



/ Training manual for trainers

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Preface

With the emergence of sustainability science, the concept of sustainable development evolved from three equally important pillars: society, the environment and the economy. The environment has come to be seen as the overarching element, the outer boundary of our civilization.



The concept of **green infrastructure** recognizes that nature – healthy ecosystems and the services they provide – is the basis of our societal and economic organization; preservation of natural capital and ecosystem services is necessary to maintain the correct functioning of our society and economy.

Nature-based green infrastructure solutions provide ecological, economic and social benefits, thus addressing the three crucial aspects of sustainable development.

This training material was compiled to help raise awareness about green infrastructure and the services nature provides us. By understanding how nature works for us, we can begin to consider ecosystem services when making decisions. We can recognize the multiple benefits that green infrastructure delivers and include nature's value in our economic calculations. Thus, investing in nature can become our true life insurance.

This manual was designed for practitioners in both governmental and non-governmental institutions to help them raise awareness about green infrastructure. It can be used to train oneself and one's team as well as serving as a workshop plan for educators.

**We hope that you find this publication useful
and will enjoy using it!**

1. Green Infrastructure:

Policy and practice – Background information

This section can be used by the trainer to refresh their knowledge of Green Infrastructure and as a resource to prepare the theoretical part of the training (e.g. PowerPoint presentations or handouts with additional information).

Why Green Infrastructure:

Halting biodiversity loss and contributing to sustainable growth

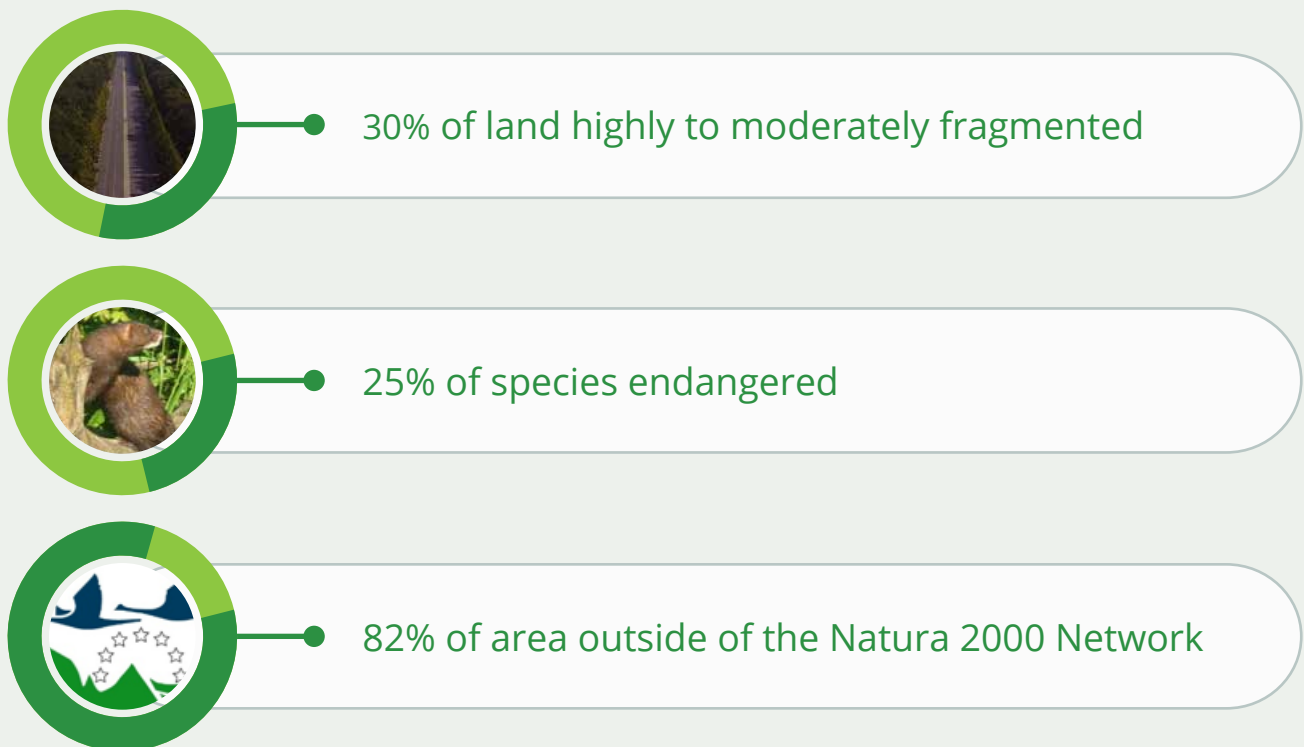


Figure 1. Fragmentation in numbers European Commission, 2011

Various factors are contributing to the advance of habitat fragmentation in Europe. These include recent increases in land-use change, urban sprawl and the associated deforestation and loss of natural habitats, new linear transportation (e.g. highways and railroad lines) and energy infrastructure, and the damming of rivers. In turn, fragmentation and loss of habitat are the main causes of the current biodiversity crisis.

Of all the continents, Europe has been the most transformed by humans. Therefore, Europe should make a special effort to safeguard its last remaining patches of natural habitat.

Habitat patches are becoming smaller and more isolated. It is estimated that 30% of EU territory is moderately to highly fragmented, a quarter of European species are threatened with extinction, and 82% of the EU's land is unprotected, as only 18% is covered by the Natura 2000 network (see Figure 1).

Habitat fragmentation decreases the land available to wildlife, and changes the characteristics of the land by increasing the proportional share of edge to interior habitat (Figure 2).

