

GRETA - “GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development”

**ESPO Peer Learning Workshop:
Greening Tourism: Reimagining the
Tourism Sector in Ireland**

**Virtual
20 April 2021**

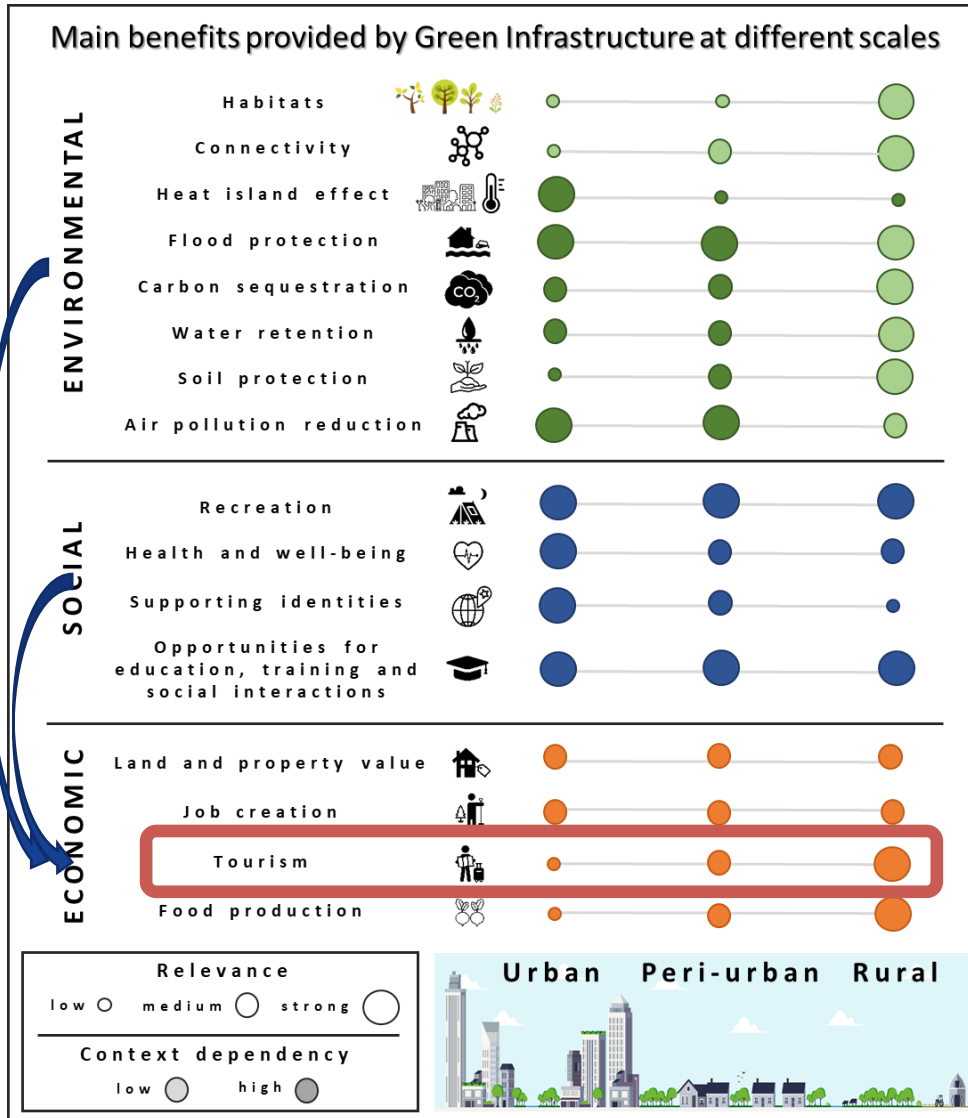
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TECNALIA**

1

Green Infrastructure: the concept and the socio-ecological system for implementation



Ecological, social, cultural and economic benefits of Green Infrastructure in Europe



But, green infrastructure has potential **side effects** that are important to be aware of, like:



Risk of invasion by alien species



Eco-gentrification

Human health effects



Higher costs to initiate or maintain green infrastructure

Figure 2. Summary of main benefits provided by Green Infrastructure at different scales. Elaboration by GRETA research team. Icons from <https://thenounproject.com/>.

