



Optimising the climate benefits of rural bioeconomy value chains Orientations for the CAP Strategic Plans

ENRD Thematic Group on Bioeconomy and Climate Action

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INTRODUCTION

The bioeconomy has the unique potential to mitigate climate change through emission reductions and the sequestration of carbon in soils, biomass and, ultimately, bio-based products. The development of value chains that promote greater resource efficiency, the circular use of materials, and the carbon storage also offer the possibility to develop added-value products. These products and the climate emission reductions embedded in them could potentially be rewarded by society as we transition towards climate neutrality across the economy. In so doing, the development of a sustainable, circular bioeconomy offers the opportunity to contribute to several of the goals set out in the European Green Deal.⁽¹⁾

A broad range of EAFRD-funded rural development measures in the 2014-2020 period are useful for supporting a low-carbon transition in rural areas and promoting investment in new bio-based value chains. Similar types of interventions will remain possible in the future CAP Strategic Plans (CAP SPs) based on the programming choices of Member States. Targeted and coordinated action within the CAP SPs has the potential to enhance the climate performance of rural activities and the bioeconomy. This paper sets out some lessons that can be learnt from the current programming period and opportunities that might arise from the implementation of future CAP SPs.

The ENRD Thematic Group *Mainstreaming the Bioeconomy* produced recommendations on using EAFRD-funded rural development measures to support the construction of a sustainable, circular bioeconomy that benefits rural areas.⁽²⁾ **This document complements those recommendations by identifying how climate benefits can be optimised at different stages of support for rural bioeconomy in the CAP SP.** It is structured around the four developmental stages of the bioeconomy value chains: launching or enabling new value chains; supporting and investing in bioeconomy value chains; making value chains self-sustaining; and monitoring, evaluating and learning to be more sustainable. Across all four stages the importance of investment, both in resources and in soft measures such as networking, cooperation, targeted advice and knowledge transfer, is highlighted as facilitating change and promoting the uptake of climate change mitigating solutions across the bioeconomy.



(1) Presentation by DG AGRI, Third Meeting of Thematic Group on Bioeconomy and Climate, Green Deal and the CAP - https://enrd.ec.europa.eu/sites/enrd/files/tq_beca3_presentation_esmanne.pdf

(2) https://enrd.ec.europa.eu/sites/enrd/files/s11_bioeconomy-handout_how-to-support-bioeconomy.pdf





1. IDENTIFYING OPPORTUNITIES FOR CLIMATE ACTION IN RURAL BIOECONOMY VALUE CHAINS



Awareness

The climate potential of the emerging bioeconomy must be understood and appreciated by all the stakeholders involved. This requires a shared vision of the climate ambition, in line with the increased EU aspirations expressed in the Green Deal. It also requires a common understanding of the opportunities and pathways available to deliver climate action within the bioeconomy.



Lessons from the Rural Development Programmes for the design of future CAP Strategic Plans:

- All stakeholders – from CAP administration to local authorities, advisory services, farmers, rural businesses and others – must be made aware of the overall climate goals, strategies for change and relevant rural opportunities and needs.
- Synergy and coordination between policy sectors is necessary to ensure the CAP SP is complementary to national or regional climate strategies, bioeconomy strategies, other related EU or national funding instruments and potential market opportunities.
- *Good Agricultural and Environmental Conditions (GAEC)* can normalise and upscale certain low-emission or carbon-sequestering practices relevant to the specific national context during the biomass production phase.
- *CAP Pillar II* interventions on knowledge exchange and information provide an important opportunity to support the effective application of the GAEC. Advice and information are necessary to build rural actors' understanding of how their practices and actions can contribute (more) to climate change mitigation.

Example from RDPs

Klimatkollen is a climate advice⁽³⁾ module within the Greppa Näringen⁽⁴⁾ programme implemented by the Managing Authority of the Swedish Rural Development Programme. With the help of individual consultants, farms all over Sweden are taking actions to reduce the greenhouse gas emissions connected to agricultural production. All the advisers of the module have undergone specific training on the climate impacts of farm activities. The individual visits enable each farm to adopt the most effective climate measures for them. Follow-up visits during a 3-year period allow the farms to test the different methods that contribute to climate change mitigation. The Klimatkollen visits focus primarily on the resource efficiency actions which can be beneficial for both the climate and the farmer's finances.



