A photograph of a terraced vineyard in a rural landscape. The terraces are covered with rows of grapevines, some of which are showing autumnal yellow and orange foliage. In the background, there are rolling hills, a small village with white buildings, and a road winding through the landscape.

Bioeconomy Going Rural

**BE-Rural: Bio-based strategies and roadmaps for enhanced rural and regional development in the EU**

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# About BE-Rural – Building on experience

## Developing Rural Bioeconomies by focusing on Regional Strengths:

European regions are diverse – economically, ecologically and culturally. These areas are home to a wealth of ecosystems and resources, where the bioeconomy carries the promise of opportunities for rural employment and sustainable growth. This transition towards a new, bio-based regional economy requires the active involvement of a broad spectrum of stakeholders and the sustainable use of agricultural, forest and marine ecosystems. Building on this idea, BE-Rural explores the potential of regional and local bio-based economies and supports the development of bioeconomy strategies, roadmaps and business models. To this end, the project focuses on establishing Open Innovation Platforms (OIPs) within selected regions in five countries: Bulgaria, Latvia, North Macedonia, Poland and Romania.

**Goals:** Specifically, the project has the following objectives:

- Advance innovation regions
- Mobilise engagement
- Identify and disseminate good practices
- Build capacity
- Generate new knowledge
- Explore business models
- Increase awareness and understanding

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## BE-Rural is not starting from scratch



The project builds on good practices generated in the context of the H2020 project “Promoting Stakeholder Engagement and Public Awareness for a Participative Governance of the European Bioeconomy” (BioSTEP).



BE-Rural joined forces with the project, POWER4BIO, which aims at increasing the capacity of regional and local policy makers and stakeholders to structure their bioeconomy and to support the emergence of a thriving

bio-based sector. The project creates knowledge and supports best practice exchange as well as networking within and among regions, across the EU. A joint guidance document between BE-Rural and POWER4BIO highlights synergies between the two projects, thereby increasing impact and amplifying the reach and relevance of both projects.

# Concept and Approach

## Principles

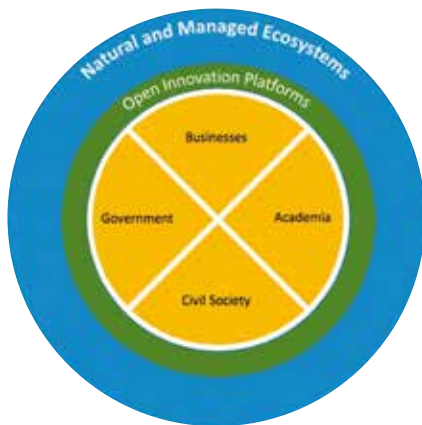
BE-Rural builds on the following principles, which are reflected in the project's conceptual approach and work plan:

- Co-creation:
- Openness and Inclusiveness:
- Sustainability:
- Transparency:

## Concept

The BE-Rural conceptual framework builds on a **Quintuple Helix Approach**, which combines knowledge and innovation generated by key stakeholders from policy, business, academia and civil society within the frame of the environment (Carayannis & Campbell, 2010).

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## Approach

BE-Rural incorporates multiple stakeholder groups and contextual considerations that rely fundamentally on **mutual capacity building and the generation and transfer of knowledge**. The bio-based economy and the beginnings of policy movement in this field require a pooling of knowledge and experience, which is the foundation of the BE-Rural conceptual approach.

# Assessing the Potential of OIP regions

From fisheries to roses, each region has different resource potentials. In the first step, BE-Rural researched existing and available sustainable technologies, biomass potentials and (small-scale) business models for a bio-based economy. Their potential for local deployment in the individual regions was assessed, taking into account policy frameworks and stakeholder participation.

Based on extensive research as well as on outcomes from BE-Rural deliverables, an easy to understand **handbook**, accessible in seven national languages, was developed to overcome the current lack of bioeconomy information in the project's target regions.

At the same time, BE-Rural's regional partners are focusing on solidifying and expanding their regional bioeconomy networks, identifying and reaching out to additional stakeholder groups.