Green Infrastructure approach as a reference for integrated tourism spatial planning

Spatial planning is an enabling discipline for territorial development, that articulates the deployment of other public policies affecting spatial organization and governance of land.

It is the umbrella where GI concept and approach could be operationalized.

Think strategically y about the territory to build a new sustainable tourism strategy.

Key challenge = finding the right balance between:

- attractiveness of destinations and the protection of ecosystem services
- competitive economy and sustainability

Green Infrastructure approach as a reference for integrated tourism spatial planning

Network

- Multiscale approach
- Accessibility and connectivity

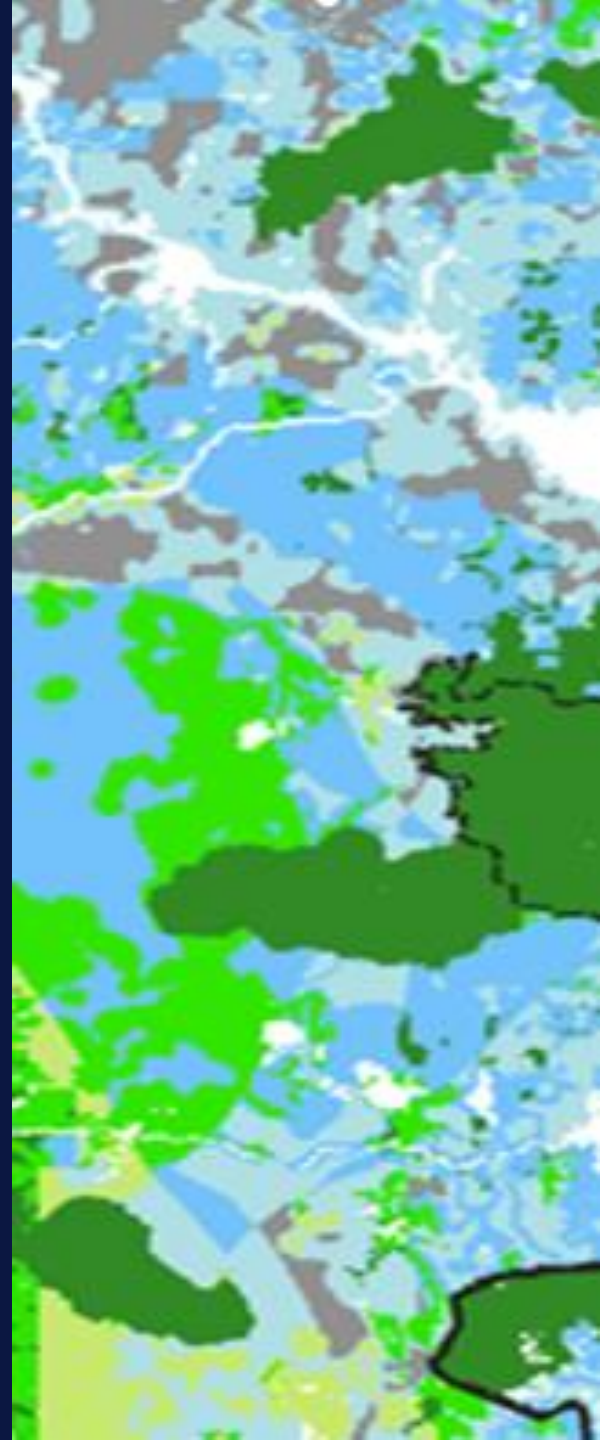
Multifunctionality

Ecosystem Services supporting
key determinants of sustainable
tourism

- Attractivity and recreation
- Place identity and singularity
- Maintenance of natural capital, cultural heritage distinctiveness and landscape amenity including traditional activities
- Going beyond conservation
- Put in value and enhancing current conditions
- Making places less tourism dependent to increase resilience
- Local job creation