Innovation

Innovation and the promotion of best practices are required to deliver a bioeconomy that optimises the climate benefits at all steps of the value chain. This should be based on engagement and coordinated work with practitioners.



Lessons from Rural Development Programmes for the design of CAP Strategic Plans:

- *CAP Pillar II* Innovation support (e.g. EIP-Agri Operational Groups) and other cooperation interventions could be used to design specific, locally adapted mitigation practices within the bioeconomy. This should be complemented with support for training, networking and advice to ensure new approaches are successfully implemented.
- *CAP Pillar II* Pilot and rural business start-up initiatives can be used to test and promote new technologies and practices.

Insights for the CAP SP

During the 2014–20 period, the Spanish National Rural Development Programme supported several EIP-AGRI Operational Groups to establish new cooperation models and innovations in the circular, low-carbon bioeconomy. The Spanish Managing Authority places great importance on the evaluation of the projects' outcomes once finalised. They will be a key source of information when orienting the interventions of the post-2020 CAP Strategic Plan



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(3) <https://greppa.nu/miljo-och-klimat/klimat.html>

(4) [https://greppa.nu/download/18.37e9ac46144f41921cd1d91f1402565317524/Focus on nutrients.pdf](https://greppa.nu/download/18.37e9ac46144f41921cd1d91f1402565317524/Focus%20on%20nutrients.pdf)



Bringing actors together

The development of resilient and innovative bioeconomy 'value webs' with overall reductions in greenhouse gas emissions requires new linkages between sectors and product chains. This can be particularly important in reducing waste generation, promoting the use of residual waste and wider resource efficiency gains.



Lessons from Rural Development Programmes for the design of CAP Strategic Plans:

- *CAP Pillar II* interventions on knowledge exchange and information and cooperation could be used to support cluster and network development, supply chain development and producer groups. Such structures facilitate joint efforts and coordination to increase the climate benefits within bioeconomy value chains.



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Promoting territorial approaches

Coordinated, circular approaches within a local territory or region have a strong potential to reduce greenhouse gas emissions. Successful territorial approaches to the bioeconomy maximise the mitigation opportunities while avoiding capital outflow from the area and adding value to the local economy. As an example, locally owned bioenergy projects have links to local agriculture and consumers and as such can support redistribution of money, nutrients and energy in the community.



Lessons from Rural Development Programmes for the design of CAP Strategic Plans:

- Ensure that regional authorities are engaged and consulted when determining climate and bioeconomy priorities and solutions.
- *CAP Pillar II* can support Local Action Groups (LAGs) through LEADER funding. LAGs can be instrumental in integrating climate targets in local development strategies and projects and hence translating overall CAP SP climate objectives to the local context. LAGs involve local communities in initiatives and their input could be used to define how the bioeconomy can help face local challenges and create solutions that promote improved climate mitigation.
- *CAP Pillar II* also offers other types of support for local development plans with a climate focus. Smart Villages strategies can be useful tools for promoting local, circular and climate smart solutions in various fields such as local food chains, energy communities or waste management. Their implementation can be supported by several CAP SP interventions including investments, start-up support to rural businesses, and cooperation.



Opportunities in the CAP SP implementation phase:

- Ensure that bioeconomy initiatives supported by CAP SP interventions are linked to regional long-term strategies for climate action and landscape planning.
- Ensure that the interests of all stakeholders - even small ones - and existing initiatives are taken into account in the process and that local needs are being met. This is key to ensure the local 'buy-in' and commitment to climate efforts.
- Ensure regional and local authorities and project beneficiaries are aware of all the relevant national and EU funding instruments (including CAP and other ESIF⁽⁵⁾ sources) that can support the different steps for developing a circular territorial bioeconomy with significant climate benefits.

Example from RDPs

The regio³ in Austria has been implementing a LEADER-financed initiative called Climate and Energy Region project⁽⁶⁾ since 2019. The project aims to use regional energy resources in a sustainable and efficient way. The project raises awareness on energy efficiency through several work packages implemented by various regional stakeholders and organisations. Among other things, the Climate and Energy Region promotes discussion and networking between the environmental officers of 13 municipalities and the development of a common energy roadmap.

