European Commission

Mainstreaming Climate Change Into Rural Development Policy

Climate Action

Introduction

Climate change presents one of the most central challenges for agriculture and rural areas in the European Union. On the one hand, EU agriculture is an important source of greenhouse gas (GHG) emissions (in 2012, on-farm methane and nitrous oxide emissions accounted for 10% of the EU28 total GHG emissions[1]). On the other hand, agriculture and rural areas are heavily exposed to the effects of climate change. The complex challenge of increasing production to meet the global demand for food while mitigating (i.e. reducing) GHG emissions requires concerted and systematic efforts across the EU.

Rural Development Programmes (RDPs) are a key EU funding instrument for sustainable land management, offering also numerous opportunities to advance response to climate change across the EU. RDPs can support many practical actions to help mitigate emissions and adapt to the changing climate in the agricultural sector and land management more broadly. In the 2007–2013 programming period, Member States already used the RDPs to fund operations such as those related to renewable energy, energy efficiency, afforestation and forest fire prevention, or irrigation.

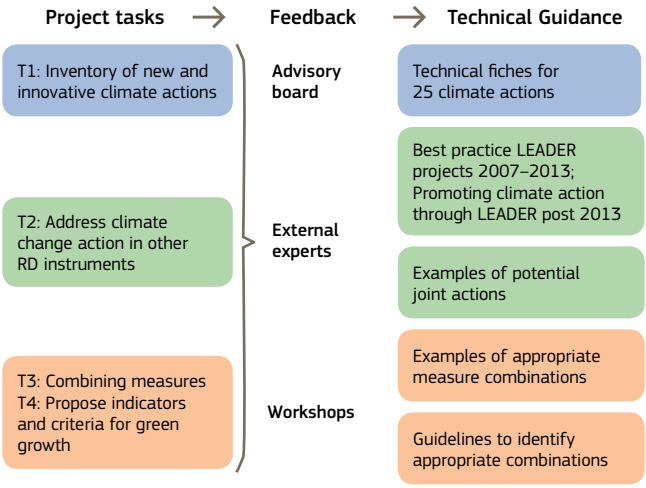
The European Agricultural Fund for Rural Development (EAFRD, No 1305/2013) Regulation for the programming period 2014–2020 enables Member States to build on past experiences and further provide targeted support for climate operations under a range of rural development measures. Among others, the key measures for climate action include the agri- environment-climate measure, investments in physical assets, knowledge transfer and information actions, forestry measures, and organic farming. Moreover, opportunities are also available to support coordinated climate actions beyond farm holding level through the LEADER instrument, the Cooperation Measure, as well as by combining several RD measures.

Against this background, the project "Mainstreaming climate change into rural development policy post 2013" aimed to

develop Technical Guidance for RDP Managing Authorities as well as other interested practitioners on how to further mainstreaming climate action in RDPs. The project identified "new and innovative" climate actions and identified ways in which these can be supported further in RDPs. In the study, "new and innovative" actions are defined as:

- actions (management options) which have either not commonly been implemented in the past RDPs (but which have significant mitigation or adaptation potential), or
- actions which have already been commonly implemented in past RDPs but which have significant additional mitigation or adaptation potential.

An overview of the project is provided in the Figure below.



The Technical Guidance can provide inspiration for better integration of climate objectives in RDPs, as well as inspiration for national activities that might be taking place outside of the RD policy framework, whether this is in relation to the Land Use Land Use Change and Forestry sector or other initiatives.

In the following pages, an overview of the key elements of the Technical Guidance for further integrating climate change actions into RDPs is given. The project report and the full Technical Guidance can be found under the following link: ec.europa.eu/clima.

Technical Fiches for **climate actions**

In order to encourage the uptake of climate actions, a series of 25 fiches have been developed for the Technical Guidance which seek to explain how some of the key actions work. The fiches are primarily intended to provide guidance on how the actions could be integrated into RDPs, however they could also be of use to stakeholders working in other areas of agricultural policy beyond RDPs.