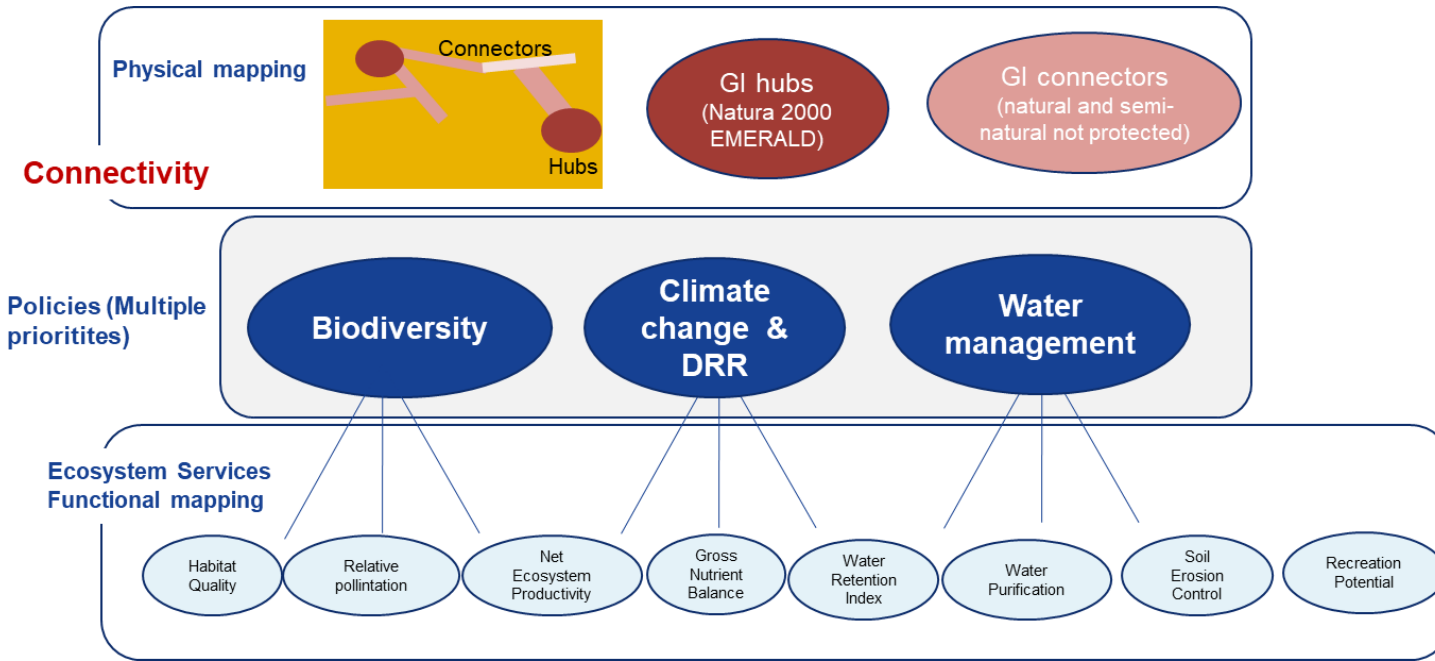
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Innovative spatial analysis for physical and multifunctional mapping of GI

