

D T.2.1.1 Missing Links for Regional Circular Bioeconomies Baden-Württemberg



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Contents

1. Introduction	4
2. Methodology	4
3. Missing Actors	8
4. Good Practice Examples	10

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1. Introduction

The 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 "D.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 (Internal document)

Step 2. Identification of good practice examples

The following table shows the existing types of cooperation of bioeconomy actors in Baden-Württemberg.

Type of stakeholder	Pre identified actors	Examples /Type of cooperation
Industry		
Chamber of Commerce		
Clusters	Cluster Initiatives (agriculture and forestry, automotive, energy, environment)	Clusters in the field of wood are very strong in Baden-Württemberg: they network representatives of the forestry and timber industry, municipalities and private individuals (e.g. Holzkette Schwarzwald e.V., proHolzBW GmbH). With the Technology Centre Horb GmbH&Co.KG and its Innonet Plastics cluster, there is also networking of clusters via bioeconomy-related projects, e.g. the "AlpLinkBioEco" Interreg Alpine Space project.

Cluster Organisations	ClusterAgency Baden-Württemberg (CABW)	In 2014, the CABW (partner of GoDanuBio) was founded. The agency's goal is to boost cluster development in the state's strategic growth areas. In doing so, the CABW is very active: it is training the cluster management, so they can offer their members even more demand-oriented services in the future. In addition, CABW supports the Baden-Württemberg Ministry of Economic Affairs, Labour and Tourism in implementing the state's cluster policy goals. It is thus a service provider for the clusters in Baden-Württemberg and advises the cluster management of the cluster initiatives on various topics regarding the innovation development of the region. Since the beginning of 2018, the organization also supports the economic development agencies on regional innovation developments.
Enterprises	Large industry (automotive; chemistry and raw materials; energy and environment; engineering and technology; pharma and health / phytopharma); SMEs (chemistry and raw materials; energy and environment; engineering and technology; pharma and health / phytopharma; R&D; (textile); Start-ups; Private producers (agriculture, energy, forestry); Consulting	There are already a number of companies that are dedicated to bioeconomy topics. They are connected with other stakeholders via projects and clusters. Some also work together with universities and research institutions. Examples are: 1) SME: Tecnaro GmbH ¹ , development, production and distribution of thermoplastic compounds, composites and blends based on renewable raw materials. 2) Large industry: fischer GmbH ² . Offering the first universal dowel made from renewable raw materials, with a regenerative material share of 50%. 3) Start-ups like Spooontainable ³ - invented an edible spoon for ice cream from 100% natural ingredients.
Professional Associations	Farmers associations	Mostly directly connected to its associated members.

¹ <https://www.tecnaro.de>

² <https://www.fischer.de/de-de/>

³ <https://spooontainable.com>

Academia & Research		
Universities	Applied sciences, general	Connecting students with other stakeholders: the BBWForWerts graduate programme ⁴ is an interdisciplinary graduate programme in the field of bioeconomy. Funding for this comes from the Ministry of Science. Participants can take part in summer schools, workshops, excursions, etc. and are thus expected to pursue the interdisciplinary approach. At the University of Hohenheim there is the "Research Centre for Bioeconomy" ⁵ . Here, the interdisciplinary topic is to be implemented and established at the university. In doing so, researchers are supported in projects and the university is networked with many central actors both nationally and internationally. The research centre also offers advice, project coordination and support in finding project partners and writing proposals.
Research Institutes	Fraunhofer-Gesellschaft; Federal; Private; State	There are 24 research institutions with activities in the area of bioeconomy ⁶ . These include non-university research institutes, research campuses, colleges and universities. Examples of connection with other stakeholders are mostly clusters (Allianz Faserbasierte Werkstoffe Baden-Württemberg e.V., BioRegioSTERN), projects (BioKompass), or general cooperation (e.g. via funding programmes from ministries, like ERDF funding) and workshops.
Competence Centres	Bioeconomy-related stakeholders	On the Swabian Alb, the Technikum Laubholz GmbH is currently under development. It will be a research campus that aims to develop climate-friendly and sustainable materials from hardwood. It will cooperate with important research institutions (e.g. DITF Denkendorf, Hochschule Aalen), but also with partners from industry (bringing together basic and applied research).
Public		
State Agencies	BIOPRO Baden-Württemberg GmbH	The bioeconomy is one of the main focuses of BIOPRO Baden-Württemberg GmbH, commissioned by the regional government. Networking with other players takes place through projects (GoDanuBio, ARDIA-Net, AlpLinkBioEco, Smart SMEs, CirculAlps, DanuBioValNet), and through the BIC - Bio-based Industries Consortium, where 9 SMEs from Baden-Württemberg are represented by BIOPRO. In addition, BIOPRO is in close contact with the ministries and participated, for

⁴ <https://biooekonomie-bw.uni-hohenheim.de/bbwforwerts-strategy>, last accessed 29.10.2021