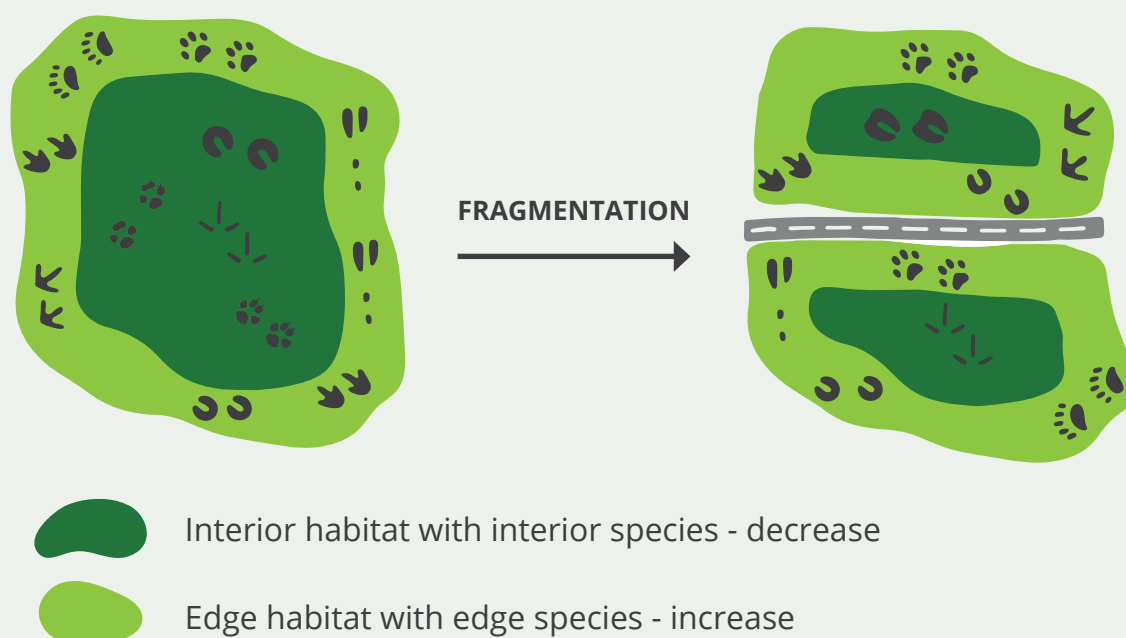
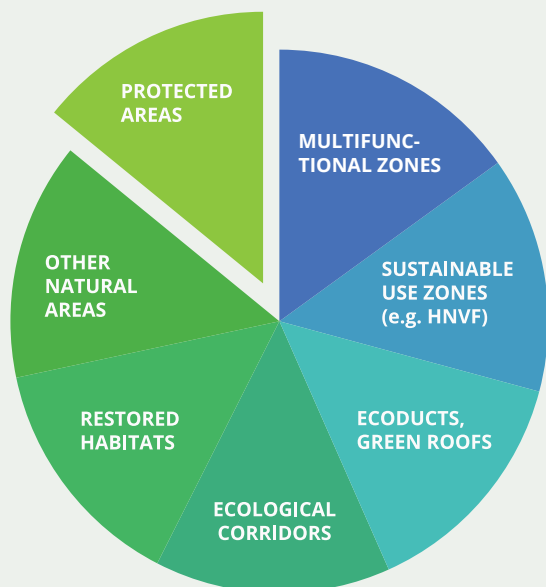


Figure 2. Changes in habitat quality caused by fragmentation (EEA, 2011)

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 considered) and other physical features in terrestrial (including coastal) and marine areas. GI is present in rural and urban settings.

(European Commission, 2013a)



Green Infrastructure (GI) encompasses natural and man-made structures and solutions which facilitate the flow of ecosystem services from nature to people and preserve our natural capital. It promotes the use of marginal land as well as making use of all possible land for biodiversity – roofs, pavements and other urban infrastructure elements.

As Figures 3 and 4 illustrate, GI includes both natural and artificial habitats, protected areas and sustainable use zones.

Figure 3. Components of Green Infrastructure



Figure 4. Examples of Green Infrastructure

In terms of **environmental protection**, it addresses the problems of habitat loss and habitat fragmentation by enhancing ecological connectivity. However, biodiversity is only one of the focuses of Green Infrastructure.

The European Commission emphasizes that natural solutions not only protect and enhance the environment but also contribute to sustainable socio-economic growth by increasing societal well-being and promoting smart growth. Natural solutions have been demonstrated to be cheaper and more durable in the long run than the conventional approaches.

For the EU, Green Infrastructure constitutes an especially valuable tool for environmental protection and climate change adaptation in a multi-stakeholder setting. Under Target 2 of the EU Biodiversity Strategy to 2020, the EU committed itself to deploy Green Infrastructure and restore at least 15% of Europe's degraded ecosystems by 2020. In 2013, the European Commission adopted a Green Infrastructure Strategy on Enhancing Europe's Natural Capital, whose aim is to draw attention to ecosystem services that are non-monetized by our economy and society, and are often unacknowledged or undervalued. By focusing on the benefits that nature gives us, we can create the necessary impetus for investment in solutions that preserve and generate ecosystem services.

Corridors



Ecological Corridors

Friendly Farming



Fish Ladders

Tunnel



Wildlife Overpasses

One of the main ideas behind Green Infrastructure is its multifunctionality. Rather than serving just one purpose, such as putting a roof over a house, Green Infrastructure can also provide thermoregulation, water retention, habitat for wildlife, space for recreation, etc. (Figures 5 and 6).