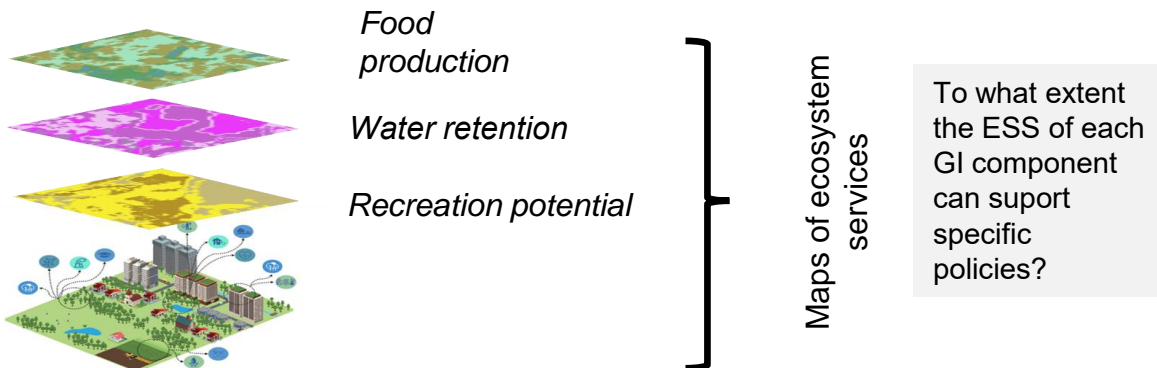


Green Infrastructure mapping in EU

Inspire Policy Making with Territorial Evidence



Multifunctionality

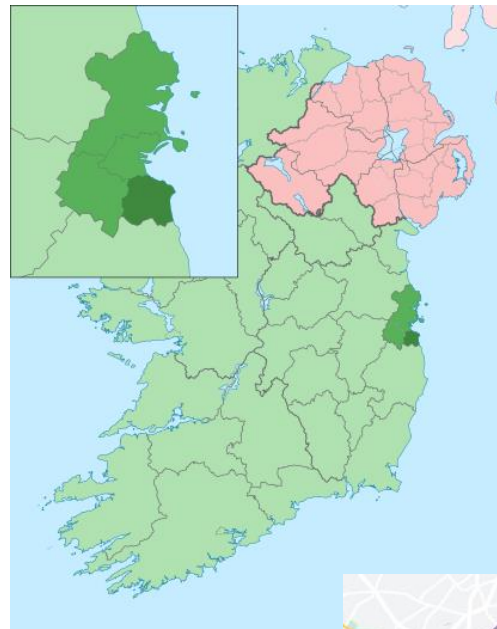


- Standardized comparison of “potential” GI
- Evaluation of the ability of GI to serve different policy objectives: i.e. biodiversity, climate change and water management.
- Transferable methodology

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Dún Laoghaire- Rathdown Ireland

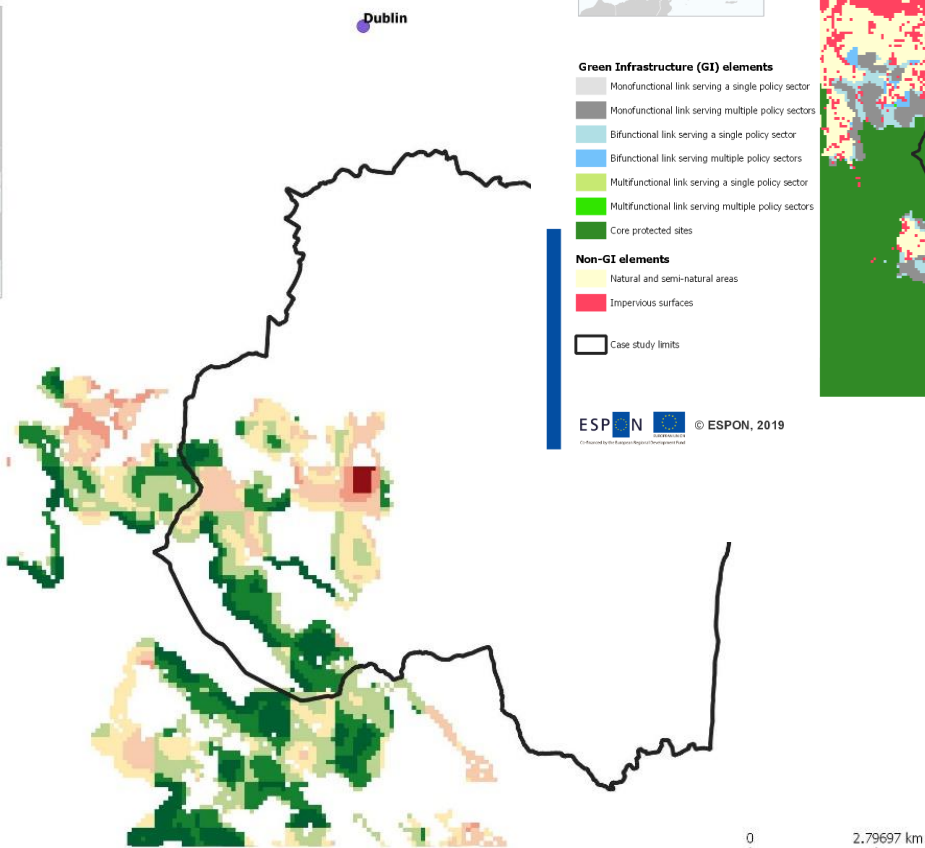
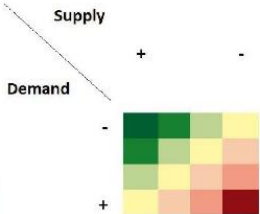




