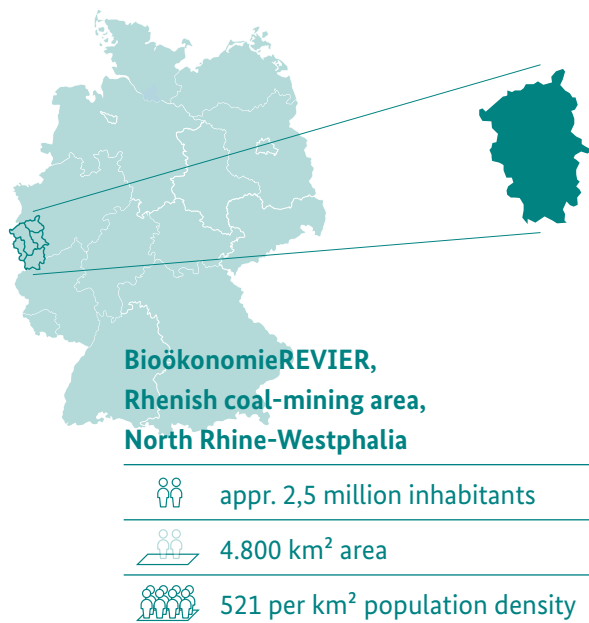


BioökonomieREVIER, North Rhine-Westphalia



Model region for sustainable bioeconomy – regional, innovative, circular



Characteristics of the region

- One of the largest lignite (brown coal) regions in Europe, facing an ongoing structural transformation, deeply affected by the climate targets and the coal phase-out.
- Profits economically as an “intermediate space” from the diverse urban-rural linkages to Aachen, Düsseldorf, and Cologne.
- Agricultural activities of significant importance.
- Further industry focal points include bio-based value chains, food and paper sectors, as well as chemical, plastics, and textile industries.

Baseline situation and objectives

“BioeconomyREVIER pursues a multi-actor approach to initiate various projects that promote the implementation of a circular bioeconomy. Circularity is a central guiding principle in the bioeconomy, as our projects aim to implement resource-efficient and circular strategies to generate value from biological resources.”

Dr. Christian Klar (management
BioökonomieREVIER)

BioeconomyREVIER was founded in 2018 as a structural transformation initiative by the Research Center Jülich, which is located in the region. Its objective is to demonstrate, within the Rhineland region, how the exemplary implementation of a circular bioeconomy can serve as an innovation hub for the entire region and provide approaches for regional developments. In the context of the complete phase-out of lignite (brown coal) by 2030 in the Rhineland region, the area faces several challenges. The establish-

ment of a systemic bioeconomic circular economy is expected to make significant contributions towards the overcoming of these challenges. One of the main goals is to develop approaches to compensate for the potential job loss due to the end of lignite mining, as the phase out is expected to affect approximately 8,000 people directly and 15,000 more indirectly. By initiating new value chains, BioeconomyREVIER aims to create sustainable jobs in the districts of Rhein-Kreis Neuss, Rhein-Erft-Kreis, Düren, Euskirchen, Heinsberg, Städteregion Aachen, and the city of Mönchengladbach, while ensuring a sustainable handling of the environment and resources. Moreover, the initiative aims to advance education and knowledge transfer between the business sector and society and foster comprehensive networking among regional stakeholders.

Stakeholders involved

- Coordination Office BioeconomyREVIER (Forschungszentrum Jülich GmbH)
- Member municipalities, economic development agencies, chambers of commerce and industry, as well as inter-municipal initiatives related to open-pit mining areas
- Companies from important regional industries, including the energy sector, chemical and paper industry, innovation consultancy
- Agricultural cooperatives, producer organisations, and local farmers' association
- Various educational and research institutions through research projects, education, and knowledge transfer initiatives (e.g., project courses on bioeconomy, "Jugend forscht", activities with students, etc.)
- In the initial phase, extensive participation process with citizens' meeting and two citizens' councils. Currently knowledge transfer, e.g. in the form of the district tour of the mobile exhibition BioeconomyMOBIL

Focus of the initiative

The goal of the structural transformation initiative BioeconomyREVIER is to actively shape the transformation of the economic system in the Rhineland region towards a circular and sustainable bioeconomy. Together with stakeholders from the region, a model region for sustainable bioeconomy is being developed. Climate-neutral, resource-efficient, and bio-based business models are being established through targeted transformation management, and circular value chains. Additionally, further measures are being implemented in the fields of qualification and regional development. BioeconomyREVIER operates as a bottom-up, non-partisan initiative and aims to systematically link the various ongoing individual initiatives and leverage synergies in the context of the model region for bioeconomy. Initial approaches for bio-based value cre-

