Draft

Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure

Executive summary

I. CONTEXT AND INTRODUCTION

1) GREEN AND BLUE INFRASTRUCTURE PROJECTS AS TOOLS TO ENHANCE NATURE AND THE MULTIPLE BENEFITS IT PROVIDES

Green infrastructure (GI) is a strategically planned network of natural and semi-natural areas designed and managed to deliver in a cost-efficient manner a wide range of ecosystem services such as water purification, air quality, pollination, recreation, climate mitigation and adaptation, etc.

The Natura 2000 network constitutes the backbone of the EU green and blue infrastructure. The Nature Fitness Check[1] confirmed that to harness the full benefits of EU nature legislation, improvements in implementation are required. It highlighted that habitat and landscape management and restoration measures through GI are needed with a view to contribute to the favourable conservation status of habitats and species of Community interest and ensuring the coherence of the Natura 2000 network.

In addition to providing a key tool to halt and reverse the loss of biodiversity, this network of biodiversity-rich green (land) and blue (water) spaces provides simultaneously a multiplicity of benefits in a cost-efficient way, if planned at a strategic level. For example, biodiversity-rich parks, green spaces and waterways can help mitigating the negative effects of summer heat waves and air pollution[2] in cities. GI solutions are often cheaper, complementary to and more sustainable than alternatives provided through conventional civil engineering ('grey infrastructure').

In light of its multi-functionality, GI supports a better implementation of - and compliance with – existing EU environmental legislation and policies, such as on nature protection, air quality, water and the marine environment, climate change adaptation and mitigation policies. EU-level GI actions can also positively contribute to the sustainability of broader EU policies, such as e.g. regional development, social cohesion, agriculture, transport and energy production, fisheries and maritime policy.

In addition to the positive impacts on health and the environment, GI also brings multiple other social and economic benefits: it supports job creation and makes cities and rural areas nicer places to live and work in. Healthy, resilient and productive ecosystems are a necessary pre-requisite for a smart, sustainable and inclusive economy. It is estimated that the economic value of nature's services amount to EUR 1,696 per hectare per year for the regulation of freshwater and coastal water quality; EUR 964 for non-material contributions such as physical and psychological experiences linked to tourism and recreation; and EUR 400 for regulation of climate[3].

1 http://ec.europa.eu/environment/nature/legislation/fitness_check/index_en.htm
2 http://www.fao.org/resources/infographics/infographics-details/en/c/411348/
3 https://www.ipbes.net/event/ipbes-6-plenary

Green and blue infrastructure should also be seen as a bridging concept to facilitate communication and understanding across disciplines, coordinate groups of stakeholders, and build consensus around particular policy issues, so as to serve a variety of societal goals.

However, in the EU, as in other parts of the world, biodiversity is in continuous decline. As highlighted in the regional assessment report on biodiversity and ecosystem services for Europe and Central Asia[4], the extent of natural ecosystems such as wetlands has declined by 50 per cent since 1970 and natural and semi-natural grasslands, peatlands and coastal marine habitats have been degraded[5]. The continuing decline in biodiversity has had negative consequences for the delivery of many ecosystem services over the last decades, such as habitat maintenance, pollination, regulation of freshwater quantity and quality, soil formation and regulation of floods. This decline has occurred because of the intensive agriculture and forestry practices used to increase the provision of food and biomass-based fuels, as well as urban sprawl, and the development of grey infrastructure.

The Commission adopted an EU strategy on green infrastructure (GI strategy) in 2013 to enhance economic benefits by attracting greater investment in Europe's natural capital to achieve its biodiversity objectives by 2020. It included four priority work streams: promoting GI in the main policy areas; improving information, strengthening the knowledge base and promoting innovation; improving access to finance; and contributing to the development of GI projects at EU level.

A review exercise was carried out throughout 2017 and its outcome provides useful background for this guidance (REF). Whilst the EU GI strategy has highlighted the multiple benefits of GI and built some momentum for the deployment of GI in the EU, evidence shows that a strategic approach for GI at EU level has not been implemented yet, and a more robust enabling framework for GI should be considered. GI deployment is often only implemented at a small scale, not giving due recognition to the potential economic and social benefits of using green instead of grey infrastructure solutions at a wider scale.

Whilst integration of GI into appropriate EU funding mechanisms has provided new opportunities, uptake is still too limited. Efforts should be stepped up to achieve effective mainstreaming of GI in relevant EU policies and legislation.

