Climate Change and Renewable Energy issues in 2007-2013 RDP

Climate change (CC) is fundamental to the context for agricultural policy making. EU agriculture must play an important role in mitigating this phenomenon by curbing greenhouse gas (GHG) emissions; at the same time it needs to adapt to the expected climatic adversities which will have serious consequences on production processes. Rural development offers a range of possibilities to support farming practices and investments that can contribute to climate change mitigation efforts (including the increase of the use of Renewable Energy (RE) resources) and additionally effect adaptation benefits. CC challenges have been well recognized in the baseline analysis of the 2007-2013 EU Rural Development Programmes (RDP) and addressed in their strategies. Following the Health Check (HC) of the Common Agricultural Policy (CAP), the 'new challenges' of the RD policy include 'climate change' and 'renewable energy' for which an additional budget of approximately €1 billion\(^{(1)}\) have been made available for Member States (MS) to spend on these issues\(^{(2)}\). As a consequence, the operations related to these newly introduced EU priorities have been further strengthened in the RDPs.

\[^{(1)}\] 19.8% of the total additional funds released.

\[^{(2)}\] The budget allocated to the 'new challenges' includes the funds released by the HC of the CAP (including voluntary modulation and transfers according to Art. 136 of Regulation (EC) No. 73/2009) and the European Economic Recovery Package (EERP).
**Introduction - overview of Member State RDP**

All the three dimensions of climate change (mitigation, adaptation and the potential for renewable energies) are addressed by the baseline analysis provided in the Slovenian RDP. These three aspects have been considered and consequently addressed within the measures for Axis 1, 2 and 3. Moreover, the RDP strategy makes clear that it has been designed to meet the climate change challenges outlined under the Kyoto Protocol as well as to address the decline of biodiversity linked to the Göteborg commitment and protection of Natura 2000 sites.

The RDP recognises that the EU Nitrates Directive has imposed stringent policy requirements. In order to meet these, it recommends that good practices should be adopted which are supported by funds under Axis 1 and 2 measures. This includes initiatives that encourage better use and storage of fertilisers and manure along with agricultural practices which limit the use of such productive factors such as organic farming. As well as reducing the extent of agricultural pollution, a key outcome will be an improvement in the quality of Slovenian water (in line with the Water Framework Directive) and soils. In addition, all relevant agri-environment sub-measures stipulate a limited application of fertilisers in order to reduce greenhouse gas emissions.

Slovenian agriculture contributes to 10% of the country’s GHG emissions. Slovenia has committed itself to meeting international agreements in order to reduce their emissions (considerable progress has been made in this) and views the Axis 2 agri-environment measures as a means to indirectly reduce the release of GHG (such as initiatives for integrated production, extensive grassland maintenance and sustainable rearing of domestic animals). The RDP notes that training at farm-level in these areas would also add value to their implementation.

In addition, further utilising renewable energy is regarded as strategically important. As such, axis 1 plays an important role in encouraging the on-site (farm) use of renewable energies whilst Axis 3 will support the sale of renewable energy to the market. It is noted that the joint impact of these Axes on mitigating climate change through the production of renewable energy will be significant. In addition, the sustainable management of forests will help to continue their role as an important carbon sink.

Only a small percentage of agricultural land is irrigated. Consequently, climate change has negatively affected the agriculture industry in terms of the frequency of droughts and heavy precipitation, which has lead to a loss of productivity. The RDP has therefore responded to this by providing funds under Axis 1 to support the development of irrigation systems and infrastructure for water resources.

Some other aspects of the strategy do not directly mention climate change, but relate to relevant activities. For example, Slovenia is committed to ensuring that its high concentration of biodiversity and habitats are maintained and enhanced (47.4% of the country is designated as ecologically important). The RDP baseline analysis recommends that this should be achieved through sound agri-environment practices such as initiatives under Axis 2 which protect grassland habitats and promote bird conversation in the two hundred and eighty six Natura 2000 sites (negative agricultural practices have caused the bird population to decrease).

The additional funds and modifications introduced by the Health Check, which have been incorporated in the updated RDP, have also further aligned the RDP strategy towards tackling climate change and related areas.

