

Appendix 2 - Overview of urban, city-region, national and transnational Green Infrastructure programmes considered.

Transnational Green Infrastructure programmes

European Green Belt Initiative

The European Green Belt initiative was launched in 2004 in Hungary in order to protect habitats which have been preserved within the former borderline area between East and West Europe. The initiative aims to establish an ecological network running along the entire length of the former “Iron Curtain” to foster trans-boundary cooperation for biodiversity conservation and sustainable regional development (EU 2011). In addition, the Green Belt initiative aims to harmonise protection efforts in trans-boundary protected areas that are characterised by significant asymmetries in their protection status. In addition it is also intended to integrate human activities with the natural environment in the protected as well as the non-protected areas. The project currently spans over 23 countries but has a broader outreach. It is made up of three sections: (1) Fennoscandinavia and the Baltics; (2) Central Europe; (3) Southern Eastern Europe. There is an over-arching programme of work as well as a broad network of cooperating partners. The European Green Belt has the potential to contribute to the implementation of different international agreements and legislations, *e.g.*, the Natura 2000 and Emerald Networks, Article 10 of the EU Habitats Directive and the establishment of a Pan-European Ecological Network.

Carpathian EcoRegion initiative

The Carpathian EcoRegion initiative is a network of NGOs and research institutions from seven Carpathian countries. The initiative aims to build expertise on biodiversity for the region and to work towards building a transboundary ecological network for the Carpathians (Šeffler et al. 2010). The EcoRegion initiative created the first cross-cultural biodiversity and social-economic assessment of the Carpathians which helped to generate high-level political support for the sustainable development of the region. The development of an ecological network in the Carpathians as a constituent part of the Pan-European Ecological Network is seen as one of the most important objectives of the Framework Convention on the Protection and Sustainable Development of the Carpathians.

Ecological Networks in the European Alps

Establishing an ecological network in the European Alps is one of the key goals of the Protocol “Conservation of Nature and the Countryside” under the Alpine Convention. The European Alps span eight countries, from the Mediterranean shores of Southern France to Slovenia and are the largest natural region left in Europe and therefore of critical importance for biodiversity conservation. The alpine landscape is a mosaic of different biotopes: meadows, woodlands, water courses and open prairie, but also farming infrastructure such as ditches, terraces and hedges. The intensification of human activities is leading to an ever-increasing fragmentation and urbanisation of valley floors, thus negatively affecting the chances of survival of many species and climate change is pushing species to higher elevations. The creation of a functioning ecological network in the Alps can contribute to conserve the rich alpine diversity. Seven pilot projects are now running to show how the management of protected areas and the affected regional actors can cooperate to restore and maintain ecological networks. The pilot projects will then serve as models to encourage as many regions as possible to implement the vision of an Alps-wide ecological continuum.

National Green Infrastructure programmes

French Ecological Network (Trame verte et bleue)

In France the green infrastructure concept was launched through the recent Grenelle process (2007) which set out to renew efforts to improve the French environment through an intensive series of discussions, negotiations and dialogue at national, regional and local level. It was decided that the national level should concentrate on developing general rules and guidelines to improve the quality and diversity of landscapes. The regions will then be asked to establish a land use planning document which contains a regional scheme for ecological coherence and identifies natural core areas to be connected together. The coherence is being looked at with respect to species, habitats, existing protected areas and overall landscape structure. At the local level the question will be how to integrate divergent interests and visions coming from local authorities, employers, employees and NGOs in local land-use plans. The process for developing a French Ecological Network is still underway and it will culminate in a detailed map for each region which includes an inventory of existing areas, the presence of pre-defined species and habitats and finally an indication of the quality of each area whether in the core areas or in the corridors.

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Central Scotland Green Network

The Scottish Government's 2nd National Planning Framework designates the Central Scotland Green Network (CSGN) as one of 14 developments that are seen as critical to the delivery of the Government's spatial strategy. At the heart of the CSGN is the protection and development of green networks which are increasingly seen as crucial to sustainable economic development and quality of life. Forestry Commission Scotland (FCS) has been designated as the joint lead for the development of the CSGN, along with Scottish Natural Heritage (SNH). There is a development fund available to support early delivery projects. The CSGN aims to identify key areas where co-ordinated action can add value to existing green space initiatives and address the key barriers and gaps to greater progress on the ground. The delivery of the CSGN depends on a partnership of 19 local authorities, nine public agencies, environmental NGOs, land managers and trade interests. The CSGN is seeking to 'add value' to existing urban green infrastructure initiatives which include Glasgow and Clyde Valley Green Network, the Central Scotland Forest, the Millennium Canal Link, the Edinburgh and Lothian's Forest Habitat Network and the Falkirk Helix, and support new initiatives, such as the Scottish Green Roof Forum. The 2010 CSGN Development Fund provided funding to support 72 projects.

Germany Biotope Network

The German Biotope Network is a shared initiative between national, regional and local authorities with the scope to coordinate and harmonise the planning and implementation of ecological corridors through a bottom up approach (Krause et al. 2011, Leibenath et al. 2010). At national level the implementation of ecological networks is supported by a legal framework (Art. 3 Federal Nature Conservation Act, Art. 10 Habitats Directive) and a national strategy (e.g., National Strategy on Biodiversity CBD). At regional level, the initiative is coordinated by the German Federal Agency for Nature Conservation (Bundesamt Für Naturschutz, BFN). At local level, municipalities focus on developing and implementing detailed local ecological network plans. In terms of objectives, the German Biotope Network aims to the protection and conservation of indigenous plant and animal species/communities and their relative habitats/biotopes. One of the main objectives is the definition of common criteria for identifying components of the ecological network, such as: size of area, ecological quality, position and surrounding, degree of isolation, occurrence of target species. The implementation of ecological networks in Germany is an important strategy for the conservation of biodiversity facing e.g. fragmentation by traffic infrastructure and climatic change (adaptation and/or mitigation strategy).