2) A GUIDANCE DOCUMENT TO FOSTER INVESTMENT AND SUPPORT GOOD PRACTICES ON EU-LEVEL GREEN AND BLUE INFRASTRUCTURE

The Action Plan for Nature, People, and the Economy[6] aims to improve the practical implementation of the Habitats and Birds Directives and accelerate progress towards the EU 2020

[4] IPBES, 2018 https://www.ipbes.net/assessment-reports/eca
[5] IPBES, 2018 https://www.ipbes.net/assessment-reports/eca
[6] http://ec.europa.eu/environment/nature/legislation/fitness_check/action_plan/index_en.htm

goal of halting and reversing the loss of biodiversity and ecosystem services. This guidance supports Action 12 of the Action Plan, which foresees that: "*the Commission, in close cooperation with Member States and stakeholders, will develop a guidance providing a strategic framework for further supporting the deployment of EU-level Green Infrastructure, containing a series of guidelines on objectives, priorities and selection criteria for Green Infrastructure projects of European interest that contribute to the goals of the Nature Directives, including through improving connectivity of Natura 2000 sites in a cross border context, with a view to identify projects to be prioritised with appropriate funding, at a scale which transcends administrative boundaries, so as to enhance the delivery of essential ecosystem services throughout the EU territory*".

This Action acknowledges the positive contribution that green and blue infrastructure can bring to the implementation of EU Nature legislation and to the achievement of the EU biodiversity strategy to 2020, and aims at contributing to further action at EU level to avoid that there will be only a few independent initiatives that do not deliver the full potential.

The **objective** of the guidance is to increase the effectiveness of EU funding and encourage the scaling-up of investments in what are considered EU-level GI projects, and to inform on the relevant existing funding sources and supporting tools. Whereas the EU GI strategy covers all aspects of green and blue infrastructure at all levels and through all kinds of action, this guidance aims at stimulating a more strategic an integrated approach to maximise the delivery of ecosystem services and the EU added value, using the Natura 2000 network as its backbone.

This guidance also contributes to fostering the integration of ecosystem services in EU policies and supporting funding instruments, and complements the dedicated guidance on integrating ecosystems and their services in planning and decision-making (REF).

The **target audience** includes potential proponents of projects supporting EU level GI, e.g. national and sub-national authorities; municipalities; public entities; NGOs; the private sector; as well as the managers of the relevant financing instruments.

This guidance puts forward a set of key criteria to help identifying and stimulating GI projects transcending administrative boundaries, which would enhance the delivery of essential ecosystem services and contribute to the goals of the EU Nature Directives, including through ecosystem restoration and improving the functional connectivity of Natura 2000 sites (chapter II). It also contains information on EU financing instruments available to support such projects, as well as scientific and technical tools and instruments to support the design of projects (chapter III).

Annexes provide more details on case studies (annex I), benefits to other policies (annex II), and relevant EU financing instruments (annex III).

II. EU-LEVEL GREEN AND BLUE INFRASTRUCTURE PROJECTS: GUIDANCE CRITERIA AND ILLUSTRATIONS

1. CRITERIA FOR EU-LEVEL GREEN AND BLUE INFRASTRUCTURE PROJECTS

As a pre-requisite, EU-level GI projects should carry out actions that comply with all the elements of the definition of GI embedded in the EU GI Strategy: 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.

In order to demonstrate that they comply with this definition and in addition qualify as EU-level GI projects, projects should fulfil the following cumulative criteria:

a) Enhancement of multiple ecosystems services at a significant scale

Any EU-level GI project should clearly demonstrate how it contributes towards the conservation or enhancement of various ecosystem services at a significant scale (see criterion c for the meaning of 'significant scale'). Tools for measuring these; in particular using the EU methodology on Mapping and Assessment of Ecosystems and their Services (MAES); are described in chapter 3 .

b) Contribution to the goals of the Nature directives

Projects should demonstrate that they contribute to a measurable improvement of the conservation status of species or habitats types covered by the EU nature legislation and of the condition of the corresponding ecosystems. This can best be achieved by managing Natura 2000 sites so that they reach their conservation objectives. It could also include measures aimed at ensuring the ecological coherence of the Natura 2000 network (cf. implementation of Article 10 of the Habitats Directive) or connecting existing Natura 2000 sites with buffer zones to defragment the landscape. Projects aimed at restoring degraded habitats or populations of species covered by the Nature legislation outside Natura 2000 sites where necessary to achieve a good conservation status can also provide substantial added value to reaching the objectives of the Birds and Habitats Directives.

c) Strategic approach with an EU-level impact

With a view to upscale the necessary measures needed to halt biodiversity loss, a **strategic approach** should be fostered through projects that are: at a scale that is significant and transcends administrative boundaries; involving a minimum of two Member States; or implementing a national GI strategy or a national restoration prioritisation framework[7].

[7] http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/RPF.pdf

Having a **'significant scale**' means that projects have an impact beyond the local scale to **provide benefits** at European level. It also means avoiding disparate scattered GI measures but undertaking instead a consolidated approach at a relevant scale for ecosystems, e.g. projects aiming at restoring whole river basins or flood plains.