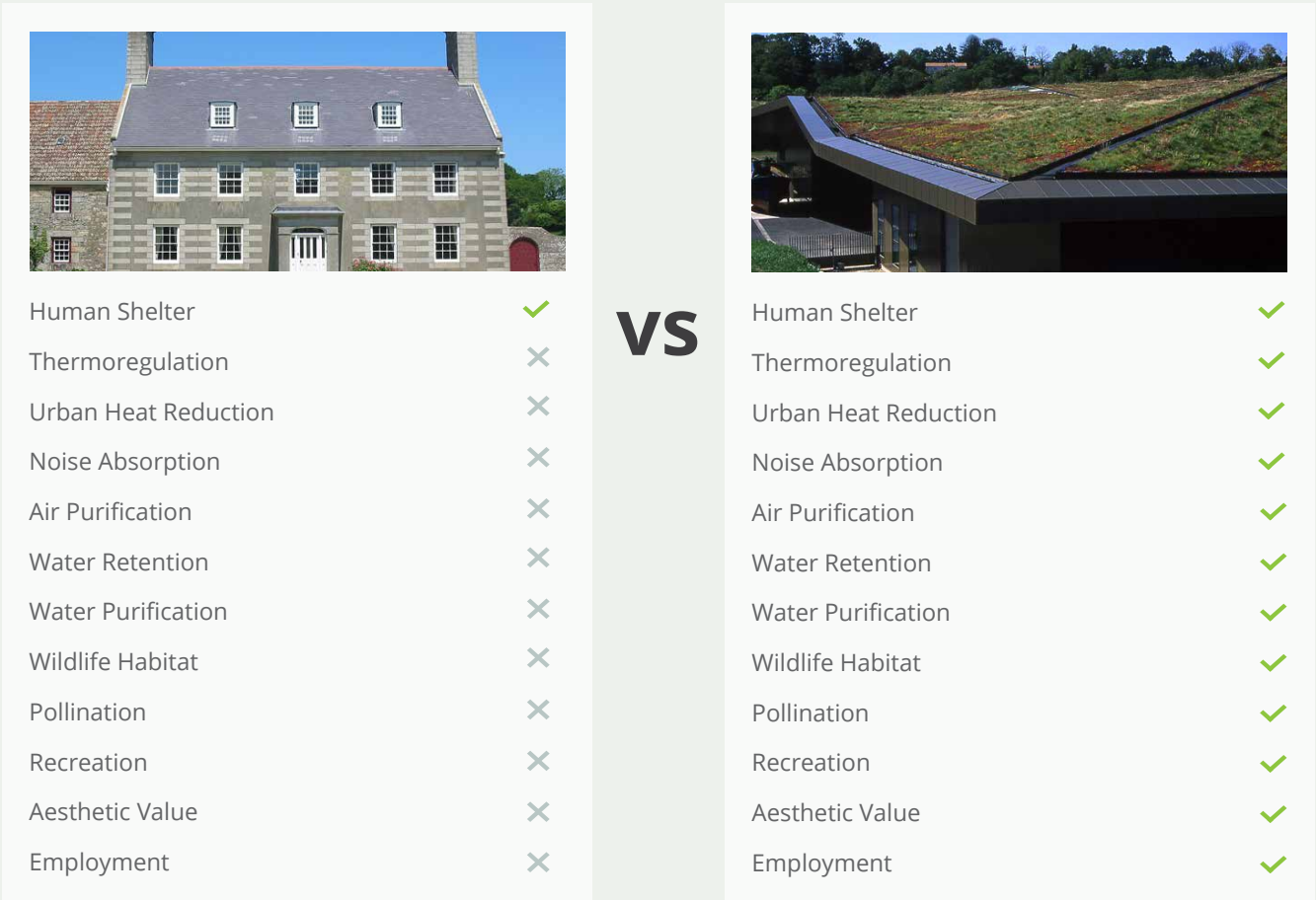


Figure 5. Functions of a traditional roof versus a green roof

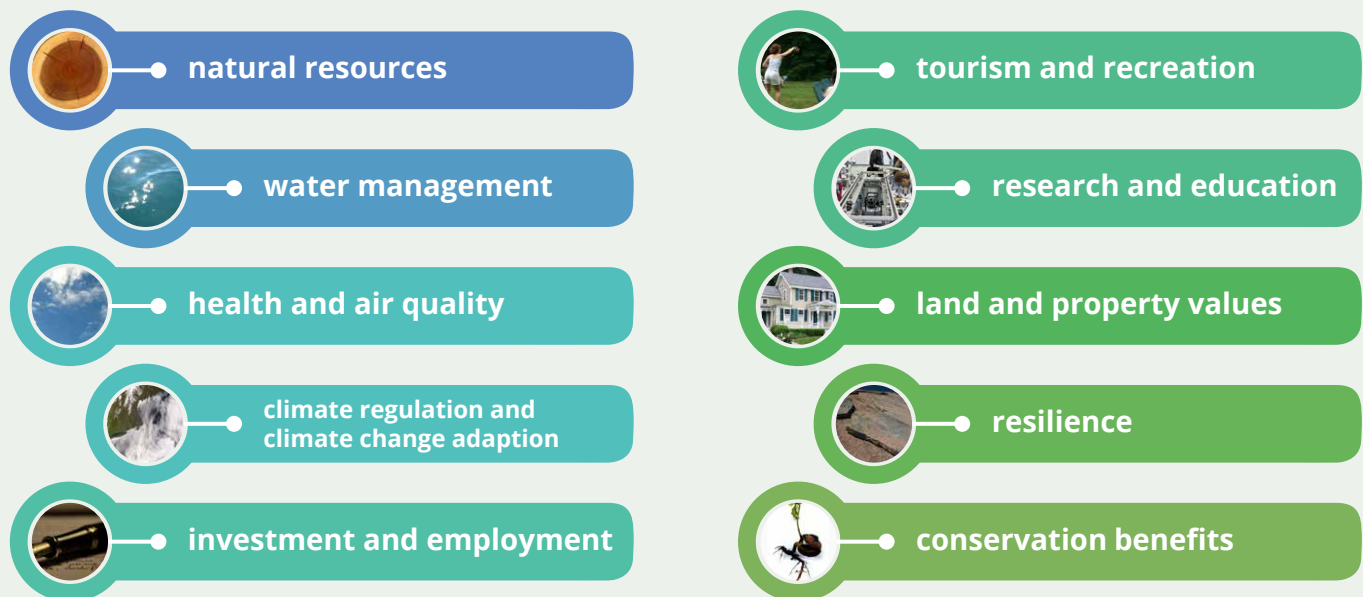


Figure 6. Benefits of Green Infrastructure

The following table shows the various elements of Green Infrastructure that can be identified at different scales.

| Local or town /city scale | Regional and national scale | EU level | Descriptor |
|---|--|--|--------------------------------------|
| Natural and semi-natural ecosystems, such as pastures, woodland, forest (no intensive plantations), ponds, bogs, rivers and floodplains, coastal wetlands, lagoons, beaches, marine habitats | Extensive agricultural and forest landscapes, large marsh and bog areas, rivers and floodplains, shorelines/coastal zones | Freshwater systems, major river basins, mountain ranges, regional sea basins | Core areas – outside protected areas |
| Local nature reserves, water protection areas, landscape protection areas, Natura 2000 sites | Regional and National Parks and wilderness zones (including Natura 2000 sites) | Ecological networks with cross-border areas, including Natura 2000 network | Core areas/protected areas |
| Restored areas which were previously fragmented or degraded natural areas, brownfield land or disused quarries; transitional ecosystems due to land abandonment or regeneration processes | Restored ecosystem types | Restored landscape systems covering a substantial part of agricultural/forestry areas and industrialized sites, including cross-border areas | Restoration zones |
| High nature value farmland and multi-use forests (such as watershed forests); protection forests (against avalanches, mudslides, rockfall, forest fires); natural buffers such as protection shorelines with barrier beaches and salt marshes | Extensive agricultural landscapes, sustainable forest management on regional and national level, functional riparian systems | Transboundary landscape features on river basin or mountain range level, sustainable coastal and marine management zones related to the respective sea basin | Sustainable use zones |
| Street trees and avenues, city forests/woodlands, high-quality green public spaces and business parks/premises; green roofs and vertical gardens; allotments and orchards; storm ponds and sustainable urban drainage systems; city reserves, including Natura 2000 | Greenways, green belts, metropolitan park systems | Metropolitan areas with substantial share of high-quality green areas in Europe, including coherent approaches in cross-border urban zones | Green urban and peri-urban areas |

| Local or town /city scale | Regional and national scale | EU level | Descriptor |
|---|---|--|----------------------------------|
| Hedgerows, stone walls, small woodlands, ponds, wildlife strips, riparian river vegetation, transitional ecosystems between cropland, grassland and forests | Multifunctional, sustainably managed agricultural landscapes, riparian systems | Supra-regional corridors, substantial share of structure-rich agricultural, forestry or natural landscapes | Natural connectivity features |
| Ecoducts, green bridges; animal tunnels (e.g. for amphibians), fish passes, road verges, ecological management of power line corridors | Defragmented landscapes, improved areas along transport and energy networks, migration corridors, river continuum | European-wide or transnational defragmentation actions | Artificial connectivity features |

Table: Green Infrastructure on various scales (European Commission, 2013b)

■ EU financing options for Green Infrastructure

Green Infrastructure is in line with other EU policy objectives such as sustainable cities, societal health, climate change adaptation, disaster risk management, safeguarding natural capital, and conservation of land, soil, water and nature. To achieve optimal results, GI should be financed from both public and private sources through risk management and risk sharing, and the provision of technical assistance. Figure 7 outlines the EU funds under which Green Infrastructure can be financed.