Each technical fiche provides:

- *An explanation of how a particular action (such as planting cover crops) could reduce GHG emissions or help to adapt to climate change*
- *An example of how the action could be translated into an RDP operation*
- *Guidance on the conditions likely to favour the operation*
- *Guidance on the likely mitigation/adaptation effect, and any wider environmental and other effects.*
- *Explanation of the main cost elements*
- *References to supporting information*

Overview of the 25 fiches:

Mitigation actions	
M1	Extending the perennial phase of crop rotations
M2	Using cover/catch crops and reducing bare fallow
M3	Improving nitrogen fertiliser use efficiency
M4	Applying nitrogen fertiliser more precisely
M5	Biological nitrogen fixation (i.e. legumes) in rotations and in grass mixtures
M6	No-tillage
M7	Retaining crop residues on the field
M8	Loosening compacted soils and preventing soil compaction

M9	Avoiding the drainage of wetlands and the conversion of peatlands
M10	Feeding a higher fat content diet to cattle
M11	Precision and multi-phase feeding of livestock
M12	Solar fodder dryers
M13	Behavioural change towards better energy efficiency
M14	Climate proofing of planned on-farm investments
M15	Better livestock health planning
M16	Carbon audit

Adaptation actions	
A1	Using adapted crops
A2	Using cover crops and reducing bare fallow
A3	Soil erosion control plan
A4	Reduced tillage and zero tillage
A5	Optimising adaptation benefits of shelterbelts and hedges
A6	Optimising the adaptation benefits of land drainage
A7	Improving irrigation efficiency
A8	On farm harvesting and storage of rainwater
A9	Optimising greenhouse cultivation

It is important to keep in mind that mitigation and adaptation are complex processes. The fiches are summary overviews that explain key points and are intended to provide inspiration to RDP Managing Authorities and other stakeholders rather than detailed operative guidelines.

Combinations of **measures**

A new feature in the RD programming period 2014–2020 is the possibility to combine single measures or to use thematic sub-programmes to formally combine measures to address the identified specific needs. This should enable a more targeted support and is supposed to lead to a simplification for the administration. The project examined how these new instruments can be employed to mainstream climate change mitigation and adaptation objectives into RDPs.

The objective was to identify and describe appropriate combinations of climate-oriented RD measures for promoting specific mitigation or adaptation operations, considering requirements for programming and overall effectiveness of the mix of measures. Possibilities for appropriate combinations of measures were identified in close collaboration with the other tasks of the project and through consultation with EU Member State RD programmers.

Although a combination of measures is often considered useful in order to exploit synergies, only few Member States have experience with the implementation of combined measures as a package and resulting from a joint programming exercise. Managing Authorities and RD programmers associate combined implementation of measures with increased efforts for programming and administration. Therefore, measures have mostly been implemented separately without seeking obligatory measure combinations. This leads to more flexibility to address context specific circumstances and increased efficiency of climate actions.

RDPs could greatly benefit from the identification of measures that, when combined, lead to an increased climate benefit. Therefore, RD programmes would need to be designed so as to consist of a set of single measures ("toolbox") that could also be implemented in combination when they complement each other. The combination of single measures is often useful. However, their relevance and suitability are context specific as they depend on site-specific circumstances and conditions, policies, and farming practices and vary between beneficiaries.

In order to ensure successful and effective implementation of measure combinations, a number of guidelines have been formulated (see box below).

Guidelines for the identification of effective measure combinations

- *Identify the added value of a combined implementation compared to single measures needs*
- *Consider synergies and expected benefits as well as potential barriers and disadvantages for measure combinations*
- *Define an adequate level for the measure combination*
- *Decide on voluntary or obligatory measure combination*
- *Consider additional efforts for programming and administration*
- *Provide sufficient capacities for a potentially higher uptake due to the combination of measures (e.g. advisory services)*

The table below contains a few examples, where the combination of measures might be appropriate. Further suggestions for possible combinations of measures for the different focus areas under Union Priority 4 and Priority 5 of the EAFRD Regulation are summarised in Annex 2 of the report. Details on the method used to select the combinations of measures and further examples for combinations are included in Chapter 3 of the main report.

