

## BE-Rural Policy Paper

# Promoting Effective Co-creation Spaces in Regional Bioeconomies



## Main recommendations:

**Increase support for innovative formats to encourage citizen dialogue and better capture feedback on regional bioeconomy issues.** Awareness-raising activities continue to play a critical role in accelerating the transition to a sustainable bioeconomy. However, more innovative formats, such as living labs, should be piloted in order to capture citizen feedback.

**Create new or promote existing frameworks at regional level that support bioeconomy stakeholders in implementing capacity-building activities.** Capacity-building and knowledge-exchange activities should be integrated in regional and rural development policies with dedicated financial resources. This would facilitate building capacity over time via continuous engagement, allowing stakeholders to position themselves strategically in participatory activities.

**Enable regional multi-actor partnerships to formulate inclusive bioeconomy strategies and roadmaps.** Regional clusters, local action groups and similar organisations representing a broad spectrum of stakeholders should receive targeted support, encouraging them to contribute to bioeconomy-related discussions as part of a broader rural development discourse.

**Upskill entrepreneurs to design their bioeconomy products and business models based on a) real market needs and b) serious consideration of ecological limits.** The valorisation of available biomass resources should be combined with a notion of user-centric product development bound by ecological limits if all dimensions of sustainability are to be adequately considered.

## Background

The bioeconomy encompasses the sustainable production of renewable biological resources and the conversion of waste streams into bio-based products. The EU Bioeconomy Strategy is based on three main areas of actions: 1) strengthen and scale-up the bio-based sectors, unlock investments and markets; 2) deploy local bioeconomies rapidly across Europe; and 3) understand the ecological boundaries of the bioeconomy. It further includes several actions aiming at the involvement of stakeholders across the entire value chain and at strengthening co-creation with researchers, end-users, policymakers and civil society in an open dialogue throughout the research and innovation processes of the bioeconomy (EC, 2018).

The transition towards a new, bio-based regional economy requires the active involvement of a broad spectrum of stakeholders. In recent years, politicians have taken interest in the development of regional bioeconomies at the EU and Member State level. However, the development of the bioeconomy is strongly influenced by the ability



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of actors to engage with each other, to discuss opportunities and build multi-actor partnerships resulting in the co-creation of regional development pathways.

Co-creation means solving problems or exploring a new phenomenon in co-operation with people representing diverse backgrounds and different competence profiles. It builds connections and networks between different stakeholder groups including research, policy, civil society and business to enhance the societal impact of research and developed actions (Kumpulainen, 2021).

## Co-creation in BE-Rural

The BE-Rural project aimed to enable regional stakeholders to establish supportive framework conditions for the development of bio-based sectors in their regions. The project focused on co-creation, knowledge sharing and capacity building with the aim to facilitate the participatory development of regional bioeconomy strategies and roadmaps that are based on small-scale bio-based business models. Established by BE-Rural, dedicated Open Innovation Platforms (OIPs) in Bulgaria, Latvia, North Macedonia, Poland and Romania facilitated this work on the regional level and laid the foundations necessary to enable collaborative stakeholder engagement (Abhold et al., 2019).

BE-Rural formulated four key principles of participatory strategy and roadmap development, on which the project activities were founded:

**Co-creation** – The development of bio-based business models and encompassing regional strategies and roadmaps will be embedded in a structured participatory process, which ensures the proper evaluation of alternative policy options and business strategies and their effects on the region.

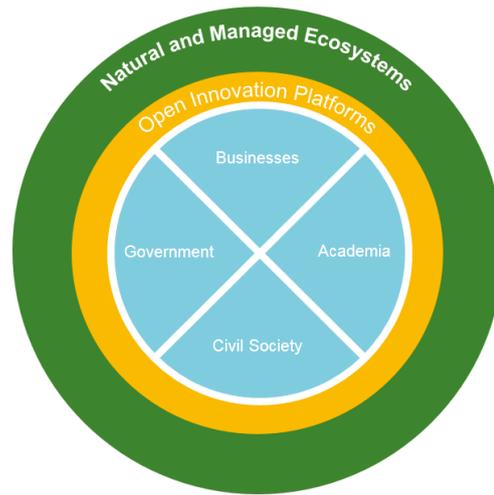
**Openness and inclusiveness** – The strategy and roadmap development processes will be open to all relevant stakeholder groups, including government, business, academia and civil society, as well as to marginalised groups.

**Sustainability** – The regional strategy and roadmap documents will equally address the three pillars of sustainability (social, environmental and economic sustainability) and explicitly promote the sustainable use of agricultural, forest and marine ecosystems.



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**Transparency** – To allow local stakeholders to enter the regional development activities also at later stages of the process, all participatory activities and their outcomes will be documented and made accessible to all interested stakeholders.



