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The European Agricultural Fund for Rural Development

Examples of projects providing environmental services

European Network for Rural Development

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European Network for Rural Development

The European Network for Rural Development (ENRD) is the hub that connects rural development stakeholders throughout the European Union (EU). The ENRD contributes to the effective implementation of Member States' Rural Development Programmes (RDPs) by generating and sharing knowledge, as well as through facilitating information exchange and cooperation across rural Europe.

Each Member State has established a National Rural Network (NRN) that brings together the organisations and administrations involved in rural development.

At EU level, the ENRD ensures the networking of these NRNs, national administrations and European organisations. *http://enrd.ec.europa.eu/en/en-rd-presentation_en.cfm*

Find out more on the *ENRD website* (http://enrd.ec.europa.eu)

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The EAFRD Project Examples brochure forms part of a series of ENRD publications that help encourage information exchange. Each edition of the brochure features different types of projects that have received RDP co-finance from the European Agricultural Fund for Rural Development (EAFRD).

This edition of the brochure highlights project examples that have helped to provide a range of environmental services to the European countryside.

Further editions in the series of this EAFRD Project Examples brochure can be downloaded from the *ENRD website's library section*[1], and a *RDP Projects Database*[2] contains many additional examples of EAFRD assistance to rural development initiatives.

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1 http://enrd.ec.europa.eu/publications-and-media/eafrd-project-brochures/en/eafrd_examples_of_projects_brochure_en.cfm
2 http://enrd.ec.europa.eu/policy-in-action/rdp_view/en/view_projects_en.cfm

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Examples of EAFRD project support for environment services

Environmental services and the EAFRD

Europe's environment provides EU citizens with a vital supply of essential services such as air for breathing, water for drinking, and soils for producing food. Member States' rural areas host a significant proportion of our environmental resources and the European Agricultural Fund for Rural Development (EAFRD) is designed to help promote sustainable approaches to the use of this key natural resource-base.

A wide range of different environmental services can be assisted through the EAFRD using financial support that is available to EU Member States' Rural Development Programmes (RDP).

EAFRD projects that facilitate such environmental services include those directed towards supporting the conservation of biodiversity, wildlife habitats and landscapes. Water is another important environmental resource which EAFRD projects are helping to protect in terms of both its quality and availability.

Climate change continues to affect the state of EU water, wildlife and landscapes so many of the Member State's RDPs prioritise projects involving climate regulation. This work can have positive impacts on other environmental services like air quality, soil functionality, and resilience to floods or forest fires.

All of these types of environmental services remain indispensable to the long-term prospects of sustainable growth in the EU and many beneficial EAFRD project examples exist that are helping to sustain the availability of EU environmental services.

This EAFRD Project Examples brochure highlights a small selection of the different approaches that Member States are taking to use the EAFRD as a key tool to deliver an on-going supply of environmental services. The brochure complements existing ENRD communications about the EAFRD's role in supporting environmental services and an interesting collection of related material can be viewed on the ENRD website at:

http://enrd.ec.europa.eu/themes/environment/environmental-services/en/environmental-services_en.cfm

Nature conservation services: Slovenian EAFRD project supports the coexistence between large carnivores and livestock

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Biodiversity is one of the best known environmental services which is supported by the EAFRD. These nature conservation projects are co-financed by a number of different RDP measures including those funding agri-environment actions.

Europe's biodiversity is in decline and a new strategy was launched by the European Commission during 2012 to help tackle the challenges involved in halting the loss. Commenting on the new *EU Biodiversity Strategy to 2020*[3], Members of the European Parliament noted how, "the services that nature provides us with, like clean water, clean air, fertile soil, and food, are crucial for the well-being of human kind."

A resolution passed by the Parliament in support of the new EU Biodiversity Strategy drew attention to the benefits that can be gained by increasing the integration of nature conservation considerations into economic and other policies. Reform of the Common Agricultural Policy (CAP) was considered by Parliamentarians to be among the important mechanisms that could be applied to help Member States better balance biodiversity protection needs within actions promoting socio-economic development.

Moves to improve capacity for the provision of biodiversity-related environmental services have been a regular feature of CAP reform over the last two decades. The introduction of agri-environment support schemes has been a major part of this reform process and one that represents a significant step-forward in helping to conserve wildlife which relies on farmland habitats.

Agri-environment support schemes are used to provide a variety of nature-based environmental services. They offer effective tools to help improve the harmonisation between the EU's nature conservation objectives and the sustainable economic development needs of Europe's rural areas.

An example of how this works in practice can be seen in Slovenia, where agri-environment payments are providing incentives for upland farmers to use environmentally-acceptable methods of protecting their livestock against large and rare carnivores (which are protected by EU nature conservation laws).

The EU is home to five species of large carnivore: the wolf (*Canis lupus*), the lynx (*Lynx pardinus*), the Iberian lynx (*Lynx pardinus*), the brown bear (*Ursus arctos)* and the wolverine (*Gulo gulo)* – all of which are protected under the Habitats Directive. These species need large areas in which to live, hunt and raise their young. A typical territory can range up to 100 square kilometres. This, combined with the fact that they are predator species, has made their conservation difficult and at times controversial.

Carnivore conservation

Jože Hobič is one of the farmers who receives support from Slovenia's agri-environment scheme targeting the conservation of large carnivores. Located on the south edge of the Kočevski Rog forest, the Hobič family farm rears a mix of cattle, sheep and goats. Mr Hobič describes the reality of farming in this karst region where thin soils and steep slopes limit the possibilities for other types of agriculture. "Being dependent on livestock can be difficult at times for farms like ours in this part of Slovenia

3 http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7%5b1%5d.pdf

because wolves, bears and lynx live here as well - and they can pose a threat to our livestock business. Wolves are our sheep's biggest predators", reports Mr Hobič.

"We know these carnivores have been persecuted in other parts of Europe and they are now an endangered species, so we need to find ways of preventing their disappearance from Slovenia. However, we have to make sure they do not kill our livestock or affect our ability to make a living. The agri-environment payments from Slovenia's Rural Development Programme have helped us to reduce the number of attacks by providing compensation for costs involved in protecting our animals against attacks by large carnivores. Electric fences and dogs are useful tools for deterring attacks."

"Total protection is not possible, but these actions reduce the possibility of attacks and make a difference for the profitability of our farm. These agri-environment payments have helped to stabilise our business income. The payments also provide an incentive for farmers to use alternative ways of preventing carnivore attacks, which reduces the risk of these animals being persecuted."

The EAFRD support in this example is therefore playing a productive role in providing environmental services by protecting endangered biodiversity. At the same time the EAFRD is having a positive impact on the viability of Slovenia's rural economy.

© Luka Hobič

Opportunities exist to strengthen the potential for agri-environmental schemes to provide environmental services.

Future developments

Mr Hobič hopes that more of this agri-environment support will continue in the future. *Legislative proposals*[4] for the next programming period (2014-2020) are currently under review at EU level to identify new possibilities to enhance the way that agri-environment schemes can be used to provide biodiversity conservation, and other environmental services.

A special Focus Group of experts at the ENRD has been exploring opportunities for strengthening the EAFRD's role in providing environmental services. Outcomes of the Focus Group are informing the development of either implementing regulations or common guidelines provided at EU level.

Topics being assessed by the ENRD Focus Group include the identification of systems that are capable of encouraging collective approaches to agri-environment action, and which can be cost efficient and provide coherent cover across wildlife habitats. Other options under review involve the design of results-oriented agri-environment schemes that link farm payments with agreed improvements in biodiversity or other environmental services.

Further details about the ENRD Environmental Services Focus Group's findings can be found at: *http://enrd.ec.europa.eu/themes/environment/environmental-services/en/environmental-services_en.cfm*

> *"I would say that these agri-environment payments have helped to stabilise our business income and the payments also provide an incentive to reduce the risk of carnivore persecution."*
>
> **Jože Hobič**

4 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0627:REV2:EN:HTML comm2006/pdf/2020/1_EN_ACT_part1_v7%5b1%5d.pdf

Reinforcing flood resilience: EAFRD project supports environmentally-friendly dyke building in Germany

© Tim Hudson

Flooding is an environmental phenomenon that continues to pose threats to both rural and urban areas. Different flood protection and flood prevention actions can be carried out in rural areas using help from the EAFRD.