In terms of directly addressing climate change, the Health Check noted that additional support will be provided for the efficient use of nitrogen fertiliser and improving manure storage; and for preventative actions against the adverse effects of climate related extreme events.
Related to this, the Health Check will also provide support for improved water management through investments in water saving technology, water storage and water saving production techniques; as well as for renewable energies in terms of investments in biogas using organic waste from farms and local production.

**Allocation of the additional resources per type of priority**

The overall budget of the Slovenian RDP in terms of total public expenditure amounts to €1,176,985,582 of which €915,992,729 comprises the EAFRD contribution. This includes an additional allocation of €11,526,000 (EAFRD contribution) as a result of the new challenges raised by the HC and the adoption of The European Economic Recovery Plan (EERP). Following these changes, additional financial support to the RDP objectives related to climate change has been provided (€5 million which equates to 73% of the new EAFRD allocation). These new financial support should be considered in addition to the initial RDP which was already addressing CC.

Under the enhanced RDP strategy, the main CC-related actions support investments for improving the efficiency of nitrogen fertiliser use and manure storage, as well as for preventative mechanisms against adverse effects of climate related extreme events.

Full details of the overall RDP budget allocation can be found in the RDP summary fiche for Slovenia that is available at:


**Mitigation**

*Activities aimed at reducing agricultural greenhouse gas emissions*

The Slovenian RDP provides comprehensive support for a range of mitigation activities which contribute towards reducing agricultural emissions (such as reduced fertiliser use and storage facilities for manure) and adopting sustainable production techniques that limit agricultural pollution (such as integrated and organic production and the greening of arable land).

One of the key measures to respond to developing mitigation activities is **measure 214 – agri environment payments**. Predominantly, this will be realised through initiatives which support sustainable agricultural practices and protect the environment. This includes reducing the negative impact of agriculture on the environment (such as preserving crop rotation; greening of arable land; integrated production; integrated horticulture; and organic production). It is intended that these production methods reduce the use of fertilisers and pesticides and...
therefore limit agricultural pollution. In addition, these methods will also contribute to reducing soil erosion, preserving soil fertility, enhancing biodiversity and lowering energy consumption. A key impact of this measure will be a greater area of land under successful management that is contributing to the mitigation of climate change.

Another key measure which seeks to significantly support adaption activities is **measure 121 – modernisation of agricultural holdings** which provides financial aid to improve the efficiency of holdings through the introduction of new technologies, products and processes, meeting EU standards and improving environmental protection. As a result of the additional support provided under the European Economic Recovery Package, this measure offers investments for improving the efficiency of nitrogen fertiliser use (such as equipment, reduced use, precision agriculture) and improving manure storage.

The objective of **measure 125 – Improving and developing infrastructure related to the development and adaptation of agriculture** is to offer investments in land infrastructure which will lead to efficient use of production factors that will enable agriculture to respond to climate change. This includes construction of demonstration irrigation centres intended for education and certification of irrigation system users with a focus on technologies for reduction of land application of nitrates and pesticides. The implementation of activities is linked with the Water Framework Directive (2000/60/EC).

**Measure 111 – Training for persons in agriculture and forestry** does not directly mention climate change, but may support training activities related to CC mitigation. Available support provides professional training to farmers and foresters and may be related to the execution of the activities funded by the RDP measures namely under Axis 1 and 2. In certain cases, undergoing a training is a precondition for receiving support from Axis 1 and 2.

**Adaptation**

**Prevention of, and coping with, potential impacts of climate change on agriculture**

In terms of adapting to cope with the potential impacts of climate change a number of actions have received support through the RDP. Significantly, the joint impact of measure 211 and 212 will allocate funds to farmers in areas with natural handicaps in order to enhance biodiversity and sustainable farming methods. In addition, further support will offer opportunities to access modernised irrigation systems; maintain protected areas; enhance soil fertility; and adapt to the adverse effects of climate change.

