is produced that is used to treat crops and contains less nitrates than conventional fertilizers, which makes it less polluting. Thus, EKO Kotor is a unique system in which the entire production is environmentally friendly: manure is converted into biogas, energy is sold on the market, and the heat developed during engine cooling is used to heat poultry houses. 