River systems flowing through the countryside provide valuable benefits for rural areas but they can also create problems related to flooding if they are not properly managed. A *hazard report*[5] published by the European Environment Agency in 2011 noted that, between 1998 and 2009, flooding and storms represented the most costly of all European hazards. By 2009, the number of fatalities had reached 1 126 in 213 recorded flood events. The overall economic losses recorded for this period add up to about €52 billion.

Flooding can thus be an enormous risk to EU assets and floods affect natural resources like biodiversity habitats and landscapes as well as commercial resources such as agricultural land, business facilities and residential properties. In Germany's Rhine river basin for example, as many as 10 million people live in areas at risk of extreme floods; areas where the potential damage from floods is estimated to be as high as €165 billion[6].

Rural areas can act as natural buffer zones to provide flood regulation and flood resilience services. Reducing flood-related risk is achieved by a mix of structural actions to protect land under threat, and/or management measures to increase the natural capacity of land to retain flood water (and so prevent it from causing damage). The latter natural methods are increasing used due to their positive environmental impact.

New technologies are also improving the environmental footprint of traditional dykes. An EAFRD project example using such technology in Germany's Rhine valley highlights how EU rural development funds can be used to provide eco-sensitive approaches to the delivery of flood-related environmental services.

Flood protection

Klaus Weichhart works for the *Ministry for Environment, Food, Agriculture, Viticulture and Forestry in Mainz*[7] that is overseeing this dyke upgrading initiative. Talking about why the project was needed Mr Weichhart explains that, "the construction of dams on the Upper Rhine between 1955 and 1977 reduced the flood protection levels of existing dikes, which were initially designed to withhold floods occurring every 200 years, to flood events that statistically could now occur every 50 to 60 years."

"Given the extreme urgency and the large resource needs of flood protection on the Upper Rhine, we included specific assistance for flood works in our RDP. EAFRD support has facilitated a more rapid implementation of the flood protection construction programme and this applies to the rehabilitation of existing dykes, the construction of new dykes, as well as to the construction of flood retention facilities like polders. We also use it for dyke relocations."

5 Mapping the impacts of natural hazards and technological accidents in Europe. http://www.eea.europa.eu/highlights/natural-hazards-and-technological-accidents

6 http://ec.europa.eu/environment/water/flood_risk/impacts.htm

7 http://www.mufv.rlp.de/

"Our flood protection efforts are planned in relation to the existing potential for damage. These measures are not only designed to protect against flooding, they also target the improvement of the ecosystem. Consideration of dyke upgrading measures now always includes the possibility of dyke relocations, in order to create, for example, additional natural wetlands."

"One of our RDP-funded flood protection projects was the dyke section between Otterstadt and Waldsee. It is part of the flood protection line on the Upper Rhine and involves the areas located directly behind this dyke section, including adjacent land vulnerable due to its topographic location. RDP co-finance covered all stages of the flood protection project, including planning work of engineering companies, land acquisition (to a small extent) and the works by a construction company."

Environmental benefits

Sensitive and comprehensive planning helped to design a project that balanced competing interests regarding use of the dyke support surfaces (i.e. agriculture, conservation, and recreational use). Mr Weichhart describes how, "in order to obtain the farmland that was needed, a land consolidation process was conducted and this helped to improve acceptance."

Upgrading works involved approximately four kilometres of the dyke's landside, and nearly two kilometres of its waterside. In order to protect a nature conservation area, a vertical sealing element was inserted to a depth of 12 metres. This prevents water seeping into the nature area and used a special 'mixed-in-place' (MIP) technique that creates an overall slimmer dyke with reduced environmental impact. The MIP method helped to avoid the need for larger deforestation to build the new dyke. It also improved protection against the pressure of flood water, thus reducing the need for larger landfill in the dyke's hinterland.

To protect the dyke's vegetation, seeds were extracted from a section of the existing dyke that had high nature value. These seeds were then used to re-colonise the new dike's surface once the upgrading work had been completed. In addition, the project also helped to stabilise local bat populations by installing roosting boxes around the construction area. During building works, care was also taken to avoid threats to a species of shrimp (Triops *cancriformis*) that lives in wetland habitats on the dike's landside.

Flood resilience is one of the environmental services that rural areas provide and that EAFRD co-finance can be used to strengthen.

> *"Given the extreme urgency and the large resource needs of flood protection on the Upper Rhine, we included specific assistance for flood works in our RDP."*
>
> **Klaus Weichhart**

© Struktur-und Genehmigung Direktion Süd Neustadt

Sustainable soil services: Czech farms use EAFRD support to achieve better soil functionality

Environmental services provided by the soil are diverse and funding opportunities, made available from RDPs, continue to be used by farmers in Member States to improve the care that they take of this non-renewable resource.

© Tim Hudson

Europe's soils are a vital and valuable environmental asset that provides us with key services including water purification and food production. Our soils also perform important carbon storage functions and so play essential climate regulation roles by absorbing greenhouse gases from the atmosphere.

Sustaining the functionality of our soil base is consequently a top priority for Member States and many countries' RDPs include support measures promoting land management services that address soil quality. Actions co-financed by the EAFRD in this field include integrated crop and animal production, crop rotation and diversification, compost application, zero or reduced tillage, and intermediate growing of 'catch' or 'cover' crops. The latter options provide a protection against soil erosion during periods when main crops are not sown, namely winter months.

Results of such sustainable soil management techniques can generate synergies for soil fertility and soil productivity. They can also improve soils' water storage capacity and have a positive impact on biodiversity. Socio-economic gains can be realised through the enhancement of soil productivity and a reduced requirement for costly agri-chemical inputs. Furthermore, healthier soils help to reverse land degradation processes and reinforce the ability of ecological processes to function effectively.

A combination of support from the Czech Republic's RDP measures targeting agri-environment activity in 'Less Favoured Areas' demonstrates a useful example of how EAFRD co-finance can be amalgamated to promote environmental services linked to soil functionality. Here the EU rural development funds are used to provide payments for farmers who grow catch crops in environmentally-sensitive areas.

Conservation cooperation

A farm cooperative in the Czech Republic's South Moravia region is growing a specialised catch crop (tansy phacelia) with support from the RDP scheme. Michal Stanislav works for the cooperative and he is very pleased with the soil conservation benefits that result from this form of environmentally-sensitive agriculture.

"We plant around 60 hectares of catch crop after we complete the last of our summer harvest in September. The straw that is left from the summer crops is left on the ground and we sow the catch crop directly into the fields in this condition. The catch crop and straw provide a ground cover over the winter months and gradually die off from frost, after which they form a mulch that provides a good soil base for sowing the new spring crops."

"Our main benefit from this approach to farming is that it helps to prevent soil erosion, especially on the sloping parts of our farmland. The catch crop covers the soil between growing seasons and so protects it from breaking up, being blown away, or lost through water-run off. We have found through trials that the best form of controlling soil erosion involves combining the catch crop with reduced tillage. Limiting tillage by ploughing less and sowing directly into the fields also helps us because it means we have more time to do other work on the farm."

"Another benefit is the improvement in the health of our main cash crops, like the maize we grow here. This is helped because the catch crops provide a break between the maize crops and so prevents diseases being transferred. They can also increase the quality of organic matter and maintain soil nitrogen levels, which are obviously very important. What's more we find we need to use less pesticide since this system prevents excessive growth of weeds before the spring crop is sown."

© Jaroslav Pražan

Soil conservation helps to sustain long-term supplies of high quality food and to maintain healthy ecosystems.

Satisfied customer

Mr Stanislav's cooperative receives agri-environment payments of €104 per hectare to help offset the costs of growing this catch crop and he is satisfied with the value of such RDP support. He says, "we did a lot of preparation before we decided on using of this type of catch crop variety. It is more expensive than some other seed options but it gives the results we need and so the investment is worthwhile."

"It means we do not gain any financial margins from growing the catch crop but the benefits of preventing soil erosion, maintaining soil nitrogen levels, and reduced tillage requirements make it cost-effective from a whole farm perspective."

