

What is Green Infrastructure?

Green Infrastructure “is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings.” Linked together, these strategically planned networks of green elements are able to provide multiple benefits in the form of supporting a green economy, improving quality of life, protecting biodiversity and enhancing the ability of ecosystems to deliver services such as disaster risk reduction, water purification, air quality, space for recreation and climate change mitigation and adaptation.

The European Green Infrastructure Strategy

The Green Infrastructure Strategy proposed by the European Commission, promotes the development of Green Infrastructure across the EU delivering economic, social and ecological benefits and contributing to sustainable growth. It guides the implementation of Green Infrastructure at EU, regional, national and local levels. A main feature of the Green Infrastructure Strategy is its integration into relevant policies through: ecosystem-based adaptation into climate change policies; nature-based solutions into research and innovation policies; natural water retention measures into water policies; and through its focus on delivering multiple ecosystem services and their underlying factor - a rich biodiversity - into nature policies. The Natura 2000 network in particular plays a major role in protecting many of the core areas with healthy ecosystems. The risks, causes and consequences of land

abandonment, especially in Southern and Eastern Europe, are a core focus of EU policy (in relation to EU Policy reform in the context of the Common Agricultural Policy (CAP)).

As Green Infrastructure can make a significant contribution to many sectors and EU policy objectives, Green Infrastructure is being integrated into many funding streams including Structural Funds (the European Regional Development Fund (ERDF); European Social Fund (ESF)), the Cohesion Fund (CF), the European Maritime and Fisheries Fund (EMFF), the European Agricultural Fund for Rural Development (EAFRD), LIFE+ and Horizon 2020 project funds and the Natural Capital Financing Facility (NCF) of the European Investment Bank (EIB).

Links between Rural Abandonment & Green Infrastructure

Rural farmland abandonment in Europe is an ongoing process with potentially important social and environmental impacts, especially in so-called High Nature Value (HNV) farmland. Green Infrastructure can offer solutions for both the prevention of farmland abandonment and for minimising the negative impacts when farmland is already abandoned. The CAP, in particular, but also general environmental, social and economic policies are implicated.

In areas where rural abandonment is taking place due to low economic viability caused by small farm and parcel sizes, landscapes often contain a high level and variety of Green Infrastructure, with

high biodiversity values and scenic beauty. Farmers in these HNV areas are often obliged economically to get part of their income from other activities. Prevention of abandonment can be addressed by investing in the better use and development of services delivered by Green Infrastructure. For example, increased economic viability can result from training and advice on farming practices that make better use of Green Infrastructure ecosystem services, by exploiting Green Infrastructure potential to develop tourism and by investments in multifunctional use of Green Infrastructure (e.g., climate adaptation, carbon sequestration and water retention). Rural abandonment can also be prevented by specifically linking Green Infrastructure related

funding to these areas, such as opportunities offered by HNV-related CAP funding, European Structural Funds, Payment for Ecosystem Services schemes and LIFE projects.

When abandonment has already taken place, Green Infrastructure can help to exploit the opportunities that land-use change provides. For instance, reforestation and rewilding (letting or assisting the area return to a wilderness state) are options to exploit abandoned areas for carbon sequestration, soil and nutrient protection, water regulation and recreation. At the same time, this helps decrease fragmentation, provide habitats for large carnivores and contribute to Natura 2000 objectives.

Costs & benefits of Green Infrastructure in relation to Rural Abandonment

A growing body of research and experience demonstrates the high potential value of Green Infrastructure due to its multi-functionality, i.e., its ability to perform several functions and provide several benefits in the same spatial area. These functions can be social, such as providing attractive environments for leisure and tourism, environmental, such as conserving biodiversity or adapting to climate change and related water issues, and economic, such as supplying jobs, raising property prices and reducing damage recovery costs. Savings can be achieved as the services do not have to be delivered by artificial structures which would otherwise need to be deployed (e.g., erosion prevention by hedgerows instead of concrete structures). As insufficient income from farming is one of the major drivers for farmland abandonment, the use of Green Infrastructure to enhance the profitability of farming activities or to provide extra sources of income such as tourism can offer a major contribution in preventing abandonment. Because

farmland abandonment invokes huge social, economic and environmental costs to communities and society in general, the European Union invests in the identification of risk areas as well as in identifying funding opportunities for prevention of abandonment. Benefits of these investments will be recuperated through the prevention of job losses, social structure, agricultural products and biodiversity.