(5) European Structural and Investment Funds – incl. European Regional Development Fund, European Social Fund, European Maritime and Fisheries Fund.

(6) <http://regio-tech.at/page.cfm?vpath=klima--und-energiemodellregion>



2. SUPPORTING AND INVESTING IN BIOECONOMY VALUE CHAINS THAT MITIGATE CLIMATE CHANGE

The development of the bioeconomy offers the potential to address climate mitigation goals and promote added-value products that deliver economically, socially and environmentally sustainable solutions for rural actors and society. Climate action that reduces emissions should preferably be integrated throughout all value chain steps. The CAP offers possibilities to promote a wider range of actions which can be undertaken, not only by producers and land managers, but, importantly, all along value chains.



Introducing and upscaling mitigating practices

Within the bioeconomy an additional climate opportunity is associated with land management for biomass production through its potential for sequestering and storing carbon within soils and biomass. For further orientations on optimising soil-related practices that mitigate climate change, see the ENRD Thematic Group document *Sequestering carbon in soil and retaining soil carbon stores - Orientations for CAP Strategic Plans*⁽⁷⁾.



Lessons from Rural Development Programmes for the design of CAP Strategic Plans:

- CAP Pillar II funding for knowledge and information exchange on mitigating practices is fundamentally important to upscale them throughout the biomass production stage. Peer-to-Peer learning approaches, cooperation and networking are particularly effective for supporting the adoption of new practices.
- GAEC can be used to upscale climate mitigating agronomic practices into agricultural production. Most climate friendly practices also have other environmental benefits.
- CAP Pillar I Eco-schemes and Agri-Environment-Climate interventions under Pillar II can be used to target and incentivise further mitigating efforts.

Insights for the CAP SP

In line with the national target of reducing greenhouse gas emissions by 70% by 2030, Denmark aims to optimise emission reductions by designing CAP SP interventions to respond to the SWOT analysis and needs assessment. One of the significant climate change mitigating actions that can be supported with the CAP SP⁽⁸⁾ is taking drained peatlands out of agricultural production and rewetting them. The new GAEC 2 conditionality on appropriate protection of wetland and peatland, voluntary agri-environment-climate measures and eco-schemes will be central tools to do this. To control the phosphorous leakages resulting from the rewetting, the biomass on the rewetted peatlands should be harvested. Finding commercial uses for the harvested peatland biomass – e.g. for bio-refining, fodder, green fertiliser and energy production – could offer new economic opportunities for farmers and land owners and possibly compensate for the economic losses of removing the areas from agricultural production.



Investments

Machinery, infrastructure and technology used in the different steps of the bioeconomy value chains should be low or no-carbon and resource efficient. A low carbon processing chain can bring additional value to new bio-based products and services if it is effectively communicated to consumers and society.



Opportunities in the CAP SP implementation phase:

- CAP Pillar II investments should be proofed to understand their contribution to climate action and how they could enable mitigation and adaptation opportunities.

(7) https://enrd.ec.europa.eu/publications/sequestering-carbon-soil-and-retaining-soil-carbon-stores-orientations-cap-strategic_en

(8) https://enrd.ec.europa.eu/sites/enrd/files/tq2_beca_denmark_wolfheckel.pdf



Diversification

The CAP can offer support for new production systems and new biomass streams that fulfil climate goals and provide alternative biomass resources.



Opportunities in the CAP SP implementation phase:

- *CAP Pillar II*: funding for planting trees and supporting knowledge and information exchange for their management can contribute both to new sustainable biomass sources for the bioeconomy and carbon sequestration (whether afforestation or agroforestry solutions, including wooded landscape features, as well as silvoarable or silvopastoral approaches).

- *CAP Pillar II*: support for cooperation and creating links between different actors in value chains or between value chains; for example, to support circular and cascading uses of residues and by-products.
- Networking – to build clusters and knowledge communities that disseminate innovation about the low-carbon bioeconomy.

