

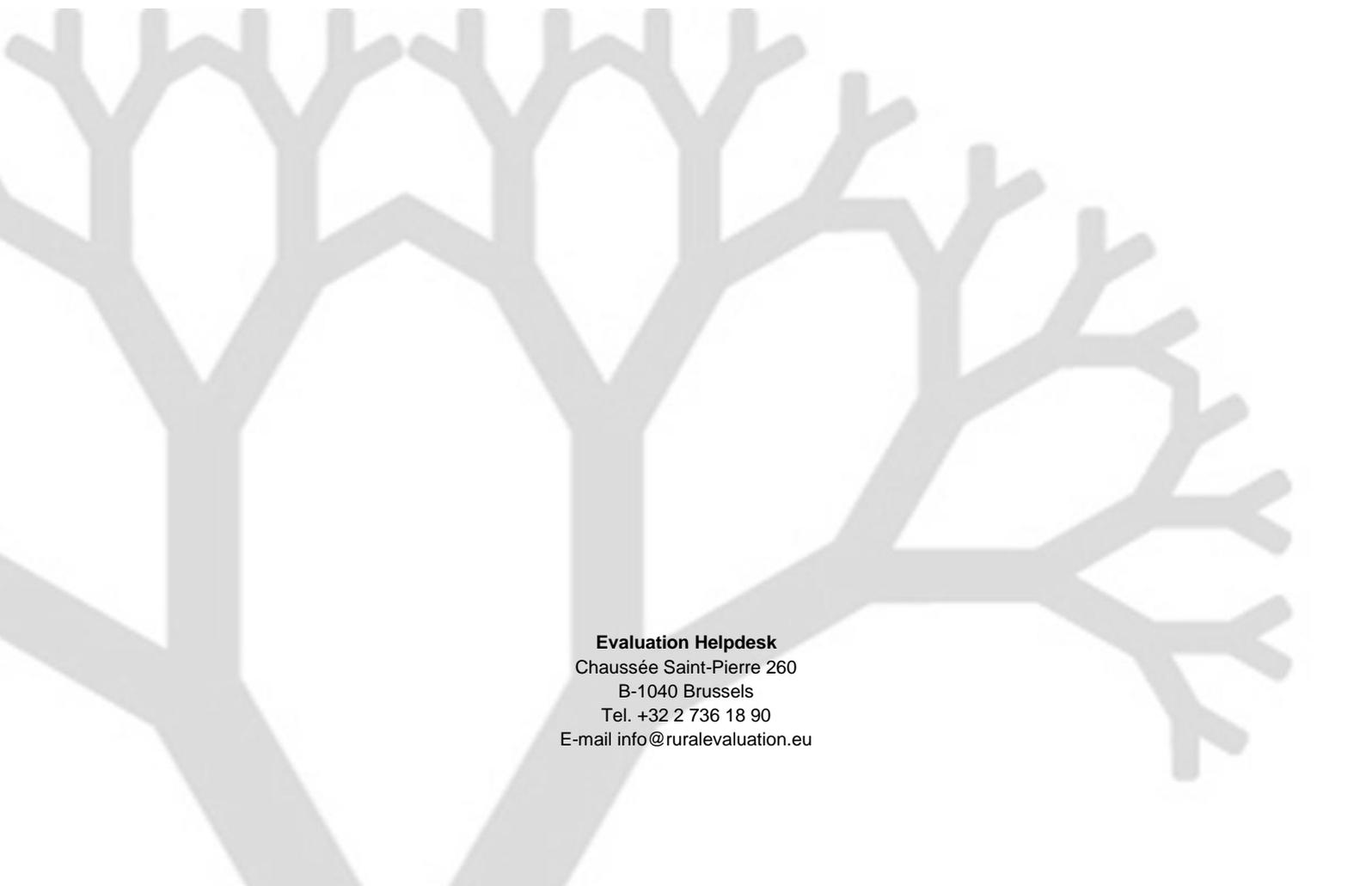


European Evaluation Network
for Rural Development

WORKSHOP OUTCOMES

“Evaluation of climate change activities in the 2014-2020 RDPs”

Good Practice Workshop
Larnaca (Cyprus), 10 and 11 Feb 2014



Evaluation Helpdesk
Chaussée Saint-Pierre 260
B-1040 Brussels
Tel. +32 2 736 18 90
E-mail info@ruralevaluation.eu

Contents

- 1. INTRODUCTION.....3
- 2. CLIMATE CHANGE CONTEXT IN EUROPE3
 - Current contexts and trends 3
 - How is the EU addressing GHG emission?..... 5
 - What is mitigation of climate change?..... 6
 - What is adaptation to climate change?..... 6
 - Looking to the future..... 7
- 3. EVALUATION FRAMEWORK FOR CLIMATE CHANGE MITIGATION AND ADAPTATION FOR RDPs.....7
 - 3.1 Rural development programmes 2007-2013 7
 - 3.2 Rural development programmes for 2014-2020..... 8
- 4. EFFECTIVENESS OF CLIMATE CHANGE RELATED MEASURES OF 2014-2020 RDPs..... 12
- 5. EVALUATION CHALLENGES 15
 - 5.1 Climate change as a cross cutting topic (multiple choice for interventions) 16
 - 5.2 Human dimension of climate change action..... 16
 - 5.3 Setting up the boundaries of the assessment..... 17
 - 5.4 Cost effectiveness of measures..... 18
 - 5.5 Long vs short term impacts 19
 - 5.6 Conflict with other policies..... 19
- 6. CONCLUSIONS..... 20

The Evaluation Expert Network operates under the guidance of DG AGRI – Unit E4. The contents of this publication do not necessarily reflect the official views of the European Commission.

1. INTRODUCTION

The EU 2020 strategy for a smart, sustainable and inclusive growth aims to reduce GHG emission by 20% compared to 1990 levels, use 20% of renewable energy sources in the final energy consumption and a 20% increase in energy efficiency.

Rural areas are being called upon to step up their efforts to meet the ambitious climate and energy targets of the EU. The land use sector, acting as a source but also as a sink for greenhouse gas emissions, offers interesting and feasible possibilities for implementing technical and economic measures to reduce emissions and to adapt to climate change.

Managing Authorities (MAs) are at the moment approaching the *ex post* evaluation of 2007-2013 RDPs and designing the 2014-2020 programmes. A good understanding of the impacts of mitigation and adaptation activities becomes fundamental in the formulation of 2014-2020 RDPs in order to maximize their effective and efficient contribution to rural development, CAP and EU 2020 objectives. Some measures in the 2007-13 RDPs addressed climate change and many lessons can be drawn from the assessment of the 2007-2013 RDPs which can help MAs and evaluators in the formative evaluation of new programmes at the development and design phase of mitigation and adaptation activities for the 2014-2020 RDPs.

In order to discuss and exchange experience in the evaluation of climate change mitigation or adaptation related measures of 2007-2013 RDPs and draw main lesson of the effectiveness and efficiency of the measures for 2014-2020 RDPs, a workshop was organized by the Evaluation Helpdesk in cooperation with the Ministry of Agriculture, Natural resources and Environment of Cyprus on 10 & 11 February 2014 in Larnaca (Cyprus).

The main outcomes of the workshop are summarized in the following document.