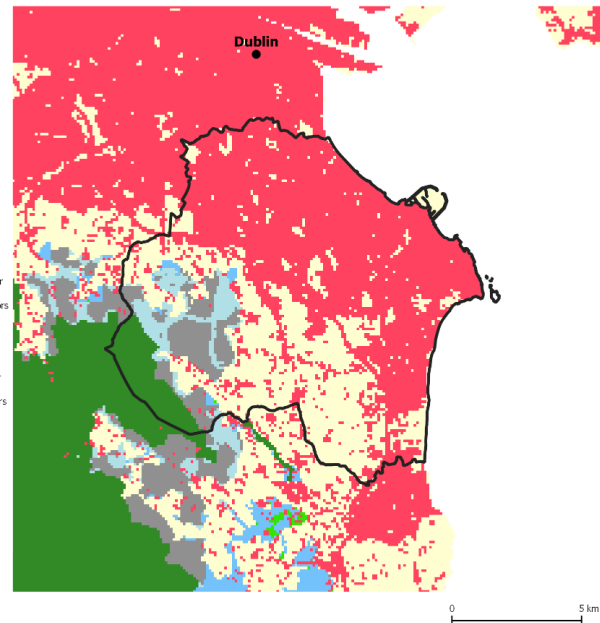
Balancing Supply and Demand for Recreation in Dún Laoghaire-Rathdown



Case study limits



Overview map on potential GI serving multiple policies - Dun Laoghaire-Rathdown



Regional level: NUTS 2/3 (2013)
 Source: ESPON GRETA, 2019
 Origin of data: CLC 2012, Copernicus HRL Impervious 2012, OSM 2017, Natura 2000 (EEA 2012),
 Emerald Network 2012, MAES (2011, 2015), HNVF (EEA 2015), Ecosystem types map (ETC-SIA 2015)
 © UMS RIATE for administrative boundaries

Dún Laoghaire-Rathdown area GRETA case study. Overview map on potential GI serving multiple policies.

Policy messages and recommendations

- Comprehensive GI strategy and plan were produced via interdepartmental and across public (Local Authority) and private (Planning Consultants)
- Implementation of GI in DLR is lacking.
- The lack of high level and political support for green infrastructure (GI) seems to be halting implementation of the strategy.
- Economic valuation could be used as the means to communicate the value of GI to senior management and gain support and backing for implementation.
- It would be valuable to align and incorporate GI principles into national scale policy. For example, current implementation of GI seems to be occurring in relation to land use and water (e.g. SuDS) which are national policies within Ireland. A recommendation would be to review other national policy sectors (e.g. climate change) that could facilitate bringing about more GI.
- The use of se of 'nature-based solutions' when implementing SuDS can be a way to incorporate GI into existing initiatives for multifunctional service delivery.

Best Practice example

Honeypark is a recent residential development privately built on the site of an old golf course. The public open spaces have been designed as 'multifunctional Green infrastructure'. It provides a good example of how GI has been incorporated into local planning policy by Parks and Landscapes, Drainage and Planning departments. It has resulted in a residential development incorporating multifunctional open spaces, including a featured lake with wetlands. This wetland has been designed to provide flood storage, habitat, recreation and aesthetic functions. The wetland attenuates the flow of storm water, as well as providing habitat for a variety of species and recreational opportunities for the local community. Throughout the development, planting schemes have been installed which provide shading, privacy and permeable surfaces to attenuate storm water flow and filter pollutants and sediment.