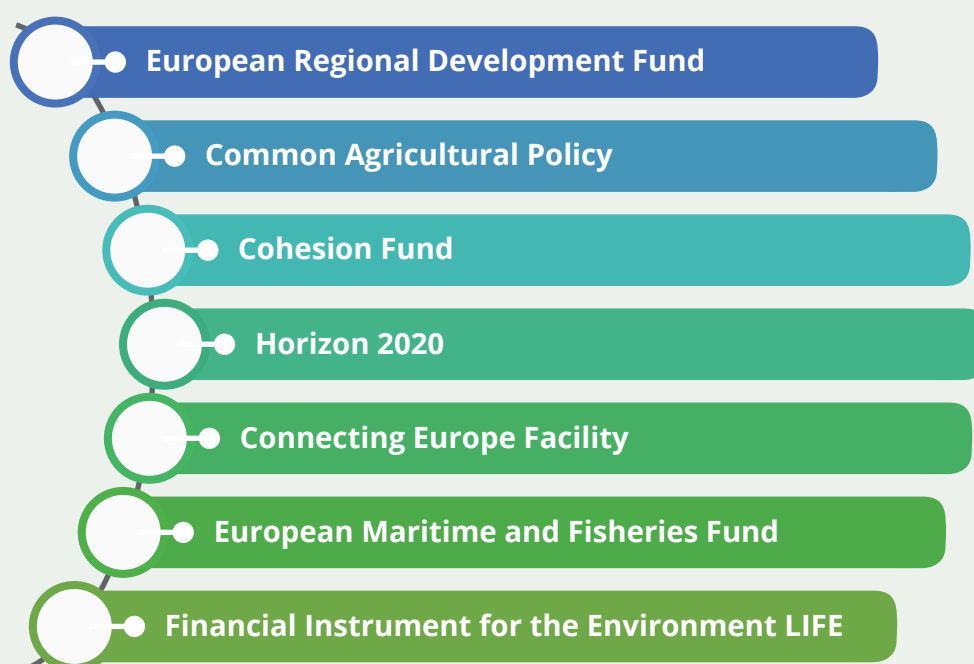


Figure 7. Green Infrastructure funding sources

■ How to initiate a Green Infrastructure project

1 Identify a potential project opportunity which can deliver enhanced ecosystem services and multiple benefits. When choosing a project, many aspects can be taken into account and different criteria can be set, such as the severity of the environmental problems to be addressed, the investment needed, cost-benefit balance, problem areas (e.g. land ownership), stakeholders' interests, available support for activities, connectivity with other sites, the potential for climate change mitigation, planned large-scale investment which will happen anyway, sustainability, human resources needed to implement the project, etc.

2 Once you have identified your Green Infrastructure project, invite other stakeholders that are directly or indirectly affected by the project to join the project development. Project planning will be more balanced and less likely to encounter difficulties in the implementation stage if other stakeholders are willing to cooperate and their opinions are taken into account.

3 Work out the project plan together with the stakeholders. Include the following elements:

- a) SMART objectives. For instance, we wish to improve health conditions, reduce pollution and improve urban biodiversity by enhancing and improving urban green space. To make them SMART these objectives should be quantified (e.g. improve health conditions by reducing sick leave in the neighbourhood by 10%).
- b) Precise description of the area, together with a good understanding of the wider environment and knowledge of spatial plans.
- c) A detailed list of activities, such as setting up treelines along streets, improving the quality of parks, turning unused areas into green spaces, building green roofs for the municipality buildings, and providing information on bird-friendly and bug-friendly urban gardens. Provide precise descriptions of what these activities entail.
- d) Potential costs (e.g. number of trees to be purchased, tools required, investment required, wages, etc.).
- e) List of potential benefits in the short term (e.g.

people employed, pollution reduction, noise reduction, increase in bird species, cooling effect, etc.) and in the long term (e.g. improved micro-climate and air quality, better health conditions, more people participating in outdoor sports, etc.).

f) Factors in the wider environment that could affect the site (e.g. potential climate change effects, changes in land ownership, urban sprawl, etc.).

g) Monitoring of results and benefits (e.g. checking air quality, bird observations, people walking or cycling, quantifying cost-benefits, etc.).

h) Funding sources.

i) Communication of the project and its results, follow-up, and opportunities for networking with implementers of similar projects.

4 When there is stakeholder support and a justified project plan, project funding should be sought. All available sources should be taken into account: municipalities, regional and national authorities, the business sector, NGOs, and the European Union.

Managing a Green Infrastructure project can hold many surprises. However, with good, long-term planning that takes factors from the wider environment into account, implementers can successfully implement restoration, connectivity or construction activities.

During project planning and implementation it is also worth keeping in mind that numerous experts and stakeholders have already successfully implemented such projects and learnt from their mistakes. It is a good idea to contact them. You can learn from their experience and ask for their advice, and this can help you to achieve success in your own Green Infrastructure project.

**"TELL ME AND I FORGET,
TEACH ME AND I MAY
REMEMBER, INVOLVE ME AND
I'LL UNDERSTAND."**

Benjamin Franklin

Keys to success for Green Infrastructure projects

- 1** Emphasis on holistic solutions – not only on environmental benefits, but also on socio-economic aspects and advantages (e.g. economic growth and jobs)
- 2** Wide involvement of different stakeholders at all stages
- 3** Use of different funds
- 4** Good understanding of the needs for and benefits of Green Infrastructure
- 5** Inclusion of Green Infrastructure in spatial planning
- 6** Citizen involvement in project design and implementation
- 7** Legal harmonization between different levels of governance (i.e. municipal, provincial, national, EU)
- 8** Exchange of experience and application of lessons learnt from other projects
- 9** Networking with implementers of similar projects
- 10** Measuring and depicting the multiple benefits of the project
- 11** Good communication of the benefits of Green Infrastructure solutions for gaining support for Green Infrastructure projects

■ What CEEweb and ECNC do for Green Infrastructure

CEEweb for Biodiversity has been promoting GI, raising awareness and building implementation capacity among stakeholders and potential beneficiaries of GI since the concept's emergence. We have vast experience in all aspects of Green Infrastructure, including policy and project development, organizing events and conferences, providing training for stakeholders and implementing projects at local, national and international level. This experience is further maximized and enhanced through CEEweb's member organizations and network. This network has over 100 members and partners from academia, business and NGOs across more than 30 European countries.



"The best time to plant a tree was 20 years ago. The next best time is today."

(Chinese proverb)

How CEEweb achieves its GI-related objectives:



CEEweb operates a Green Infrastructure knowledge hub: An online resource containing case studies and best practice examples targeted at specific stakeholders, information regarding funding opportunities and what CEEweb can offer in the field of Green Infrastructure.



CEEweb moderates the European Green Infrastructure Practitioners' Network: An online information exchange platform and a community of stakeholders and experts from various sectors across Europe who are currently implementing, or would like to get involved in implementing, Green Infrastructure projects.



CEEweb authors publications and training materials: We have authored brochures on Green Infrastructure and biodiversity, developed training materials for institutions and local governments on ecosystem services, their potential and valuation, and stakeholder conflict resolution.



CEEweb also offers to assess the Green Infrastructure potential of areas, coordinate a Green Infrastructure project and help write funding applications for local authorities, NGOs and other stakeholders.



CEEweb's member organizations are nature conservation NGOs from Central and Eastern Europe. They implement conservation, ecological restoration and Green Infrastructure projects in the field supported by the CEEweb Policy Office located in Budapest, Hungary.

European Centre for Nature Conservation promotes the implementation of GI and its various components across Europe. ECNC has over 20 years of experience in supporting the establishment of regional, national and international cross-boundary ecological network initiatives.