Conceptual framework underlying the work in BE-Rural, Abhold et al. 2019.

BE-Rural applied a variety of participatory tools to provide stakeholders and citizens with knowledge on the bioeconomy, to consult relevant actors regarding their viewpoints and priorities, to develop bio-based business models that build on regional resources, and to co-create regional strategy and roadmap documents.

Based on the experiences and lesson learned, which have been published in a comprehensive evaluation report (Kiresiewa et al., 2022), this paper presents policy recommendations for the design and effective implementation of co-creation spaces in regional bioeconomies. Originally formulated by the BE-Rural consortium, the recommendations have been validated by regional stakeholders in the frame of the project’s final conference, which took place in July 2022.

# Recommendations

## Increase support for innovative formats to encourage citizen dialogue and better capture feedback on regional bioeconomy issues

### *The role of citizen engagement in developing a regional bioeconomy*

Citizen engagement in the bioeconomy can take many forms, ranging from education and information provision to dialogue and consultation, to co-production of knowledge with citizens. While the provision of education and knowledge transfer on the bioeconomy remains of essential importance in advancing the bioeconomy, especially in more rural regions, there has been an increasing recognition of the significance of other approaches aimed at facilitating dialogue or even the co-production of knowledge with citizens (Davies et al., 2016). However, engagement practices for participative governance in rural areas, such as the co-production of knowledge with citizens in the bioeconomy, are still relatively rare.

### *BE-Rural approach*

The BE-Rural project set out to place broad engagement at its centre with the goal of involving citizens, teachers and students in the strategy development process through innovative formats such as bio-based pop-up stores, educational seminars, a summer school

and webinars. Not only can such activities help stimulate a stronger demand for sustainable, innovative products and services in the regions, they have the potential to help integrate citizens' needs and knowledge in the development of regional strategies and roadmaps. This approach is important as it allows for 1) inspiring new local business models, innovative bio-based products, and research opportunities to flow into policy documents; 2) increasing public acceptance and co-ownership of new investments and infrastructure; 3) ensuring a diversity of opinion and the opportunity to discuss potential conflicting interests and trade-offs at an early stage; and 4) empowerment of actors to voice their views and interests.



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### *Lessons learned*

The educational events and accompanying educational materials on 'sustainability and the bioeconomy' provided teachers and students with practical tools and innovative games to expand both their theoretical and practical knowledge on the bioeconomy. Teachers proved to be an important target group to facilitate multiplier effects among a younger audience. However, targeting less formal spaces for education such as hubs, incubators or other school-related entrepreneurial events

would help bridge understanding with rural development initiatives and highlight the economic potential of the bioeconomy.

Exhibition formats such as the BE-Rural pop-up store proved to be a successful format to increase public awareness on the bioeconomy and its connection to the UN Sustainable Development Goals (SDGs). Not only does it showcase the innovative side of the bioeconomy, but the inclusion of local bio-based products helps demonstrate its diversity and inspire the use of local resources and business models. The bioeconomy as a concept must be introduced with significant background information. A stronger focus on the sustainability of the bioeconomy is crucial. However, this warrants more in-depth conversations and dialogue with citizens on these issues, their impressions, concerns, fears and wishes. Furthermore, more creative ways of capturing this feedback are necessary if the pop-up stores or similar formats are to effectively feed into the development of regional bioeconomy strategies and roadmaps.

An evaluation of the effectiveness of the participatory tools applied in the project leads to several conclusions that should be addressed by communicators and policymakers.

Communication initiatives such as cooperation with regions and clusters in raising awareness and organising events and school activities for awareness raising through the European Bioeconomy Policy Forum (EBPF) can build off these recommendations.

### ***Recommendations for policymakers***

#### **Increased support for bioeconomy education and information provision**

A strong need still exists to further invest in awareness, education and understanding of the bioeconomy, its potentials, and impacts among the targeted regional actors. While the number of regions in the EU which have worked, or are working towards, a strategic framework related to the bioeconomy is increasing, a relatively small proportion of the frameworks (8%) includes promotion measures aimed at raising awareness and providing information on the bioeconomy (Haarich & Kirchmayr-Novak, 2022). Such measures are significantly more effective at the local level where connections between the bioeconomy and sustainable rural development become more tangible and comprehensive for citizens. Awareness raising continues to be an important soft policy instrument as seen by experts in existing



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bioeconomy governance frameworks (Dietz et al., 2020).