One of the key measures to respond to developing adaptation activities is **measure 214 – agri environment payments**. Predominantly, this will be realised through initiatives which support sustainable agricultural practices and protect the environment. This includes conservation of natural conditions, biodiversity, soil fertility and the traditional cultural landscape (such as protecting mountain pastures; mowing of steep slopes; conserving meadow orchards; rearing of traditional domestic breeds; production of traditional domestic plants; sustainable rearing of domestic animals; and extensive grassland maintenance) and maintenance of protected areas (including the preservation of grassland habitats; bird conservation in Natura 2000 sites; and permanent green cover in water protection areas). A key impact of this measure will be a greater area of land under successful environmental management that is responding to climate change.

Another key measure which seeks to significantly support adaption activities is **measure 121 – modernisation of agricultural holdings** which provides financial aid to improve the efficiency of holdings through the introduction of new technologies, products and processes, meeting EU standards and improving environmental protection. Investments under this measure include
purchasing hail nets; irrigation systems and infrastructure for water resources; and infrastructure for bee-keeping and honey production. Furthermore, as a result of additional funding provided by the Health Check, extra support will be targeted towards preventative measures against adverse affects of climate change (such as hail nets) and investments for water saving technologies (irrigation systems) water storage (including water overflow areas) and water saving production techniques (“adapted” cropping).

The objective of measure 125 – Improving and developing infrastructure related to the development and adaptation of agriculture is to offer investments in land infrastructure which will lead to efficient use of production factors that will enable agriculture to respond to climate change. This includes construction and technological upgrading of irrigation systems; technological revitalisation of water amelioration systems; construction of demonstration irrigation centres intended for education and certification of irrigation system users with a focus on technologies for reduction of water consumption. The implementation of activities is linked with the objectives of the Water Framework Directive (2000/60/EC).

Measure 111 – Training for persons in agriculture and forestry - does not directly mention climate change, but may support training activities related to adaptation. Available support provides professional training to farmers and foresters and may be related to the execution of the activities funded by the RDP measures namely under Axis 1 and 2. In certain cases, undergoing a training is a precondition for receiving support from Axis 1 and 2.

Main RDP measures which contribute to addressing CC mitigation/adaptation issues

<table>
<thead>
<tr>
<th>Axis/Measure</th>
<th>Description</th>
<th>Type of operation</th>
<th>Potential effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure 121</td>
<td>Modernisation of agricultural holdings</td>
<td>Provision of financial aid to improve the efficiency of holdings through the introduction of new technologies, products and processes, meeting EU standards and improving environmental protection. Investments under this measure include purchasing hail nets; irrigation systems and infrastructure for water resources; improving fertiliser use and manure storage; and infrastructure for bee keeping and honey production.</td>
<td>Increase in the number of farms addressing the CC mitigation and adaptation as well as improving environmental protection.</td>
</tr>
<tr>
<td>Axis/Measure</td>
<td>Description</td>
<td>Type of operation</td>
<td>Potential effects</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Measure 125</td>
<td>Improving and developing infrastructure related to the development and adaptation of agriculture</td>
<td>The objective of this measure is to offer investments in land infrastructure which will lead to efficient use of production factors. This includes construction of demonstration irrigation centres intended for education and certification of irrigation system users with a focus on technologies for reduction of water consumption and application of nitrates and pesticides; construction of water irrigation systems and water amelioration systems.</td>
<td>Increase in the extent of land benefiting from improved water irrigation and amelioration systems, as well as reduced nitrates and pesticides inputs.</td>
</tr>
<tr>
<td>Axis 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure 211 and 212</td>
<td>Preserving agriculture in less favoured areas</td>
<td>Namely, support under these measures will assist farmers to continue their activities in areas which face more challenging economic conditions. In particular, this will assist in preventing land abandonment and marginalisation; encouraging sustainable farming systems; encouraging sustainable use of agricultural land; maintaining the cultural landscape and increasing the area of land contributing to preserving biodiversity.</td>
<td>This will lead to a significant area under protection from land abandonment as well as maintaining and enhancing biodiversity and sustainable farming practices.</td>
</tr>
<tr>
<td>Measure 214</td>
<td>Agri-environment payments</td>
<td>Predominantly, this measure will offer support to initiatives which support sustainable agricultural practices and protect the environment. This</td>
<td>Significant proportion of agricultural land adopting sustainable farming practices which will help to reduce climate change effects, improve water and soil</td>
</tr>
</tbody>
</table>
Renewable energies

*Electricity, heating and transport fuels produced from biomass (such as biofuels, biogas) and other renewable sources (solar, wind, geothermal).*

The Slovenian RDP specifically encourages the development of the renewable energy sector. This includes efforts to encourage the production of renewable energy for onsite use on farms (Axis 1) as well as to establish business to sell renewable energy products to the market (Axis 3).