With its network of over 50 partners in almost all European countries, ECNC is well placed to play an important role in promoting the concept of GI and facilitating its implementation.

How ECNC achieves the goals of its GI programme:



Biodiversity knowledge and expertise: A key asset of ECNC and its staff is providing expertise on all aspects of biodiversity and ecosystem services in Europe, including research, conservation, and policy. ECNC has the unique ability to integrate a range of disciplines from social and natural sciences.



Digesting science for policy and society: As a biodiversity science-policy interface ECNC translates policy documents and needs into research questions and communicates science outcomes into policy advice.



Stakeholder involvement: ECNC applies participatory techniques to stimulate involvement in biodiversity matters of all groups in society (such as business, education, science, policy, civil society, and local communities).



Knowledge-based facilitation: ECNC staff are trained and experienced in applying a variety of facilitation techniques based on biodiversity knowledge, getting the best out of meetings and stakeholders, covering a range of European languages.



Communication and public awareness: ECNC offers targeted and customized solutions to communicate biodiversity to various audiences.

Examples of successful Green Infrastructure projects



Łódź blue-green network Poland

Type: Local government case study

What: Restoration of an urban river system

Who: University of Łódź & the European Regional Centre for Ecohydrology

Outcomes: Ecosystem restoration, biodiversity enhancement, increased water filtration and retention, improved recreational grounds

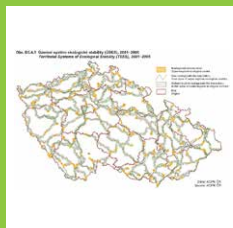
Watershed conservation and biodiversity protection Agrivair, France

Type: Business case study

What: Financial, technological and research support for sustainable farming. Watershed conservation projects are planned

Who: Nestlé Waters

Outcomes: Protection of biodiversity and ecosystem services, job creation



Territorial system of ecological stability Czech Republic

Type: Policymaker case study

What: Multi-level ecological network, legally enforced

Who: Government of the Czech Republic

Outcomes: Ecological connectivity protected and managed on a variety of scales

Neusiedler-Fertő Lake cooperation, Green Belt Austria & Hungary

Type: Agricultural manager case study

What: Supporting traditional agricultural practices, wildlife-friendly livestock grazing

Who: Seewinkel and Fertő-Hanság National Parks

Outcomes: Protection and management of grassland habitats and the associated species



Restoration of Comana Wetlands Romania

Type: Environmentalist case study

What: Wetland habitat restoration, constructing educational and tourist infrastructure

Who: Two local governments and a nature park

Outcomes: Restored ecosystem, revenue from tourism, and ecological education

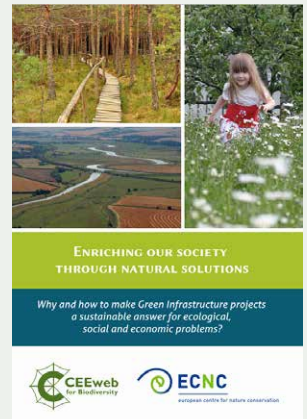
Further reading

Check out

CEEweb's Green Infrastructure Knowledge Hub

www.ceeweb.org/work-areas/priority-areas/green-infrastructure

for more cases, information and further reading, and to find out how we contribute to building GI across Europe



For environmentalists:

Lucius, I., D. Raluca and D. Caratas (WWF Danub–Carpathian Programme), F. Mey, J. Steinert and P. Torkler (WWF Germany) (2011) [Green Infrastructure: Sustainable Investments for the Benefit of Both People and Nature](#). – SURF Nature project.

Natural England's Green Infrastructure Guidance
<http://publications.naturalengland.org.uk/publication/35033>

Uhel, R. (Ed.) (2006) [Urban sprawl in Europe – The ignored challenge](#). – EEA report No. 10/2006.

For local government:

CEEweb for Biodiversity and ECNC (2013) [Enriching our Society through Natural Solutions: Why and how to make Green Infrastructure projects a sustainable answer for ecological, social and economic problems?](#) – CEEweb for Biodiversity.

Center for Neighborhood Technology (2010) [The Value of Green Infrastructure. A Guide to Recognizing Its Economic, Environmental and Social Benefits](#). – USA: Center for Neighborhood Technology.

Town and Country Planning Association and The Wildlife Trusts (2012) [Planning for a healthy environment – Good practice guidance for green infrastructure and biodiversity](#). – UK: Town and Country Planning Association and The Wildlife Trusts.

For business:

Dow, Swiss Re, Shell, Unilever, and The Nature Conservancy (2013) [Green Infrastructure case studies: Case Studies evaluated by participating companies for creation of the White Paper “The Case for Green Infrastructure.”](#)

Gore, T., E. Ozdemiroglu, W. Eadson, E. Gianferrara and Z. Phang (2013) [Green infrastructure's contribution to economic growth: a review](#). – UK: eftec.

UKSIF (2012) [The future of investment: Green Infrastructure](#). – UK: UK Sustainable Investment and Finance (UKSIF).

For policymakers:

EEA (2011) [Green Infrastructure and territorial cohesion: The concept of green infrastructure and its integration into policies using monitoring systems](#). – Luxembourg: Publications Office of the European Union.

European Commission (2013) [Green Infrastructure \(GI\)–Enhancing Europe’s Natural Capital](#). – COM/2013/0249 final. Green Infrastructure Strategy.

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European Commission (2013a) [Building a Green Infrastructure for Europe](#). – Luxembourg: Publications Office of the European Union.

European Commission (2013b) [Physical features of Green Infrastructure in relation to scale and function](#). – European Commission.

Jones-Walters, L. and K. Čivić (2012) Ecological Networks and green infrastructure. In Ferdinandova, V. (Ed.) (2012) [EU Environmental Policies and Strategies in South-Eastern Europe – Training guidelines for involving CSOs from SEE in implementation of EU nature-related legislation](#). – Belgrade, Serbia: IUCN, 14-35.

Snethlage, M.A., B. Delbaere, M. Elliott and L.M. Jones-Walters (Eds) (2012) [How to plan for Nature – Trainer's manual](#). – Tilburg, the Netherlands: ECNC.

2 Green Infrastructure: Practical exercises

The purpose of this section is to give detailed instructions on how to set up and run the practical part of a **Green Infrastructure** training workshop. It is divided into three different parts, each with several assignments. The participants may be asked to do one or all of these assignments, depending on their background and knowledge, the available time, and the purpose of the training. (Partly based on Snethlage et al., 2012, and Jones-Walters & Čivić, 2012.)

- The individual assignments should be carried out in small groups of five to six people.
- The groups will come together to form a plenary group to present their work at the end of each part or at the end of part 2 – depending on the available time and the preference of the facilitator.
- Each group should therefore nominate a rapporteur who will provide feedback to the plenary. It is important that the overall moderator/facilitator keeps the groups to time.
- Each exercise is allocated an approximate time in the text below.
- It must be possible to rearrange the seating so that the groups can sit at separate tables.
- Each group will need a supply of flipchart paper and up to four coloured flipchart pens. Ideally, a flipchart should be available for the groups to display their flipchart papers during feedback to the plenary.