1,097 km<sup>2</sup>

### Szczecin Lagoon & Vistula Lagoon, Poland

- › **Regional partner:**  
National Marine Fisheries Research Institute
- › **Bioeconomy potential:**  
low-value fish stocks especially bream and roach
- › **Important sectors:**  
fishery, tourism, agriculture, forestry

5,151 km<sup>2</sup>

### Stara Zagora, Bulgaria

- › **Regional partner:**  
Bulgarian Industrial Association
- › **Bioeconomy potential:**  
abundance of various herbs, oil-giving rose, lavender, mint and valerian, fruit orchards, wine, fiber, forage, cereals, vegetable crops
- › **Important sectors:**  
agriculture, food processing and canning, textile, wood-processing, wine growing and production, livestock breeding, alternative forms of tourism (mountainous, medical, historical)

Poland

935 km<sup>2</sup>

### Strumica, North Macedonia

- › **Regional Partner:**  
International Centre for Sustainable Development of Energy, Water and Environment Systems – Macedonian section (SDEWES-Skopje)
- › **Bioeconomy potential:**  
vegetables (peppers, melons, potatoes, tomatoes, cabbage, cucumbers), cereals (wheat, maize, barley), forage crops (bur clover, clover, alfalfa), industrial plants (tobacco)
- › **Important sectors:**  
agriculture, early gardening, viticulture, fruit cultivation, livestock breeding, industry (food, wood, mining, construction, metalworking, electrical, textile), tourism and catering



15,257 km<sup>2</sup>

## Vidzeme & Kurzeme, Latvia

- › **Regional partner:**  
The Latvian State Research Forest Institute
- › **Bioeconomy potential:**  
wood, overgrowth in abandoned agricultural lands, perennial grasses
- › **Important sectors:**  
forestry, agriculture, fishery, food production, transit, logistics

3,705 km<sup>2</sup>

## Covasna, Romania

- › **Regional partner:**  
Institute for Economic Forecasting
- › **Bioeconomy:**  
wood, rapeseed, grains, livestock, mineral water
- › **Important sectors:**  
agriculture, forestry, fisheries and aquaculture, livestock farming, machinery and agricultural machinery industry, woodworking and furniture industry, textiles, clothing and knitwear, food industry, tourism





## Innovation Region: Bulgaria, Stara Zagora

**Stara Zagora**, situated in the central southern part of Bulgaria, has a diverse economy and lots of unexplored business potential – especially with regard to the circular bio-based economy. The mild climate and rich soils are favourable for producing varied strains of agriculture. Cereals, sunflowers, cotton, and vegetables, as well as fruit orchards and grapevines are grown mainly in the southern plains. The region offers favourable conditions for growing oil-giving plants and producing ethereal oils. Not only oil-giving roses, but also lavender, mint and valerian are grown and processed in the valley. The region is also abundant in various herbs that are used to some extent in further processes, such as for the cosmetic, pharmaceutical, food processing industry. The potential lies in the better use of the available resources as well as developing or applying new technologies. Currently, most of the residues are used for compost although they are rich in various elements and could be further processed. Substantial potential lies in the application of biomass from vineyards, essential oils and herbal plants in the food-processing, cosmetic and pharmaceutical industry.

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### National and regional bioeconomy strategies

The Republic of Bulgaria does not have a bioeconomy strategy for the time being. A strategy for Stara Zagora region is currently being drafted, but needs further impetus and political support to be finalized.





## Innovation Region: Latvia, Kurzeme and Vidzeme

**Vidzeme** Planning Region (VPR), located in the North East of Latvia, is the biggest planning region in Latvia and largely covered by forest – currently 52% with an increasing tendency over the last years. Agricultural land covers around 34% of the territory. Generally, the region is characterized by a low building density and a high proportion of natural landscapes with low human impact. With 15.8% Vidzeme region has the highest primary sector share (agriculture, forestry, fishery) in amongst all regions in the country. The highest added value in the region is generated from manufacturing, agriculture, forestry, fishing, wholesale and retail industries.