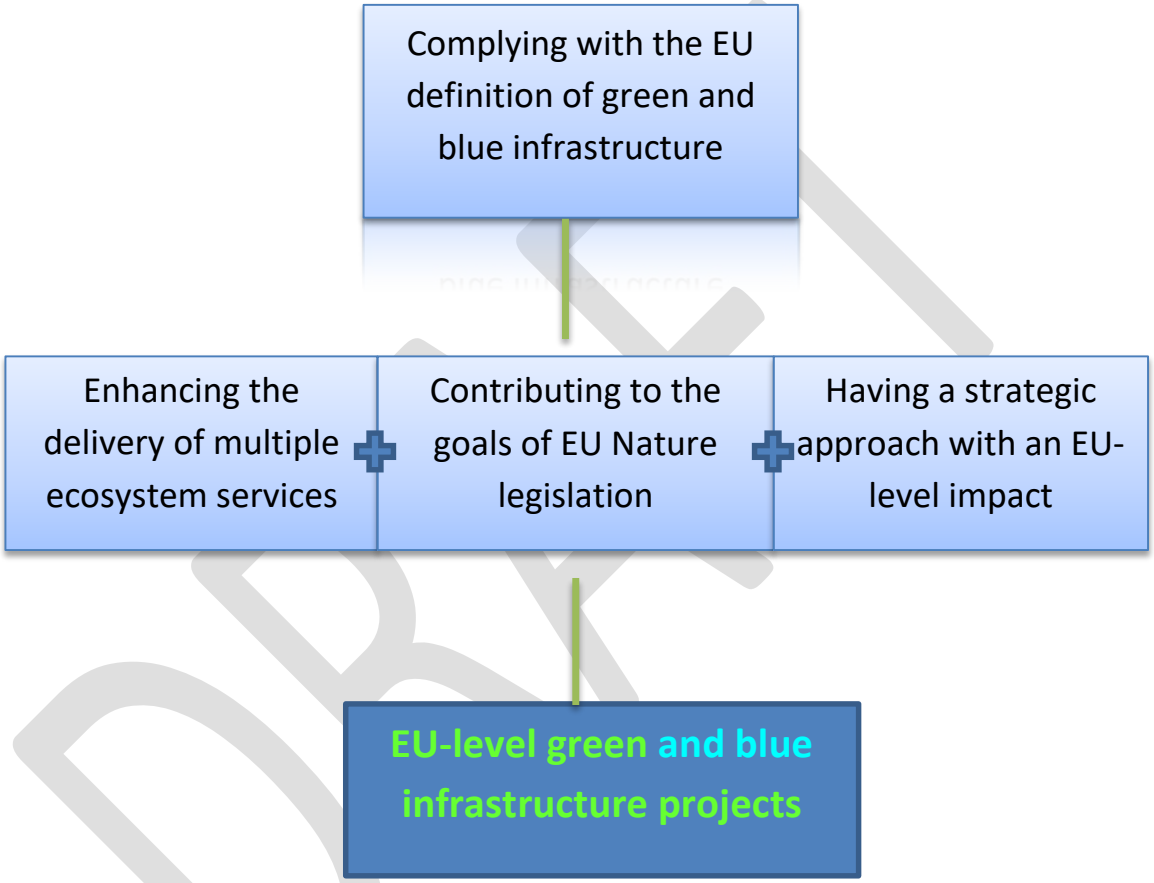
The transcendence of administrative boundaries includes e.g. cooperation between administrative entities such as districts and departments, regions, states and countries.

Cooperation between at least two Member States can include several types of cooperation, such as traditional cross-border cooperation, or functional cooperation (e.g. cooperation to improve a migratory route). Cooperation could also take place in areas situated within the territory of one Member State, but whose effect would deliver EU-level benefits.

Island countries can participate in either traditional cooperation (for instance cooperation on a marine area); or in functional cooperation projects (for instance on a migratory flyway).

A strategically planned network of green or blue infrastructure is deemed to exist when a national GI strategy or a national restoration prioritization framework already exists, to which a given EU-level GI project would aim at contributing.

Steps to identify and design EU-level green and blue infrastructure projects



The following case studies illustrate how these three criteria can be implemented in a synergistic manner, for the benefit of nature, people and the economy. **A full and comprehensive presentation of those as well as several other relevant case studies is included in annex I.**

***Box 1 - DANUBEPARKS*: Danube River Network of Protected Areas – Development and Implementation of Transnational Strategies for the Conservation of the Natural Heritage at the Danube River & DANUBEPARKS STEP 2.0**

Project duration: 2009 – 2012 & 2012 – 2014; **Budget**: EUR 2.7 million & EUR 2.2 million

Funds used: ERDF (INTERREG – South-East Europe Transnational Cooperation Programme)

Project description

The first DANUBEPARKS project (2009-2012) established a network of 12 partners (later extended to 15) representing protected areas from eight Danube countries – Austria, Bulgaria, Croatia, Germany, Hungary, Serbia, Slovakia, and Romania – in order to systematically tackle common challenges on a Danube-wide scale. The network's objectives, set out in the 'Declaration of Vienna', were to promote the exchange of knowledge and experience, develop and implement Danube-wide strategies, optimise the management of the Danube natural heritage, and strengthen each protected area at the local level. The network also implemented pilot conservation projects. The project focused on five core implementation areas, namely: *River Morphology and River Restoration; Floodplain Management and Habitat Network*; *Conservation of Flagship Species*, which included Sturgeons and White-tailed Eagles; *Monitoring and NATURA 2000*; and *Nature Tourism*.