BE-Rural has shown that targeting teachers with practical and ready-to-use educational material and bringing bio-based exhibitions to rural settings are effective tools to communicate complex content on bioeconomy and sustainability. Bioeconomy themes can be complex and technical and more innovative bio-based products such as novel foods, bioplastics and biopolymers, or sustainable textiles are still rather niche items. Successful exhibition formats such as the pop-up store offer a unique opportunity to deliver engaging experiences to citizens that better embed understanding. Exhibitions can highlight the diversity and innovative potential of the bioeconomy, allow citizens to discuss how bio-based products can contribute to the UN SDGs, inspire people to think of regional resources and innovative business models, and ultimately help stimulate a stronger demand for sustainable, innovative products and services in the regions. In order to maximise synergies, such exhibitions should be designed alongside impactful awareness and communication strategies at the regional level. For example, a concerted effort should be made to build the capacities of regional facilitators to become their own social media ambassadors so that more content can be created in the local languages, using local influencers and channels. Working with local innovation clusters and accelerators amplifies messaging and helps incorporate the youth in bioeconomy market development and innovation. Furthermore, more efforts must be made towards establishing contacts with local media (social media groups, agencies, radio and tv) in order to achieve high media resonance in rural areas and in turn better legitimacy and trust.

### **New formats to increase dialogue and debate needed**

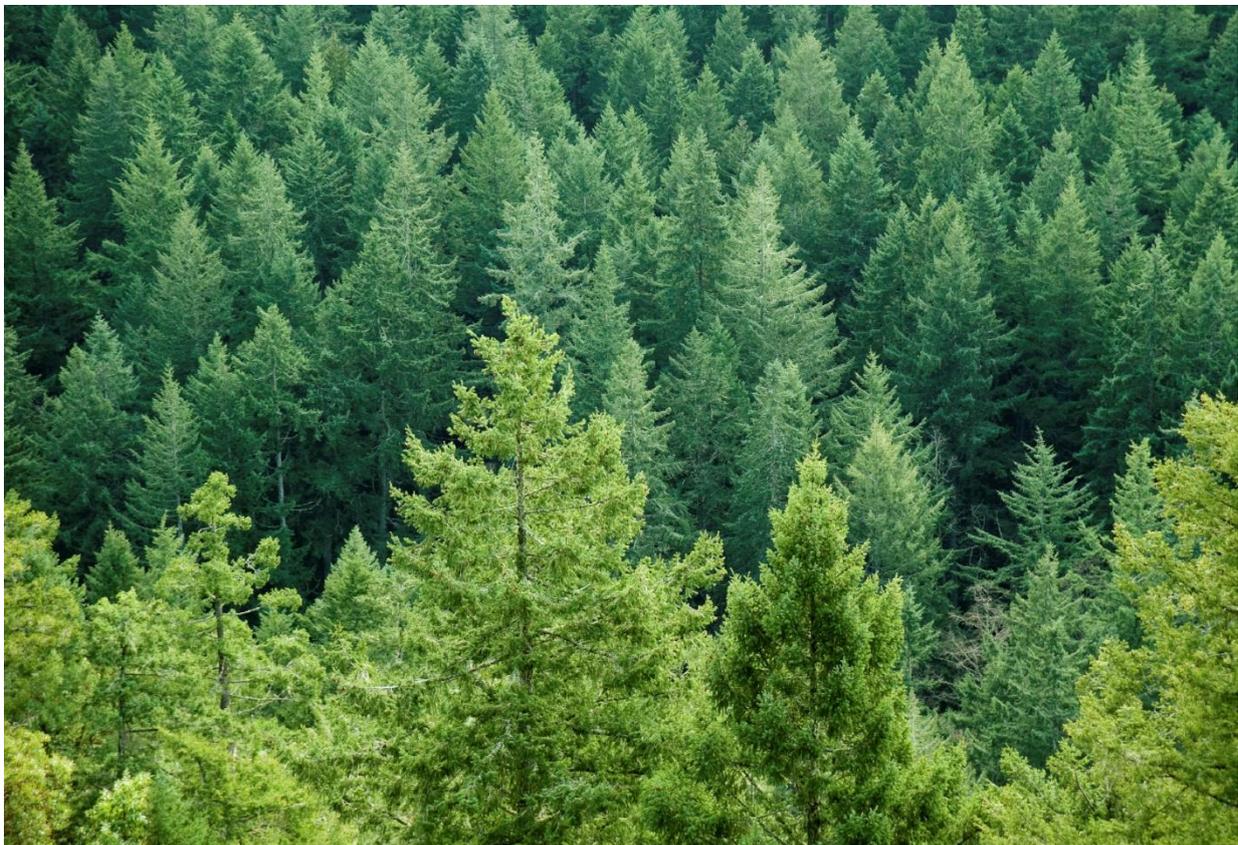
While increased awareness raising on bioeconomy in rural areas is a precondition for enhanced participatory governance, several communication strategies can help inspire debate and capture citizen input. Studies on public opinion of bioeconomy from countries such as Germany demonstrate that the formation of public opinion and debate on the topic is still in its infancy (Hempel et al., 2019). The bioeconomy offers a unique opportunity to link various topics for citizens as well as a window into understanding the collective importance of a range of topics and future scenarios that can inform the political process. Exhibition formats such as the pop-up stores help connect bio-based products to their specific sustainability benefits and to strategic processes such as the UN SDGs. However, the complexity of the bioeconomy topic in general, the production process and sustainability aspiration of the products, and potential negative spill-over effects warrant more dialogue initiatives and opportunities for discussion. While a trained staff, guided tours and participatory events provide space for such informed discussions, these discussions were not easily incorporated into strategy documents.