Green Infrastructure can also be used to exploit the opportunities farmland abandonment can offer. Relatively small initial investments in assessments, planning, initial assistance to let areas return to a wilderness state, and risk prevention (e.g., fire risk) will be required. Substantial benefits can however be obtained from carbon sequestration, soil and nutrient protection, water regulation, flood protection and tourism. In addition, this land use change contributes to biodiversity, for instance through enhancing the connectivity between Natura 2000 sites. Also, Green Infrastructure in combination with pastoralism or other types of low intensity animal husbandry is a form of land use that enhances fire prevention and has considerable biodiversity benefits.



Good practices in Rural Abandonment & Green Infrastructure

Reforestation in a former mining area (Central UK)

The National Forest Initiative aims to create a new multi-purpose landscape by, for example, restoration (reforestation) of abandoned former mining sites. Commercial forestry was combined with a range of additional objectives and benefits including economic regeneration, landscape and ecological enhancement, rural diversification and community engagement, enhancing tourism and carbon sequestration. From 1995 to 2010, the National Forest Company and Forestry Commission have supported 204 farm-based Changing Landscapes Schemes (CLS) and former Tender Schemes (TS). These have diversified 3,487 ha of farmland to forest-related uses, covering 6.9% of the forest area. In this period, over 1,750 ha of natural habitats have been created or brought back into management. Ninety-two km of new hedgerows have been planted and 91 km of hedgerows have been brought back into management.

EUR 228 million has been invested in forest-related projects and a total of 333 new jobs have been created or safeguarded in the UK. Since 1991, the net benefit of these forests is calculated at EUR 140 million.

Promoting High Nature Value (HNV) farming in the Northern Upland Chain (UK)

The local nature partnership has been promoting HNV farming in the Northern Upland Chain, an area with the highest density of Green Infrastructure in England. One of the implicit objectives of promoting HNV farming in this region is to prevent farm abandonment, as otherwise a unique cultural landscape with high biodiversity and scenic beauty would be lost. Through a local nature partnership, more than 50 organisations have united to preserve the valuable Green Infrastructure landscape, which has multiple other benefits such as improving the economic and social well-being of the upland communities. The organisation also emphasises the benefits of preserving this region for the wider society: including clean air and water, food and carbon storage.

Promoting High Nature Value (HNV) farming (Romania)

In Romania, the ADEPT Foundation has implemented a number of projects directed at tackling rural abandonment on HNV farmland. These included the diversification of income by creating networks of guesthouses and mountain-bike and walking trails, and nature-guide training. Also, the ADEPT Foundation successfully managed to brand and add value to local products, raising farmer incomes linked to the nature value of the area and the high quality of local products. An example is Tarnava Mare, a lowland area of high biodiversity, covering an area of 85,000 ha, farmed by 5,000 families organised in small-scale farming communities. The first step was mapping and assessment of habitats to identify areas for restoration followed by the establishment of conservation action plans, which were developed in a participatory manner with farmers and other land users. Subsequently, priority zoning for conservation was established and micro-reserves were created in certain hotspots, following agreements for simple and practical management with landowners.



Hedgerows

Other examples of schemes and activities for preventing abandonment in HNV areas in these and other countries can be found on the websites of the European Forum on Nature Conservation and Pastoralism (www.efncp.org and www.high-nature-value-farming.eu). Examples are provided of investments in the economic viability of farming in these landscapes, for instance in Spain and Bulgaria.

Rewilding Europe

Rewilding Europe (www.rewildingeurope.com) aims to bring the variety of wildlife back to Europe's abandoned lands. A wilderness is an area governed by natural processes. It is composed of native habitats and species, and should be large enough for the effective ecological functioning of natural processes. It is unmodified or only slightly modified and without intrusive or extractive human activity, settlements, infrastructure or visual disturbance. There are several ongoing pilot projects in Europe, for instance the Danube Delta, Western Iberia and the Velebit mountains, which offer examples of how the rewilding of abandoned landscapes now offers an increasing contribution to biodiversity as well local economy. Rewilding creates new opportunities for abandoned land, creating new economic models based on wild nature, that are being tested in collaboration



Eco-tourism

with land owners together with eco-tourism promotion, education and communications. In addition to the values for biodiversity and the local economy, rewilding areas also offer other benefits for society such as carbon storage, clean air and water.

Challenges and opportunities

The main challenges for exploiting the links between Green Infrastructure and rural abandonment are:

- The development of assessment methods to identify the most suitable areas for prevention as well as for use of opportunities created by rural abandonment.
- Adapting policies and funding especially for investments in prevention areas, specifically optimising the use of available measures under the reformed CAP in HNV areas.
- Incorporating the use of opportunities, for instance rewilding, in spatial planning to allow optimisation of the effects for biodiversity and recreation.

References

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Presented by: Trinomics, Alterra, Arcadis, Regional Environment Centre, Risk & Policy Analysis, Stella Consulting.

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