A follow-up project, DANUBEPARKS STEP 2.0 (2012-2014) aimed to build upon the achievements of the first project, secure its results, and further enlarge the network. In this second step, there were 20 partners in nine countries – the aforementioned eight plus Moldova. The project focused on the preservation and restoration of natural river dynamics, maintenance of an international network of floodplain forest habitat, further support of the White-tailed Eagle population, monitoring of indicator species for river dynamics, and further promoting nature tourism and environmental education.

DANUBEPARKS is a flagship project of the EU Strategy for the Danube Region (EUSDR), contributing to the Strategy's implementation.

Impacts of the projects (including environmental, social, and economic benefits)

Protected areas play an important role in the long-term conservation of Danube ecosystems and their services. The DANUBEPARKS project and its follow-up resulted in increased collaboration among protected area managing organisations, the exchange of knowledge and experience, and the elaboration of transnational thematic strategies, all of which can contribute to improving the conservation and management of protected areas along the Danube, which in turn benefits local inhabitants as well as visitors.

The projects contributed to reconciling the sometimes conflicting interests of nature conservation and economic sectors. For example, following an integrative approach and in cooperation with water management authorities, DANUBEPARKS developed a *'Strategy on Conservation and Navigation'* that identifies possible synergies for conservation and navigation and underlines potential conflicts, which can strengthen the position of protected areas in negotiations with the navigation sector and water management authorities. The *'Strategy on Tourism, Environmental Education and Regional Development'* can help foster sustainable tourism along the Danube and in protected areas, while avoiding the negative pressures tourism may place on biodiversity.

The project activities aimed at enhancing nature tourism and recreation opportunities are also likely to have generated additional income and local jobs, although the project reports do not provide estimates of these benefits.

How the project meets the three EU-level GI criteria

i) Enhance the delivery of multiple ecosystem services at a significant scale

The projects contributed to maintaining and/or enhancing several ecosystem services. For example, the project enhanced nature-based recreation and tourism opportunities, as well as environmental education, through actions related to product-development (e.g. boat and bike excursions), joint capacity-building activities (e.g. training for rangers to guide international groups) and international marketing efforts. A 'Strategy on Tourism, Environmental Education and Regional Development' was

developed, which can underpin further efforts to develop sustainable tourism in Danube protected areas. The project's actions related to protection and management of floodplain forests benefit services such as carbon sequestration and sustainable flood protection. Another relevant project activity was the analysis of the genetic variability of Black Poplar in several Danube protected areas, which provides a basis for the definition of long-term strategies for protection and conservation of the gene pool of European Black Poplar.

ii) Contribute to the goals of EU Nature legislation

The projects were explicitly aimed at safeguarding the rich biodiversity of the Danube Basin. Under the umbrella of DANUBEPARKS, the participating Protected Areas, which altogether comprise over 30 Natura 2000 sites, have comprehensively addressed common challenges on a Danube-wide scale, by implementing actions on habitat management, species monitoring and conservation, and river restoration. Some of the actions undertaken by the project benefit species protected under the Nature Directives, including the White-tailed Eagle and the Danube Sturgeon. Moreover, DANUBEPARKS actively promoted and communicated the crucial role of Protected Areas in order to raise public awareness.

iii) EU-level green and blue infrastructure projects should have a strategic approach

The two projects reflect a strategic, transnational approach to protecting and managing green infrastructure in the Danube River Basin. The two projects involved cooperation between protected area representatives from eight, respectively nine countries.

Box 2 - LIFE BioCorridors - Cross-border corridors: demonstrating a transboundary ecological network

Project duration: 2016-2020; **Budget:** EUR 3,611,735; **EU funds used:** LIFE (60%)

Project description

The LIFE BioCorridors project aims to achieve ecological continuity and biodiversity conservation within the Transboundary Biosphere Reserve Vosges du Nord-Pfälzerwald, located along the French-German border. The transboundary reserve stretches over 3,105 km^2 and comprises forest ecosystems (74% of the territory), agricultural areas (24%) and important transboundary watercourses. The project focuses on the restoration of ecological corridors as a means to safeguard biodiversity in forest, water and open environments.

Impacts of the project (including environmental, social, and economic benefits)

The project's overall aim is to improve ecological continuity within the transboundary biosphere reserve. Specifically, with respect to habitats and species, the project is expected to have the following results: improved and enhanced habitats that benefit species linked to caves, and to old and dead wood (such as stag beetle, woodpeckers, owls, bats); restored refuge zones and ecological corridors for species in open environments, to improve their conservation status; restored natural watercourse dynamics, the elimination of barriers and enhanced presence of fish species such as trout, bullhead and spined loach.