2. CLIMATE CHANGE CONTEXT IN EUROPE

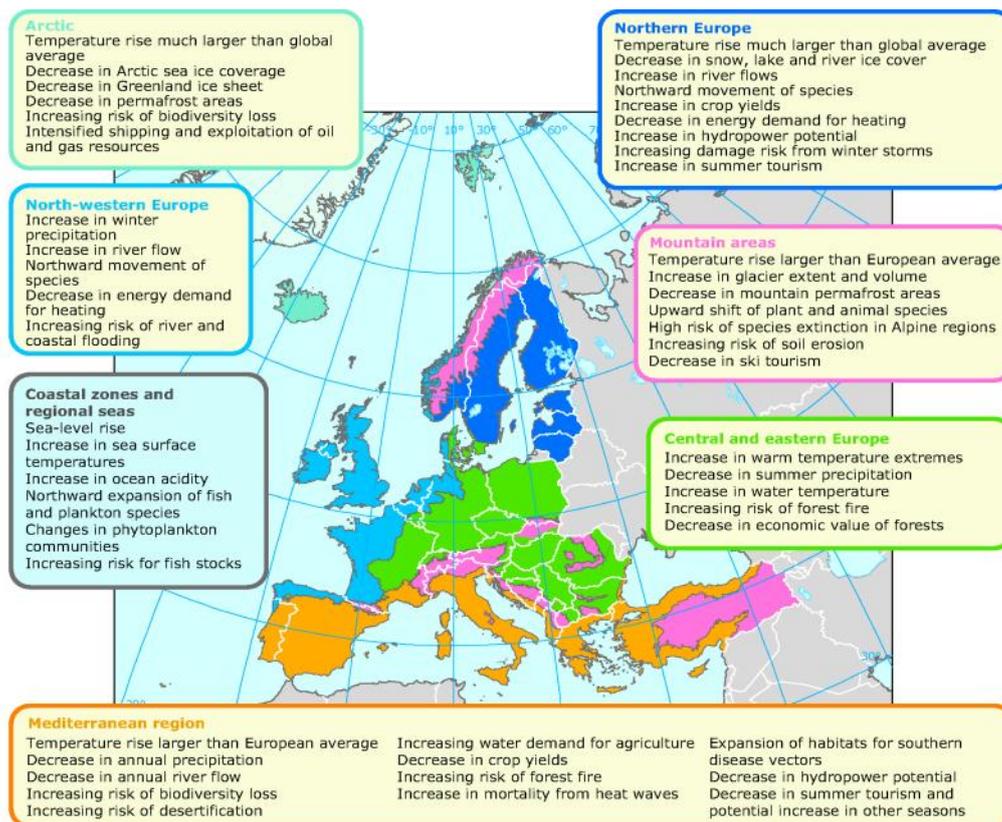
Current contexts and trends

Extreme weather events such as droughts, floods, wildfires, storms, hot waves... are not anymore exceptional in Europe and more and more they become more frequent in all EU Member States. Quoting the UN International Panel on Climate Change (IPCC) "*Warming of the climate system is unequivocal and some observed changes are unprecedented on time scales of decades to millennia. Changes have been widely observed on land, in the oceans and in the atmosphere. The human influence on climate is clear.*"

The EU is reacting and putting in place the necessary mechanisms to mitigate and adapt Europe to the new climatic context. The high concentration of GHG in the atmosphere is one of the main causes that trigger climate change. Most of these emissions are generated directly from human activities and therefore, society plays an important role in climate action.

All regions in Europe are touched by climate change but its effects differ among the regions (due to different situations regarding precipitation or temperature regimes). Rural areas are in need to cope with these effects and adapt to the new climatic conditions. It is key to understand the specific impacts of climate change in the particular context of each region in order to address them effectively and efficiently. The following figure illustrates the effects of climate change in the different parts of Europe.

Figure 1 Key observed and projected climate change effects for main regions in Europe



Source: European Environmental Agency (EEA) last report on climate change: impacts and vulnerability).

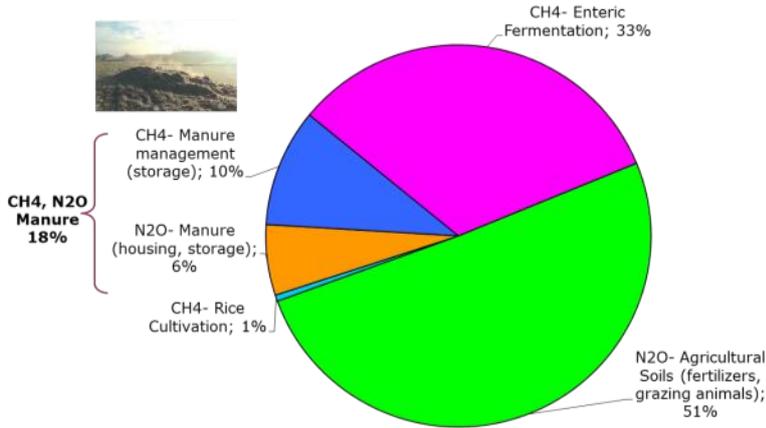
Impacts of climatic changes are very heterogeneous and complex, which make it difficult to devise the net effects. Some of the impacts will be positive for certain regions or sectors, while many others are however, adverse and can occur on systems and regions already under pressure from other environmental and development processes.

The most severe consequences of changes in the average weather variables (temperature, rainfall) may not be felt until 2050, but already in the short term (2020-2030), significant adverse impacts are expected from the increased frequency and severity of extreme conditions (heavy rains, floods, heat waves and droughts).

Within this context, the agricultural sector is one of the economic sectors affected the most by climate change while at the same time the sector is an important source of GHG emissions to the atmosphere (nitrous oxide (N₂O) and methane (CH₄) among others). Agriculture is a very complex system that contributes to climate change through the generation of direct (from livestock, agricultural soils, etc.) and indirect (livestock food, fertilizers, etc.) emissions. The agricultural sector in Europe is already reacting to the challenge and it has reduced GHG emissions by 23% between 1990-2011¹. Overall, the biggest shares of GHG emissions from agriculture comes from fertilizers and enteric fermentation from livestock, while a smaller part comes from manure management, housing, storage and rice cultivation (see Figure 2).

¹ EEA (2013) "Annual European Union greenhouse gas inventory 1990–2011 and inventory report 2013". Submission to the UNFCCC Secretariat

Figure 2 Emissions inventory of the agricultural sector



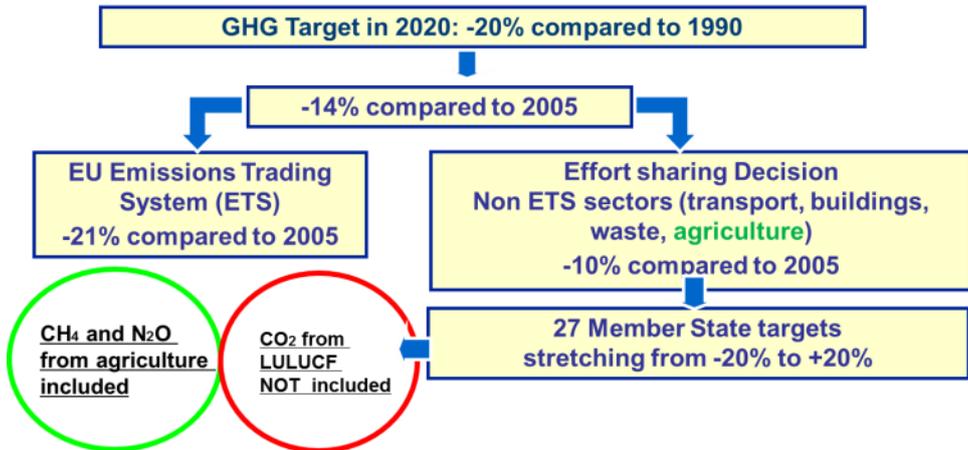
Source: Emissions inventory for sector "Agriculture", EU-27, 2011

However, in the EU there is a highly diverse picture among the different Member States with respect to the level of emissions of the agricultural sector. Still, the sector has potential for reducing GHG emissions, mostly by improving practices in the use of fertilizer and by diminishing the emissions from livestock. At the same time, adapting the sector to the new climatic context of Europe while contributing to the green growth strategy of the EU represents an important challenge.