Examples of combinations of measures with a focus on climate change

(measures mentioned refer to the list of 25 technical fiches on page 5)

Measure 1	Measure 2, 3, 4 ...	Explanations
Focus Area 4a: Restoring, preserving and enhancing biodiversity		
A5 Optimising adaptation benefits of shelterbelts and hedges (Art. 22 and 28)	Land management planning (Art. 28)	The combination of these measures provide a spatially more targeted support at landscape level and thereby increase adaptation benefits and improve ecosystem services such as biodiversity.
Focus Area 4b: Improving water management (fertiliser, pesticide)		
M3 Improved N efficiency (Art. 14, 15, 28)	M16 Carbon audit (e.g. Art. 15) Advisory service/training (Art. 15)	To improve N efficiency by a result-oriented approach should be supported by training and nutrient accounting and thus requires a measure combination.
Focus Area 5b: Increasing efficiency in energy use in agriculture		
M14 Climate proofing of planned investments (Art. 17)	M13 Behavioural change towards better energy efficiency (Art. 14, 15, 28)	The combination allows a foresighted, climate-friendly investment support and the optimal management (in terms of climate protection) after realisation of the investment.
Focus Area 5e: Fostering carbon conservation and sequestration in agriculture		
M9 Investments for restoration of wetlands (natural heritage) (Art. 20)	Land consolidation (Art. 17c) Extensification on organic soils (Art. 28) Pilot projects for paludicultures (Art. 35)	Wetland restoration can only be achieved with a combination of measures and the collaboration of different land-users and is therefore a measure combination per se.

LEADER

Focusing on community-led integrated local development and innovation, LEADER (Art. 42–44) is well positioned to play an important mobilising role for climate action in rural areas. A screening of existing climate-focused LEADER projects from the 2007–2013 period illustrates that LEADER has proven effective for stimulating different types of climate actions, focusing more on capacity building, renewable energy, and energy efficiency, whereas adaptation activities have received less attention. LEADER has facilitated capacity building as well as physical investments for climate action in rural areas.

The project compiled a list of 130 LEADER projects, and the analysis shows that in delivering concrete benefits for climate mitigation and adaptation, these projects have also contributed strongly to sustainable social and economic development and to rural quality of life. The climate element within these projects has varied from the main focus of the project or a driving factor behind creation of the project to climate as one of several issues addressed by the project. Climate objectives can be an integral part of the LEADER principles for integrated innovative development.

There is nonetheless further potential to better integrate climate action under LEADER and several challenges that need to be overcome. The Technical Guidance includes examples and suggestions for Managing Authorities and Local Action Groups (LAGs) on how to further support climate action through LEADER projects:

- Annex 3 provides **project factsheets for best practice examples** of LEADER projects. These factsheets outline the drivers behind the creation of the project, the objectives of the activities implemented, outcomes and beneficiaries of the activities, multiple types of benefits resulting from the project, and success factors and barriers to creation of the climate action project. They offer detailed examples of how LEADER projects can effectively support climate action.

- Annex 4 illustrates what **types of steps** the Managing Authorities can **take to further support LEADER projects** during the 2014–2020 programming period, including through the administration of the LEADER instrument and by providing technical guidance to LAGs, and increasing experience sharing and knowledge exchange. The innovative and new types of climate-focused activities that can deliver significant benefits for climate as well as rural economies and social development and that would benefit from more visibility and support are outlined.

- Annex 6 provides a long **list of climate action projects** which have been implemented throughout the EU in 2007–2013 period, illustrating the wide range of potential activities and project objectives.

The table below illustrates the range of climate relevant topics and project activities which could be supported under future LEADER projects.

Thematic Area	Examples of LEADER project activities
Renewable Energy	Local and regional energy low carbon mobility planning or Installation of renewable energy systems, including waste reduction is another potential benefit if reused for energy generation
Capacity Building	Activities that build 'carbon consciousness' among rural population and businesses, including awareness raising, or the application of carbon audits
Adaptation planning	Stakeholder platforms or working groups to identify climate change vulnerabilities at regional/local scale, and to identify and implement adaptation strategiesoptions
Energy Efficiency	Energy efficiency actions which can reduce individuals' and communities' carbon footprint include installing more insulation and energy efficient light bulbs, as well as upgrading insulation and energy equipment in buildings
Landscape/ Resource Efficiency	Activities supporting resilience-building (e.g., flood risk management plans) and restoration of local wetlands and peatlands
Water	Local projects to improve water quality or adaptation actions in light of water scarcity concerns can include irrigation infrastructure improvements and small-scale financing for efficient equipment (e.g., drip systems), improved landscape management for natural filtration, and restoring riverbanks
Tourism/ Local Economy	Climate actions such as restoration of local landscape resources (e.g., hedges, riverbanks, wetlands) and demonstration of energy self-sufficiency can enhance mitigation as well as increase recreational opportunities and attract tourism to the local area for economic benefits

Cooperation measure

The Cooperation Measure (Art. 35) enables the funding of joint actions. The Cooperation Measure is a particularly useful and appropriate instrument to support collective actions that can increase the scale and extent of climate mitigation and adaptation impacts through joint planning, design, and financing.