Catch crop support schemes co-financed by the EAFRD, like this Czech example, not only help farmers achieve environmental and economic benefits, but such approaches are also considered to exceed the basic GAEC[8] standards regarding soil protection. Accordingly, farms providing these types of soil-based environmental services can find it easier to comply with corresponding cross-compliance standards that are necessary to receive direct payments from Pillar 1 of the Common Agricultural Policy.

> *"We have found through trials that the best form of controlling soil erosion involves combining the catch crop with reduced tillage."*
>
> **Michal Stanislav**

8 Good Agricultural and Environmental Condition. For further details see: http://ec.europa.eu/agriculture/envir/cross-compliance/index_en.htm

Restoring local landscapes: EAFRD support in Sweden creates multiple benefits for island farmers, wildlife and visitors

© Anna-Karin Utbult Almkvist

Traditional extensive forms of livestock grazing can help to maintain attractive landscapes containing mosaics of grassland meadows and woodland environments. Such landscapes maintain valued local heritage and represent useful tourism assets.

Rural landscapes reflect the countryside's identity and diversity, and EU rural development policy respects the value of European landscapes. In doing so the policy complements aims of the *European Landscape Convention*[9]. This initiative from the Council of Europe is based on the premise that landscapes hold important, "public interest roles in cultural, ecological, environmental and social fields." The Convention also recognises that landscapes represent, "a resource favourable to economic activity and whose protection, management and planning can contribute to job creation."

Member States' RDPs include a variety of funding options that can be used to help restore, protect and manage landscapes. Such support provides beneficial environmental services for EU citizens and is often delivered through actions targeting agriculture and forestry, because these two types of land use heavily influence a landscape's character.

EAFRD assistance from the Swedish RDP demonstrates how environmental services associated with landscapes can be achieved. Such assistance acknowledges the environmental dimension of landscapes as habitat and ecosystem features.

Archipelago landscapes

Sweden's Baltic Sea archipelagos constitute a unique landscape of many thousands of islands. The landscape here has been shaped over centuries by a combination of (on-going) post-glacial land shifts and traditional rural livelihoods such as small-scale farming and fishing.

Anna-Karin Utbult Almkvist from the *National Association for the Swedish Archipelago*[10] describes how, "the archipelago areas are of national and international interest for their natural and cultural values and also as recreational areas. Many people visit the islands seeking unspoilt environments or uninhabited areas. The archipelago has a lot of nostalgia connected with it because it provides a contrast to the mainland's lifestyle. The islands and their landscapes are a big part of our cultural heritage that we need to conserve, but also develop."

"The archipelago landscape remains reliant on farming and in places where farms become abandoned we can see that the much-cherished environment can quickly become overgrown. This is something we want to avoid and support from the Rural Development Programme is a crucial tool to help us maintain our traditional landscape. The EU funds help to support the viability of island agriculture and they are also available for habitat restoration work in areas of high nature value."

9 http://www.coe.int/t/dg4/cultureheritage/heritage/Landscape/default_en.asp
10 http://www.skargardarnasriksforbund.se/

A good example of this is from the small island of Gräsö where Inger Abrahamsson and Christer Westerberg started with a farm of 30 hectares and are now tenants on another 140 hectares. They have used support from the current and previous rural development funding programmes to build up their livestock business. Part of their business strategy involves restoring traditional grazing pastures to provide more space and fodder for more livestock. The results of their efforts have generated more income and reinstated coastal meadows that were previously covered with pine and spruce.

"Grazed coastal meadows, like the ones on Gräsö, are important for birdlife and the fields host many plant species as well," highlights Ms Utbult Almkvist. "Such environmental qualities can be exploited by farmers in the archipelago as a marketing tool to promote their products better as high quality meat, that is supplied locally from an area of high nature value. In addition, other business benefits are possible from the rural development funding that helps to improve farm competitiveness through pasture re-creation. Restoration will also generate employment for local businesses providing services like ditching, cutting trees and transportation."

Demonstration value

"Inger Abrahamsson and Christer Westerberg's example shows that it is possible to make a living on island farming. This can help to reduce problems related to land abandonment and even depopulation. We have also seen how rural development funds can be used to help protect the landscape on islands

Looking after our cultural landscapes holds long-term socio-economic and environmental benefits for rural areas.

that have already been uninhabited. This activity contributes to the landscape value, as well as the local economy in the archipelago."

"The people on the small island of Harstena used to have an important grazing area on the Sandgärdet islet. But active farming ceased on Harstena about 50 years ago. The grassland on Sandgärdet was overgrown and the hazel forest disappeared. This is a good example of a successful collective approach to farmland conservation. The Rural Development Programme was used in combination with money from the World Wildlife Fund and the regional council. Thanks to the commitment of local people through a concerted effort between 2009 and 2012, the island´s former high nature value environment was restored."

"Restoration of the meadow and the woodland habitats on the island required cooperation between the land owners, a farmer and a local community association. They are now about to achieve their goal of restoring the habitat to a suitable condition for management by mowing and grazing by livestock again. This has been good for all parties involved as well as for the wildlife."

Harstena's newly restored pastures can now be grazed with support from agri-environment payments and these offer longer-term opportunities to help maintain the archipelago's high value landscape. "We believe that this approach is very beneficial because it produces so many different socio-economic and environmental goods and services. Without the support from the Rural Development Programme, restoration and management of landscapes on islands like these, would not been possible," concludes Ms Utbult Almkvist.

© Anna-Karin Utbult Almkvist

> *"Such environmental credentials can be exploited by farms on the archipelago as a marketing tool."*
>
> **Anna-Karin Utbult Almkvist**

Multi-measure development: Italian farmers design their own integrated package of agri-environment and training measures

© Gianfranco Vagnoni

Conventional approaches to the greening of agricultural activities have historically delivered environmental services at an individual farm level, but new area-based approaches are being developed that integrate skills training with agri-environment payments to produce results with good potential for reproduction around rural Europe.

Environmental service synergies can be achieved by coordinating EAFRD support for agri-environment schemes with RDP training measures that advise farmers on how best to use the agri-environment funding. Additional benefits can be gained when this integrated approach is coordinated over an area basis.

Italy's Valdaso territorial agri-environmental agreement (TAEA) from the Marche region provides an interesting case study in how this joined-up thinking can generate a collection of long-term socio-economic and environmental benefits. Some 100 farmers are participating in Valdaso's TAEA and Francesco Vanni, an expert who has been advising the TAEA, explains its key characteristics.

"Valdaso's agri-environment initiative is focused on reducing the use of agri-chemical inputs like toxic pesticides. The area targeted is an environmentally-sensitive zone containing many orchards where pest control is a commercial necessity for fruit growers. The RDP initiative encourages farmers to adopt alternative and integrated pest management techniques based on the application of 'mating disruption' methods. Other forms of sustainable agriculture, which help to protect soil quality, as well as control fertiliser inputs, are also included in the Valdaso TAEA."

"The TAEA has succeeded because it was designed as a coherent initiative that integrated agri-environment payments with a capacity building programme for the farmers who would be using the payments. The regional farm advisory service carries out the capacity building through on-farm visits and workshop training sessions."

"Training explains how the mating disruption methods work and how important it is for this type of approach to be carried out over a territorial level. The advisors also help the farmers measure the effects of their actions in terms of reduced toxic residues that are found on their crops. This helps them to market their fruits as quality branded products."

Integrated benefits

Gianfranco Vagnoni is one of the farmers involved in the TAEA. He produces fruits from 5.5 hectares of orchard and he also has a vineyard and grows cereals. "I was part of the original pilot scheme for the TAEA and I wanted to participate because I understood that bigger benefits could result if more farms were involved."

"Mating disruption methods works best when carried out collectively on a territorial scale. It works on a farm-level as well but of course if my neighbours are using the same pest control approach as I am, then that means my crops are less likely to be attacked by pests that move from land located next to mine."

"We needed to learn how to use this new technique and so the inclusion of the training in the TAEA design was very pragmatic and sensible. The training also helped us to introduce new agricultural practices that reduce other agri-chemical inputs, and it explained what was involved in growing the right type of cover crops in order to further improve the farm environment."