The project is also expected to raise awareness of the importance of ecological networks among public officials, stakeholders and the general public.

Benefits to the local population include the improvement of ecosystem services (such as water and air

quality, landscape restoration), as well as awareness-raising and education concerning the importance of these ecosystem services.

How the project meets the three EU-level GI criteria

i) Enhance the delivery of multiple ecosystem services at a significant scale

The project is expected to contribute to the improvement of ecosystem services such as the provision of water quality, air quality, climate change mitigation (carbon sequestration) and landscape restoration.

ii) Contribute to the goals of EU Nature legislation

The project seeks to re-establish an extensive ecological continuity in a cross-border context. It aims to enable the movement and long-term conservation of numerous species, including several emblematic species of the Transboundary Biosphere Reserve Vosges du Nord-Pfälzerwald. Some of the species which will benefit from the conservation actions foreseen within the project are species of European interest, for example, the black woodpecker *(Dryocopus martius*) - included in Annex I of the Birds Directive - and the white-clawed crayfish (*Austropotamobius pallipes*) - listed in Annex II and V of the Habitats Directive.

iii) EU-level green and blue infrastructure projects should have a strategic approach

The project involves interventions within the Transboundary Biosphere Reserve Vosges du Nord-Pfälzerwald and hence cooperation between two Member States.

Box 3 – The European Green Belt

Project duration: 2003 - ongoing

Funds used: ERDF, Interreg, BfN, BUND, BMUB, EuroNatur, MAVA Foundation, German Lufthansa

Project description

The European Green Belt stretches over 12,500 kilometres along what was once the Iron Curtain, forming a corridor of habitats hosting a great variety of species: it reaches from the north of Europe to the Black and the Adriatic Sea in the south. Since the project's start in 2003, the inspiring idea of transforming the Iron Curtain into a 'European Green Belt' has at least partially become a reality: today it connects more than 4,000 protected areas in 16 EU countries, as well as 8 non-EU countries (Albania, Kosovo*, FYR Macedonia, Montenegro, Norway, Russia, Serbia, and Turkey). Almost 150 governmental and non-governmental organisations from these countries have come together in the initiative. The focus of the initiative is to conserve and restore the natural heritage along the former Iron Curtain to function as an ecological network whilst respecting the economic, social and cultural needs of local communities.

The initiative comprises four sections – the Fennoscandian, Baltic, Central European and Balkan Green Belt. To coordinate and facilitate the further development and protection of the Green Belt, a European Green Belt Association was established in 2015.

Impacts of the project (including environmental, social, and economic benefits)

Examples of economic and social benefits provided by the European Green Belt include recreation and tourism, health benefits (derived from the multiple ecosystem services provided by the protected areas and corridors covered by the European Green Belt), beneficial effects on the local economy (including local employment) and preservation of cultural heritage.

Research in Finland has shown that EUR 1 of public investment in nature conservation along the Green Belt of Fennoscandia has a return of EUR 10 to local private income, for example via tourism and tourism-related businesses. The total income of the national parks and hiking areas on the Finnish side of the Green Belt totalled around EUR 100 million in 2016.

How the project meets the three EU-level GI criteria

i) Enhance the delivery of multiple ecosystem services at a significant scale

The European Green Belt delivers multiple ecosystem services. It is mainly aimed at (transboundary) connectivity of natural habitats and providing habitat for species of concern (see ii), as well as migratory routes (especially important with climate change). The European Green Belt delivers multifunctional benefits through its high potential of providing especially regulating, but also provisioning and cultural ecosystem services. Given the wide variety of habitat types covered by the European Green Belt, the initiative contributes to maintaining or enhancing a wealth of ecosystem services, from climate change mitigation and air quality regulation, to the provision of opportunities for nature-based tourism and recreation.

ii) Contribute to the goals of EU Nature legislation

The European Green Belt connects a string of important habitats, from grassland fallow and wetlands, to dry grasslands and mature woodlands. The European Green Belt's ecological network consists of core areas, sustainable use areas, and green infrastructure/landscape corridors or buffer zones. This network crosses nearly all of the continent's biogeographic regions from old-growth boreal forests and taiga in the north, to coastal and marine habitats in the Baltic region, to steppes in the south. This is important for migrating species such as wolves, bears and lynxes, as well as amphibians and birds. For example, the present distribution of the Balkan lynx (*Lynx lynx balcanicus*) largely matches the course of the Balkan Green Belt between Albania and Macedonia, Montenegro and Kosovo*. Such well-connected networks of protected areas play an important role in supporting populations in adapting to habitat fragmentation and

climate change.

In addition, the European Green Belt serves as a refuge for a range of threatened species, such as black vultures and griffon vultures. On the 1,400 km stretch in Germany alone, a survey by German conservation NGOs found more than 600 animal and plant species on the IUCN's Red List.