⁵ <https://rc-bioeconomy.uni-hohenheim.de>, last accessed 29.10.2021

⁶ <https://www.biooekonomie-bw.de/datenbank/forschung>, last accessed 29.10.2021

		example, in the creation and implementation of the bioeconomy strategy. BIOPRO has a broad network of stakeholders and regularly brings them together, e.g., through events.
Local Government	City of Sigmaringen, City of Ulm, City of Constance	Example: City of Sigmaringen. As a municipality is very active in the field of bioeconomy, e.g. in various projects (GoDanuBio, AlpBioEco, Allthings.bioPRO).
Regional/Central Government	Ministries for Food & Rural Affairs, Environment, Climate and Energy, and Economic Affairs	The ministries in Baden-Württemberg have the bioeconomy on their radar. For example, the state strategy "Sustainable Bioeconomy for Baden-Württemberg" has been in place since 2019 from the Ministry of the Environment, Climate and Energy Sector and the Ministry of Food, Rural Affairs and Consumer Protection. The strategy is implemented through various funding programmes (e.g. Bioeconomy Innovation and Investment Programme for Rural Areas", "Sustainable Bioeconomy as an Innovation Driver for Rural Areas", network initiatives for the further development of the lead region "Sustainable Bioeconomy Baden-Württemberg"). Via these initiatives, the ministries are networked with all relevant actors.
Regional Development Agencies		Projects, cooperation, funding
Society		
NGOs		NGOs are actual strongly connected to interested citizens; they inform and consult. By pooling civil voices, NGOs often find a hearing, including with government institutions (e.g., commenting on decisions).
Informal Civil Organizations		Citizens have the opportunity to contribute with their opinions via the Baden-Württemberg participation portal. E.g. ministries respond to this with a statement. This creates direct networking and a right to have a say. Example: reorganisation of waste legislation to expand the circular economy ⁷ .

Step 3 Identification of the potential stakeholders

In Baden-Württemberg the pre-identified gaps are the chamber of commerce, as shown in Annex 1 (google drive shared document; this document is for internal use of consortium members only).

The potential stakeholders are filled out in Annex 2 (google drive shared document, this document is for internal use of consortium members only).

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).

⁷ <https://beteiligungportal.baden-wuerttemberg.de/de/mitmachen/lp-16/abfallrecht/>), last accessed 29.10.2021

3. Missing Actors

Stakeholder group	Industry
Stakeholder subgroup	Chamber of commerce
Position in the network	The various Chambers of Industry and Commerce in Baden-Württemberg are the political mouthpiece for approximately 650,000 companies ⁸ ; they are important for SMEs in the process of the transformation of a fossil-based economy to a bio/renewable-based one.
Importance for GoDanuBio	The chambers of commerce can be important for bioeconomy as multipliers. So far, the bioeconomy has been more research-driven, but now it is moving toward technology transfer and scaling up. Therefore, they are particularly important in multi-level governance to create links and, above all, to involve SMEs.

The following groups of actors are not missing actors per se. They are already involved in the present bioeconomy activities in Baden-Württemberg. However, this does not mean that they should not be included in the activities in the future.

Stakeholder group	Industry
Stakeholder subgroup	Cluster
Position in the network	Baden-Württemberg does not have a bioeconomy cluster, but BIOPRO Baden-Württemberg, as state agency, is pooling all potential stakeholders. Furthermore, it is important to further bioeconomise existing clusters. This means to involve producers, biorefineries, and biomass-processing industries and to guarantee an intensive exchange of knowledge between stakeholders e.g., through Innonet Kunststoffe or Automotive BW. One of the central goals of the regional government is to increase the competitiveness of SMEs and make them aware and fit for the transformational process. In this context, cluster initiatives have proven to be an instrument of regional innovation policy and have therefore been supported by the regional government since 2006. It is expected that the support of the government will be kept in the future.
Importance for GoDanuBio	Cluster initiatives are important for the GoDanuBio project because cluster management is very much in touch with SMEs. However, large companies and global players (e.g. Robert Bosch GmbH, Daimler) are also present in a cluster. The goal is to network the companies, to build up cooperation and to create new innovative projects and finally new processes and products. The cluster management is the mediator between state agencies, ministries and companies.

⁸ <https://www.bw.ihk.de/bwihk>, last accessed 29.10.2021

Stakeholder group	Industry
Stakeholder subgroup	Companies and SMEs
Position in the network	It is important to mobilise especially the leading industry, e.g. those in the automotive sector. For example, in the plastics industry there is a general lack of polymer producers in Baden-Württemberg who can produce bio-based polymers. Intensive knowledge exchange and communication (e.g. for SMEs) is necessary here. However, processes are usually slowed down by fulfilling already given conditions and constraints, such as patent related issues.
Importance for GoDanuBio	E.g., for the full deployment of the bio-based plastic industry: polymers are a rather large primary energy and raw material consuming class of material, so they may play a decisive role in the successful transition from a fossil- to a bio-based industry.

