

BE-Rural Policy Brief

Enabling rural regions to recognise the ecological boundaries framing the bioeconomy



Main recommendations:

- **Establish a European technical group on bioeconomy sustainability.** Such a group could foster discussion of key concepts and terms evolving and act as ad-hoc advisory group for the regions. This group could also facilitate the involvement of local stakeholders in carrying out sustainability screenings.
- **Facilitate regional-level data on water resources.** Making more disaggregated WFD reporting data accessible (e.g. through the WISE WFD Data Viewer) could significantly improve the results of sustainability screenings for the bioeconomy.
- **Expand coverage of EU Bioeconomy Monitoring System and Knowledge Centre for Biodiversity.** The majority of biodiversity-related datasets in the EU are not regularly updated and/or are aggregated at national or biogeographical scale. Remote sensing-based data offers a big potential to fill still existing gaps of primary data, which could further be integrated into the EU Bioeconomy Monitoring System.
- **Improve monitoring of soil health and regional level.** Monitoring of soil health via indicators such as soil erosion by water and soil organic carbon content should be harmonized with the forthcoming performance monitoring and evaluation framework of the CAP Strategic Plans. These indicators should be regularly updated and made publicly available at NUTS3 level.

Context

The bioeconomy carries great potential for achieving policy aims related to sustainability (Gawel et al. 2019, Lindqvist et al. 2019, Peterson and Kaaret 2020). However, sustainability is not an intrinsic characteristic of the bioeconomy (Zeug et al. 2020). Thus, it is fundamental to expand Europe's understanding of the environmental impacts of the bioeconomy if we are to capitalize on the opportunities it can bring in terms of social and economic development.

As the EU Bioeconomy Strategy points out, regions are the most appropriate territorial level at which to implement bioeconomy strategies (EC 2018). Similarly, the effects of bioeconomic activities can be best observed at regional scale, particularly social and environmental impact (Jarosch et al. 2020). Yet, the available and favoured methods for assessing bioeconomy potential and environmental impact are rarely framed within the regional scale.

Initiatives like the European Commission's Knowledge Centre for Bioeconomy and the Circular Bio-based Europe Joint Undertaking (CBE JU), as well the EU Research and Innovation Programme Horizon 2020 and its successor Horizon Europe are contributing to the improvement of the monitoring and understanding of the bioeconomy's effects on Europe's social, economic and environmental systems. While such initiatives are plentiful and wide-ranging, they are lacking a dedicated regional focus. Further, among regions, it is

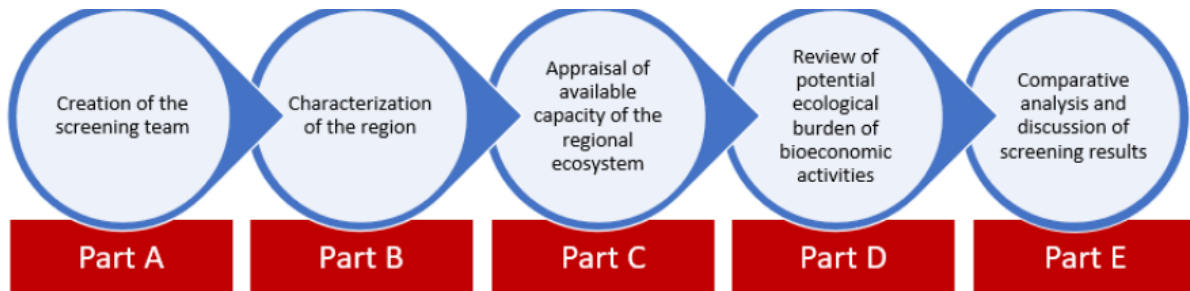
highly likely that rural areas face disproportionate challenges to assess the ecological boundaries that frame their (bio)economies, as they are often lacking the resources and capacities to conduct Life Cycle Assessments (LCA) or similar evaluations and depend largely on project-based impulses to do so. To contribute towards filling this gap, BE-Rural has developed and piloted a new framework to help decision-makers consider ecological limits when drafting regional bioeconomy strategies and roadmaps, and with this to contribute to Priority 3 of EU Bioeconomy Strategy: "Understand the ecological boundaries of the bioeconomy".

A Sustainability Screening

In essence, the BE-Rural Sustainability Screening aims to enable a rough appraisal of a) the available capacity of a region's ecological systems to underpin bioeconomic activities, and b) the potential ecological burden of bioeconomic activities prioritised by the region. It builds on available, accessible, and regularly updated regional data (at NUTS3 or similar) to describe water, soil, biodiversity and biomass resources in the demarcation and can be expanded easily to incorporate other relevant items when data are accessible.

The framework was developed iteratively and incrementally based on initial desk research

Figure 1 Structure of the BE-Rural Sustainability Screening



supplemented by experiences gathered during pilot implementations in the Stara Zagora region (Bulgaria) and the Vidzeme region (Latvia).

A full description of the methodology and the results of the pilots is available on [the project website](#).