"Another important reason why the TAEA works well for us is the way all the farmers involved have been able to meet and share our experiences about using this pest management system and reducing the amount of chemicals we apply. The more that we meet and talk, the more collective actions we undertake."

Reiterating this point, Francesco Vanni observes that, "In many cases, appropriate land management strategies depend not just on the economic incentives to land managers, but also on other factors, more related to farmers' motivations, attitudes and skills."

"Bringing farmers together to work collectively for the good of their shared territory promotes a positive 'virtuous circle' that can lead on to other forms of favourable cooperation and cost-effective rural development. Hence, through this territorial and integrated approach to using EAFRD co-finance it is possible to provide not only environmental services, but also a combination of economic and social opportunities too. These would have been difficult to achieve with a more traditional approach focused on land management practices adopted at farm level."

Lesson learned

"Findings from the Valdaso TAEA are relevant for other parts of Italy and Europe. These especially relate to the benefits of engaging local stakeholders early on in the design process of such collective agri-environmental strategies. This can help to spread knowledge at the territorial level and result in increasing effectiveness and longevity of the strategies proposed."

Complementary training support can be designed and integrated into territorial agri-environment schemes in order to improve the effectiveness of RDP implementation.

"Furthermore, the integrated delivery of measures as seen in the Valdaso TAEA successfully promotes pro-active engagement by farmers in providing environmental services. Land managers may find this more attractive than compulsory-style cross-compliance[11] arrangements and the results are just as good at re-orienting intensive agricultural systems towards greener methods."

"More innovation in the development of tools to implement the Common Agricultural Policy's greening priorities would be welcomed by many stakeholders. Integrated territorial tools like the Valdaso TAEA model confirm that decentralised and bottom-up systems work well and deliver results."

> *"I notice that I feel physically healthier now that I don't come into contact with so many chemicals and my business has been helped too since we have been able to make a lot of cost savings."*
>
> **Gianfranco Vagnoni**

11 http://ec.europa.eu/agriculture/envir/cross-compliance/index_en.htm

Air quality improvements: Danish piggery pioneers new air treatment technology

© Tim Hudson

Agriculture has been associated with issues concerning air quality in some parts of rural Europe. EAFRD support is available to help farmers invest in technology that reduces the risk of air pollution.

Clean air is essential to our own health, as well as that of a fully functional environment. The issue of air quality is an important concern for many European citizens and the EU is currently undertaking a *review*[12] of its air policy in order to update the Thematic Strategy on Air Pollution and Clean Air for Europe (CAFÉ). Concluding in 2013, the air policy review will target actions that help rural areas contribute to the EU's objectives concerning the supply of air-related environmental services.

Data from the *European Pollutant Release and Transfer Register*[13] (E-PRTR) can be used to inform the EU policy update. This tool monitors emissions from different industrial sectors and it allows for analysis of trends in air quality to identify areas where improvements are underway, and also areas where work needs to be continued in order to protect air quality.

Agricultural emissions are tracked by the E-PRTR. In some parts of Europe farming has been linked to a loss of air quality. Livestock farms in particular can be a source of air pollutants such as dust particulates, microorganisms and gases, including ammonia and carbon dioxide. All of these can be harmful to the welfare of farm workers, livestock and surrounding areas.

Member States appreciate the opportunities offered by the EAFRD to help farmers tackle the challenges of air quality. An award-winning example of this can be found in Denmark, where EAFRD co-finance has been used to help fund the construction of a high-tech, low-emissions piggery.

Environmental innovation

Jørgen Berth is a livestock farmer from Randers in the Midtjylland region of Denmark. He works around 100 hectares of land rearing both pigs and cattle. Storm damage to his main piggery building led Mr Berth to start thinking about a new type of piggery unit. As a keen agricultural engineer, he was interested in designing a piggery that could make use of, and combine, a number of innovative technologies, in order to improve the competitiveness of his business. This would be achieved by reducing overhead costs related to energy and other resource inputs.

He was also aware of the relevance of showing how his design for a low-impact livestock unit could act as a good practice model for other farms in the Randers district, which is designated as an environmentally sensitive area.

Construction of Mr Berth's new piggery used financial assistance from Denmark's RDP. The development involved corresponding investments in slurry management procedures (including a state-of-the-art slurry acidification system) and innovative approaches to air cooling, air circulation and air purification. Special attention was paid to ensure that these technologies maximised improvements for the welfare standards of his animals and employees.

The EAFRD co-finance was well used by Mr Berth as he installed his new design for a sustainable agriculture production

12 http://ec.europa.eu/environment/air/review_air_policy.htm
13 http://prtr.ec.europa.eu/

process. Neither the slurry nor the air control systems had been tested before but his project subsequently won a top award at the Danish Agriculture and Food Council's Environmental Technology Prize scheme. Judges were especially impressed by the creativity that Mr Beth applied in his project design and they also praised him for the risk he took in pioneering such an innovative approach to environmental protection.

Speaking at the prize ceremony Mr Berth said, "as a part-farmer and part-engineer, I have used my industrial experience in building my business. The award for my low-impact livestock unit proves that innovation is valued by the agricultural industry."

Air quality control

The air quality benefits - reduced odours and clear air supplies - resulting from this EAFRD project offer considerable scope for replication elsewhere in Europe. Further details about the different technical systems used in the low-impact piggery are available on the project's *website*[14].

These explain how improvements to internal air quality levels throughout the building are attained by using different extraction processes. One of these is an automated system channelling all of the exhaust air through filters to reduce ammonia and other odorous emissions. This process can remove up to 95% of dust and dangerous compounds from the air and removes the characteristic 'piggery odour', which can sometimes be a cause of cohabitation issues.

More innovative developments like Mr Beth's environmentally-sensitive livestock building can help agriculture make more positive contributions to environmental services linked with air quality, and this project example highlights how EAFRD co-finance can be harnessed to help.

> *"The award for my low-impact livestock unit proves that innovation is valued by the agricultural industry."*
>
> **Jørgen Berth**

EAFRD encourages innovation in rural development and this can help to strengthen the supply of environmental services from rural areas.

© Jørgen Berth

14 http://vaerumvestergaard.dk/

Mainstreaming climate action: French LAG demonstrates rural areas' potential to help regulate climate change factors

Collective approaches, innovation, and transnational cooperation are three aspects of the LEADER methodology that can be used by a wide variety of EAFRD beneficiaries to produce environmental services from community-led rural development projects.

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Being a prominent part of the EU approach to rural development for two decades now, the LEADER methodology has a good track record of providing different types of environmental services. Over 2 000 LEADER Local Action Groups (LAGs) operate around rural Europe and a large number of these include environmental objectives in their Local Development Strategies.

Most LAGs deliver environmental services using funding from a relatively small part of the total EAFRD budget. However, the introduction of LEADER as a mainstream and horizontal component of all RDPs since 2007 offers opportunities for LAGs to increase access to funds from different parts of the EAFRD financial toolkit. This can lead to an improved supply of environmental services being supported by the EAFRD and extend LEADER's advantages to a wider group of agricultural, forestry and environmental beneficiaries.

Climate action

Environmental actions focused on helping local communities to adapt to, and/or mitigate, the effects of climate change is an area that LAGs are engaged in throughout rural Europe. This reflects their bottom-up ability to develop and implement local climate initiatives. Outputs from a French LAG involved in supporting environmental services in the agricultural sector underline the types of mainstream climate action projects that LEADER can be used to deliver.

These project examples from Brittany's LAG Sud du Pays de Saint-Brieuc include an interesting initiative helping farmers to coordinate land exchanges in order to reduce transport costs and traffic impacts. Another example from the LAG illustrates how knowledge transfer through LEADER's transnational exchange facility can help farms diversify into supplying biofuel material for renewable energy plants. A further project from this part of Brittany demonstrates how innovation in livestock husbandry can lead to energy, cost and emissions savings.

Land management

Whilst goals for the LAG's land exchange project were more linked to cost and time efficiencies for the farmers, the project also help to reduce localised energy use, which makes positive contributions on a global scale to climate action goals. This project was managed with assistance from the Chamber of Agriculture in Côtes d'Armor.