PART 1: Redesigning the landscape I: How to design

Objective: In assignments 1 and 2 you will train the participants' ability to think of the landscape in terms of the various types of benefits it offers to society and its permeability to movement of species, and to understand that multiple services and goods can be provided by the same landscape feature (for example, a woodland, a park, a field, an industrial estate). In assignment 3 you will identify possible GI projects based on this landscape analysis.

Method: Visualization.

Time allocation: 45 minutes.



Assignment 1: Mapping the landscape

- For this each group first draws the landscape according to the facilitator's instructions. Then they will assess the values or benefits of each of the features and list the connectivity elements included in their landscape.
- The group will spread a flipchart sheet out on the table. They must draw a map in 2D map view or 3D landscape view (whichever they prefer) of an imaginary or real landscape with 10–15 landscape features. (See Annex 1 for examples of landscape elements.) To keep the exercise manageable, they should not include more than 15 landscape features. If necessary, standard landscape pictures and Google maps can be used for inspiration, but it is better for the group to pool their imagination.
- Each group identifies all of the map features (e.g. broadleaved forest, road, village, wetland, etc.) with a number, as indicated in the Landscape feature valuation form in Annex 2.
- Don't forget the connectivity aspect: they should consider and identify the corridors and bottlenecks in the landscape for the movement of species (e.g. mammals, amphibians and reptiles, invertebrates, etc.) and mark these on the map as well.

Expected result: A map of the landscape showing the listed features.

Assignment 2: Evaluating the landscape features

- Fill out the Landscape feature valuation form based on a rapid valuation using the best judgement of the group. Do not go into details. The biodiversity value of a natural full-grown forest is obviously higher than that of an industrial estate. These differences should become clear in the form. Describe values as follows: 0 = nil, 1 = low, 2 = moderate, 3 = high, 4 = very high (five categories).
- Think of the ecosystem services provided by each map feature. For instance, a forest feature would typically provide fibre and fuel (wood), water regulation, climate mitigation, etc. Refer to Annex 3 if necessary.
- Try and keep the momentum going in a brainstorm-like way. Do not discuss individual suggestions or ideas immediately, but just write down all suggestions from the group.
- If time permits, go through the list of landscape features, discuss the ecosystem services one by one and agree on the most important services per feature on the list.
- Make a separate list of connectivity elements (corridors and bottlenecks) in the landscape and briefly describe them (e.g. hydro-electric dam blocking fish migration, network of green areas as stepping stones for urban species).

Make a rapid description of each mapped feature on the Landscape feature valuation form (Annex 2) by assessing:

- the biodiversity value (nil, low, moderate, high, very high);
- the economic value (nil, low, moderate, high, very high);
- the social value (nil, low, moderate, high, very high);
- the types of ecosystem services it provides (e.g. water regulation, food production, aesthetic value, etc.). The group can refer to Annex 3 for examples and explanation, or ask the facilitator;
- the connectivity aspects of the landscape (corridors and bottlenecks).

Expected result: A list of mapped features and a rapid assessment of their biodiversity, economic and social values described using the Landscape feature valuation form; a list of connectivity elements with a short description of each element.

Assignment 3: Identifying GI projects

- Identify possible projects for using, improving, and restoring existing (or potential) ecosystem services (ES); or for solutions to the connectivity bottlenecks. The projects should be related to some or all of the ecosystem services and bottlenecks listed by the groups.
- Example format of a table to present the results of the group work. This kind of table, used for structuring and presenting the results of an exercise, is often called a metaplan:

| Identified ES/bottlenecks | Brief description | Possible GI project |
|---------------------------|-------------------|---------------------|
| | | |

Expected result: A list of possible GI projects based on the landscape analysis undertaken above and the benefits (e.g. ecosystem services provided, connectivity elements preserved or restored) they will deliver.

PART 2: Redesigning the landscape II: How to implement

Objective: The participants will learn how to prioritize between different GI projects based on their benefits (these can be based on ecosystem services, biodiversity benefits, connectivity, etc.) and how to analyse the key factors for successful implementation of GI projects (key partners/stakeholders and appropriate funding sources).

Method: Prioritizing and delivery.

Time allocation for assignments 1 and 2: 30 minutes-
(10 minutes for assignment 1 + 20 minutes for assignment 2.)

Assignment 1: Prioritizing the possible GI projects

- Continue working in the same groups of five to six people. Groups should prioritize the GI projects they have identified above based on: benefits they will provide; ecological imperatives; financial issues; likely political constraints.
- The selection process can be done through an open discussion or in a more structured way. For example: each member of the group has a number of votes (e.g. 3 or 5) which they can allocate as they wish (e.g. 1 vote per project to 5 projects; 5 votes to 1 project; or 2 and 3 votes to 2 projects).
- At the end of the assignment, the groups should have discussed and agreed on their top three solutions.

Assignment 2: Implementing priority projects

- Think of the best ways to implement the three priority projects selected above.
- Through discussion decide who or which key stakeholders should be involved in implementing the specific solutions. This is not a broad stakeholder analysis; it should be a consideration of the specific individuals and organizations which should be directly involved in order to ensure successful delivery of the selected GI projects.
- Consider the best approach to get the selected GI projects implemented. The group should think about key issues such as: level of involvement of the individuals and organizations identified above (Are they a partner? Are they consulted? Are they kept informed?); suitable sources of finance; public/voluntary involvement; etc.
- Example format of a table to present the results of the group work (metaplan):

| GI project | Key stakeholders | Level of involvement | Sources of funding |
|------------|------------------|----------------------|--------------------|
| | | | |

Assignment 3: Presentation of the results of the group work, and moderated plenary session

- Each group has 10 minutes to present the results of their work. At the end of each presentation the other delegates and the facilitator can ask questions.
- At the end of the final presentation time will be allocated for a general discussion.
- The flipchart should be used by the facilitator to record the key points emerging from the discussion.

PART 3: Redesigning the landscape III:

How to reconcile differing points of view

Objective: To enable stakeholders to understand opposing points of view, so that they are better able to resolve conflicts of interest which often arise around conservation projects. The exercise should enable conservationists and local inhabitants to see the other's point of view, understand the values and logic behind it, and acknowledge that it is equally important and valid as their own.

Method: Role-play activity: Protected areas – how to understand all sides.

Time allocation: 60 minutes.

- All participants read the background information. Have they heard of similar situations in their neighbourhood?
- The facilitator gives each participant a strip of paper which contains the description of their role. Everyone reads their role out loud so that everyone understands the sides to the conflict.
- The participants spend 10–15 minutes preparing their arguments to defend their position during the role-play exercise.
- Then the participants spend 30 minutes discussing the future of the 'Stunning Nature' National Park. The discussion is moderated by the facilitator. The final decision about the creation of the park is made by the Minister for the Environment and the local authorities. EU regulations on public participation require the consent of the local population. If the local authorities do not give their consent, the Minister cannot announce the creation of the park.
- Following the role-play exercise, the facilitator moderates a 15-minute discussion on the needs of people and nature, how they clash and are interconnected, whether such clashes can be minimized, and what is the right balance. A discussion on sustainable tourism may follow.