How is the EU addressing GHG emission?

For the programming period 2014-2020, the EU has set a target for 20 % reduction of emissions compared to emissions of 1990. The latest numbers show that Europe is on track in accomplishing its goal as it has reduced emission by 18% from 1990 and by 14% as compared to 2005. Two main mechanisms are in place for reducing emissions (i) the EU Trading Scheme (ETS) in which agriculture is not part of, and (ii) Effort sharing decision which addresses the emissions of CH₄ and N₂O from agriculture but not CO₂ emissions from LULUCF(Land use, land use change and forestry).

Figure 3 key policy instruments of the EU climate policy



Source: DG AGRI presentation at the GPW "Climate change mitigation and adaptation"

Looking beyond 2020, the EU roadmap to 2050 shows the potential to reduce emissions in different sectors including the agricultural sector. The milestones set are 25% reduction in 2020, 36% to 37% in 2030 and 40 to 50% in 2050. However, these reductions are very dependent of the availability of new technologies, the production and population growth and the impacts of climate change in agriculture. Consequently, the challenge in Europe is to be as efficient as possible and to reduce the emissions produced by unit of production.

Climate change action is financed from all EU funds (integrated approach), dedicating at least 20% of the total EU envelope to address climate change. A tracking system is developed to add up the climate change related investments, which allows the monitoring of the expenditure and the evaluation of the contribution of the actions dedicated to climate change (see Climate change tracking in page 11).

What is mitigation of climate change?

Climate change mitigation actions are considered those that reduce the amount of GHG emissions. The agricultural sector can contribute to climate change mitigation by (i) reducing direct emissions from farm operations (CH₄ and N₂O) (ii) reducing CO₂ emissions by improving farm "energy profile" (efficiency, on-farm use of renewable energies) (iii) improving the CO₂ balance of farmland soils by protecting or expanding carbon sinks (iv) reducing CO₂ from fossil fuel use in other sectors by supplying feedstock for bioenergy and industrial applications.

Nonetheless, there is a broad range of actions with a high potential for mitigation while their effectiveness depends on the type of agricultural systems and management practice applied (the production systems, the climatic contexts, type of soil, etc). The following actions are outlined as with high climate change mitigation potential:

- Increase production efficiency (fertilizer, resource use)
- Improving manure and slurry management (storage, application)
- 'Waste to worth' (anaerobic digestion for animal waste – biogas)
- Grassland management (improving livestock "carbon footprint" and carbon sink)

These actions cannot be assessed very easily due to the extent of uncertainties on the subject and its synergies and trade-offs with other farming activities. Due to this complexity, evaluation may require the use of advanced modeling approaches.

It is important also to look at the secondary effects of the actions, as for instance some of these actions could have in addition other environmental benefits in terms of preventing erosion, water pollution, improving quality of biodiversity and landscape.

What is adaptation to climate change?

Adaptation to climate change is an issue that goes beyond 'risk prevention/risk management'. Adaptation actions aim to build resilience of economic sectors and systems (infrastructures, agriculture, forestry) and environmental resources (biodiversity, soil, water) with a long term perspective (as compared to the short short/medium-term for 'risk prevention'). Over the coming years, adaptation may require changes in production patterns, methods, farm structures and strategies, which entail some investments and costs. Also, adaptation may require encouraging behavioural changes of rural and agricultural actors. As example of adaptive solutions:

- Adapting the timing of farm operations (planting, sowing)
- Technical measures (frost protection, ventilation systems, livestock housing)
- Soil management (rise water holding capacity, organic matter)
- Better adapted and more resilient crop varieties (less water intensive)
- More effective pest and disease controls
- Improving efficiency of water use and irrigation equipment
- Protection and building of "green infrastructure" (hedgerows, floodplains, wetlands)

Looking to the future

Farmers need to face climate challenge and thus, reduce farm-level GHG emissions and manage risks, in a context of rising of global food demand, increasing input prices and with environmental constraints (water, soils, biodiversity) intensified by climatic change. Notwithstanding the fact that the agricultural sector has already significantly reduced GHG emissions in the past, the sector needs to further strengthen efforts towards mitigation and adaptation. Policy means are available, such as the CAP, which offers a range of tools for incentivising the adoption of mitigation and adaptation actions within the wider context of sustainable food production. However, there are still challenges that need to be addressed in order to better tackle climate change mitigation and adaptation such as the development of technological solutions that improve farming methods and practices, encourage behavioural changes and improve the evaluation tools (GHG inventories, LCA, farm level GHG assessment tools, etc.).

3. EVALUATION FRAMEWORK FOR CLIMATE CHANGE MITIGATION AND ADAPTATION FOR RDPs

3.1 Rural development programmes 2007-2013

The rural development policy framework for 2007-2013 address climate change in various ways by including the topic as a policy objective, in the territorial analysis (the SWOT analysis must cover air pollution and climate change, GHG and ammonia reductions, links to agriculture and actions to achieve international targets) and in the recitals of the rural development regulation 1698/2005:

Recital 31: Support for specific methods of land management should [...] also address key issues as CC mitigation and adaptation [...]

Recital 38: In order to contribute to [...] CC mitigation, forest resources should be extended and improved by first afforestation of agricultural land and other than agricultural land.

Recital 41: Forest-environment payments should be introduced for voluntary commitments to enhance biodiversity, preserve high-value forest ecosystems and reinforce the protective value of forests with respect to soil erosion, maintenance of water resources and water quality and to natural hazards.

Recital 42: Support should be granted for restoring forestry potential in forests damaged by natural disasters and fire and introducing preventive actions. Preventive actions against fires should cover areas classified by Member States as high or medium fire risk according to their forest protection plans.

In 2009, the Health check and recovery package came into place, increasing the focus on climate change by making the topic more explicit in the regulation. As a consequence, RDPs had to adapt their strategies and become more climate change oriented. Also, additional funding was provided which is being monitored separately.

Regarding the evaluation of climate change, the mid-term evaluation of RDPs conducted in 2010 demonstrated that evaluation was done at a very early stage to demonstrate the impacts of RDPs and to capture the contribution of the Health check. However, the upcoming *ex post* evaluation of RDPs represents an important opportunity to clearly demonstrate and assess what has been done and achieved by the RDPs with regards climate change mitigation and adaptation. The *ex post* evaluation shall better reflect the links to National Strategic Plans, RDP objectives (including Health check) and the impacts on Community priorities. Also, it shall have a careful insight and assessment of relevant measures for climate change implemented within the RDPs (e.g. those measure that have received a

relevant part of the RDP envelop, or which are big in scale) while identifying good practice. Some of the rural development measures for 2007-2013 RDPs have a direct or strong link to actions that address climate change challenges. On the other hand, some other measures, which may have not been planned to directly contribute to climate change, they do can have indirect effects on climate change. In this case it is worth to investigate this indirect contribution when conducting the *ex post* evaluation of the programme.

The Common Monitoring and Evaluation Framework (CMEF) supports the assessment of climate change actions of the RDPs. It outlines a set of common indicators which shall be used for the *ex post* evaluation of RDPs. Most of the common monitoring indicators are at the output level so that it is necessary to move from the outputs towards achievements. This may entail certain difficulties due to for instance a lack of appropriate baselines. This problem could be overcome by looking at specific projects that were directly supported by the programme and explore the results achieved with the programme support.