Stakeholder group	Industry
Stakeholder subgroup	Professional associations
Position in the network	Farmers associations like the Bauernverband Baden-Württemberg e.V. are important in the network because they represent the start of the value chain. Producers are an elementary component for the implementation of the bioeconomy. So far, associations are sometimes still reluctant of the potential of the bioeconomy.
Importance for GoDanuBio	Primary producers are mostly missing in the bioeconomy transition Europe wide. This is not different in Baden-Württemberg, where more communication and awareness raising is needed. Some activities in WPT2 and WPT4 are planned in this regard. If the associations are convinced of the benefits of the bioeconomy, they will act as multipliers for all represented farmers.

Stakeholder group	Society
Stakeholder subgroup	NGOs
Position in the network	NGOs are important for the positioning of the civil society, but regarding bioeconomy, they may be still in the process of positioning themselves. Issues such as biodiversity loss and climate protection are highly placed in the social agenda, so it is crucial to involve the NGOs in the participatory processes. Environmental NGOs with a focus on Baden-Württemberg might be even more familiarised and aware of the bioeconomy concept, due to the existence of the regional strategy and the participation of green political party in the government.
Importance for GoDanuBio	No transformation will be possible without acceptance of the end user, namely the society and civil organisations. Above all, it is about creating a kind of awareness for this group through activities in WPT2 and WPT4.

4. Good Practice Examples

4.1. On bioeconomisation (national/ federal state level)

BMW (Federal Ministry for Economic Affairs and Energy) dialog platform and bioeconomy example regions

In order for the industry in Germany to produce in a climate-neutral and sustainable manner from now and entirely until 2045, the industrial bioeconomy in Germany must be further advanced. In order to drive forward the industrial transformation, the BMWi founded the "Industrial Bioeconomy" dialog platform in 2018. This consists of representatives from industry, associations, science, trade unions and federal and state ministries. The aim is to make Germany attractive as an industrial location in the long term and to strengthen it. Some regions in Germany, like Baden-Württemberg, are already well positioned in the field of the industrial bioeconomy - corresponding research infrastructures and value chains are well established there. Crucial for a Germany-wide strength in the field of industrial bioeconomy is a networking of the regions with each other. The so-called "Example regions" (Beispielregionen) of the industrial bioeconomy have, for example, demonstration plants that can produce in large quantities. In this way, they support companies in bringing products from the conception phase to industrial production. Also, "Example regions" usually map all elements of the value chain (e.g. agricultural production, prefabrication of raw materials, industrial processing, logistics, circular economy, co-use, training, etc.).⁹

4.2. On bioeconomisation (local/regional level)

Technology transfer and pooling competences for bioeconomic transformation in the county of Tübingen

A new innovation and technology transfer center called ITZ Plus will be built in Biberach an der Riß. It will be built in 2022, close to the University of Applied Sciences of Biberach, and funded as flagship of the RegioWIN funding programme¹⁰ (ERDF). The center should give a definitive impulse to the competitiveness of the county of Tübingen in the fields of bioeconomy and energy systems. Next to ITZ Plus a center for technology transfer on industrial bioeconomy (TIB)¹¹ will be built till December 2023; it should pool local actors related to the bioeconomy, applied sciences (due to the university), and society. There have already been awareness events, e.g. from the IHK Bodensee-Oberschwaben (local Chamber of Commerce), with attendance from BIOPRO Baden-Württemberg GmbH, in order to raise awareness on bioeconomy and facilitate networking¹². Biberach an der Riß, together with the city of Ulm are part of the so-call "Example Region IKH-Ulm", one of the regions selected in the BMWi process described in section 4.1.

4.3. On Education and Communication

Bioeconomy as a guiding theme of the University of Hohenheim in Stuttgart

The University of Hohenheim shows that bioeconomy has a high priority in Baden-Württemberg in the field of education and research. At the university, all faculties work together on the topics of bioeconomy. The Bioeconomy Office supports Hohenheim's network activities at state, federal and EU level and carries out

⁹ <https://www.bmwi.de/Redaktion/DE/Dossier/industrielle-biooekonomie-wachstum-und-innovation.html>, last accessed 26/10/2021

¹⁰ <https://wm.baden-wuerttemberg.de/de/service/presse-und-oeffentlichkeitsarbeit/pressemitteilung/pid/regiowin-2030-landesregierung-praemierte-24-leuchtturmprojekte-1/>, last accessed 26/10/2021

¹¹ <https://www.hochschule-biberach.de/transferzentrum-industrielle-biooekonomie-tib>, last accessed 28/10/2021

¹² <https://www.weingarten.ihk.de/system/vst/1954534?id=368782&terminid=631038>, last accessed 29.10.2021

projects to further develop bioeconomy teaching and transfer.¹³ Other good examples of bioeconomy at the University of Hohenheim include the following: there is a master's degree program in bioeconomy, as well as a research center. A biorefinery for the utilization of agricultural residues is being set up at a branch farm of the university. Furthermore the University of Hohenheim organizes a biannual Bioeconomy Congress¹⁴.

¹³ <https://biooekonomie.uni-hohenheim.de/>, last accessed 26/10/2021

¹⁴ <https://bioeconomy-congress.uni-hohenheim.de/startseite>, last accessed 28/10/2021