DLR

Green

Infrastructure

Strategy

2016-2022

<https://www.dlrcoco.ie/sites/default/files/atoms/files/appendix14.pdf>

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Policy recommendations and Future Research for Territorial Development



Further research for successful GI implementation

- ❖ **Understand the demand for GI.** The type of analysis presented in this research can help to inform the prioritisation of efforts to develop and invest in GI to meet current and future demand.
- ❖ **Continuous monitoring and sharing data.** The positive link between, on the one hand, GI and, on the other hand biodiversity and ES, is a starting point for the GRETA spatial analysis. Time series and change/trend analysis in this context of monitoring and data might be beneficial.
- ❖ **Establish and assess the quality of GI.** Improved indicators and metrics for assessing the quality of GI are needed. Such indicators can possibly be linked to the ongoing development of indicators for the 17 Sustainable Development Goals.
- ❖ **In-depth analysis on synergies and trade-offs in different European regions.** Further research is needed to understand the social and geographical disparities of the trade-offs and synergies. This to identify alternatives to minimize side effects.
- ❖ **Investigation into the role of the private sector.** There is a need to further highlight the importance of private sector, NGOs and private individuals in GI implementation. To further the integration of also other actors and institutions than public administration, the role of private actors (business owners, farmers and foresters, and urban land owners) in the implementation and management of GI need further research attention.
- ❖ **Investigate failure of implementation.** The GRETA research indicates a need to further identify failure of implementing GI. Such failures could for instance be found in situations with low political support for GI, and where a holistic and spatial perspective of GI is lacking.

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GRETA resources: Policy Briefings



Unpackaging Green infrastructure



ESPON 
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GRETA BRIEFING 1 //
Unpackaging Green Infrastructure
 August 2019
<https://www.espon.eu/green-infrastructure>

What is Green Infrastructure?
The European Union defines this as 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 areas¹. See Box 1 for key features and see Figure 1 (next page) for an illustration of green infrastructure elements and services.

Green Infrastructure includes natural elements (e.g. forests, grasslands, linear vegetation elements, single trees, rivers, ponds) and artificial features (e.g. fauna tunnels and fish passes) that enable structural and functional connectivity of species and habitats.² On land, green infrastructure is present in urban, peri-urban and rural settings.

Box 1. Key Features of Green Infrastructure

- Connectivity – creating networked geographical areas.
- Multifunctionality – performing several functions while also providing valuable ecosystem services.
- Multi-scale approach – integrating spatial planning across urban, peri-urban and rural settings.

This briefing is a resource for those interested in understanding and integrating the benefits and challenges of green infrastructure into decision making. It is of relevance for individuals making decisions for the monitoring, planning, and development of green infrastructure at all scales - urban, peri-urban and rural settings.

¹ European Commission, 2013. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions 'Green Infrastructure (GI) – Enhancing Europe's Natural Capital'.
² Structural connectivity is a property of the landscape features and their spatial arrangement, whereas functional connectivity refers to the behaviour of species and ecological processes across the landscape. European Commission, 2012. In depth report by the DG Environment News alert Service, 'The Multifunctionality of Green Infrastructure'.

ESPON GRETA
 Green infrastructure: Enhancing biodiversity and ecosystem services for territorial development

This briefing aims to provide a resource for those interested in understanding and integrating the benefits and challenges of green infrastructure into decision making. It is of relevance for individuals making decisions for the monitoring, planning, and development of GI at all scales - urban, peri-urban and rural settings.

- Navigates the concept and different components of green infrastructure
- Provides an overview of main environmental, social and economic benefits at different spatial scales, and
- Reflects on the side effects from green infrastructure.

Relating Green Infrastructure to the Strategic Environmental Assessment

- How to **think more strategically** about green infrastructure and ecosystem services to inform spatial and urban planning.
- How to consider green Infrastructure as an integrated concept and approach towards **knowledge-based decision making**.
- Providing insights on how the GRETA methods on green infrastructure and ecosystem services mapping and assessment could be operationalized **in the scheme of the Strategic Environmental Assessment**.