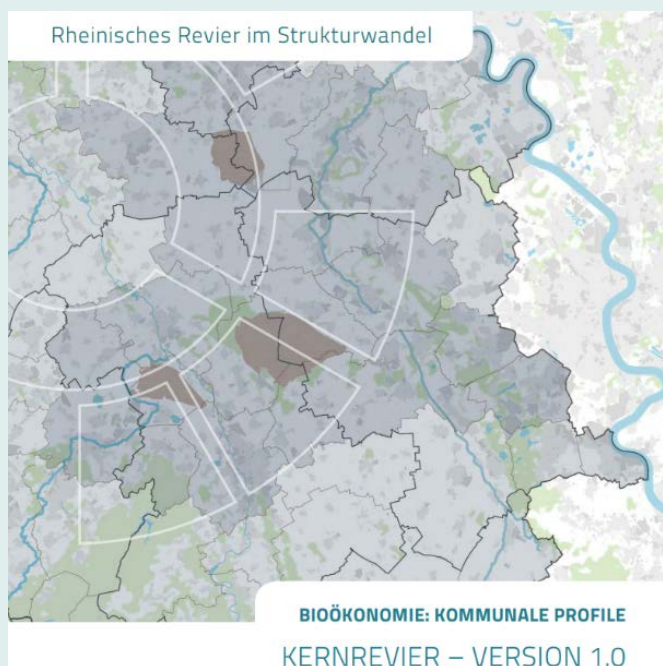
ation are already being utilized by companies and implemented in economic practice through transformation projects. Examples of these approaches include:

1. Promotion of fiber-based economy (including the FaserInnovationsZentrum Zerkall)
2. Innovation network Plant-based value creation (e.g. pharmaceuticals, cosmetics, food)
3. Productive design of open pit mining areas
4. Biorefinery concepts for the valorization of organic residues (e.g., from agriculture and the food industry) to create added value.

★ Spotlights

Municipal bioeconomy profiles

Individual bioeconomy profiles were created for 20 municipalities that are particularly affected by structural change. They include key data and information, e.g. on available land, agricultural and economic structure, potential bioeconomic innovations, and usable raw and residual material volumes. Educational activities, municipal and civil society sustainability initiatives, and interfaces with climate and environmental protection are also highlighted. The municipal profiles enabled pictorial communication to motivate further actors to participate.



The BioökonomieREVIER © Forschungszentrum Jülich/BioökonomieREVIER, Christina Kuchendorf

Innovation laboratories have been utilized in the Rhineland region to integrate the efforts of industry and academia. They serve as technology platforms, bringing together stakeholders from various sectors of the bioeconomy and thus creating a foundation for research collaboration.

📄 Financing

Project funding via the “Unternehmen Revier” program of the Federal Ministry of Economics; in 2019-2021, BioökonomieREVIER was funded by the German Federal Ministry of Education and Research (BMBF) as part of the Program for Structural Change; since the beginning of 2022, via the “Immediate Program PLUS”, in which the BMBF bundles regional bioeconomy research projects in the Bioeconomy Model Region research network; project initiatives are underway for the continuation of transformation management.

🧩 Challenges and barriers

Initiation of projects: Activities in the bioeconomy domain have primarily been initiated by research institutions thus far. The establishment and enhancement of collaboration between academic actors and industry are essential.

Fundraising: Temporally limited and narrowly focused funding programs necessitate ongoing acquisition efforts and substantial upfront commitments from the coordination center. The potentials of transformation projects can only be realized with delays and sometimes not fully exploited.

Involvement of the population: Civil society has so far benefited little from the knowledge and technological competencies present in the region. Through demonstrations, visitable projects and sites, bioeconomy and the potentials of regional development are brought closer to society.

Key learnings and replicability

- A coordination center is of great importance in representing the overall narrative of a model region for sustainable bioeconomy to the outside. It conveys the significant contributions that various actors can make in the bioeconomy, establishes the necessary network of stakeholders, creates visibility in the region, and provides support and advice for the implementation of specific projects.
- Successful bundling and “matching” of competencies and expertise from diverse stakeholders can facilitate the establishment of a knowledge-based bioeconomy, enabling the concrete implementation of knowledge into new, sustainable, and competitive products.
- Demonstrations and exhibitions, such as the BioökonomieMOBIL, aid in illustrating the potentials and processes of bio-based economy.

“The problem statement should stem from an external source. Ideally, companies should approach the academic world or bioeconomy-oriented networks and present specific requirements for partners, technologies, and innovations. Only through this approach can the successful transformation be achieved.”

Axel Wizemann, external advisor BioökonomieREVIER

Contact person of the initiative

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Outlook

The goal is to transition from the development phase to the implementation phase. Companies and stakeholders from industry and business are intended to be further motivated towards project realization. An expansion of activities, particularly in the food industry, chemical sector, and building materials domain, is being pursued. Additionally, efforts are being made to enhance the activities of the coordination center or establish an additional central management dedicated to the circularity of products.

“We are interested in how we can bring together the different sectors of the bioeconomy in the Rhenish Revier in a meaningful way. And in a way that results in a contribution to successful structural change. The future of the region will also be decided by establishing a circular economy.”

Prof. Dr Ulrich Schurr, Jülich Research Centre

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