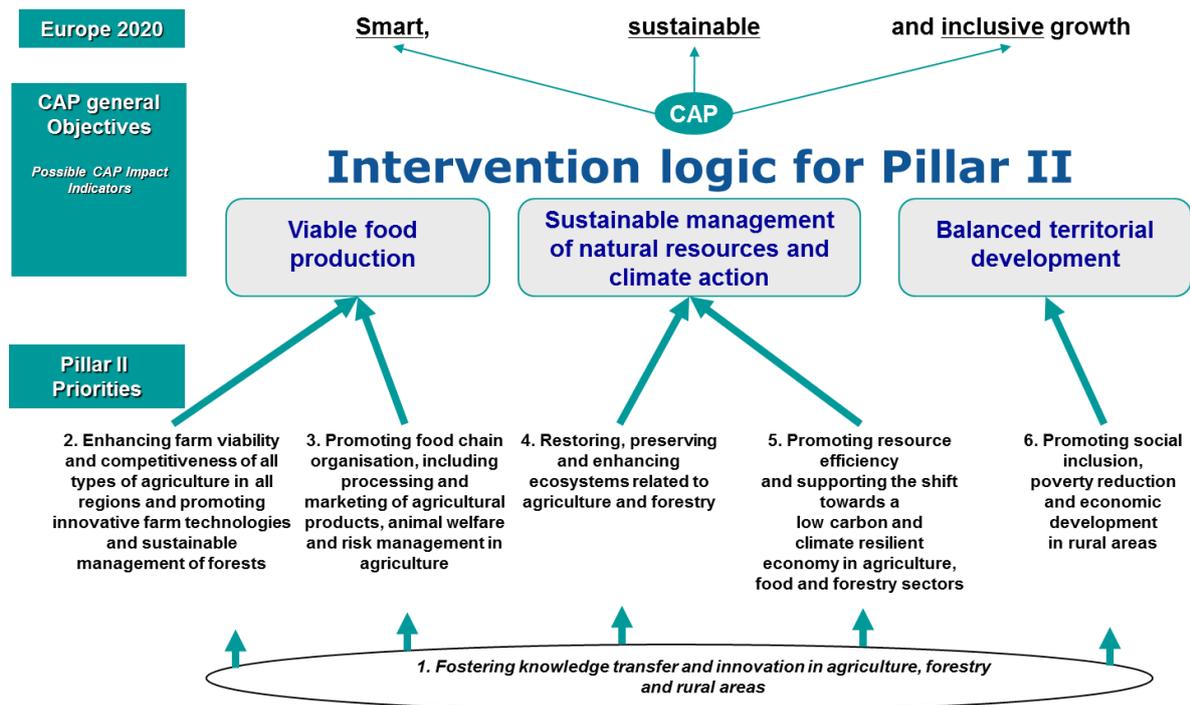
Common indicators for climate change mitigation/adaptation	
• Baseline	- Soil erosion, renewable energy, gas emissions, land cover, forest area, water use,
• Output (at measure level)	
• Result	- Axis 1 new products/techniques; - Axis 2 area under successful management related to climate change
• Impact	- Renewable energy production

These common indicators are the minimum set needed to conduct basic evaluations and thus, MAs shall use their own programme-specific indicators in the *ex post* exercise to complement the common indicators in order to capture the specificities of their programmes and the full contribution of the RDP towards climate change mitigation and adaptation. Currently, the Evaluation Helpdesk is developing the “Guidelines for *ex post* evaluation” which will help managing authorities and evaluators to go through the *ex post* exercise.

3.2 Rural development programmes for 2014-2020

Climate change mitigation and adaptation is more rooted within the new policy framework for 2014-2020 (EU 2020, Common Agricultural Policy and rural development regulation) as illustrated in Figure 4.

Figure 4 Intervention logic of the rural development policy



Source: Presentation of DG AGRI at the GPW [“Climate change mitigation and adaptation”](#)

The rural development policy addresses climate change mitigation and adaptation more directly in three out of the 6 rural development priorities:

- **Priority 1:** Fostering knowledge transfer and innovation in agriculture, forestry and rural areas
- **Priority 4:** Restoring, preserving and enhancing ecosystems related to agriculture and forestry
- **Priority 5:** Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors.

Managing Authorities can plan measures under these priorities in order to achieve the objectives. For the new programming period, the intervention logic for rural development is not common to all the RDPs and so each MA can design their intervention according to their specific territorial situation and needs using the whole range of rural development measures.

In addition to the climate change actions planned under the rural development priorities 1, 4 and 5, activities undertaken under other priorities may also have a significant impact in either mitigation or adaptation through secondary effects. Contrary to the 2007-2013 programming period, in the new period measures are not planned with a single focus on one RD objective, but rather some of the measures are expected to contribute to several objectives (focus areas and/or priorities).

The common monitoring and evaluation system (CMES) for 2014-2020 provides a larger set of common indicators for the assessment of the climate action of RDPs. For the next programming period there is a more comprehensive list of common indicators which enable the assessment of climate change actions, as outlined below:

- **Impact indicators:**
 - Emissions from agriculture
 - Farmland Bird Index
 - High nature value agriculture

- Water abstraction in agriculture
- Water quality
- Soil organic matter in arable land
- Soil erosion by water
- **Result indicators:**
 - % Forest or other wooded area under management contracts supporting biodiversity
 - % Agricultural land under management contracts supporting biodiversity and/or landscapes
 - % of Agricultural land under management contracts improving water management
 - % of forestry land under management contracts to improve water management
 - % of Agricultural land under management contracts improving soil management and or preventing soil erosion
 - % of forestry land under management contracts to improve soil management and or preventing soil erosion
 - % of irrigated land switching to more efficient irrigation system
 - Increase in efficiency of water use in agriculture in RDP supported projects (*Complementary result indicator*)
 - Increase in efficiency of energy use in agriculture and food-processing in RDP supported projects (*Complementary result indicator*)
 - Renewable energy produced from supported projects (*Complementary result indicator*)
 - LU concerned by investments in live-stock management in view of reducing GHG and/or ammonia emissions
 - % of Agricultural land under management contracts targeting reduction of GHG and/or ammonia emissions
 - Reduced emissions of methane and nitrous oxide (*Complementary result indicator*)
 - Reduced ammonia emissions (*Complementary result indicator*)
 - % of agricultural and forest land under management contracts contributing to carbon sequestration

Common indicators are an imperfect representation of the reality and they only represent a minimum number of indicators which help to provide thoughtful, wise, useful and robust evaluation findings at the EU level. Depending on the measures and activities planned in the RDPs, MAs need to develop and apply programme-specific indicators to give a more comprehensive picture of the situation in their territories.

Common results indicators are designed to capture programme achievements and to assess what is actually happening as a result of the actions that are being implemented. The set of result indicators are linked to each of the focus areas of the rural development priorities and they will be assessed by evaluators. The list of result indicators include complementary result indicators which will help to build a more complete picture of the results achieved by the RDPs. Complementary result indicators enable a deeper insight to the **how** and **why** questions behind the indicator value and enable capturing the secondary effects that are coming from operation which are not specifically planned for climate mitigation and adaptation (e.g. Farm investments plans implemented to enhance competitiveness of the agricultural sector but which could have a renewable energy component).

In some cases, the common indicators show some limitations which can be addressed by MAs. For instance, “GHG emissions from agriculture” (*Impact indicator*) in many Member States will be calculated using Tier 1 emission factors, which leads to a weak assessment of the GHG emissions, and only few countries are moving towards the use of Tier 2-3 emission factors which offer more precise measurements. Despite, the common indicators are good bases for conducting an evaluation, they need to be treated with care in the sense that indicator’s values on their own do not explain anything and their validity should be carefully assessed.

Climate change tracking system

The European Commission is developing a system to assess the financial resources dedicated to climate change mitigation and adaption in the RDPs. The climate change tracking system is based on climate markers (coefficients) linked to the rural development priorities and focus areas which helps to get an approximation of the resources dedicated to climate change in RDPs, as illustrated in Table 1.