**Kurzeme** Planning Region (KPR), in the western part of Latvia, is also largely covered by forest – currently 54% with an increasing tendency over the last years. Agricultural land covers around 32% of the territory. Kurzeme region has the longest sea border in the country – 350 km long sea coast – with beaches, steep coasts, dunes, coastal villages and towns, providing a great variety of nature and cultural landscapes. More than 90% of all Kurzeme settlements are farmsteads.

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Within BE-Rural, the focus is on the potential of by-products of forest management, such as young forest stand thinning and short rotation coppice. The team is further investigating the value of agroforestry systems of perennial grasses and the production of hay or grass seeds.

### National and regional bioeconomy strategy

In 2017, the Latvian government published a dedicated national bioeconomy strategy 2030 (LIBRA).



## Innovation Region: North Macedonia, Strumica

**Strumica** region, located in the south-eastern part of North Macedonia, close to Bulgaria and Greece, consists of four municipalities – Strumica, Bosilovo, Vasilevo and Novo Selo. From a bioeconomy viewpoint, favourable climate conditions make the region the largest producer and exporter of agricultural products in the country. Utilizing the agricultural residues as a renewable energy source has the potential to spur on the bioeconomy and add value to the region. Within the BE-Rural project, one focus is on the energy conversion of biomass materials generated on agricultural fields or farms (field-based residues), as well as those generated during the processing of agricultural products (process-based residues). Currently, new economic zones are emerging, and the municipalities are committed to a common economic development.

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### National and regional bioeconomy strategies

North Macedonia and Strumica have not yet published dedicated bioeconomy strategies. However, existing local strategies for economic development and energy efficiency programmes provide a solid base for developing future tailor-made bioeconomy strategies.

The Smart Specialisation (S3) process in North Macedonia started in March 2018 and the country intends to adopt its RIS3 in 2021 by following the JRC methodological framework for smart specialisation in the EU enlargement and neighbourhood countries. An improvement is foreseen with the development of a new strategy for local economy development with an emphasis on the bioeconomy, circular economy, and sustainability. This strategy could serve as a base point for the development of bioeconomy roadmap for Strumica region.



## Innovation Region: Poland, Szczecin Lagoon and Vistula Lagoon

In **Poland**, the BE-Rural project covers two separate regions with similar economies – Szczecin Lagoon and Vistula Lagoon. Both regions are located in coastal areas on the periphery of relatively large cities (Szczecin and Elbląg, respectively). In both cases, the fishing area is divided by a state border - the Szczecin Lagoon has a border with the European Union (Mecklenburg-Western Pomerania, Germany) and the Vistula Lagoon has more than half of the area belonging to Russia. At the moment there is no joint transboundary water management plan between Poland and Russia.

Several Fishery Local Action Groups (FLAGs) exist in both regions and provide an excellent starting point for a closer cooperation to better utilize the low value fish species populating the Lagoons. The area of Szczecin Lagoon is surrounded by four municipalities represented by FLAG “Zalew Szczeciński” and two unincorporated municipalities. Vistula Lagoon region is surrounded by three coastal municipalities represented by FLAG “Rybacka Brać Mierzei” and three municipalities represented by FLAG “Zalew Wiśłany”. Overall, more than 200,000 people inhabit the rural areas who mainly work in fisheries or tourism.

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### National and regional bioeconomy strategies

Poland does not have a national bioeconomy strategy, but bioeconomy development is mentioned in the “Regional Strategy of Smart Specialization Development in West Pomeranian Voivodship” (Szczecin Lagoon).



## Innovation Region: Romania, Covasna

**Covasna** County, located in Transylvania, bordered on the east by the Eastern Carpathians, part of the Central Region of Romania, is the county of mineral waters (Valcele, Perla Covasnei, Bodoc, Biborteni, Sugas, Malnas etc). Carbon dioxide deposits are used in the spa resorts of Covasna county in the treatment of digestive diseases, nutritional diseases and cardiovascular diseases.

Covasna is also the county of woods. Located in the Carpathians, more than half of the county's surface is covered in forest. With the PRO WOOD regional cluster, the region has an own cluster in the wood processing and furniture sector. Another opportunity lies in the use of wood waste for green energy. In fact, Covasna represents the cradle of the clustering process in Romania. Besides PRO WOOD, Covasna also has other successful green clusters such as: Green Energy, Transylvania Textile & Fashion, Transylvania Balneo-tourism and AgriFood Covasna. Building on existing partnerships and clusters, there is still a large potential to further develop the industry and use regional resources sustainably and more efficiently.

