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Capitalisation of existing results

Baden-Württemberg



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

Baden-Württemberg is one of the leading economic regions in Germany and Europe and is regarded as an industrial and export-intensive state. The strengths of Baden-Württemberg's economy are its distinctive clusters for automobiles and production technology, its technological competence, and the interaction between large and medium-sized companies. The companies benefit from the excellent supply of highly qualified specialists and executives, and modern infrastructure.

The population currently stands at 11.1 million people. Every third person lives in a rural area¹. In 2020, 56.7% of the population was employed². The agricultural sector employs 1.2% of the workforce, while 31.0% work in manufacturing and 67.8% in the service sector³. The unemployment rate has increased from 3.1% in July 2019 to 4.4% in July 2020⁴, which is a direct effect of COVID-19 pandemic.

The central growth areas of the Baden-Württemberg economy offer good innovation potential. These include four fields in particular: sustainable mobility, environmental technology and resource efficiency, health and care, and IT services. There is an extensive network of research institutions and numerous clusters⁵, of which more than 10 are related to bio-based value chains⁶. In 2018, the innovation index of Baden-Württemberg was 82, which was the best result in the EU⁷. The region is quite successful in the commercialisation of bio-based industry inventions and has the highest number of overall patents per capita in Europe⁸. The digital economic index of Baden-Württemberg is 55 out of 100 possible points, whereas Germany's index at the federal level is 54⁹.

2. Objectives and identification

The main objective of this deliverable is to gain good knowledge and, when possible, capitalise results from a selected list of EU-funded projects and macroregional documents that are related with demographic change, circular bioeconomy and 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](https://www.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://lft-project.eu/), that encompasses the results of up to 34 coordination and support actions funded mainly by Horizon 2020.

¹ <https://mlr.baden-wuerttemberg.de/de/unsere-themen/laendlicher-raum/>, status as of 11/20

² <https://www.baden-wuerttemberg.de/de/unser-land/land-und-leute/bevoelkerung/>, status as of 11/20

³ <https://www.statistik-bw.de/Arbeit/Erwerbstaetige/EWTQuartal.jsp>, status as of 11/20

⁴ <https://www.baden-wuerttemberg.de/de/service/presse/pressemitteilung/pid/arbeitslosigkeit-im-land-stagniert/>, status as of 11/20

⁵ <https://www.baden-wuerttemberg.de/de/unser-land/wirtschaftsstandort/>, status as of 11/20

⁶ https://www.alpine-space.eu/projects/alplinkbioeco/cluster-mapping-report/alplinkbioeco_wp-t1.2-a2---cluster-mapping_d.t1.2.1-cluster-mapping-report-synthesis-final.pdf

⁷ <https://www.statistik-bw.de/Presse/Pressemitteilungen/2018291>

⁸ <https://www.statistik-bw.de/Presse/Pressemitteilungen/2016358>

⁹ Bertschek, I., et al. (2018). Monitoring-Report 2017 – Wirtschaft DIGITAL Baden-Württemberg. Ministerium für Wirtschaft, Arbeit und Wohnungsbau Baden-Württemberg.

As search criteria, project starting from 2016 onwards were considered and it was intended that most of the selected projects had at least one of the GoDanuBio participating countries 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, when 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 guideline to gain insight in the transnational approach aimed by the project. Complementary to this search, all partners are invited to identify and include in their reports further transregional projects and macroregional documents that are relevant for their regions in regard to the implementation of GoDanuBio.

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, Eco-construction 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 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.
- Results to be capitalized in Baden-Württemberg:
 - 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), BIOPRO did not take part

- 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 Baden-Württemberg:
 - a) [Transnational Strategy on Cross-sectoral Level](#) (September 2018)
 - b) [Local Innovation Action Plan Baden-Württemberg](#) (September 2018)

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)¹⁰ 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

¹⁰ https://eeas.europa.eu/headquarters/headquarters-homepage_en/3606/EU%20Special%20Representatives

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 Europe 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 countries¹¹. 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.