Cooperation groups can be set up to develop and implement innovative collective projects which respond to locally specific issues and develop appropriate solutions. Cooperation groups can address specific climate-focused problems and identify mitigation and/or adaptation solutions by bringing together a range of stakeholders, including advisors, farmers, researchers, the industry, local communities, municipalities, and environmental agencies. In this way, emission reduction or climate adaptation solutions can be tested collectively, increasing also stakeholder buy-in before they are rolled-out more broadly.

In Annex 5 of the Technical Guidance, several potential climate-focused actions are presented that benefit from applying a collective approach. Below some key examples are illustrated.

Potential joint actions with a climate focus

1. Cooperatives for machinery use
2. Development and implementation of wetland restoration concepts
3. Climate action networks
4. Operational groups under the European Innovation Partnership for agricultural productivity and sustainability on the following topics, among others:
   - Development and/or improvement of regionally appropriate climate audit tools
   - Developing of regionally appropriate design options for adaptation of buildings
   - Identification of regionally appropriate strategies to increase resilience of forest stands to climate change, while delivering biodiversity and water protection
   - Testing of regionally appropriate ‘payment by result’ schemes for N-efficiency

- Testing of innovative contracts for voluntary schemes to develop expansion tanks to store water for dry periods or to provide natural retention in case of heavy rains
- Develop a methodology for farm resilience plans for particular farm types/sectors, focussing on risks that farmers are currently underprepared for
- Joint initiatives on how to produce and certify baking wheat without late „quality fertilisation“ with nitrogen
- Practice-oriented groups to support the transfer of existing adapted crops into practice, and increase drought resistance and waterlogging tolerance in the development of new varieties
- Techniques for harvesting and processing weltand biomass or options for harvesting biomass from set-aside

Five joint actions are explained in more detail in Annex 5, including the rationale and objectives of the action, types of actors that can be involved and activities which can be supported, the expected impact the joint action project would have on mitigation and/or adaptation, and potential combinations with other RD measures. Annex 5 also highlights the success factors and barriers to the implementation of joint actions.

Indicators

A number of indicators and criteria were reviewed which can be used to evaluate the contribution of combined RD measures to climate change mitigation and adaptation as well as to objectives of green growth that are in line with the Europe 2020 strategy. Green growth or green economy essentially focuses on three objectives (EEA 2014):

- Improving resource-use efficiency
- Maintaining ecosystem resilience
- Enhancing social equity

In order to evaluate the contribution of RDP measures/operations to climate change mitigation/adaptation and green growth, GHG abatement potential, the cost effectiveness, ancillary effects, the durability of effects and possible displacement effects of measures and measure combinations should be considered.

Result and impact indicators for RD programmes provide a useful entry point for the evaluation of the contribution to climate change mitigation and adaptation. The result indicators are more specific and can be used for measuring the impact of operations outlined in different technical fiches. Impact indicators are less specific and evaluate the contribution of the whole RD programme. Green growth indicators of the OECD can be used on a sectoral or national scale. On this aggregated scale, effects of single measures/measure combinations are difficult to separate from other influences and might be too small to measure. Indicators that are used on local or regional levels, however, normally cannot account for leakage effects (e.g. a displacement of GHG emissions due to increased imports from other regions or countries).

Especially indicators that relate to resource efficiency provide useful information on the impacts, as they relate impacts to a reference and thus allow for comparisons.

Examples include:

- output/MJ energy used (Result indicator)
- output/m^3 water used (Result indicator)
- GDP per unit of energy related CO_2 emitted (Green Growth indicator)
- Net GHG emissions from agriculture (Impact indicator)

References

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Selected further readings

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Project Team

Ecologic Institute, Germany (*Project Coordinator*)

Scotland's Rural College, UK

Johann Heinrich von Thünen Institute, Germany

Solagro, France

National Institute of Agricultural Economics, Italy

Research Institute of Agricultural Economics, Hungary

The project report and the Technical Guidance are available at: **ec.europa.eu/clima**

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Project Coordinator: Ana Frelih-Larsen, Ecologic Institute, ana.frelih-larsen@ecologic.eu

DG Climate Action Project Officer: Simon Kay, simon.kay@europa.ec.eu