The Strategic Environmental Assessment (SEA) is an administrative procedure and an instrument that accompanies the approval and adoption of strategies, plans and programs (SPP) with a potential environmental impact.

The SEA aims to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of all SPP. It is applicable at various planning scales (i.e. national, regional, local).

The GRETA project sought to explore concepts and methods for the integration of the benefits and challenges of green

infrastructure into decision making and to inform planning (See Briefing 1 and 3).

The purpose of this briefing is threefold. It covers:

- How to think more strategically about green infrastructure and ecosystem services to inform spatial and urban planning.
- How to consider green infrastructure as an integrated concept and approach towards knowledge-based decision making.
- How to best apply the concepts of green infrastructure and ecosystem services in the context of the Strategic Environmental Assessment.



Planning for green infrastructure: methods to support practitioners and decision-making

Assessing the potential for green infrastructure

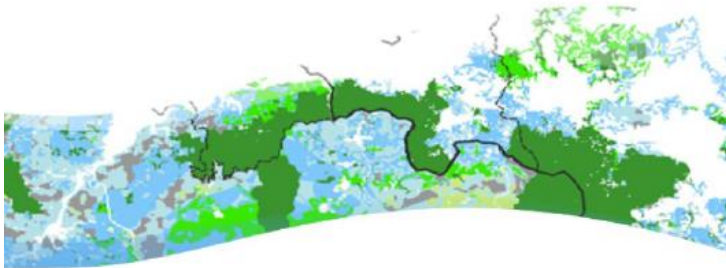
- 1) Physical Mapping Method – Assessing and connecting valuable natural areas
- 2) Ecosystem Service Base Mapping Method – Assessing multifunctionality
- 3) Enabling Factors and Dependencies Method – Causal Loop Diagram

Moving from potential green infrastructure to real opportunities– assessing and measuring the potential for multiple benefits

- 4) Accessibility Method – Mapping distance
- 5) Economic Valuation Method- Stated and revealed preference
- 6) Economic Valuation Method - Direct use and consumption valuation

Tools to aggregate information and support decision-making

- 7) Economic Valuation Method – Cost benefit analysis
- 8) Supply and Demand Protocol – Mapping
- 9) Synergies and Trade-offs Method – Statistical graphical analysis



Imagine you are responsible for planning an area (either in the countryside or within an urban area) and you are faced with specific challenges which require the prioritization of certain ecosystem service(s), such as flood risk mitigation, effects of climate change, or supporting biodiversity. You would like to assess the potential of green infrastructure to provide such a service and the best way to manage this green infrastructure to fulfil this need.

How would you do this?