Table 1 Coefficients for calculating amounts of support for climate change objectives in the case of the EAFRD

Article of Regulation (EU) No 1305/2013	Priority / focus area	Climate marker
5 (3) (b)	Supporting farm risk prevention and management	40 %
5 (4)	Restoring, preserving and enhancing ecosystems related to agriculture and forestry (all focus areas)	100 %
5 (5)	Promoting resource efficiency and supporting the shift towards a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors (all focus areas)	100 %
5 (6) (b)	Fostering local development in rural areas	40 %

The climate tracking system will be further described in the implementing acts of the rural development regulation.

How to plan climate change actions in the new RDPs?

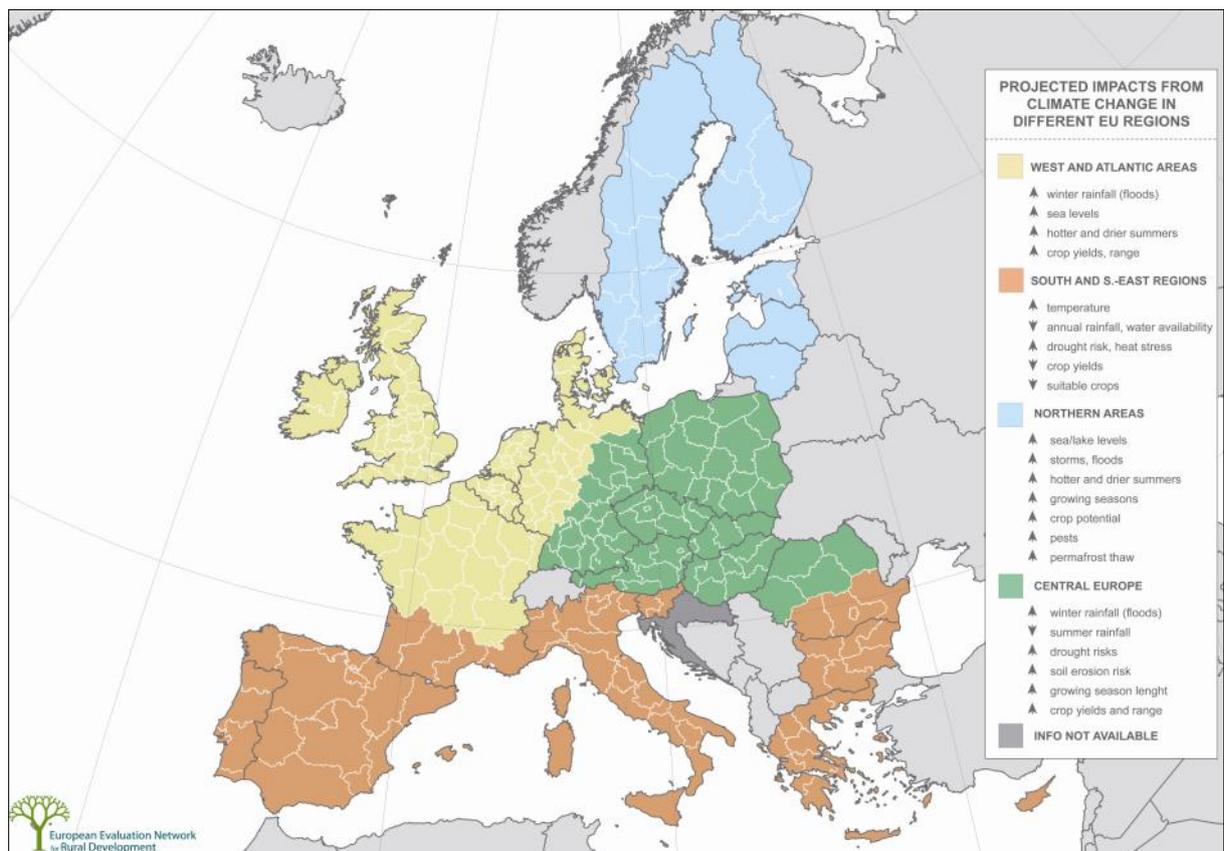
The process of programming starts with the development of the SWOT analysis on the basis of the situation analysis of the territory. The SWOT will outline threats but also opportunities in the rural areas thus establishing the basis for the identification of the territorial needs.

Bearing in mind the multiple effects (positive, neutral or negative) that rural development measures might have in addressing different rural needs, **RDPs have to be planned holistically**, so that considering the implications of the planned actions in addressing all the rural needs. This entails also the consideration of the potential conflicts that may exist among different identified needs. The potential effects of the different actions shall be reflected in the analysis of the territory and SWOT in order to design balanced RDPs.

4. EFFECTIVENESS OF CLIMATE CHANGE RELATED MEASURES OF 2014-2020 RDPs

A group work session was conducted during the Good Practice Workshop on Climate change mitigation and adaptation to assess the effectiveness of the rural development measures available for the 2014-2020 programming period based on the experiences and knowledge of the participants. The effectiveness of the measures was assessed for different EU climatic regions as illustrated in Figure 5 (West and Atlantic areas, South and South east regions, Northern areas and Central regions). The classification of the different EU climatic regions is based on the specific climate change impacts and effects occurring in that specific region.

Figure 5 Key observed and projected climate change effects for main regions in Europe



Source: Own elaboration based on "EU agriculture – taking on the climate change challenge" (2010), DG AGRI

In addition, the exercise helped to identify challenges and specific issues that need to be considered when assessing the effectiveness of the measures that form part of the climate change mitigation and adaptation strategies of the RDPs.

The effectiveness of 2014-2020 rural development measures for climate change

Each working group discussed and assessed the full set of rural development measures available for the 2014-2020 RDPs according to their effectiveness in addressing the climate change mitigation and adaptation challenges in their respective EU climatic region. The effectiveness of each rural development measure was classified as:

Measure assessment

High contribution to climate change	
Moderate contribution to climate change	
Low contribution to climate change	

It is important to underline that the assessment conducted in this exercise is not comprehensive and the effectiveness of the measures still depends of many other factors which might have not been considered. Nonetheless, the results of this exercise offer a first and close approximation to the effectiveness of the available measures.

The following Table 2 provides an overview of the results of the assessment for each rural development measures and for each of the “EU climatic regions”:

Table 2 Key observed and projected climate change effects for main regions in Europe²

	Art. 14	Art. 15	Art. 16	Art. 17	Art. 18	Art. 19	Art. 20	Art. 22	Art. 23	Art. 24	Art. 25	Art. 26	Art. 27	Art. 28	Art. 29	Art. 30	Art. 31	Art. 33	Art. 34	Art. 35	Art. 36
West and Atlantic Areas																					
South and S.-East Regions																					
Northern Areas																					
Central Europe																					

Source: Evaluation Helpdesk of the European Network for Rural Development

All the rural development measures have been assessed by all the working groups, which acknowledge the potential of all RDP measures to contribute to climate change mitigation and adaptation into a certain extent. This reflects the cross cutting implication of the climate change topic and the multiple options available in the rural development policy to tackle mitigation and adaptation via direct or secondary contributions. Also, it reinforces the need for designing the RDPs holistically, considering the effects that all the measures planned in the programme may have in addressing the rural needs.

Measures related to knowledge, exchange of good practices, capacity building, cooperation and advisory support to farmers are considered as the most effective measures in order to address climate mitigation and adaptation through RDPs in all EU regions. As described in previous chapters, farmers play an important role in addressing climate change mitigation and adaptation. However, their participation in the implementation of measures is rather limited. Knowledge and sharing experiences are seen as measures that can enhance the decision making capacities of farmers and increase awareness on the different options available to reduce farm emissions and to adapt production systems while increasing farm returns. Also, within this set of measures, cooperation can facilitate the exchange of experience and knowledge among farmers.