1. Local authorities of Greenville

2. Conservationists/representatives of environmental NGOs

3. Investors and businessmen

4. Local inhabitants:

Room and hotel owners

Unemployed people

Foresters

Pensioners
(berry gatherers)

5. Minister for the Environment

Background information for the role-play exercise

The village of Greenville is located in a pristine natural area. Some tourists already visit the village, but the area is not very well known for its natural value. The Ministry of the Environment, together with nature conservationists and environmental NGOs, has proposed the creation of a protected area in order to better preserve the natural heritage and improve the marketing of local nature. However, not all stakeholders are in favour of this idea. Thus, there is a debate about whether or not 'Stunning Nature' National Park should be created.

The participants are assigned roles that they are to take on during the discussion. They must remember to speak in accordance with the role they have been assigned, even if their personal opinion is different. They are strongly encouraged to make up their own stories, to add and to improvise.

The roles

1. Local authorities of Greenville
2. Conservationists/representatives of environmental NGOs
3. Investors and businessmen
4. Local inhabitants:
 - Room and hotel owners
 - Unemployed people
 - Foresters
 - Pensioners (berry gatherers)
5. Minister for the Environment

You are the mayor of Greenville. You are afraid that creating a national park will block investment (e.g. building of new hotels, ski resorts, etc.) in the region. You want to improve the lives of the people in your municipality, and you want the region to become more prosperous. **You make decisions according to the will of the inhabitants** (or the loudest group among them), as they will decide whether you stay in office for another term and **keep this prestigious, well-paid job**. You think that nature conservation could be the solution, and nature could become the brand of the village. However, this is risky and there are just as many arguments that economic investment is the way forward.

You are an activist in an NGO whose aim is nature protection. Widespread environmental degradation scares you. You would like to preserve and protect the area 'Stunning Nature' – a unique and beautiful ecosystem – from urbanization, mass tourism and investment, all of which would be detrimental to the environment. Your job is **your mission**; you are convinced that you are right. You want to **protect the area 'Stunning Nature' for future generations**. Creating a national park could ensure appropriate protection and create space for saving vulnerable species such as lynxes, wolves and bears.

You are an investor who wants to build a ski and hotel complex near the area 'Stunning Nature'. You promise to give jobs to a few hundred people. You also convince people that skiers using your resort will use other local services (rooms, hotels, restaurants), thus spending money in the region, which will benefit local inhabitants. In reality, **you are only interested in your personal profit**, you want to make as much money as possible, pay the lowest salaries possible and attract all the tourists to your own hotels.

You are a local inhabitant. You rent out a few rooms in your home to tourists. Creating a national park might be good for you, as it **might make the area more attractive to tourists**, who could then stay in your rooms. However, no one can guarantee that this will actually happen.

You are an unemployed local inhabitant. You believe that it is very difficult to find a job in the region and existing vacancies pay too little. You think that **more economic development or tourism, or both, could provide opportunities** for people who are in a similar situation to yours.

You are a forester in 'Stunning Nature' forest district. You wish to sustainably exploit the forest, as it generates large financial benefits. **Salaries in forestry are higher than in other sectors**. If a park is created, you might be able to work for the park instead. However, the salaries there are much lower and you do not believe in strict conservation. **You believe that in order to maintain high biodiversity levels, the forest should be actively managed**.

You are an elderly person living in Greenville. You have a small pension and earn extra money by gathering berries. There are rules against gathering berries in nature reserves; those who break the rules risk having to pay a high fine. And now there are plans to create a national park and take more areas away from the local people. You see the park as a threat. It would restrict your freedom of movement and prevent you from using resources that belonged to your ancestors. **You are a fierce, diehard opponent of the park**.

You are the Minister for the Environment. **You are legally obliged to protect nature**. No new national parks have been created in your country for several years now, and none have been enlarged. **You would like to create the national park, but you want all stakeholders to be satisfied. You do not wish to antagonize voters**, because they could turn their backs on you and your party during the next elections if things do not go as they wish.

Questions for the moderated discussion

1 The needs of nature versus the needs of humans

Deep ecology says that the life of any living organism is dependent upon the well-being of the whole natural world.

Do we live according to deep ecology?

Is it possible to live according to deep ecology in today's world?

If animals are killed by collisions with cars, does this mean that we should only use cars when it is essential to our survival?

What is the right balance?

2 Nature's needs:

National park, reserve, buffer zone

Small pressure from tourism

No new large investment in (tourism) development

Human needs:

- Trails
- Hotels, shelters
- Roads, easy access, public transport
- Ski resorts, pistes

3 How can we decrease the impact of tourism on nature?

By changing our behaviour (being quiet, keeping to the designated paths)

Through technology (biological sewage treatment plants, solar batteries)

3 Annexes

This section contains additional information and supporting tools which can facilitate the implementation of the practical exercises. Each of the annexes can be used as a handout and distributed to the participants to help them in the assignments.

Annex 1. Examples of possible landscape elements in different landscape types

In a small rural village

- A.1.** Arable wheat, maize or potato fields in intensive use
- A.2.** Arable rye or flax fields in extensive use
- A.3.** Old growth forest – protected, at least two separate areas
- A.4.** Historic village centre
- A.5.** Modern housing estate, houses with gardens
- A.6.** Small river valley with a stream and semi-natural hay fields
- A.7.** Regional road with natural verges
- A.8.** Bridge over a stream
- A.9.** Hedgerows
- A.10.** Active or abandoned quarry

In a more natural rural area

- B.1.** Calcareous grasslands
- B.2.** Scrubs
- B.3.** Stone walls
- B.4.** Hay meadows
- B.5.** Stream and damp meadows
- B.6.** Broadleaved or mixed forest
- B.7.** Medieval castle ruins
- B.8.** Deciduous or broadleaved forest plantation
- B.9.** Golf course
- B.10.** Unpaved country roads

In a developed coastal area

- C.1.** Coastal lagoon
- C.2.** Salt marsh
- C.3.** Sandy beach
- C.4.** Cliffs
- C.5.** Coastal grazed meadows
- C.6.** Olive groves
- C.7.** Docks
- C.8.** Container terminal
- C.9.** Coastal dunes
- C.10.** Old vineyards

In a large urban area

- D.1.** Train station
- D.2.** Brownfields
- D.3.** Urban park
- D.4.** High-rise buildings
- D.5.** Densely built-up urban centre
- D.6.** Tree-lined roads
- D.7.** Industrial estate
- D.8.** Historic centre
- D.9.** Arable fields
- D.10.** Allotment

Annex 2. Landscape feature valuation form to guide decisions

The purpose of the form is to help the group to carry out a rapid assessment of their landscape in terms of social, economic and natural benefits and ecosystem services (ES), based on their combined best judgement.

First, enter all of the landscape features in the first row.