EAFRD co-finance from the LAG was used initially to research and map opportunities for exchanging land plots between agricultural units. Findings revealed that most farmland was located within two kilometres of an agricultural holding, but that a significant proportion of land required drives of five or more kilometres to reach.

Interest in the project spread quickly around the local area and 50 farmers attended information sessions organised by the LEADER project. They confirmed their support for the land swap concept and helped the project team identify a series of technical queries that were to be resolved, such as those concerning production quotas and direct payments.

As the project continues to grow it has now established an 'Exchange Fellowship' and provides advisory services (plus tools) to help facilitate voluntary agreements between land users that generate fuel energy savings and other environmental services.

Transnational know-how

Energy crops provide alternatives to fossil fuels and can contribute to the EU's climate change mitigation objectives. The LAG Sud du Pays de Saint-Brieuc encourages farmers to consider energy crops as a 'green' opportunity for business diversification and one of these farmers is Jean-François Courcoux from Plaintel. He received LAG support to test the potential of growing miscanthus as a bio fuel, and his results have been inspiring.

Referring to the LEADER project outcomes, Mr Courcoux remarks that, "miscanthus are simple to produce and require only limited inputs compared to other crops. The plant reaches two metres after one year and up to four metres in the third year. Each year, a single hectare of this energy crop can absorb 36 tonnes of carbon dioxide. It can be used in chips or pellets for heat and can also be converted to ethanol."

LEADER provided the assistance to help develop such knowledge and the LAG is now using transnational funds to share their know-how with Romanian farmers. This EAFRD cooperative project is being implemented with partners from the Tara Oltului region and forms part of a initiative to identify energy crop varieties that best suit local climatic and agronomic conditions in Romania.

> *"Each year, a single hectare of this energy crop can absorb 36 tonnes of carbon dioxide."*
>
> **Jean-François Courcoux**

LEADER is a 'horizontal' methodology that can be used to deliver environmental services using funds from different EAFRD Axes.

Energy efficiency

A third project example from the LAG highlights another core LEADER feature that can broaden the expanse of EAFRD-related environmental services, namely, innovation. Supporting rural innovation is a cornerstone of the LEADER methodology and Jacques Boishardy, a pig farmer from the LAG Sud du Pays de Saint-Brieuc territory, showed how such support can be used to improve energy efficiency in livestock sheds.

Mr Boishardy's innovative design introduced a manure management system that reduces ammonia and thus the need for air-cleaning costs. Robust insulation was also installed to further improve the building's environmental footprint. Results led to energy savings of 99.6% for heating and 75% for ventilation. Suffice to say that the building consumes almost no electricity. LAG Chairman, Marc Le Fur, commended the project saying, "the exceptional energy efficiency of the building is accompanied by better animal health and better conditions for the farmer in his daily work".

Water quality: manure management investments reduce pollution risk to Latvian water sources

© Tim Hudson

Europe's countryside can provide bountiful supplies of fresh high quality water and this is an essential environmental service that EAFRD co-finance is helping to sustain through investments in, among other things, farm modernisation projects.

Water is a mainstay of life and the EAFRD helps to preserve the quality of Europe's water supplies, most of which flow from the Member States' rural areas. EAFRD support for water quality is available from different RDP budgets including those targeting quality of life, environmental management, and competitiveness of the rural economy.

Agriculture is a sector that can have a significant impact on the supply of environmental services related to water quality, because our farms consume around a third of all water used in Europe.

A Blueprint to '*safeguard Europe's waters*'[15] is being prepared by the European Commission that will encourage farmers to make wiser and cleaner use of our water supplies. The Blueprint proposals are feeding into the reform process for the Common Agricultural Policy (CAP) and the Blueprint will also strengthen the roles of other existing EU legislation. The Nitrate Directive is among such legislation and this will continue to have a major influence on European agricultural activity.

Operational since 1991, the EU's *Nitrate Directive*[16] has been at the forefront of efforts to protect water quality. It forms part of suite of regulations promoted by the *Water Framework Directive*[17] (WFD) and covers all EU industries.

Special attention in the Nitrates Directive is paid to fostering the uptake of good practice farming methods in order prevent nitrates from agricultural sources polluting ground and surface waters. Major improvements have taken place on many farms as a result of the Nitrate Directive and it remains a notable force for change.

Member States continue to provide incentives to help the transition to more environmentally-sensitive agricultural practices and the RDPs are a key tool for this task. In Latvia for instance the RDP includes funding support for farm modernisation actions that result in improved environmental protection and, "attainment of the objectives set by the Nitrate Directive." Livestock farms are a priority for this type of RDP support which can help towards the cost of upgrading water supply and sewerage systems as well as wastewater treatment equipment and machinery.

Farm modernisation

A beneficiary of such EAFRD co-finance is Uldis Kirsis who runs a family farm in the Broceni district of Latvia. He started his farm in 1994 with just four cows on 150 hectares but he has now grown his business to cover some 1 300 hectares of land and he has 700 cattle. These include a dairy herd of 350 cows.

15 http://ec.europa.eu/environment/water/blueprint/index_en.htm
16 http://ec.europa.eu/environment/water/water-nitrates/index_en.html
17 http://ec.europa.eu/environment/water/water-framework/info/intro_en.htm

A livestock enterprise of this scale creates large amounts of manure which can pose possible threats to the environment if the manure is not managed in an appropriate manner. *Nitrification*[18] of watercourses remains a potential risk from dairy and other farms. However, this problem has been addressed by Mr Kirsis with assistance from EAFRD co-finance.

He received RDP funds to help him carry out a farm modernisation plan that involved installing new manure management infrastructure. Talking about the background to his RDP project, Mr Kirsis explains that, "up until 2008 we had been keeping our cattle in old Soviet-style livestock housing but it was difficult for these units to meet the modern environmental standards. The old cattle barns were also not very cost effective because they were expensive to operate and maintain. As a result, options for further growth of the farm business were restricted and so we prepared a development plan to build a new and larger livestock shed which would be more efficient and better for the environment."

"Our farm modernisation plan included integrating a new management system for collecting and storing manure. This was essential and we designed the project in accordance with Latvia's national laws covering environmental protection and collection of wastewater from livestock housing."

EAFRD co-finance was used by Mr Kirsis to part-fund his investment in the new dairy facility, which incorporated modern milking machinery, more space for additional cattle, energy-saving equipment for drinking water cooling systems, and better welfare conditions for the animals.

His dedicated manure management system involved installing a pipeline system for clearing and safely transporting manure from the cattle pens into a new liquid manure storage basin, which has a capacity to hold the equivalent amount of manure as that which is produced by the farm over a seven month period. In addition, the RDP project also helped fund equipment involved in moving the manure from the basin into specialised trucks that spread the manure on fields as a natural fertiliser.

"Our business development project has helped us improve our ability to handle large amounts of manure and so reduce risks of environmental pollution. The project has also made a big difference to our profit margins because it has increased the efficiency of our milking and the productivity of our employees," remarks Mr Kirsis who goes on, "we have had confirmation from the State Food and Veterinary Service that the quality of water in the area of our farm is in line with national regulations. We are pleased with the outcomes of our farm modernisation project."

EAFRD support is helping improve agrarian systems' transition towards more resource-efficient and environmentally-sensitive practices.

Policy contributions

RDP projects like the example provided here by Mr Kirsis demonstrate how EAFRD support can be channelled to deliver beneficial local contributions to high-level EU policy priorities.

Investments in farm modernisation activities can thus provide important environmental services that help to safeguard Europe's water and assist Member State endeavours to implement water-related EU legislation, like the Water Framework and Nitrate Directives.

"We designed the project in accordance with Latvia's national laws covering environmental protection and collection of wastewater."

Uldis Kirsis

© Andris Parups

18 http://www.eionet.europa.eu/gemet/concept?ns=1&cp=5598

Preserving cultural heritage: Livestock farming helps to protect petrified forest landscape in Greece

Providing EAFRD co-finance to improve the competitiveness of EU farms or maintain the viability of agriculture in areas suffering from natural handicaps can have beneficial multiplier effects for the countryside, including the conservation of valuable landscapes.