To increase debate and understanding, bioeconomy communication in rural areas can be fine-tuned in different ways. Language should be simplified and more directly connected to local concerns. By striking a better balance between highly innovative and local bio-based products, the bioeconomy can not only inspire sustainable innovation, but also help rural areas be recognised and profit from local heritage and artisanal production. This

can, for example, be achieved in food systems by taking advantage of EU protected designation of origin (PDO) and protected geographical indication (PGI) labels. In addition, the bioeconomy should be discussed with citizens using future-orientated formats from participatory science that pose more general questions about how citizens wish to live and their conceptions of sustainable development, e.g. visioning, backcasting or foresight methods. As opposed to asking citizens where they see bioeconomic potential in their regions, discussions can centre on how we wish to live, to feed and clothe ourselves. The fact that the bioeconomy can be a common thread between all these relevant topics is not so obvious in relevant debates.

Regarding participatory events, their combination alongside the BE-Rural pop-up stores proved helpful in increasing the

engagement of local authorities and entrepreneurs, which not only helped cement key partnerships, but also enhanced their understanding of the importance of involving the public in bioeconomy discussions. However, a lack of interest and experience amongst stakeholders in engaging with the public remains a challenge. Therefore, stimulating citizen engagement in the bioeconomy can start with targeting local NGOs and connecting to citizen-relevant projects and events in the area. In turn, pilot programmes supporting more innovative concepts such as future scenario methodology or living labs can help build up a tradition of participation, create space for more open-ended discussions on sustainable development and work to better capture citizen feedback.



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## Create new or promote existing frameworks at the regional level that support bioeconomy stakeholders in implementing capacity building activities

### *The role of capacity building for developing a regional bioeconomy*

**Capacity building** (CB) or development is seen as the process through which stakeholders reinforce their abilities to set and achieve their own development objectives. It can encompass measures to support the capacities and resources of individuals, the functioning of organisations, or the enhancement of the wider regulatory, institutional, socio-cultural and political environment. Capacity building can contribute to economic development and also to democratic processes.

Concepts of **knowledge exchange** (KE) emphasise that learning is a complex, contested and potentially mutually beneficial process, which can involve contributions from a wide range of stakeholders with different types of knowledge and viewpoints, and which is stimulated by interpersonal interaction, long-term relationships, and mutual trust. Rationales for promoting knowledge exchange include a) stimulating innovation and entrepreneurship; b) supporting rural or regional development; and c) enhancing democracy.

### *BE-Rural approach*

In BE-Rural, CB & KE took place through specific regional seminars, interregional face-

to-face workshops and webinars and a summer school for teachers.

- The objectives of over 30 **regional seminars** were to increase the capacities of regional and local authorities and stakeholders from business, civil society, and academia to design and implement bio-based roadmaps and strategies. These seminars were organised by each OIP region drawing on the knowledge base created in BE-Rural. The seminars had an open, inclusive, and transparent approach to stakeholder participation with the intention to support the co-creation of ideas.
- **Interregional workshops** and webinars were organised by BE-Rural to enable exchanges across regions and countries, aiming to facilitate knowledge transfer on innovative bio-based business models and the design of bioeconomy strategies and roadmaps. Topics were selected based on stakeholder suggestions and feedback. The workshops and webinars featured presentations of relevant practices selected by each of BE-Rural's focal regions and an open exchange.
- Finally, the BE-Rural **summer school** brought together teachers from the five OIP regions and beyond to increase their capacity to develop curricula on the bioeconomy ('train the trainers'). The summer school presented the educational materials prepared as part of BE-Rural and provided space for discussion how they can be applied/integrated in schools by teachers.

### *Lessons learned*

**Regional capacity building** in the field of the bioeconomy proved to be an important precondition for co-creation activities, as regional stakeholders often lacked access to such knowledge. In many cases, CB seminars had to build basic knowledge and understanding of what the bioeconomy is, the regional potentials and business opportunities. Regional actors used different approaches in organising the events, mixing physical and online formats, selecting different themes, inviting expert speakers and in this way tailoring the seminars to local circumstances. Yet, more sophisticated and interactive formats of co-creation have been avoided by most regional facilitators to prevent risk of disengagement in future activities, although there seemed to be also scarcity of skills in running such formats. To motivate and sustain the interest of the different stakeholders, regional seminars were framed under or linked to broader or more prominent policy processes (e.g. smart specialisation strategies, National Recovery and Resilience Plans, FLAG's local development plans). Access to umbrella organisations such as cluster networks and local action groups played a vital role in the outreach process, however, such access was not available in all cases. Overall, it proved challenging to sufficiently empower stakeholders in a way that they could strategically position themselves during discussions, which is visible in participants being described in evaluation reports as relatively hesitant by organisers. The increase in stakeholders' capacities to deliberate on the topic of bioeconomy was visible among those who engaged in a high number of seminars. However, that was only the case for highly committed, individual stakeholders.