The BE-Rural team focuses on addressing fragmented value chains and on the question of how to implement the circular bio-based economy concept within the county's industrial sectors (i.e. wood and furniture, textiles, agro-food, mechanical engineering, green energy). Another focus point: the development of underused biomass, such as plant matter, wood waste and its implication on societal challenges (e.g., rural unemployment or marginalized communities).

### National and regional bioeconomy strategies

Romania does not have a national bioeconomy strategy, but bioeconomy development is mentioned in the Smart Specialization Strategy (RIS3) of the Region Centru for the period 2014-2020. Centru's RIS3 (2021 – 2027), addresses 5 cross-sectoral themes, including the theme of sustainable economy, with the following three subdivisions: a) collaborative economy, b) circular economy, c) Local value chains. In addition, references to the bioeconomy are made in the Regional Development Plan of the Region Centru 2021 – 2027. This cross-sectoral regional trend is in line with national efforts, in which several government institutions are getting involved, such as the Department of Sustainable Development, Ministry of Agriculture, Ministry of Environment and Ministry of Economy.

# Developing Regional Bioeconomy Strategies & Roadmaps

Building upon the knowledge generated, key local stakeholders are brought together in Stakeholder Working Groups to discuss regional potentials and develop bio-based strategies and roadmaps. Together with bio-based innovators, BE-Rural analysed market needs and local conditions, and identified promising (small-scale) business models.

Further activities included hosting dozens of knowledge exchange and capacity building, and thematic seminars, helping to mobilize hundreds of local regional stakeholders in the public and policy sectors, business, research and education, and civil society of the OIP regions. To keep the momentum and ensure broad support for the further development of the selected regional bioeconomies, the exchange is consolidated in a “Network of Knowledge”, in which best practices from the regions are shared at an interregional level.

Together these measures feed into the formulation of bio-based strategies and roadmaps and the establishment of permanent regional bioeconomy stakeholder panels.

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Educational  
Events



Capacity Building  
Seminars



R&I Capacity  
Building Workshop



Teachers'  
Summer School



Bio-based  
Pop-up Stores



Policy Workshop  
and Conferences

# Engaging Local People

Parallel to these activities, bio-based pop-up stores and educational events help inform and engage interested citizens. Broad engagement is at the heart of BE-Rural. Citizens, teachers and students are involved through innovative formats, such as bio-based pop-up stores, educational seminars, summer schools or webinars. The goal of these events is to stimulate understanding and interest in supporting regional bioeconomic developments. These engagement activities help make the bioeconomy feasible by introducing actual bio-based products; they inform people about the complex economic, environmental and societal opportunities and challenges of the bioeconomy; and explain its linkage and relevancy for the ongoing sustainability (UN SDG) debate.

Examples include developing a series of educational materials for teachers and translating them into the languages of the five OIP regions, organising a three-day summer school on sustainability and the bioeconomy, dozens of educational events, and pop-up stores throughout the OIP regions.

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**Knowledge Exchange and Capacity Building seminar, Romania**



**Stakeholder Working Group meeting, North Macedonia**



**Seminar on circular bioeconomy potential, Poland**



**Pop-Up Store, Latvia**





Educational Event, Poland



Educational Event, Bulgaria



Educational Event, Latvia



Educational material workshop, UK



Regional Cluster Workshop, Romania



Capacity Building and Knowledge Exchange seminar, Bulgaria



BE-Rural presentation at Vidzeme Innovation Week, Latvia



Knowledge Exchange and Capacity Building, Romania



## Join us!

Broad engagement is at the centre of BE-Rural. Citizens, teachers and students will be involved through innovative formats such as bio-based pop-up stores, educational seminars, summer schools or webinars. Further, bioeconomy stakeholders and local key actors from academia, business, policy and civil society will come together to discuss regional potentials and develop bio-based strategies and roadmaps.

Visit our website and register for our newsletter to stay up to date and join our events.

## Partners



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