The Carbon Navigator tool is presented as a good practice from Ireland aimed at enhancing knowledge and raising awareness among farmers about climate change. It is a management tool that illustrates the effects of the various actions that can be applied at farm level ([see the case study presentation](#)). Through the carbon navigator, farmers can observe and analyse the effects of applying different farming practices aimed at reducing GHG emissions and also at enhancing the economic returns. Decisions are taken so as maximizing the benefits of each individual farm (environmental and economic benefits) and thus enhancing the efficiency of the money spent.

² Articles of the measures laid down in Regulation (EU) 1305/2013

The agri-environmental measure is also considered highly effective in combating climate change. This measure has been traditionally devoted with substantial part of the rural development envelope, also through the Health Check reform, and it is also expected to be highly present in the 2014-2020 RDPs in order to address effectively climate change. The assessment of the agri-environmental and climate measure is challenging and requires the use of advanced modelling approaches due to the multiple effects of the actions in different areas (water quality, air pollution, soil erosion, biodiversity, etc). A good practice example from Wales (UK) illustrates the approach applied in assessing agri environmental measures in the area as well as the main challenges and solution adopted ([see the case study presentation](#)).

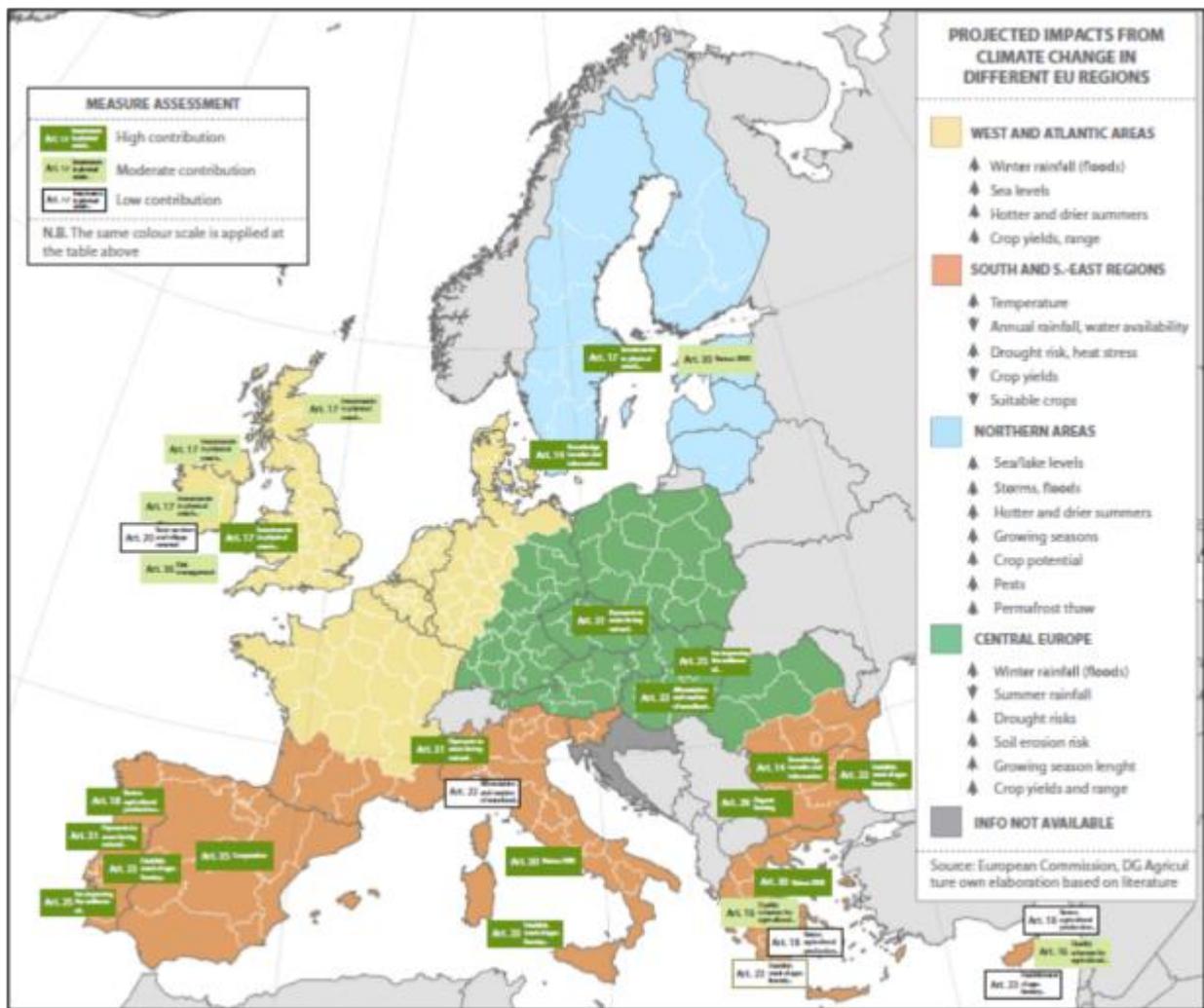
The set of measures related to forestry are also relevant due its high contribution to carbon sequestration and thus in mitigating the effects of climate change. However, forestry measures seems to be less effective in northern and central regions of Europe, probably because forests occupy quite extensive areas and thus these measures will not contribute to mitigate climate change substantially. The case study presented from Spain during the workshop has shown the benefits of using of agro forestry systems and the involvement of farmers (particularly shepherds) in preventing forest damages due to fires in a cost effective manner ([see the case study presentation](#)). This is outlined in the workshop as a good practice which has achieved excellent results in reducing the number of fires and thus, contributing to climate change mitigation (conserving carbon sinks) and adaptation (changing farmers practices to a more sustainable one under the new climatic context).

Also measures traditionally implemented to enhance the competitiveness of the agricultural sector have the potential to contribute to climate change mitigation and adaptation however, the measure needs a thorough and careful designed. For instance, the measure on “investment in physical assets” can contribute to reduce green house gas emissions if the measure is designed accordingly.

Regional differences in the effectiveness of RDP measures

Participants were asked to reflect also on the effectiveness of the RD measures in their specific Member State/region, and to illustrate the results in a map when the effectiveness differs from the overall assessment given for the EU climatic zone. The results of the regional differences are illustrated in Figure 6.

Figure 6 Intraregional differences in the assessment of the effectiveness of RD measures



Source: Evaluation Helpdesk of the European Network for Rural Development

The results of the intraregional assessment show that the specific territorial context plays an important role when assessing the effectiveness of some measures. This is an important element that needs to be bear in mind when programming the strategies for climate change, particularly in national RDPs.

5. EVALUATION CHALLENGES

The discussion on the effectiveness of the new set of RD measures has raised important issues that entail particular evaluation challenges, namely:

- (i) Multiple choice for interventions
- (ii) The human dimension of climate change actions
- (iii) The boundaries for assessing the climate emissions
- (iv) Cost effectiveness of measures
- (v) Long vs short term impacts
- (vi) Netting out impacts of climate actions

The following chapter elaborates on the outcomes of the discussions on each of the identified challenges.

5.1 Climate change as a cross cutting topic (multiple choice for interventions)

The main climate change mitigation and adaptation needs in Europe can be addressed to some extent by most of the rural development measures of the 2014-2020 programming period. This represents a particular challenge for both programming the strategies for climate change and evaluating the effects of the strategies.

Most interventions planned within the RDPs have the potential to affect directly or indirectly climate change mitigation and adaptation. This fact represents a challenge in the design of the RDP interventions due to existing synergies among actions and the varied effects (positive and negative) that these actions can create for different objectives. It is crucial to consider the effects of the actions planned under the different focus areas when building the programme intervention for climate change mitigation and adaptation, and viceversa. In addition, potential conflicts or negative effects that some actions might have in achieving climate change objectives shall be considered to develop effective and balanced programmes.