The **interregional seminars** were useful to allow for exchanges across countries and familiarise regional partners with practices and experiences that exist elsewhere. The application of the gathered knowledge in the process of regional strategy building was, however, challenging due to the different contexts among regions, the different structures that are involved in the bioeconomy and the different prominence of the bioeconomy. The inter-regional seminars were, at the same time, appreciated as an opportunity to promote regional activities abroad, such as business developments, and to build connections among each other. Partners highly appreciated the possibility to meet physically and even visit each other's regions, although such possibilities were limited, not least due to COVID-19.

The **teachers' summer school** was very positively received. It was a useful platform for teachers to discuss how best to integrate the teaching of bioeconomy in their schools. The event was hosted online due to COVID-19, and this helped to reach out to much larger number of teachers than initially foreseen. A survey carried out a year after the event showed that more than 50 teachers who participated in the BE-Rural summer school had integrated information on bioeconomy, circular economy, and sustainability in their teaching materials.

### *Recommendations for policymakers*

Experiences in BE-Rural show that regions lack public support frameworks when it comes to building the capacity of regional and local stakeholders on the topic of bioeconomy and, more broadly, of the green transition. This includes a lack of long-term financial frameworks that support the organisation of

tailored capacity building trainings at regional and local level. Such activities need to also involve regional policymakers as the latter often lack sufficient understanding of how sub-national levels can contribute to utilising bioeconomy potentials via place-based instruments such as community-led local development (CLLD) or other local/regional development funds.

Only when bioeconomy stakeholders are equipped with sufficient knowledge on how they can profit from and contribute to the bioeconomy, can they participate actively and position themselves in policy co-creation activities. Active engagement is also conditional on broader factors such as trust that participation would lead to improved policy and financial conditions. Therefore, the engagement and multiplier effect of policymakers from regional to national levels is vital in CB and KE activities. This is especially important in settings where top-down policy making is dominant and where regional stakeholders do not possess a well-developed participatory culture. Building capacity and the promotion of knowledge exchange in an innovative and complex field such as the bioeconomy also requires a long-term effort and continuous engagement processes. This would enable stakeholders' gradual transition from recipients of the knowledge to stakeholders who feel empowered and able to create new knowledge via co-creation practices.

Therefore, regional and rural development policy at European, national and regional levels should offer supporting frameworks that make bioeconomy CB & KE activities more efficient. Integrating such activities in policy frameworks with dedicated financial resources would enable to build capacity over time via

continuous engagement, sustained beyond a project's lifetime. Support for improved CB & KE can be part of existing policy measures that encourage multi-actor engagement, such as EIP-AGRI Smart Specialisation Strategies (S3), or Local Action Groups supported via CLLD/LEADER. Although any useful frameworks can be set up at an international level, these should be delivered on the ground, at the relevant territorial level, involving all local stakeholders. Such frameworks should tap more extensively into the potential of diverse regional NGOs and CSOs – environmental, educational, or representing youth and minority – as they often possess abundant regional knowledge and work closely with various local stakeholders.

In practice, efficiency and sustainability can be improved by better exploiting the potentials offered by CB & KE seminars, e.g. by making them more interactive and allowing them to discuss different and potentially conflicting interests and viewpoints. Any participation in these activities must be made worth the stakeholders' time. Working towards a defined objective or a concrete output, such as a cooperation project or policy input, can help to avoid stakeholder fatigue. Although physical formats have shown to be better suited to reach stakeholders, more interactive digital tools can increasingly play a complementary role in line with the expansion of digital skills. Finally, the organisation of such CB and KE practices at regional level requires the presence of bioeconomy experts who have the skills in running interactive co-creation activities. 'Train the trainer' or other educational programmes on co-creation skills need to be financially supported at national and regional level to deliver tailored capacity-building activities including co-creation practices.