Overall, this work has shed additional light on an angle of bioeconomy sustainability which has so far received limited attention: high-level regional scale assessments. The framework provides a structured approach that can help regional decision-makers to draw broad indications of their territory’s ecological limits with limited to moderate effort. Screening results can be a useful basis for engaging stakeholders into a more focussed discussion of environmental sustainability. The screening is not intended as a replacement of the LCA, but as a way to more efficiently use the resources needed to conduct them when these are available (i.e. a “warm up” exercise); or to provide an accessible, yet consistent way to consider environmental sustainability when the resources for an LCA are not at hand (i.e. allowing a “safeguard”).

Recommendations

The pilots of the Sustainability Screening conducted in Stara Zagora and Vidzeme have

shown its potential when combined with local knowledge. They also illustrated clearly the range and level of challenges that future users of this approach would encounter. On this basis, the following recommendations are drawn:

Establish a European technical group on bioeconomy sustainability

An expert group – similar to those engaged in the Common Implementation Strategy of the EU Water Framework Directive (WFD) – could keep the discussion of key concepts and terms evolving and support as ad-hoc advisory group for the regions. Several international groups already exist which are dealing with the topic of sustainability in the bioeconomy and could eventually host this regional advisory group or be invited to pick up its mandate. Some include the [EU Expert Group linked to the Bioeconomy Policy Support Facility](#), the European Bioeconomy Policy Forum (EBPF), the [Bioeconomy Strategic Working Group](#) (BSW) under the Standing Committee on Agricultural Research (SCAR), the [Thematic Group Bioeconomy and Climate Action in Rural Areas](#) of the European Network for Rural Development (ENRD), and the [FAO’s International Sustainable Bioeconomy Working Group](#) (ISBWG).

Facilitate regional-level data on water resources

While the WFD reporting data used in the pilots allowed for a broad outline of the conditions of water resources in the regions, making more disaggregated data accessible would significantly improve the results in some cases. The relevant data on status and significant pressures and impacts affecting individual water bodies are already collected routinely by the River Basin Authorities, so making it accessible through the WISE WFD Data Viewer hosted by the European Environment Agency (EEA) would require seemingly manageable additional effort. This would help to further valorise the data collected and reported by Member States and open a concrete channel for mainstreaming the WFD objectives and increasing coherence between EU water and bioeconomy policies.

Expand coverage of EU Bioeconomy Monitoring System and Knowledge Centre for Biodiversity

The majority of datasets related to biodiversity in EU territory are not regularly updated and/or are aggregated at a rather large spatial level (e.g. national or biogeographical region). This seriously hampers their potential application in a meaningful screening of biodiversity at smaller regional (i.e. NUTS3) level. The development of the present sustainability screening showed that remote sensing-based data offers a big potential to fill still existing gaps of primary data. This type of data was obtained by the screening team through centralised repositories such as COPERNICUS, but has

currently not been properly integrated into the EU Bioeconomy Monitoring System.

On the other hand, the majority of the reviewed literature that deals with impacts of bioeconomy sectors (in the case focusing on forestry) assesses the impacts of different management intensities and specific practices on the richness of several species groups. However, data on species for specific regions is very difficult to obtain since these are mostly mobile and not endemically encountered in single regions. Moreover, whenever information about this is produced, its availability is highly dependent on national efforts and resources, the implementation by local authorities or active non-governmental engagement (e.g. monitoring by NGOs or through citizen science initiatives). The EU Biodiversity Strategy, a centerpiece of the European Green Deal, contains an action field of “Introducing measures to enable the necessary transformative change” which could also be used to strengthen a more centralised collection of this data. For example, such information could be made available through the European Commission’s newly created Knowledge Centre for Biodiversity.

Improve monitoring of soil health at regional level

The European Soil Data Centre (ESDAC) provides a comprehensive overview of various aspects of soil-related data in Europe. However, in the context of the sustainability screening, only a single element of this soil data was suitable to be incorporated into the assessment: soil erosion by water. This data is fortunately available at the NUTS3 level; however, it is not yet regularly updated, with the

most recent data being from 2016. In line with the [forthcoming Performance Monitoring and Evaluation Framework \(PMEF\)](#) for CAP Strategic Plans, this indicator should continue to be developed, regularly updated, and made publicly available at NUTS3 level.

In future applications of such a sustainability screening, it would be beneficial to include information on soil organic carbon (SOC) content, which was excluded from the present screening precisely due to data availability limitations.

The forthcoming PMEF again offers an opportunity for further development of monitoring SOC. Context indicator 40 *Soil organic carbon in agricultural land* is of particular relevance, with planning underway for a new data collection campaign in 2022. At present, the indicator description only mentions data collection at the EU, national, and NUTS2 level. For future regional bioeconomy planning, making this data available at the NUTS3 level would be an important added benefit.

Further relevant considerations

- ➔ **Facilitate the involvement of local stakeholders in carrying out sustainability screenings** of regional bioeconomies, for instance through a European technical group on bioeconomy sustainability, in order to increase ownership and access to sources to regional data that may not be available in English or on centralized data repositories.
- ➔ **Expand the EU Bioeconomy Monitoring System indicators** to consider more remote-sensing based information, with a specific focus on improving data availability at the regional level and increasing the frequency of monitoring.
- ➔ **Support regional and local initiatives to generate region-specific data**, for instance with support of the JRC or the EEA. This information should be complementary to already available and more easily updatable remote-sensing based information.



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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 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 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/>.

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