The European Green Belt's protected areas include Natura 2000 and Emerald sites, national parks, biosphere reserves, as well as other areas with varying levels of protection.

iii) EU-level green and blue infrastructure projects should have a strategic approach

Crossing 24 countries, both within and outside the EU, the European Green Belt serves as a good practice example of cross-border cooperation on green infrastructure. The 9th European Green Belt Conference in 2016 highlighted, for example, that "combining biodiversity, economic and social benefits, the Green Belt Initiative is a symbol of transboundary cooperation to promote Europe's shared natural and cultural heritage". The initiative is a living example of structured and prolonged transboundary cooperation for preserving and developing green infrastructure.

*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

The following case study also illustrates how certain **urban GI projects** can be relevant in the context of this guidance, when they constitute a coherent part of wider-sale green and blue infrastructure projects.

Box 4 – Emscher Landscape Park and Emscher River Restoration

Budget: Emscher Landscape Park: EUR 500 million; Emscher River Restoration: EUR 5,3 billion

Fund used: several EU funds since the mid-1990s; co-financed by the German federal government, the Federal state of North Rhine-Westphalia (NRW), the 20 municipalities involved, the Ruhr Regional Association (RVR), the water management association Emschergenossenschaft & Lippeverband (EGLV) and their members.

Project description

Two strategic and long-term regional projects (including hundreds of single actions and local projects) support the transformation of the Ruhr region in North Rhine-Westphalia, Germany since the early 1990s.

The Emscher river and its tributaries are located in the northern part of the centre of the agglomeration Ruhr, an area heavily affected by the decline of the coal and steel industries since the 1960s. The Emscher Landscape Park is a 457 km² regional park system between 20 cities. Almost half of the 5.1 million inhabitants of the Ruhr region live in this core of the agglomeration. To create the Emscher Landscape Park, vacant land of the former coal and steel industries and their transport infrastructures was converted into a connected system of urban landscapes, new parks, industrial and natural heritage and a system of bike paths. The park system includes more than 100 single projects and represents a complete transformation of the area from a forgotten place to an attractive and connecting green infrastructure.

The restoration of the Emscher river system is a parallel large-scale project. The Emscher and its tributaries are reconverted from highly modified open wastewater channels with concrete beds into natural stream systems. For this, a new 423 km underground sewer network is constructed to separate waste and river water. Subsequently, the concrete shells are removed, the channelization is reversed, and stream profiles widened. A system of floodplains and near-natural retention reservoirs will provide additional flood protection. The morphology and connectivity of the Emscher and its tributaries are restored aboveground. This complete conversion of the Emscher system enhances the quality of life and the ecological situation along the rivers, as well as in the urban neighbourhoods.

Impacts of the project (including environmental, social, and economic benefits)

The large Emscher renewal investments have helped transform the region from decline to smart growth. Ruhr is back with a new and diversified economic structure with new and sustainable urban qualities, based on green infrastructure.

The Emscher revitalisation is estimated to create about 1400 direct jobs per year from its inception to 2020 (Barabas et al., 2013). Beyond these direct impacts on employment, the project contributes to improving quality of life in the area and increasing the area's overall attractiveness. Millions of people use the new parks and bikeways. The quality of life has been raised in all neighbourhoods. Five million visitors travel on the *Route of Industrial Heritage Ruhr* yearly.

A recent valuation study on the Emscher restoration project estimates that the ecosystem services resulting from the initiative have an annual market value/direct economic impact of over EUR 21 million, while the area's 'non-market value' (based on estimates of 'willingness to pay in appreciation that restored river sections exist') is estimated at EUR 107 million per year (Gerner et al., 2018).

How the project meets the three EU-level GI criteria

i) Enhance the delivery of multiple ecosystem services at a significant scale

The projects contribute to enhancing a suite of ecosystem services, including flood control, microclimate regulation, as well as cultural ecosystem services such as opportunities for recreation and aesthetic quality of the landscape.

ii) Contribute to the goals of EU Nature legislation

The projects included research and investments in and implementation of actions aimed at improving biodiversity, connecting biotopes, benefitting rare and relevant species, enriching the aquatic biotopes

and enabling the 'rebirth' of the banks of the new rivers. The initiatives also fostered a new understanding of industrial nature and urban wilderness and their ecosystem services, and promoted accessibility to urban nature including protected wildlife areas (*Nature for People*).

iii) EU-level green and blue infrastructure projects should have a strategic approach

Both projects are large-scale, strategic green infrastructure projects transcending administrative boundaries. They demonstrate how the development of green and blue infrastructure can serve as a strategic factor for the transformation of an entire region.

III. EU SUPPORTING TOOLS AND INSTRUMENTS

1) EU CURRENT FINANCING INSTRUMENTS TO SUPPORT STRATEGIC INVESTMENTS IN EU-LEVEL GREEN INFRASTRUCTURE PROJECTS

In the 2014-2020 period, the European Structural and Investment Funds (ESIF) – in particular, the European Agricultural Fund for Rural Development (EAFRD), the European Maritime and Fisheries Fund (EMFF), the European Regional Development Fund (ERDF), and the Cohesion Fund – present several opportunities to finance EU-level GI projects. These funds are governed by a set of common rules and principles as laid down in the Common Provisions Regulation (CPR) (Regulation (EU) No 1303/2013). The CPR outlines, amongst others, requirements with regard to strategic planning and programming, including thematic objectives (TOs) that ESIF-funded projects and measures must support. Table 1 below presents the thematic objectives for the 2014-2020 period and identifies links with EU-level GI.