A good understanding on the contributions of the RDP actions/measures to climate change mitigation and adaptation will enhance the effectiveness of climate change strategies. It starts with a comprehensive analysis of the territory that supports the SWOT analysis and justifies the identification of needs. Complementary to that, the *ex ante* evaluation will help to ensure the design of a balance RDP, accounting the positive direct and indirect effects of the actions and as well the conflicts that may exist among them.

Capturing the secondary effects of measures represents also a challenge for evaluation. MAs will specify in the RDPs which actions planned under a focus area are expected to contribute in addition to climate change objectives. The direct contribution of the measures toward a policy objective can be captured through common and programme-specific indicators. However, the quantification of the secondary effects becomes more challenging. The common monitoring and evaluation system outlines a set of complementary result indicators which enable evaluators to capture the secondary effects on climate change of actions planned under a distinct focus area. However, the complementary result indicators are only a minimum set of indicators and MAs might need to develop additional indicators of such a kind in order to capture the secondary effects under other programme-specific climate change objectives. It is in the interest of MAs, RD stakeholders and the European Commission to capture the secondary effects of the programmes in order to demonstrate the full range of results achieved by the RDPs.

5.2 Human dimension of climate change action

Farmers play an important role in addressing climate change mitigation and adaptation in rural areas. It is commonly agreed the need to enhance the knowledge of farmers regarding climate change issues and to raise awareness on the importance of taking action with regards mitigation and adaptation and on the benefit this may report to them.

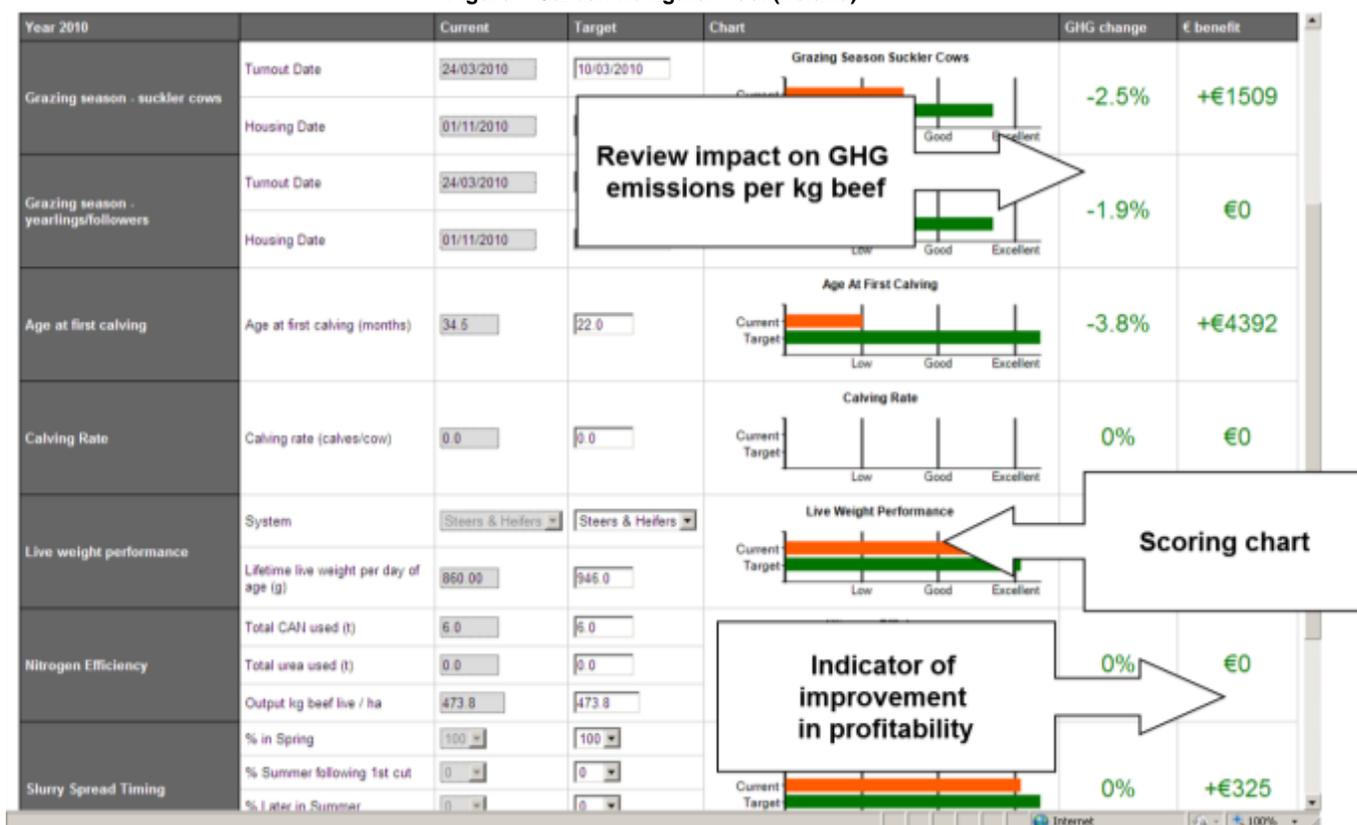
Knowledge and information exchange are seen as highly effective to address climate change mitigation and adaptation in RDPs. Whilst it is relatively straightforward to calculate the results of these actions in terms of for instance number of people finalizing training courses focused on climate change, the impacts of these actions on climate change mitigation and adaptation are more difficult to assess.

Increasing knowledge on climate change and sharing good practice among farmers do not ensure that climate change actions are implemented by farmers. It is key to raise awareness among them and evaluation can play an important role. The benefits that farmers can get in their businesses in economic and environmental terms when applying CC actions can be demonstrated through evaluation. In this respect, the **carbon navigator tool** implemented in Ireland is considered a good

practice that enables farmers to assess the effects in their farms of different actions devoted to address climate change mitigation or adaptation. The benefits are shown in terms of environmental benefits (e.g. reduction of CO2 emissions) but also in economic terms (e.g. increased income). In addition, this tool enhances the effectiveness of the actions implemented and supported through the RDPs as they are assessed at farm level. The carbon navigator tool provides accurate measurements as the effects are provided at each individual farm according to their specific characteristics. Nonetheless, the results achieved in each farm can be aggregated at the national level.

The following figures is an illustration of the carbon navigator looks like

Figure 7 Carbon Navigator Tool (Ireland)



Source: TEAGACS and The department of agriculture, food and the marine³

5.3 Setting up the boundaries of the assessment

Some rural development measures are considered very effective in addressing climate change if counting only the direct contribution, meaning the immediate and straightforward effects of applying the measure, and therefore considering this as the boundary for the assessment of the measure. However, some measures have additional effects in relation to climate change if considering a broader boundary, which may imply a reduction of the positive effects. This could be considered as the effects of a measure outside the programme implementation boundary (indirect effects).

An example of this issue can be illustrated with the measure on organic farming. It is generally acknowledged the positive effects of organic farming in reducing emissions and contributing to adapt the agricultural sector to climate change. This is the case when looking within the boundaries of

³ Good Practice Workshop "Climate change mitigation and adaptation: Assessing the scope and measuring the outcomes" Cyprus 10-11 Feb 2014 http://enrd.ec.europa.eu/app_templates/enrd_assets/pdf/evaluation/climate-change-mitigation-adaptation/GPW9_6_CS_Ireland.pdf

programme implementation (farm level). However, exploring the effects outside the programme boundaries may entail a reduction of the positive effects. For instance, when the organic production has to be shipped over the country to markets which are located far from the origin of the product or when organic seeds do not come from a close area to the farm. If these emissions due to transportation are also counted when assessing the effectiveness of organic farming in reducing GHG emissions, it may be possible that carbon footprint is greater as compared to within the programme boundaries.