## Enable regional multi-actor partnerships to formulate inclusive bioeconomy strategies and roadmaps

### *The role of broad stakeholder participation for developing a regional bioeconomy*

The transformation from fossil-based to bio-based regional economies should be regarded as a societal transformation, which requires a democratic dialogue and the involvement of not only the business sector, but of a broad spectrum of regional stakeholders (cf. Kiresiewa et al., 2019). Thus, the objective needs to be to develop regional bioeconomy strategies and roadmaps, which reflect the perspectives of different stakeholder groups and elaborate regional development pathways that benefit local communities at large. By bringing together stakeholders with diverse backgrounds and affiliations and setting up dedicated co-creation spaces, relevant initiatives should develop user-driven strategies and roadmaps that reflect the needs of local communities, create demand for more sustainable, small-scale business models and innovative solutions, and empower regional stakeholders in the implementation of the strategies and roadmaps.

### *BE-Rural approach*

The regional strategy and roadmap development processes were initiated by a bottom-up approach, which built upon the following steps: 1) identification and ranking of stakeholders according to their perceived interest in and influence on the further development of the regional bioeconomy; 2) establishment and maintenance of a

Stakeholder Working Group (SWG) in each of the OIP regions; and 3) active facilitation of the SWG activities by BE-Rural's local partners. The OIP facilitators played a key role in bringing relevant stakeholders together and in moderating the discussions on potential future regional development pathways. Their knowledge of and involvement in the regional stakeholder landscape allowed them to set up the SWGs in a way that key actors would be able to contribute to the strategy and roadmap development process over the duration of the project. Furthermore, their knowledge of the regional and national policy frameworks allowed them to provide targeted guidance to the SWGs, thereby ensuring that the bioeconomy strategies and roadmaps linked to existing policies as well as to parallel processes and activities in the area of rural development.



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### *Lessons learned*

- Building on and strengthening existing networks (e.g., regional clusters, local action groups) turned out to be an important step towards the establishment of some of the SWGs. However, it turned out that this approach carries the risk that marginalised groups are not taking part in the discourse. More targeted efforts are thus needed to involve stakeholders beyond the existing networks. While in Covasna (Romania) and

in the Vistula and Szczecin Lagoons (Poland), the strategy development processes were largely supported by such existing networks, namely by regional clusters and Fisheries Local Action Groups (FLAGs), respectively, the activities in Stara Zagora (Bulgaria) relied heavily on the expertise and involvement of individual researchers from Trakia University, showcasing that the implementation of bottom-up processes can take different forms depending on the regional stakeholder landscape.

- Despite the undeniable advantages of mobilising existing networks, there is a risk that important but less influential stakeholders are left behind. A comprehensive stakeholder mapping exercise, which also aims at identifying 'unusual suspects' for the strategy and roadmap development process, can be a useful tool to facilitate the process of setting up inclusive SWGs. However, mobilising actors beyond existing networks proved to be challenging in BE-Rural.
- In some of the OIP regions, the continuous involvement of local authorities in the project activities turned out to be challenging, putting the political relevance of the activities and outputs at risk. Thus, it was of key importance to link the strategy

and roadmap development processes to and create synergies with ongoing policy developments at the regional level (e.g. the development of rural development plans in the case of Vidzeme and Kurzeme, the update of the FLAGs' local development strategies in the case of the Polish lagoons, or the identification of opportunities for coal regions in transition in the case of Stara Zagora). In countries with a centralised political system, where regions have limited room to shape their own development pathways, the active involvement of national government institutions in the regional strategy development process turned out to be of particular importance when it comes to achieving policy impact.

- While involving stakeholders from the beginning of a strategy or roadmap development process is important to create trust and capacity to co-develop outcomes, it is, however, challenging to keep stakeholders motivated and interested throughout the entire project duration and beyond. Allowing stakeholders to join in at a later stage and ensuring transparency and openness of the process is crucial.



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### **Recommendations for policymakers**

A bottom-up approach to the formulation of regional bioeconomy development pathways, which builds on the involvement of a broad spectrum of stakeholders with diverse backgrounds and affiliations, requires continuous engagement of those facilitating the underlying process, and of those who are supposed to provide knowledge, expertise, and viewpoints as inputs. Local authorities or other relevant actors planning to set up such a process in their region should consider putting regional clusters, local action groups or similar organisations (e.g., associations, Digital Innovation Hubs) at the centre of the activities, as they proved to be effective in terms of mobilising relevant stakeholders over an extended period of time, as well as in terms of linking the discussions to relevant policy frameworks and parallel initiatives.

For **regional clusters** to play an active role in the development of the regional bioeconomy in the context of a wider co-creation process, relevant initiatives should pursue objectives and goals that match the ones that are already embedded in a cluster's official strategy. Identifying shared objectives could not only increase the motivation of cluster members and managers to actively engage in the development of the regional bioeconomy, but also build ownership of project outcomes. An effective intervention point for integrating bioeconomy-related priorities in clusters' agendas and development objectives is the update of a cluster's strategy. For government officials at the regional and national levels to support the uptake of the bioeconomy in cluster activities, the orientation of the national Partnership Agreements (PA) for the new EU Programming Periods can provide effective leverage. Integrating the bioeconomy as a

strategic objective in PAs and EU Operational Programmes may encourage clusters to apply for funds and initiate bioeconomy-related projects.