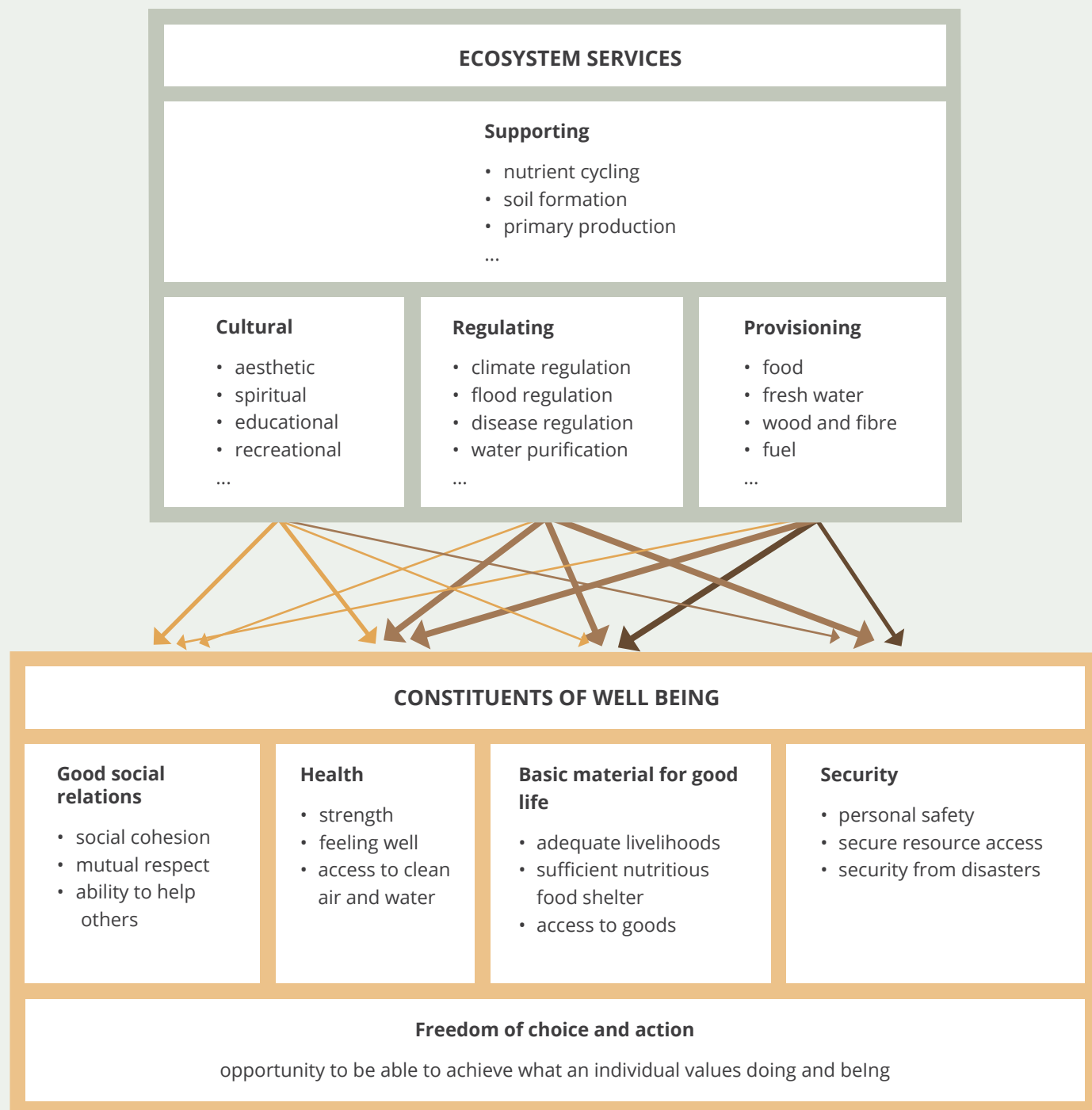
Then, fill in the values (0 to 4) for each combination of landscape feature and benefit. Most valuations will be straightforward, and you should not need to discuss them at length (e.g. old growth forest has **very high** (4) biodiversity value; 'arable field – intensive use' has **high** (3) economic value and **low** (1) biodiversity value).

***Valuation: 0 = nil; 1 = low; 2 = moderate; 3 = high; 4 = very high**

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| LANDSCAPE FEATURE → | | | | | | | | | | | | | | |
| VALUE ↓ | | | | | | | | | | | | | | |
| BIODIVERSITY VALUE | | | | | | | | | | | | | | |
| ECONOMIC VALUE | | | | | | | | | | | | | | |
| SOCIAL VALUE | | | | | | | | | | | | | | |
| ES: PROVISIONING - FOOD | | | | | | | | | | | | | | |
| ES: PROVISIONING - FOOD/FIBRE | | | | | | | | | | | | | | |
| ES: REGULATING - CARBON SEQUESTRATION | | | | | | | | | | | | | | |
| ES: REGULATING - CLEAN WATER | | | | | | | | | | | | | | |
| ES: REGULATION - FLOOD CONTROL | | | | | | | | | | | | | | |
| ES: SUPPORT- NUTRIENT CYCLING | | | | | | | | | | | | | | |
| ES: CULTURAL - RECREATION | | | | | | | | | | | | | | |

Annex 3. Summary of ecosystem services

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Source: Millennium Ecosystem Assessment

ARROW'S COLOUR

Potential for mediation by socio-economic factors

| | |
|--------|--|
| Low | |
| Medium | |
| High | |

ARROW'S WIDTH

Intensity of linkages between ecosystem services and human well-being

| | |
|--------|--|
| Weak | |
| Medium | |
| Strong | |

General descriptions of some ecosystem services

Farmland

Provisioning: crops, livestock, energy
Cultural: recreation, landscape, cultural heritage
Regulating: carbon storage, flood management, pollination, improving water, soil quality, air quality

Coastal areas

Provisioning: fish
Biodiversity / cultural: recreation, landscape and cultural heritage
Regulating: carbon storage, flood management, improving water quality, improving air quality

Urban ecosystems

Provisioning: food from allotments and gardens, water supply
Biodiversity / cultural: recreation, landscape and cultural heritage
Regulating: cooling, noise reduction, flood management, pollination, improving water quality, improving air quality

Uplands and grasslands

Provisioning: energy (wind power), water supply
Cultural: recreation, landscape and cultural heritage
Regulating: carbon storage, flood management, pollination, improving water and soil quality

Fresh water

Provisioning: water, fish
Cultural: recreation, landscape, cultural heritage
Regulating: flood management, improving water quality

Woodlands

Provisioning: timber, water supply
Cultural: recreation, landscape and cultural heritage
Regulating: carbon storage, flood management, noise reduction, improving water, soil and air quality

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p.10 Figure 5: The Elms, St. Mary, Jersey; Green roof at the Historial de la Vendée in Les-Lucs-sur-Boulogne, France by Simon Garbutt; both Wikimedia Commons. Figure 6: Yew wood by MPF; Turquoise water by NickGibson3900; Appearance of sky for weather forecast by Mohammed Tawsif Salam; Satellite image of ship tracks by NASA; Stipula fountain pen by Antonio Litterio; FEE seminar leisure activity by Felix Ling; Distributed Intelligent Systems Department laboratory by Andrey "A.I." Sitnik; Gingerbread House Essex; Geological exfoliation of granite dome rock by Wing-Chi Poon; Sprouting acorn by Amphis; all photos from Wikimedia Commons.

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