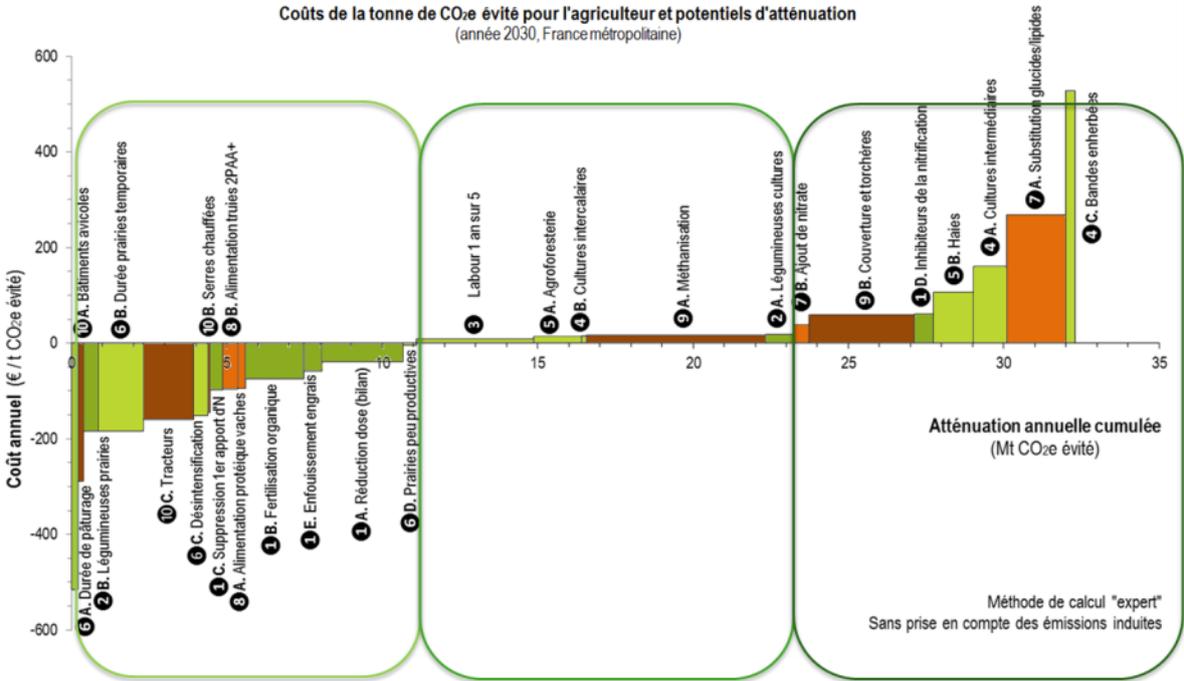
Evaluation shall consider the effects also outside the programme boundaries when assessing the effectiveness of the measures planned.

5.4 Cost effectiveness of measures

In times where resources devoted to rural development are limited, it is important to evaluate the cost associate to achieve the expected results of the actions implemented in the programme. In the discussion, despite some measures were considered highly effective, the cost associated with the implementation questioned the adequacy of implementing the measures.

A good understanding of climate change and its potential actions is key to achieve the best results in an efficient manner. This will enable the development of a comprehensive list of the potential actions that can be applied in the RDPs for climate change mitigation and adaptation, illustrating the expected results of each action (e.g. amount of CO2 reduction) and the cost associate with it. This exercise will lead to the construction of a Marginal Abatement Cost Curve (MACC). The example below illustrates the MACC developed for the French agricultural sector and which has been use as a tool to identify cost-effective climate responses for the sector within the boundaries of the available knowledge and understanding.

Figure 8 Marginal Abatement Cost Curve (MACC) of the agricultural sector



Source: Quelle contribution de l'agriculture française à la réduction des émissions de GES?, INRA, 2013

The use of average values to construct a MACC can entail some weaknesses to the approach. The cost effectiveness of a measure varies according the specific characteristics of the beneficiaries and therefore one measure can be very cost effective for some beneficiaries, but much less for another

ones. In this respect, investing in evaluation that offers accurate results and information will help to identify and design the cost effective actions. This issue can be illustrated with the case of the common impact indicator “Emissions from Agriculture”. In some Member States, emissions are counted using Tier 1 emission factors proposed by the International Panel for Climate Change (IPCC). These emission factors refer to average values on some features of the farms. The different context and features of a farm such type of livestock species, type of production system, territorial context will determine the amount GHG produced. Therefore, a measure might seem cost effective for the average type of farm in the territory but not for many others. Improving evaluation and calculating the Tier 2 and 3 emissions factors, will enable a better targeting and results of the actions implemented.

5.5 Long vs short term impacts

The effects of some of the measures in climate change mitigation and adaptation can be already significant in the short term run. This fact is specially seen in mitigation actions aimed at reducing the emissions of GHG. However, the effects of other actions related in particular to climate change adaptation are noted in the very long term. For instance, the benefits obtained from changing crop production that adapts better to the new climatic conditions can be reflected only after a longer period of time.

Actions implemented in the RDPs shall be rooted in the needs identified for climate change mitigation and adaptation. The contribution of these measures will be evaluated on the bases of their impact and achievements during the programming period. However, the impact on the long term shall be as well considered as in many cases it can be measured. As an example is the creation of woodland. This action contributes to increase the amount of carbon sequestered from the atmosphere. Newly created woodland takes often a long period of time to fully achieve its maximum potential in carbon sequestration, going beyond the programme implementation period.

Evaluators and MAs shall take the timing-related characteristic of the actions into account when assessing the contribution to climate change mitigation and adaptation. Nonetheless, the long term characteristic of some climate change actions shall not prevent them of its implementation.

5.6 Conflict with other policies

Besides the RDP, there are other policy means at the EU and national level that address climate change mitigation and adaptation, even sometimes applying similar actions (e.g. Pillar I greening measures). This complicates the netting out of the impacts of the RDPs towards climate change as all the external effects shall be eliminated from the analysis.

RDPs shall be designed so that they complement other policy means and that maximize the existing synergies among the different measures in order to achieve the best results in climate change. Ensuring consistency with other climate change policies enhances the efficiency of the money used in rural development. The *ex ante* evaluation can be used to ensure that there are no overlaps with other policy actions and the RDPs resources are devoted in synergy with other action.

6. CONCLUSIONS

Climate change is a complex issue that needs to be treated carefully in the RDP due to its broad context and influence. The workshop has highlighted the main climate change problems in the European Union and illustrated the available policy means to address and evaluate climate change mitigation and adaptation in the rural context.

It is acknowledged that rural areas and the agricultural sector play an important role within climate change and their potential in mitigating its effects. Adaptation to the new climatic context has been outlined as a necessary action in order to ensure the sustainability and the resilience of the rural areas in Europe.

The rural development policy for the programming period 2014-2020 put in place adequate mechanisms that help rural areas in Europe to tackle their main climate change mitigation and adaptation needs. The strategies for climate change mitigation and adaptation within the RDPs entails various challenges in the design phase and in evaluation due to the specific features of climate change and the interrelations with other policy needs (positive and negative relations). A holistic view shall be adopted when addressing climate change in the RDPs in order to end up with balanced programmes. In this process, evaluation can enhance the understanding about climate change and ensure that climate change actions are designed in an effective and efficient manner by capturing the effects of the planned or implemented strategies. However, evaluation is not exempt from specific challenges and difficulties which need to be considered by Managing Authorities and evaluators. In this respect, the workshop has helped to share good evaluation practice and tools that can support the development of efficient and effective climate change strategies in the 2014-2020 RDPs.