Table 1 – Links between ESIF thematic objectives and EU-level GI

Thematic Objective	Links to EU-level GI
TO1: Strengthening research, technological development and innovation	Research and innovation can support the design and implementation of EU-level GI projects (e.g. through the development of methods/tools for identifying areas for prioritisation, assessing ecosystem service delivery, etc.). EU-level GI projects may also entail research and innovation (R&I) elements (alongside other activities), e.g. demonstration of innovative approaches to GI implementation.
TO2: Enhancing access to, and use and quality of, ICT	Not directly linked
TO3: Enhancing the competitiveness of SMEs, of the agricultural sector (for the EAFRD) and of the fishery and aquaculture sector (for the EMFF)	EU-level GI projects may result in the creation of business opportunities related to nature and ecosystem services, such as nature-based recreation and tourism. EU-level GI projects related to agricultural or aquatic ecosystems may enhance competitiveness of the agriculture, fishery, or aquaculture sectors by enhancing the ecosystem services on which these sectors depend.
TO4: Supporting the shift towards a low-carbon economy in all sectors	EU-level GI projects can contribute to carbon sequestration and storage.
TO5: Promoting climate change adaptation, risk prevention and management	EU-level GI projects can deliver benefits related to climate change adaptation, including urban cooling, stormwater retention, and mitigation of natural hazards such as floods, storm surges, landslides and avalanches.
TO6: Preserving and protecting the environment and promoting resource efficiency	EU-level GI projects would directly contribute to the objective of protecting the environment since they are intended to contribute to achieving the goals of the Nature Directives. Such projects may also promote resource efficiency; e.g. green roofs and walls can reduce demand for cooling in buildings, natural water retention measures may reduce the need for wastewater treatment.
TO7: Promoting sustainable transport and removing bottlenecks in key network infrastructures	EU-level GI projects can contribute to the 'greening' of transport infrastructure, e.g. by mitigating habitat fragmentation effects, creating habitat for species alongside roads and rail networks, improving navigability of water courses while benefitting species and ecosystems, etc.
TO8: Promoting sustainable	Although promoting employment is not a core objective of EU-level GI projects,

and quality employment and supporting labour mobility	such projects can generate direct and indirect employment opportunities, e.g. in the area of nature-based tourism, or in professions related to implementation of GI (e.g. landscape architecture, restoration, ecological engineering).
TO9: Promoting social inclusion, combating poverty and any discrimination	EU-level GI projects can contribute to reducing poverty in rural areas by protecting/ enhancing the ecosystem services on which rural communities depend. Creation of quality green space and/or improved accessibility to nature areas can help improve social cohesion, deliver recreation opportunities, and have positive impacts on health and well-being.
TO10: Investing in education, training and vocational training for skills and lifelong learning	Potential indirect linkages exist, e.g. if GI-related education and skills are included in curricula, or if EU-level GI sites are used for environmental education and training (e.g. educational visits to protected areas).
TO11: Enhancing institutional capacity of public authorities/stakeholders and efficient public administration	Not directly linked

In addition to ESIF, EU-level GI projects can be financed through the Programme for Environment and Climate Action (LIFE) – e.g. through integrated projects[8] - and the EU Framework Programme for Research and Innovation (Horizon 2020).

Innovative biodiversity financing for EU-level GI can also be provided by the Natural Capital Financing Facility (NCFF)[9], a financing mechanism managed by the European Investment Bank that supports projects focusing on nature and biodiversity and ecosystem-based adaptation to climate change, through loans and equity.

Annex III contains a targeted presentation of relevant opportunities provided by existing EU financing instruments as well as innovative financing to support EU-level green and blue infrastructure projects.

2) The revised Prioritised Action Frameworks

Prioritised action frameworks (PAFs) are strategic multiannual planning tools, aimed at providing a comprehensive overview of the measures that are needed to implement the EU-wide Natura 2000 network and its associated GI, specifying the financing needs for these measures and linking them to the corresponding EU funding programmes.

The revised format for Prioritised Action Frameworks (PAFs) for the post-2020 multiannual financial framework provides opportunities for joint implementation of Natura 2000 and GI in the context of EU funds.