Example from RDPs

In Slovakia, the PIGAGRO s.r.o. agricultural enterprise used the RDP 2014–20 investment support for agricultural holdings to improve the safe storage and management of livestock manure and other animal by-products. The new manure tanks stopped nutrient leakages from manure handling and enabled its efficient use as fertiliser. This allowed to close the circular loop of low-carbon fodder and pig production.



3. CONSOLIDATING SELF-SUSTAINING, LOW CARBON RURAL BIOECONOMY VALUE CHAINS

New bioeconomy value chains should be delivering added value and be sustainable in operation.

Demonstrating good climate performance to consumers and the wider society can generate additional market pull for rural bioeconomy products. Evidence of climate benefits forms the basis for added value payments and has the potential to promote the economic sustainability of rural bioeconomy value chains.

CAP support for climate change mitigating practices, equipment, production systems and business models could pave the way for rural actors to develop or interact with future carbon offsetting schemes that reward agricultural emission reductions. While such approaches are still under development, as they evolve they could provide alternative funding for rural, climate change mitigating bioeconomy activities.

implement collective or territorial *ecoschemes*, or Results Based Payment Schemes, for example in Pillar II AEEM, that could provide an economic reward for climate and environmental delivery.



Continuous advice and support

It is important to ensure expert advice and support is available at all the developmental stages of the climate-performant bioeconomy value chains. This is necessary to ensure that: climate goals are defined for any given intervention or approach, opportunities are seized, and actors learn lessons and develop systems to constantly improve performance.



Opportunities in the CAP SP implementation phase:

- *CAP Pillar II*: Provide advice on climate aspects to rural bioeconomy actors on a continuous basis – not only at the beginning of a bioeconomy activity.
- Ensure advisors have relevant competences and knowledge on climate targets and related mitigation practices.



Rewarding climate efforts

A value chain's integrated climate benefits can be used for marketing purposes, as seen with the market premiums for organic products. They can also be seen as serving the public good and so deserving reward. Both public and market-based rewarding require a demonstrable achievement based on robust monitoring and verification of the climate effects (see next chapter).



Opportunities in the CAP SP implementation phase:

- *CAP Pillar II* can offer support for quality schemes that can link to climate certifications and labels.
- Climate outcomes are more significant and may also be easier to grasp and demonstrate at a collective level. *CAP Pillar II* can support the formation of producer groups. These, in turn, could

Example from RDPs

In the Pays de la Loire, France, the Managing Authority of the regional Rural Development Programme has introduced a scoring system for farmers who implement climate change mitigating measures in line with the national standards. Farms with higher scores have privileged access to investment support from the Rural Development Programme.



4. LEARNING TO BE MORE SUSTAINABLE

Work by the ENRD Thematic Group on Bioeconomy and Climate has identified that monitoring, evaluating and learning to optimise climate performance should be integrated into all the stages of the bioeconomy value chains and into all public support provided to them. Monitoring the climate effects of rural activities should help to empower rural actors, support informed decision-making, and improve the climate mitigation performance (alongside other sustainable development goals).

Developing approaches to assess the climate performance of rural activities should not exclude any actors from climate action. Therefore, deciding what to monitor and which verification systems to use to assess, and track the climate performance of rural actors should involve all stakeholders that have an interest in adding value to their bioeconomy activity through improved climate performance. The Thematic Group has developed a factsheet on monitoring and reporting needs to empower rural actors and support climate action; this can be downloaded at https://enrd.ec.europa.eu/publications/bioeconomy-factsheet-monitoring-climate-action_en.

It can be challenging to consistently monitor direct greenhouse gas emissions or carbon sequestered. However, proxy indicators could be developed by actors in a value chain to monitor their success and performance, and reflect their knowledge, communication and reporting needs.



Opportunities in the CAP SP implementation phase:

- Ensure that the different rural actors of the bioeconomy value chains are encouraged and supported to review, monitor, improve and communicate the climate mitigation performance of their activities.
- Explore new tools that enable further value creation for rural bioeconomy initiatives through market recognition and reward. These are effectively tools for communicating both along value chains and with consumers.
- CAP interventions offer the opportunity to support the development of monitoring systems for rural climate action. *Pillar II advisory services and knowledge sharing* can build the capacity of rural actors and advisers to make use of these.



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