© Assoc Professor Nickolas Zouros

Conserving cultural landscapes is one of the environmental services that are provided through EAFRD project support. Socio-economic and environmental benefits are gained from looking after our landscapes, which represent useful assets for different types of rural businesses, particularly those involved in the tourism sector.

Greece is a country where large parts of the rural economy depend on tourism income to help sustain quality of life and bring about development. This is especially so for many island communities and the Greek islands contain some of Europe's top tourist destinations.

Lesvos in the Aegean Sea is one such island where tourism supports many jobs and local facilities. EAFRD support is being used here in ways that contribute to the preservation of the cultural landscape, and thus provide environmental services that also create important economic benefits.

Landscape value

Lesvos hosts an internationally acclaimed cultural landscape in the form of an ancient 'petrified forest'. Some 70 000 tourists visit this highly valued piece of natural history each year and numerous rural businesses in the local area have taken advantage of the development opportunities offered by such tourist trade.

Hundreds of fossilised trees make up the petrified forest landscape on Lesvos. These fossil features were covered by volcanic material and petrified in place 20 million years ago. Comprising pieces of tree trunk, branches, roots, seeds and leaves as well as fossilised animal bones, the landscape is protected as a national natural history monument. It is included within the *European Geopark Network*[19] and has been part of the *UNESCO Global Geoparks Network*[20] since 2004. Approximately 16 600 hectares of this cultural landscape are designated as a *Natura 2000*[21] site.

Besides tourism, agriculture is a predominant employer for local people and farming practices around the petrified forest landscape help to maintain the overall structure and appearance of its open terrain.

As elsewhere in Europe, traditional agricultural practices remain vital on Lesvos to conserving the island's characteristic, attractive and time-honoured scenery. Safeguarding the future of farming on Lesvos therefore helps to protect important landscape features and a number of different EAFRD measures are being used to maintain farm livelihoods in the area around the petrified forest.

These measures target improvements in the competitiveness of local agriculture and also offer payments that encourage farmers to avoid abandoning non-profitable land. Land

19 http://www.europeangeoparks.org/
20 http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/geoparks/
21 http://ec.europa.eu/environment/nature/natura2000/index_en.htm

abandonment can have major adverse impacts because when farming practices cease the surrounding landscape often becomes overgrown and loses its former character. Habitat loss and biodiversity decline can also occur following changes in land use patterns.

Natural handicaps

Co-finance from the EAFRD is included in most Member States' RDPs for measures to help prevent land abandonment in areas that are classified as suffering from 'natural handicaps' (such as upland, arid, wet, or low fertile zones). These RDP measures account for one of the largest overall proportions of the total EAFRD budget at EU level.

Land around the petrified forest on Lesvos is eligible for support from RDP payments compensating agri-businesses for the additional costs involved in managing land with natural handicaps linked to the arid and upland soils.

Ilias Karavasilis is a Lesvos sheep farmer who receives such compensation payments from the Greek RDP. He also received funding from the RDP in 2009 for a development project to help him modernise his livestock premises. "We would find it difficult to make a living from the land here without the funding support that we receive," says Mr Karavasilis who continues, "if we were to stop grazing our animals on the land around the petrified forest site I think the landscape would start to look quite different."

EAFRD project support can be used to provide environmental services in both direct and indirect ways.

"We know that there are a lot of controls in place to protect the way the landscape looks here and for example we had to get a special permit to build our new livestock sheds. An inspector visited our farm to check that the project would not damage any archaeological features in the petrified forest. The EU funds were used to help us with the construction costs of the sheep units. We can now care better for the sheep and this helps our business produce better quality animals. We also used the funding grant to help buy a new tractor which makes our farming easier and more efficient. This means we can continue to use the land here as we have done before and so we are helping to maintain the area's special landscape."

Co-finance from Greece's RDP in this example reveals how the results of Mr Karavasilis' EAFRD-supported project have helped to protect the appearance of culturally and economically important landscapes. Mr Karavasilis' son now plans to continue farming the family land after his father retires. The RDP's farm modernisation grant, plus compensation payments, can hence be seen to have played a beneficial part in helping to safeguard the long-term supply of environmental services related to the conservation of culturally significant landscapes.

Forest fire resilience: woodland reservoir project protects Slovak and Polish forests

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Around one third of Europe is covered by forest and this important rural resource provides us with many multifunctional benefits. Fire is an increasing risk for Europe's forests, so support from the EAFRD can be channelled into woodland areas to help protect them from forest fire threats.

Fires are part of the natural ecological cycle in many forests and indeed some woodland species have evolved to benefit from the 'succession habitats' that fire incidents create. Other species have developed special protection mechanisms to cope with naturally-occurring fire incidents. However, the number of naturally-caused forest fires is now relatively low and most fires today are instead caused by human activity. The overall incidence of fires has now increased to a level that poses a considerable threat to the multifunctional environmental services that EU forests provide.

Forest fires can have a major negative impact on woodland productivity in terms of timber, energy, food, recreation, biodiversity, and landscape amenity. Fires also result in emissions of particles and gases (including carbon dioxide) into the atmosphere. They force an outflow of mineral nutrients and destroy the soil's organic layers. What's more, fires alter the water infiltration rates in the soil, making burnt areas more prone to erosion, soil loss and landslides.

Such damage is now more widespread and fires burn (on average) about 500 000 hectares of forest in Europe each year. This is almost twice the area of Luxembourg and the European Environment Agency ranks fires among the top causes of damage to Europe's forests. Forest fire resilience is thus an important environmental service that rural areas can provide, and specialised RDP support is available for this task through an EAFRD measure focused on 'restoring forestry potential and introducing prevention actions'.

Slovakian experiences

In Slovakia, this EAFRD measure has been used to support a number of different types of related projects and one of these is a new woodland reservoir. Aladár Trnovský was responsible for the project and he explains the experiences gained by Slovakia's State Forest Agency during the reservoir development, which was carefully planned to provide environmental services in areas defined as being a high risk for forest fires.

"We have designated our country's forest zones that are most threatened by fire hazards and this site in the Žilina region was classified as a high risk area. The Spruce forest here is prone to fire damage but the nearest suitable source of water to deal with fire incidents is over 30 kilometres away. An old reservoir site did exist in the forest but this was not in a fit condition for fire fighting. It had been built a long time ago to supply water channels for transporting timber through the forest but it had become derelict and was full of silt. Our project involved reinstating this reservoir by improving its capacity to hold water and also our ability to control the reservoir water levels through a modernised dam management system."

Work on the reservoir project was completed in autumn 2010 and since then it has successfully provided a sufficient source of in-forest water to deal with forest fire threats. Even in the region's hot dry season, enough water is now still retained in the forest for fire fighters to use if needed.

Thankfully, no fires have occurred in the area since the EAFRD project has been operational, but if required, the State Forest authority now have a forest-fire resilience resource that can be used by both helicopters and ground-based fire crews.

Broader benefits

More than 1 700 hectares of forest, covering a 15 kilometres radius, are better protected following the EAFRD project support. Mr Trnovský notes that, "because the reservoir is rather close to Poland it is assumed the water source could also be used as a fire fighting tool in Poland. Our experiences with this project have shown other additional benefits as well. We consulted a lot of people during the project design and this helped us develop a project that could have several different uses. These include flood protection, biodiversity, tourism, and recreation."