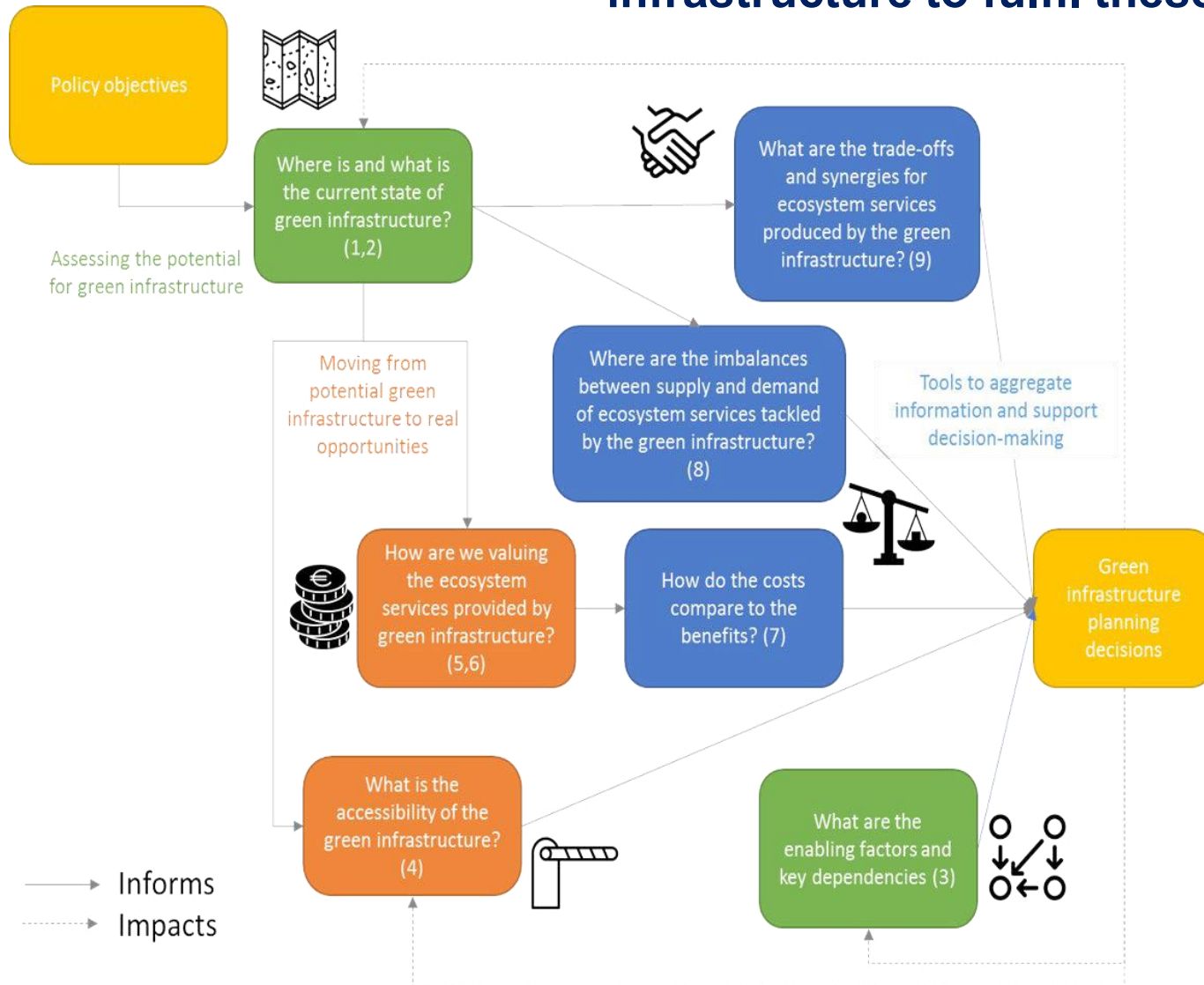
This briefing offers a series of steps that can be followed to help with such an assessment. It aims to provide an overview of the methods developed for and used in the GRETA project, which are applicable for considerations around green infrastructure

and ecosystem services. It will be relevant for practitioners involved in green infrastructure planning and management who are looking for existing and accessible methodological frameworks to guide their decision making.

Decisions made for green infrastructure planning can impact green infrastructure itself (accessibility or the current state, e.g. through the creation of new green areas) or the enabling factors by affecting the institutional framework (e.g. new legal context, increased political commitment and social awareness).

Figure 1 provides an outline of the steps one might consider when seeking to assess the potential of green infrastructure to provide ecosystem service(s) and how one might manage the green infrastructure to fulfil these needs.

Steps to assess the potential of green infrastructure to provide ecosystem service(s) and how to manage the green infrastructure to fulfil these needs





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Image credits

<https://thenounproject.com/>

Icons used: Food Production Made from Noun Project; Air Pollution Amos Kofi Commey from Noun Project; Carbon sequestration ProSymbols from Noun Project; Connectivity Populat from Noun Project; Education, Tourism and Flooding Adrien Coquet from Noun Project; Health and Wellbeing Rediffusion from Noun Project; Job creation Dan Hetteix from Noun Project; Supporting Identities myiconfinder from Noun Project; Water Retention Carlos Dias from Noun Project; Land and Property values Luis Prado from Noun Project; Heat Island Effect Vectors Market from Noun Project; Recreation Ben Davies from Noun Project; Tourism



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Thank you

Go raibh maith agat

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