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As the effective mobilisation of stakeholders in the context of a bottom-up strategy development process depends to a significant extent on the (perceived) benefits, initiators or facilitators of a bottom-up co-creation process should define and explain the utilisation potential of the expected outputs and outcomes. Here, emphasising advantages not only in relation to market creation, but also in view of strengthening innovation potential, and contribution to more sustainable consumption patterns, is gaining importance. On these grounds, regions can present themselves as 'sustainability frontrunners' and realise competitive advantages.

Established and funded under EU's LEADER Programme, **Local Action Groups (LAGs)** represent a special form of regional multi-actor partnerships, bringing together representatives of the public and private sectors as well as civil society organisations with the aim to define priorities for local community development. While LAGs dedicated exclusively to the developments of the regional bioeconomy are rare to find, LAGs usually possess the required

expertise and resources to contribute to bioeconomy-related discussions as part of a broader rural development discourse. To increase the role of LAGs in the development of regional bioeconomy strategies and roadmaps, targeted support is required.

Bioeconomy-related capacity-building campaigns could build the ground for framing the local development strategies of LAGs around the bioeconomy, placing related activities among the operational priorities of the LAGs and encouraging them to apply for bioeconomy-related projects within the available funds (ERDF, EAFRD, ESF, EMFF).

On their side, LAGs should increase efforts to attract and involve scientific partners, as their participation can influence the development of rural regions in a sustainable way, e.g., by linking research topics to business needs while taking into account the social, economic and environmental implications of business developments. Efforts to match scientific and/or technical experts with local practitioners could also be organised at the national level, e.g., through moderated discussion fora on social

media, where invited speakers introduce and explain relevant concepts and approaches. Expert contributions should ideally be organised well in advance of the start of a new programming period, so that they can feed into the elaboration of the FLAGs' new or updated local development strategies.

As gaining the participation and trust of socially or economically marginalised groups is challenging when organised as a top-down approach, community-led approaches initiated by LAGs or social enterprises could be an important instrument to involve them in project activities. There are several good practices available across Europe. For instance, the social enterprise *Clean Team Project*<sup>1</sup> in Ghelinta, Romania, was established with the aim to create an energy self-sufficient community by including vulnerable people, providing them with jobs in the areas of landscaping and collection of solid biomass residuals.



<sup>1</sup> Clean Team Landscaping Gardening, <https://www.cleanteamproiect.ro/ro>

## Upskill entrepreneurs to design their bioeconomy products and business models based on a) real market needs and b) serious consideration of ecological limits

### *The role of market development for developing a regional bioeconomy*

The EU Bioeconomy Strategy acknowledges the importance of understanding the specific challenges that countries and regions are facing and of using this to design suitable transition pathways. Such regional challenges emerge from the dynamic combination of underlying conditions (political, economic, social, technological, environmental, etc.). As these conditions shift over time, they change what societal groups perceive as their needs and priorities. Ultimately, this has effects on what these groups consume, how they do it, and why they do so.

The EU Bioeconomy Strategy also recognises the importance of strategic planning and execution at the regional level to realise potential that can eventually be scaled up to European level. Through policy and regulation, regions have a level of agency on the shape that some of the underlying conditions mentioned take and how they evolve. The same is true, to some extent, as to how these conditions relate to each other.

On this basis, the new markets that regional communities are developing as part of their transition to a bioeconomic model can and should be shaped to function as drivers of

environmental, economic and social sustainability, as opposed to how they generally do in the traditional model. Part of doing this will require understanding three main aspects. Firstly, the actual needs that these new markets should cover. Aligning efforts invested on product and business development – and any structural support provided to these – towards real needs and priorities found in the community will raise their chances of gaining market traction and increase their coherence from a sustainability perspective. Second, identifying which of these needs are priority and which are of secondary importance in terms of their social, economic and environmental impact. This will help to ensure that the natural, economic and social resources incorporated into production are used efficiently to meet current demand on these three dimensions. Lastly, understanding what capacities the regional community currently has to address the identified needs. Having clarity on this will allow to highlight the gaps and subsequently make decisions on how to turn them into opportunities (e.g. via expansion of current skills and capacities or importing of adequate solutions).

While developing markets, products and business models on the basis of the aspects mentioned above could represent a transition to a more efficient economic model, transformation would require going beyond. For this, ensuring that the markets of the bioeconomy are built giving serious consideration to the concept of ecological limits will be necessary. This is an elusive issue, but a substantial amount of research and other initiatives have been undertaken over the past decades that have generated knowledge and experience which could be used to guide regional efforts to tackle it. While most of these



efforts lack a regional focus, BE-Rural has taken an initial attempt at covering this through the development of a sustainability screening for regional bioeconomy strategies.