Where the ecological requirements of species and habitats of EU interest cannot be met by measures within the Natura 2000 network, the Member States are now invited to also present in their PAFs additional GI measures that contribute to the ecological coherence of the network. Such an approach offers multiple benefits:

[8] Nature or water integrated projects. See e.g. LIFE IP 4Natura - Integrated actions for the conservation and management of Natura 2000 sites, species, habitats and ecosystems in Greece

[9] Include reference to NCFF EIB site

i. it contributes to implementation of EU nature legislation, including Article 10 of the Habitats Directives which calls for the Member States to consider in the land–use planning and development policies the management of features of the landscape which are of major importance for wild fauna and flora;

ii. it helps the Member States to evaluate the needs related to GI and possibilities for its deployment

iii. it helps to identify win-win scenarios and synergies between different policies in view of delivering multiple benefits to citizens.

Following several rounds of consultations, the updated format of the PAF[10] has been approved at the meeting of the Expert Group on the Birds and Habitats Directives (NADEG) on 22 May 2018.

3) SUPPORTING SCIENTIFIC AND TECHNICAL TOOLS

a) Mapping and Assessment of Ecosystems and their Services (MAES)

The European MAES initiative[11] has developed a coherent analytical framework to ensure that consistent approaches linking biodiversity, ecosystem condition and ecosystem services, are used across Member States and at EU level (1st MAES Report, 2013). The MAES framework includes a typology for ecosystems in EU (based on EUNIS and Corine Land Cover) and promotes a classification of ecosystem services that allows for integration in accounting systems (based on CICES). The common assessment framework was further developed with a selection of indicators and a European map of ecosystems (2nd MAES Report, 2014). The 3rd MAES Report (2016) synthesises the European Environment Agency's work on ecosystem mapping and provides short assessments of pressures, condition and biodiversity for main ecosystem types mainly based on datasets derived from reporting under EU environmental policies. A fourth report addressed urban ecosystems and green infrastructure (4th MAES Report, 2016). The 5th MAES report further consolidates and enhances the operational guidance on mapping and assessment of ecosystem condition and provides a selection of key indicators across different ecosystems according to a joint framework; it provides the basis for an integrated ecosystem assessment to evaluate the achievements of the EU Biodiversity Strategy.

The European relevance and value added of EU-level green and blue infrastructure projects can be explained and demonstrated using the MAES methodology, together with the EU approach to restoration prioritization frameworks[12] .

[10] http://ec.europa.eu/environment/nature/natura2000/financing/docs/PAF%20format%20EN.docx

[11] https://biodiversity.europa.eu/maes

[12] http://ec.europa.eu/environment/nature/biodiversity/strategy/pdf/RPF%20letter%20to%20MS%20from%20PB%20April%202014%20Annexe.pdf

b) Geographical Information System (GIS) modelling tools:

Relevant GI-related GIS tools will be presented and analysed in a forthcoming report to be available in 2018, titled 'Informing strategic green infrastructure and restoration planning through mapping and assessment methods based on spatial and technical data'. Two case studies from this report are included in this guidance (annex III) as illustrations: the first one presents a methodology aimed at assessing connectivity of protected areas including at transnational level, and its use in supporting various policy objectives. The second one relates to a methodology that supports the design and deployment of a multi-functional GI, illustrating how Natura 2000 connectivity and the provision of multiple ecosystem services can be jointly assessed and prioritized.

c) Natura 2000 biogeographical process:

The purpose of the Natura 2000 Biogeographical Process (launched in 2012 by the European Commission) is to assist Member States in managing Natura 2000 as a coherent ecological network, whilst exchanging experience and best practices, addressing objectives and priorities and enhancing cooperation and synergies.

In the context of the viability of the Natura 2000 network, it is also important to know how to ensure that habitats also achieve a level of favourable conservation status outside Natura 2000 site boundaries, and how to address the major threats that occur there.

The cooperation initiated under the Natura 2000 Biogeographical Process particularly focuses on issues that are common to several Member States. In this perspective, Annex I habitats have been selected for priority discussion among Member States sharing a same biogeographical region. For many of these habitats, an improvement of e.g. **their structure and function would entail ensuring a certain connectivity of targeted Natura 2000 sites and therefore restoration activities also outside the network**. These priority habitats should be considered in the context of this guidance.

IV. NEXT STEPS

The European Commission proposals for the EU Multi-annual Financial Framework 2021-2027 provides new opportunities for supporting GI, including through:

- The new LIFE program, which includes new 'strategic nature projects', which aim at strengthening the integration of nature and biodiversity in other policies through a more coordinated and strategic approach. This should provide major opportunities for supporting EU level GI projects. 'Strategic integrated projects' for other policies, e.g. water, will also provide further funding opportunities.
- Cohesion policy, including the proposed Regulation on the European territorial cooperation goal (Interreg), which aims at fostering cross-border, transnational, maritime and inter-regional cooperation.
- The new EU Common Agricultural Policy, putting greater emphasis on environment and climate, and the role given to Member States to design CAP strategic plans, which will be an opportunity to foster EU-level green and blue infrastructure projects.
- The new European Maritime and Fisheries Fund, relevant as regards costal and marine green and blue infrastructure.

The Commission intends to revisit this guidance in three years, in light of the experience gained, and with a view to update it with the new EU Multiannual Financial Framework 2021-2027.