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: policies supporting transformation, bioeconomy in motion and role of clusters

3.1. Policies supporting transformation

The goals of the **“Baden-Württemberg government's sustainable bioeconomy strategy”** (2019) from the Ministry of Rural Affairs and Consumer Protection (MLR) are the development of biological concepts for the exploitation of renewable or recyclable raw materials and the development of Baden-Württemberg as a model state for sustainable and circular economies. The measure to link science, economy and society, in order to create links between value chains that did not exist

¹¹ <https://bioeast.eu/>

before, is already seconded by one of the focus areas of the “Joint BioBased Cluster Policy Strategy” (2019) of DanuBioValNet. There, Bioeconomic Distributed Manufacturing Environments (BDME) are defined¹² as value creation networks that are influenced by demand and local raw material supply. This concept embeds a local approach, where local production networks are established, and raw materials are produced regionally. In the state strategy, the regional provision of raw materials, the realisation of a large part of the value chains in rural areas (resulting in an increased share of skilled workers in rural areas) are listed as fields of action. The local approach of the value chains can make them more resilient to face situations like COVID-19 or new pandemics. Measures to ensure a secure raw material supply and to decrease environmental impact are also already addressed in the “**Baden-Württemberg state’s strategy for resources efficiency**” (2016) by the Ministry of Environment, Climate Protection and the Energy Sector, the Ministry of Finance and the Ministry of Science, Research and Arts. The circular economy, as a new form of a sustainable economy, is included in this strategy.

In a funding program that is scheduled to start in December 2020 with a feasibility study (**Sustainable Bioeconomy as an innovation driver for Rural Areas**, MLR), the efficient and sustainable production of regional biomass and intelligent raw material and material flow management will be specifically promoted based on the state strategy.

There are further results of transnational projects that might be used for regional policies and cross-regional cooperation: the Interreg Alpine Space project ARDIA-Net (2019-2022) is supporting the implementation of funding schemes related to synchronized calls. Among participants, there are several Danube regions like Baden-Württemberg, Upper Austria, and Slovenia. Clusters and SMEs will be among the potential applicants of these joint calls, so bio-based value chains that are part of the Danube macroregion could be supported by those schemes. Concerning the “Common Action Plan towards better framework conditions for bio-based eco-innovation in the Danube region”, developed by the DanuBioValNet consortium, the Interreg project AlpLinkBioEco (2018-2021) developed one of the BDME-related actions “Provide databases of locally available renewable raw and residual materials for conversion”. A value chain generator has been developed, that might be used for regional and transregional matchmaking (the deployment and impact of this tool after the end of the project in April 2021 is described in the exit strategy, recently approved by the consortium).

The Interreg DTP project FORESDA (2017-2019) and its resulting “Transnational Strategy on Cross-sectoral level” (2018) might have been taken into consideration for the drafting of the **Forest Strategy for Baden-Württemberg**, currently under development (expected for 2021, MLR). According to its current status (presented on 11/2020), it is intended to strengthen the communication between different actors. The above-mentioned sustainable and regional provision of raw materials should also be included. Furthermore, training positions and jobs in the forest sector are to be secured in order to strengthen the economy of rural areas. In this sense, FORESDA called for raising awareness via regional development agencies to tackle brain drain and to create

¹² http://www.interreg-danube.eu/uploads/media/approved_project_output/0001/33/a397b5b1df812eb8f81670245beaa3800e7fdd42.pdf, status as of 11/20

possible models for SMEs on how to attract young people to work in the forest-based industry sector.

In Baden-Württemberg, there is no demographic strategy and no strategy for rural development. However, both topics are already addressed by initiatives such as the state strategy "**Quartier 2030**", whose goal is to tackle demographic and social challenges in different neighbourhoods, also focusing on urban-rural interactions (as, for example, the development of new mobility concepts), or policy documents such as "**Towards a demographic strategy**" (2018) by the state's demography commissioner (Ministry of Social Affairs and Integration). The latter mentions above all the question of supply when rural areas lose inhabitants, which is why new structures such as ensuring local supply and strengthening village centres, expanding local public transport and broadband will be needed in the future. The importance of the latter two issues is already addressed in the "**Digitalisation strategy of Baden-Württemberg**" (2017), Ministry of the Interior, Digitisation and Migration. Based on a monitoring report on this 2019 strategy, there are already initiatives for rural areas, such as the attempt to network service providers and the stimulation of local trade through online platforms.