City-region green infrastructure programmes

Green Belt in Barcelona Metropolitan Region (Anella Verda)

Barcelona Provincial Council manages the "Xarxa de Parcs Naturals" (Nature Reserve Network) consisting of 12 spaces primarily located around the Barcelona Metropolitan Region (RMB), which form a Green Belt (Anella Verda). The Nature Reserve Network's key objectives regard the conservation, environmental management and public use of natural spaces, as well as the economic and social development of municipalities and their residents. The Green Belt aims to guide new land use development in the RMB through restoration of open spaces and natural areas in built-up areas in order to increase biological diversity and social cohesion. In this framework, three main pilot projects have been developed in the Metropolitan Region of Barcelona: (1) ecological restoration to minimize the impact of human pressure in periurban areas (Municipality of Santa Coloma de Gramenet); (2) replacement of built up land with a periurban green spaces (Municipality of Mollet del Vallès); (3) setting up of an arboretum and a nursery to recover traditional species and varieties of fruit trees (Baix Llobregat Agricultural Park).

Munich City Region

The city of Munich has approximately 1.3 million inhabitants and covers region of 311 km² within its administrative boundaries (LH München 1991). The metropolitan area goes far beyond: the city forms the core of a rapid growing urban region of 2.4 million inhabitants. In particular, the northern part of the Munich plain is characterised by heavy urbanisation developing into a city-region. During the period of strong urban growth in the late nineteenth and the first half of the twentieth century, the city did not plan a spatially coherent green infrastructure; consequently, the city has no coherent green space system but rather scattered islands. There is a lack of connecting corridors, in particular in an east-west direction. The creation of new green infrastructure has been suggested as a strategy to counter the adverse effects of habitat isolation and land degradation. The strategy, called "Perspective Munich", recognises the need to balance the preservation and development of green spaces with urban development.

The backbone of the green structure system of the city of Munich is the River Isar. In recent years, the biological diversity of the Isar

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has been restored and the natural habitat has been improved for indigenous species.

Green space planning for the new neighbourhood Messestadt Riem is another example at the project level where equal weight has been given to recreational and ecological objectives. Three major challenges for Munich's green infrastructure can be identified: (1) the preservation and management of the existing green spaces within the city; (2) the planning of ecologically functional corridors and reduction of green space deficits; (3) the planning of green corridors at the regional level.

Milan City Region

The city-region of Milan is one of the largest metropolitan areas in Italy by population and gross domestic product per capita (Trono & Zerbi 2002, Sanesi et al. 2007). The last twenty years have seen a slowdown in urban development, characterised by a drop in construction in the Milan area and a smaller number of large-scale projects brought to conclusion, such as the new airport and state railway branch line (Trono & Zerbi 2002). Despite this process, new land-use policies and regulations were implemented for the management of the rural landscape and the conservation of habitat and ecosystems, especially in areas characterized by the presence of decommissioned industrial sites (Sanesi et al. 2007). The planning scheme included a proposal for creating a green system connecting green spaces and parks throughout the metropolitan area. In 2000, the Directorate General for Agriculture started a project called "Ten Large Forests for the Plains" aimed to identify areas (not less than 20 ha wide) to be used for afforestation. The city-region of Milan identified 10 candidate areas where new buildings and infrastructures were already planned or under construction. In 2006 a new initiative, called "10 000 hectares of forests and green systems", was launched with the scope to create new forest and humid habitats thus supporting local biodiversity and quality of life quality in both urban and rural areas. More recently, this proposal has turned into a more comprehensive plan that is based on the concept of green infrastructure (Expo 2015).

Urban green infrastructure programmes

Borough of Sutton, London, England - Sustainable Urban Planning Networks for Green Spaces

In 2003, the Borough of Sutton, in partnership with four other London boroughs developed the "Sustainable Urban Planning Networks for Green Spaces" project (LIFE03 ENV/UK/000614). The project aimed to demonstrate how urban municipalities can develop effective stakeholder participation tools to plan and undertake urban improvement for the enhanced environmental value of urban green space. A number of habitat or species management projects have been implemented and proved to be highly innovative, engaging with a wide range of stakeholders, including volunteers, in environmental decision-making and action.

City of Plymouth, England, Green Infrastructure Delivery Plan

In 2008, stakeholders from the City of Plymouth sub-region identified the need for a Green Infrastructure Delivery Plan to provide a multifunctional approach to Plymouth's growth agenda. The Green Infrastructure Delivery Plan is expected to deliver a sustainable Green Infrastructure Network based on a cross boundary approach to creating, managing and enhancing the natural assets of Plymouth and the rural hinterland. The Delivery Plan is also a vehicle to identify the strategic interventions required to enable the city to grow sustainably by identifying the mechanisms for delivering the network. The plan has been produced by a strategic partnership of local authorities, government agencies and NGO's.

Urban Forestry Network, Arnhem, The Netherlands

The City of Arnhem has embraced the concept of an urban forest made up of trees, forests and other green-spaces and have placed public participation at the centre of the approach. Through a series of successes as well as failures, it has become clear that green space management and maintenance cannot be done without residents' commitment. City Green-space managers devised the so-called "Sonsbeek Method" for green space management, in which communication leads to resident acceptance, which in turn improves quality. In this approach, oral contact, as well as contact by telephone or e-mail is important, but also relevant are organised walks, meetings, and adequate information material. The method places the green-space manager in a deliberately vulnerable position. The Manager then has to inventory the problems, organise public commitment (e.g., by means of a "Friends of" community groups), ensure that the basic quality is sufficient, plan a project as test case, engage in longer-term planning, and communicate in different ways.