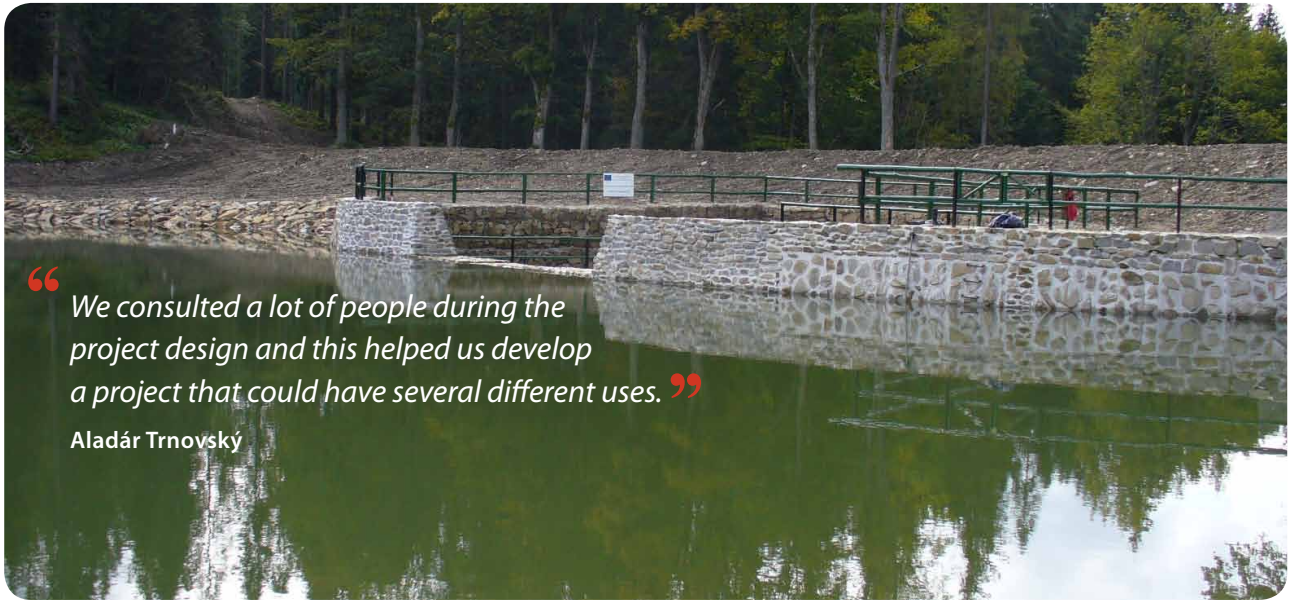
"Our colleagues from the regional environmental protection authority were involved in the ecological aspects of the project. They helped to ensure that the project design would be appropriate for wildlife and so the reservoir has also become a beneficial wetland environment for forest species. It now holds fish like trout and is used by a variety of wildlife including amphibians and otters."

Protecting EU forest resources from fire risks has strong economic, environmental and social relevance.

"Furthermore, we found that the reservoir can serve also as a protection against high water levels and floods during periods of heavy rainfall. It can accumulate a large quantity of water and prevent this from being washed downstream, where it might cause damage to the forest by soil erosion or affect farm fields and villages."

"Other social benefits have been created by the project as well because its attractive landscaping and woodland location make it a popular place for local people and tourists to visit. In the summer time the water temperature can be high enough for swimming and we have produced an information board about the project for people who enjoy the reservoir's recreation facilities."

Slovakia's use of the EAFRD support for introducing multifunctional benefits from a project designed to produce protective forest actions offers an interesting example for other parts of rural Europe that require similar environmental services regarding forest fire resilience.



Collective biodiversity benefits: Dutch farmers' associations highlight useful lessons for future RDP approaches

© Paul Terwan

The ENRD Focus Group on Environmental Services has drawn attention to the beneficial outcomes for farmers, RDP authorities, and for nature from collective approaches to the delivery of RDP measures targeting environmental services. [22]

Regulations governing the current EAFRD support system promote collective approaches to rural development through organisations like agricultural producer groups and community-based local associations. Opportunities to extend such collective approaches to cover RDP-funded nature conservation and countryside management actions have been highlighted around the EU.

Outcomes from a pilot scheme in the Netherlands - testing different types of collective approach to agri-environment support - offers a particularly interesting model for other Member States. None of the Dutch Pilot actions use EAFRD support but all of the results could be replicated elsewhere now that the 2014-2020 EAFRD Regulation proposals include the possibility for groups of farmers to apply for agri-environment support.

Farm associations[23]

Agrarian nature associations have been operational in the Netherlands for 15 years and during that time their experience indicates that the delivery of agri-environment actions measures by farmers' associations can be more effective than actions carried out by individual farmers working in isolation. Collective arrangements have brought about cooperation and coordination among local farmers, which enables them to provide environmental services in an entrepreneurial manner.

A key success factor here is the involvement of the farmers themselves in the planning of an integrated territorial approach to providing environmental services. Dutch experiences have confirmed that farmers are more willing to enter into agri-environmental commitments if the scheme's requirements take account of their own local management requirements.

Various benefits result from this bottom-up approach to promoting collective actions. Ecological advantages, for example, emerge because many of the agri-environmental measures (like support for hedgerows, waterways and field margins) have more effect when they are coordinated to create a broad cover of '*green infrastructure*'[24].

Economic benefits are gained through more cost-efficient approaches to delivering environmental services and social outcomes also accrue from the networking and cooperation between farmers, which generates a sense of local responsibility for nature conservation and confidence in the association's ability to perform. In addition the collective approach has been a catalyst for new ideas for rural development projects.

22 An ENRD meeting report on this topic can be viewed at: http://enrd.ec.europa.eu/app_templates/filedownload.cfm?id=E8BA2A1D-B1C7-A3C1-EF8A-CD1A3E380532

23 The following text is an extract of a case study brochure from the Netherlands reviewing their 'CAP Pilots' initiative. An English language version of this interesting brochure can be viewed here: http://www.toekomstglb.nl/upload/files/newslettercollectives.pdf

24 http://ec.europa.eu/environment/nature/ecosystems/index_en.htm

Habitat action

Henk Smith is an arable farmer and member of the Oost-Groningen agrarian nature association (ANOG). He feels that managing environmental habitats and landscapes can be made more efficient through collective approaches so he has been involved with one of the CAP trials. "At the moment there are only two agri-environment sub measures under the [RDP's] Habitat and Landscape Management Scheme (SNL), while we are convinced that there are other, and sometimes cheaper, services that could be provided and which are badly needed for the successful management of agricultural environments." "For example, we want to experiment with allowing grain stubble to remain standing through the winter. We believe this would greatly enhance the volume of food available to farmland birds during the winter. We have evidence that this measure has a positive effect and it would be cheaper than the existing measures in the SNL for the provision of winter food along field margins. It is a measure that could easily be applied in specific types of ground, particularly sandy soil."

ANOG also wants to try to encourage farmers to grow different crops that are more favourable for birds, such as caraway, alfalfa or buckwheat. The seed of the caraway plant attracts rare birds including quail, corncrake and whinchat. Alfalfa is an important nesting crop for birds of prey like the Montagu's Harrier and provides shelter for a variety of farmland birds. When buckwheat flowers it attracts bees and flies, which are a source of food for numerous species of bird.

During the ANOG pilot project, farmers were invited to sign up for one or more sets of measures, but not everyone could subscribe to every package. What ANOG sought to do was create a balanced, tailored package of measures that could yield the greatest possible ecological benefit, while generating sufficient enthusiasm among farmers to participate.

Quality control

In the areas where the pilot project is now underway, ANOG invited potential participants through a newsletter, its website, and sometimes face-to-face meetings. Involvement was also opened to farmers that were not members of ANOG, and in view of the limited budget, the association then had to introduce a quality control process to help them decide who should be included in the project. Mr Smith recalls that, "we had to reject a lot of applications because we did not feel that the measures would produce adequate results at a particular location or because there was no money left. At the same time, in some places we had to encourage farmers to take part because it was the only way we could guarantee an adequate green infrastructure."

Collective approaches to providing environmental services through EAFRD measures may result in efficiency savings in administration for EAFRD authorities.

"Together, we will gradually arrive at the ideal situation. For our association, that means we will have to become more professional. The commercial relationship between the government and farmers is changing, but one way or another, trust is the key."

"Our members, but also non-members, must have confidence that the association will make fair and correct decisions about which measures are suitable for which location. The authorities must have confidence that we will use CAP money effectively and efficiently. And the association must have confidence that its members will dedicate themselves heart-and-soul to preserving the landscape."

Tailor-made solutions: EAFRD stakeholders benefit from linking advisory service support to the delivery of agri-environment schemes in Austria and Germany

© Tim Hudson

Agri-environment payments use substantial amounts of EAFRD co-financing. Options exist to help bolster the environmental services resulting from such public funding by providing localised advice to help farmers achieve EU conservation goals.