3.2. Bioeconomy in motion

Baden-Württemberg is already a frontrunner in the deployment of the bioeconomy in Europe. In this sense, it is expected that some of the project results and macroregional documents have already had a positive impact on the strategic planning and deployment of the bioeconomy in Baden-Württemberg. In the report "Bioeconomy development in EU regions" (2017) of the European Commission, it was pointed out that pilot plants, related knowledge exchange and analysis, and raising public awareness are necessary for a better deployment of the bioeconomy at a regional level in Europe. In Baden-Württemberg, this is already being implemented in the field of lignocellulosic biomass and wood. In the project "B4B - Biorefinery for the Bioeconomy in Baden-Württemberg" (2018-2020), funded by the Ministry of Science, Research and Arts, the material use of biomass is being researched at a pilot plant at the University of Hohenheim. Within the framework of the "Technikum Laubholz", a research campus is being built since April 2020 in the Swabian Alb to develop climate-friendly and sustainable materials from hardwood, where the circular economy will play a major role. The hardwood pilot plant is already anchored and announced in the **Baden-Württemberg government's sustainable bioeconomy strategy**. Another field of action was the introduction of an advisory board "sustainable bioeconomy" in summer 2020 to accompany the implementation and further development of the bioeconomy state strategy. Prof. Dr. Ralf Kindervater, CEO of BIOPRO, is a member of this advisory board.

3.3. Role of clusters

The biggest challenge in the field of clusters, as identified and described in the projects DanuBioValNet (Joint BioBased Cluster Policy Strategy, 2019), FORESDA (Transnational strategy on

Cross-sectoral level, 2018), and the macroregional document of the EU Commission "Bioeconomy development in EU regions" (2017), is the process to their bioeconomisation. The problem lies in the fact that usually only manufacturing operations are considered, but no stakeholders at the edge of the value chain. Using the example of the INNONET Plastics cluster mentioned in DanuBioValNet, it was found that raw material producers have still not been included.

On one side, the rich landscape of clusters in Baden-Württemberg can play a major role for the process of bioeconomisation. On the other side, the high bioeconomy maturity index of this German region as described in the report "Bioeconomy development in EU regions" (2017) should have a leverage effect. In this sense the **"Baden-Württemberg government's sustainable bioeconomy strategy"** (2019) called for a higher degree of networking between regions, actors and clusters along the value chains, as it was also proposed in the "Common Action Plan towards better framework conditions for biobased eco-innovation in Danube Region" (2019) by the DanuBioValNet consortium. As a result, the establishment of a bioeconomy education cluster in the region is one field of action of the bioeconomy state strategy, and the networking of clusters will, in the future, be promoted via the digital portal "Sustainable Bioeconomy Baden-Württemberg"¹³.

Besides, networking opportunities proposed in the "Cluster Tool Box" from the DanuBioValNet project already exist in the region; Meet & Match events are still organized by BIOPRO Baden-Württemberg. The so-called Lighthouse Groups of the Allianz Faserbasierte Werkstoffe Baden-Württemberg e.V. no longer exist in this form. However, seven working groups and a forum currently offer extensive exchange opportunities for network members. None of the groups is focusing on bioeconomy *per se*, but one on recycling of composite materials.

4. Consequences for GoDanuBio

Baden-Württemberg is in a privileged position in the Danube macro-region in order to capitalise some of the findings listed in Chapter 3, thus benefiting from the policy processes (WP T3) and capacity building/co-creation schemes (WP T4) to be implemented through GoDanuBio.

The measures of the regional bioeconomy strategy (2019) are beginning to be implemented in the region and some of them will run parallelly to the implementation of the project. Keeping this in mind, some of the regional/local activities of GoDanuBio during 2021 and 2022 could lever this implementation, i.e. communicating widely the concept of bioeconomy at local level or gaining new regional stakeholders for the cause of bioeconomy. The role of clusters in the bioeconomisation process (WP T2) should be streamlined with the ongoing implementation of the regional bioeconomy strategy.

The effective deployment of bio-based value chains can be eased through the digitalisation strategy (2017) and the programming of transregional joint calls with neighbour Danube regions, where the concept of BDME (Bioeconomic Distributed Manufacturing Environments) could be further tested and developed. Gaining insight into this approach would result, among other benefits, on a higher

¹³ The Baden-Württemberg's government's sustainable bioeconomy strategy (2019), Ministry of Rural Affairs and Consumer Protection and Ministry of the Environment, Climate Protection and the Energy Sectors; measure 28

resilience to pandemic situations and geopolitics, and on a more sustainable rural development in the region.

The demographic change is already in the regional policy agenda via a policy document (Towards a demographic strategy) and the initiative Quartier 2030, both released in 2018. In this sense, the process of bioeconomisation should be embedded in the measures taken from the later initiative.

To tackle properly most of actions and due to the multifaceted nature of the bioeconomy, a common approach among ministries and synergies of the in Chapter 3 listed strategies is necessary. The participation of BIOPRO Baden-Württemberg as the chosen state organisation to implement the regional bioeconomy strategy and as member of the regional advisory board on sustainable bioeconomy, should be a guarantor for the capitalisation of the results of GoDanuBio in the region.