### ***BE-Rural approach***

The business development work of BE-Rural was structured along a sequence of three consecutive tasks. The first one aimed to examine and describe the macro-environment<sup>2</sup> at each of the OIP regions. The second laid out a common methodology to engage OIP facilitators, bioeconomy entrepreneurs and other regional stakeholders in a collaborative exercise of market assessment and business model design. The third one entailed the selection of specific bio-based products/services from the OIP regions and conducting an exploration of their market potential using the common methodology mentioned. An additional task was included along the course of the project which involved the conceptual development of a sustainability screening approach to help decision-makers incorporate considerations of ecological limits into their regional bioeconomy strategies and roadmaps. As an integrated package, these collaborative efforts generated practical experience on the notions of demand-based product design, small-scale business models and the consideration of ecological limits mentioned above.

### ***Lessons learned***

- The impulse generated by the EU Bioeconomy Strategy, transmitted through macro-regional strategies (e.g., EUSBR,

EUSALP), regional innovation and rural development initiatives (e.g. RIS3 and ENRD) and underpinned by associated research and innovation programmes (e.g. Horizon Europe, I3 Green Transition, Interreg, CBE JU and EAFRD) are providing a frame to shift underlying conditions in European regions. This represents a key opportunity for the transition to regional economies whose growth and scalability are not indefinite, but rather determined by ecological limits.

- The characteristics of entrepreneurial activity in different rural regions can vary greatly, as do the conditions upon which they emerge. The dominant economic activities in a region (e.g. tourism, processing and manufacturing) and the presence or lack of enabling factors (e.g. educational institutions and industry associations) will shape emerging businesses differently, which in turn should be considered carefully in the design of support programmes aimed at entrepreneurs.
- Overall, BE-Rural has showed that collaborative ideation and agile approaches for market assessment and business model design are practicable and welcome in rural areas of some modest and moderate innovator countries. Their usefulness to unlock observation, creativity, innovation, and critical thinking can make these exercises effective to advance the knowledge on the suitability and market potential of bio-based alternatives to existing products and services.

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<sup>2</sup> This refers to the political, economic, social, technological, environmental and legal conditions and developments that persist in the region under scrutiny at the time of the study.

- Simultaneous action is necessary on the formation of responsible business leaders that can drive change and on the activation of enabling factors that will allow that change to happen at regional level. The leadership formation could take the form of training and exchange programmes for young entrepreneurs. The activation of enabling factors could entail connecting disaggregated operations into regional networks, establishing cooperatives, and supporting the development of regional value chains.
- While the common general focus of the bioeconomy on the valorisation of available biomass resources is reasonable, compounding it with a notion of user-centric product development bound by the capacity of regional ecosystems to underpin it appears to be necessary if all dimensions of sustainability are to be adequately considered.

### **Recommendations for policymakers**

Facilitating a better understanding among emerging bioeconomy entrepreneurs of the factors that are expected to influence the future market development in the region is recommended. Established networks (e.g. National Competence Centres for Social Innovation, the Youth and Environment Europe network) should be used for channeling targeted communications and setting up training and exchange initiatives for young entrepreneurs, e.g. in the frame of the ESF Social Innovation+ initiative.

Efforts to understand the potential impacts of priority bioeconomic sectors and activities on the natural and social fabric of the region should

be supported and expedited. Data reporting processes established under EU legislation can provide a basis for this and, in collaboration with national and EU level policymakers, be incorporated into a consistent and coherent framework for the screening of bioeconomy sustainability in the future.

Promoting and enabling cross-collaboration among local and regional authorities managing environmental data and statistics to overcome siloed operations ('whole-of-government approach'), and thus allowing a more open access to available data on the status of ecological systems and natural resources, is desirable.

The ambition of existing and new innovation support programmes and similar initiatives in the region (e.g. Business Centre for Agricultural Development in Strumica, North Macedonia) should be increased by incorporating requirements on user-centric product development bound by serious consideration of ecological limits of bioeconomy businesses. Programmes that can cater to the wide variety of entrepreneurs and businesses that rural bioeconomies entail should be developed, considering the often substantial differences in terms of needs, scales and ambitions.



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## About the project

The transition towards a new, bio-based regional economy with opportunities for rural employment and sustainable growth 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 explored the potential of regional and local bio-based economies and supported the development of bioeconomy strategies, roadmaps and business models. To this end, the project focussed on establishing Open Innovation Platforms (OIPs) within selected focal regions in five countries: Bulgaria, Latvia, North Macedonia, Poland and Romania. More information on the project can be found at <https://be-rural.eu/>.

## Imprint

### Production & Layout

Ecologic Institute  
Pfalzburger Str. 43/44  
10717 Berlin, Germany

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 818478.