A key measure which seeks to support renewable energy activities is **measure 121 – modernisation of agricultural holdings** which provides financial aid to improve the efficiency of holdings through the introduction of new technologies, products and processes, meeting EU standards and improving environmental protection. Investments under this measure include investments for renewable energy in order to respond to climate change for on-site agricultural needs. As a result of the additional support provided under the Health Check, this measure offers additional investments for biogas production using organic waste.

Assistance provided by **measure 122 – improving the economic value of forests** aims to strengthen the forestry industry through the introduction of new products and production processes as well as to improve environmental protection. This includes support for equipment for the production and use of renewable energies for on-site agricultural needs.

Funding under **measure 123 – adding value to agricultural and forestry products** will be offered to potential beneficiaries to add value to their products through the introduction of new products, improved production processes and enhanced environmental protection. This includes investments in equipment for the production of renewable energy for on-site agricultural needs.

**Measure 311 – diversification into non-agricultural activities** aims to develop and modernise non-agricultural activities, and create new jobs and sources of incomes on farms. This includes investments (buildings, technologies, equipment) for initiating business activities such as production of renewable energy for on-farm sale to the market.

Assistance provided by **measure 312 – support for the creation and development of micro-enterprises** aims to develop the creation of new jobs and entrepreneurial activities through investments in new and already operating micro-enterprises. This includes support for firms developing energy from renewable resources particularly for the sale to the market.
### Main implemented RDP measures related to the development of RE sources

<table>
<thead>
<tr>
<th>Axis/Measure</th>
<th>Description</th>
<th>Type of operation</th>
<th>Potential effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Axis 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure 121</td>
<td>Modernisation of agricultural holdings</td>
<td>Provision of financial aid to improve the efficiency of holdings through the introduction of new technologies, products and processes, meeting EU standards and improving environmental protection. Investments under this measure include investments for renewable energy for on-site agricultural needs.</td>
<td>Increase in the number of farms involved in renewable energy production and use, as well as improving environmental protection.</td>
</tr>
<tr>
<td>Measure 122</td>
<td>Improving the economic value of forests</td>
<td>Operations to strengthen the forestry industry through the introduction of new products and production processes as well as improve environmental protection. This includes equipment for the production and use of renewable energy sources.</td>
<td>Increase in the number of establishments introducing new products and production processes such as use of renewable energy.</td>
</tr>
<tr>
<td>Measure 123</td>
<td>Adding value to agricultural and forestry products</td>
<td>Support will be offered to potential beneficiaries to add value to their products through the introduction of new products, improved production processes and enhanced environmental protection. This includes investments in equipment for first stage processing of woods - renewable energy.</td>
<td>Increase in the number of establishments introducing new products and production processes such as those related to renewable energy.</td>
</tr>
<tr>
<td>Axis 3</td>
<td>Measure 311</td>
<td>Diversification in non-agricultural activities</td>
<td>This measure aims to develop and modernise non-agricultural activities, and create new jobs and sources of incomes on farms. This includes investments (buildings, technologies, equipment) for initiating business activities such as production of renewable energy for on-farm sale.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Measure 312</td>
<td>Support for the creation and development of micro-enterprises</td>
<td>Develop the creation of new jobs and entrepreneurial activities through investments in new and already operating micro-enterprises. This includes support for firms developing energy from renewable resources particularly for sale of energy on the market.</td>
<td>Increased number of firms receiving support that offer renewable energy products for sale to the market.</td>
</tr>
</tbody>
</table>