Members of the ENRD's Environmental Services Focus Group considered the benefits for farmers and the environment of providing 'tailor-made' packages of EAFRD support. This involves linking agri-environment payments with dedicated *advisory support*[25] in order to help farmers to design and implement site-specific nature or landscape conservation plans.

A development process is created through cooperation between the farmer and their advisor. Synergies can arise from the mix of skills and experience that each partner brings to the process. Farmers provide the land for the conservation project and they have specific motivations, needs, interests, ideas and knowledge. The farmer's skill-set is merged with those of the advisory service that contributes expertise in conservation matters, proposals for action, tools such as implementation guides, methods for measuring and evaluating results, as well as an understanding of agricultural issues and the farmers' operational environment.

Win-win outcomes result for all stakeholders, ranging from higher quality environmental services, more efficient use of EAFRD resources, and capacity building for both the farmers and advisors. Jan Freese from Germany's National Rural Network and the ENRD's Environmental Services Focus Group describes in more detail the range of positive impacts possible from coordinating advice with agri-environment support, through the RDP. "Advice is very important for farmers who have not used an agri-environment scheme before and even farmers with agri-environment experience can gain useful new knowledge from working with advisory services. This can help them optimise income and reduce risks by identifying new opportunities to adapt their operations to changing circumstances."

"Offering complementary advice also helps to reinforce the voluntary characteristic of agri-environment participation by farmers. Advisory services are an established and accepted part of the agri-business sector and so they have credibility with farmers, which can help to encourage uptake of environmental advice."

"Nature conservation bodies can gain greater contact and develop productive relations with farmers through this mechanism and a very important aspect of the process involves ensuring that the right type of environmental conservation work is carried out for the particular target area. Farmers working together with experts in this way produce tailor-made nature protection solutions that have a stronger chance of success than less-focused approaches."

25 http://ec.europa.eu/agriculture/direct-support/cross-compliance/farm-advisory-system/index_en.htm

Advisory support

Different countries are already applying this joined-up and coordinated approach to RDP delivery. Mr Freese highlights a German example from Lower-Saxony which provides payments for advisory services in the form of vouchers. Farmers receive vouchers that they can use to contract services from their own choice of advisors. Farmers select the advisors based on the needs of their farms and the skill-sets of the advisors. Following completion of the work the advisors claim back the value of the voucher from the public authorities who are administering the scheme. Such an approach does not interfere with the commercial market for advisory services and it represents an effective method for ensuring that agri-environment payments produce their intended environmental services.

Another interesting example of this coordinated approach is found in Austria. Here farmers who use the RDP agri-environment measure can receive advice from a guidance scheme (also funded by the RDP) to help them prepare and implement individual Nature Conservation Plans[26] (NCPs) for their land. Farmers using the advice to implement NCPs receive a bonus payment through the agri-environment programme.

Wolfgang Suske is involved with the NCP scheme and he describes how, "around 80 experts across Austria provide the NCP advice service. The process involves an advisor visiting a farm to carry out an inventory of its nature value in consultation with the farmer. By working together the advisor helps to increase the farmer's knowledge about the biodiversity that relies on their farm habitats, and the advisor is able to propose nature conservation actions that fit the specific situation on each farm."

"We find this tailored approach produces better solutions for farmers and wildlife. Farmers receive the tools they need to help them properly implement and measure their nature conservation actions. These include simple but effective tools like 'species identification cards' that help farmers to recognise important biodiversity."

An example of how this works in practice is demonstrated by Josef Mann, a farmer from Goggendorf, who uses a NCP to help protect Europe's largest land bird, the Great Bustard. "Every year dozens of Great Bustards breed on our fields but we are part of only two regions left in Austria where it now breeds regularly. We have used the advisory support from the nature conservation authority to ensure that our agricultural operations are aligned to complement the Bustards' annual breeding cycle."

The supply of environmental services from EAFRD measures can be reinforced by combining payments for action with advice about how best to act.

"During the breeding season it is important not to disturb the nests and through our NCP we have designed our cropping system in a way so that there is always sufficient cultivated land to ensure food supplies for the Great Bustard. Almost all farmers from this area take part in the NCP scheme and the population of Great Bustard in our region has already improved. For all of us it is a great motivation to see the result of our work."

© Ingo Mohl, Umweltbüro Klagenfurt

> *"Farmers receive the tools they need to help them properly implement and measure their nature conservation actions."*
>
> **Wolfgang Suske**

26 Read more about Austria's NCPs at http://www.netzwerk-naturschutz-le.at/

Wise water use: rainwater harvesting scheme in Ireland saves farmers money and sustains environmental services

© 123rf

Policies promoting revisions to water metering tariffs in some Member States can affect the competitiveness of farm businesses. Alternative solutions exist to help agriculture remain competitive and EAFRD support can be applied to facilitate such tasks.

Everyone has a role to play in making wiser use of our water supplies through lifestyle changes that help to improve water efficiency. The agricultural sector is one of Europe's largest water consumers, therefore appropriate *agricultural action*[27] holds considerable potential for the delivery of efficient water-based environmental services.

Modernising agriculture to help it mitigate and adapt to water shortage, is a service that the Member States' RDPs provide. Recycling treated wastewater or *harvesting rainwater*[28] *for example* represent useful tools that farms can adopt to reduce consumption pressures on freshwater supplies.

EAFRD co-finance can also be used to help develop projects that provide such environmental services, and a RDP scheme from Ireland illustrates how farms can be encouraged to harvest rainwater for reuse.

Rainwater savings

Ireland's location on edge of the Atlantic Gulf Stream provides the country with a plentiful and renewable supply of fresh rainwater. The true value of this free resource is now recognised by Irish RDP stakeholders and in 2011 the country's first 'Rainwater Harvesting Scheme' for farmers was launched with co-finance from the EAFRD.

Introduced as part of a wider farm development programme, Ireland's Rainwater Harvesting Scheme included an initial budget of €8m. It aimed to address rural development challenges relating to areas such as dairy restructuring, renewable energies, water management, and farm competitiveness.

Referring to the RDP initiative, Ireland's then Minister for Agriculture, Fisheries and Food, Brendan Smith emphasised that, "This scheme will reduce water costs on farms."

27 http://www.eea.europa.eu/articles/water-for-agriculture

28 See the UK's Rainwater Harvesting: an on-farm guide for detailed advice and case studies on this topic http://publications.environment-agency.gov.uk/PDF/GEMI1109BRGU-E-E.pdf

His comments are becoming increasingly pertinent for farmers in Ireland (and in other Member States) as the prospects of European water shortages drives a push from national authorities to revise water pricing systems so that they better reflect actual usage levels. New forms of water metering and tariff charges are anticipated to help water consumers think more carefully about how much water they use, and consider the alternatives.

Rainwater harvesting systems, like those co-financed by the Irish RDP, offer alternative options for farm businesses. Farm holdings are well suited for catching rainwater because buildings such as livestock units often have large roof areas. Substantial amounts of rainwater runoff can be collected, relatively easily, through basic guttering on these roofs. Once captured, the rainwater is then normally filtered before being stored in a tank containing a pump facility to help transport the rainwater around the farm for different non-potable uses.

Dairy farms are a priority group of beneficiaries for the Irish RDP scheme, which offers assistance to help offset the costs involved in the purchase and installation of a collection, storage and pumping system.

EAFRD support is designed to help EU agriculture be a more cost-efficient water consumer.

Dairy farmers find they can use the rainwater to reduce the cost of water they would normally consume during day-to-day operations, such as equipment cooling, parlour cleaning, spraying and power washers, or even washing farm vehicles. Suppliers of such harvesting equipment in Ireland estimate that over 40% of an average farm's water consumption can be replaced using rainwater.

Demand among farmers for the scheme continues to increase. This has been boosted by a revision in the scheme's entry conditions to take account of changes in Irish planning legislation that now provide an exemption from planning permission for specified rainwater harvesting storage tanks on farms.

"This [RDP] scheme will reduce water costs on farms."

Irish Minister for Agriculture, Fisheries and Food, Brendan Smith (2011)

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* https://www.surveymonkey.com/s/DSXCLDM

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