European Commission

# Study to support an ex ante assessment for a natural capital financing facility

*Final Report, March 2014*

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (http://ec.europa.eu).
Luxembourg: Office for Official Publications of the European Communities, 2014

ISBN 978-92-79-36974-2
DOI: 10.2779/77114
No of catalogue: KH-04-14-353-EN-N

KPMG

cutting through complexity

# KPMG final report

Inputs to the ex-ante assessment for a Natural Capital Financing Facility

14 March 2014

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# Chapter 1 Introduction

At the conference of the parties to the Convention of Biological Diversity (CBD) in Nagoya in 2010 there was recognition that not enough had been done globally to halt biodiversity loss in many areas of the world. With this in mind Parties to the Convention on Biological Diversity (CBD) adopted 20 Aichi targets to support five strategic goals to address this situation by:

- addressing the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;
- reducing the direct pressures on biodiversity and promoting sustainable use;
- improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
- enhancing the benefits to all from biodiversity and ecosystem services; and
- enhancing implementation through participatory planning, knowledge management and capacity building.

The European Union is a Party to the CBD and has produced its own biodiversity strategy, the **EU 2020 Biodiversity Strategy**, on how it will meet the challenge of biodiversity loss up until 2020. The strategy focuses on 6 inter-related targets relating to:

- full implementation of EU nature legislation to protect biodiversity;
- better protection for ecosystems and more use of green infrastructure;
- more sustainable agriculture and forestry;
- better management of fish stocks;
- tighter controls on invasive alien species; and
- a bigger EU contribution to averting global biodiversity loss.

The Strategy also foresees the development of a Natural Capital Finance Facility (NCFF) to leverage private sector investments in projects that promote the preservation of biodiversity and natural capital (NC).

The European Commission engaged KPMG to help provide support for the development of an ex-ante assessment for a NCFF by completing the following key tasks:

1. Market Review and Typology: identifying revenue generating and potentially revenue generating NC projects currently underway in the EU-28 with the following typologies:
   - payments for ecosystem services;
   - offsets;
   - green infrastructure; and
   - small innovative pro-biodiversity businesses.
2. Market Analysis: providing an analysis of the:
   - market participants;
   - drivers;
   - barriers;
   - unique challenges faced by each of these project types to help to determine the need for an NCFF; and
   - evaluation of the potential market size for natural capital projects and the growth to 2020.
3. Financial and technical needs: determine how the establishment of an NCFF can help to address barriers and leverage private sector finance.

Other previous relevant studies commissioned by the European Commission include:

- the innovative use of financial mechanisms and approaches to enhance private sector finance of biodiversity;

- the innovative use of instruments for financing resource efficiency; and
- the optimal use of the EU grant and financial mechanisms in the next Multiannual Financial Framework to address the climate objective.

# Chapter 2 Mapping to the ex-ante assessment for a Natural Capital Financing Facility

A mapping between the elements of the tasks included within our proposal to the European Commission and the elements of the ex-ante assessment for a NCFF that are included within this report are listed below in table 1. Specifically, this table shows how tasks 1, 2 and 3 contributed to different elements of the ex-ante assessment. This mapping between our final report and the ex-ante table of contents was agreed on 29 October 2013 with the European Commission.

Table 1: Mapping of KPMG report sections to provisional sections of ex-ante assessment.

| Section | Responsibility | Support | Comment | In scope |
|---|---|---|---|---|
| 1.1 About this report | EU COM | EIB and KPMG | Reflects tasks 1 and 2 in the original proposal. KPMG to provide general input into boundaries or summary of methods used. | ● |
| 1.2 Policy commitments and programme proposals | EU COM | EIB and KPMG | KPMG comments from case study research. | ● |
| 1.3 Source of evidence | KPMG | | Reflects task 2 in the original proposal. A summary of overarching sources is attached. | ● |
| 2.1 What are the market failures and sub-optimal investment situations to be addressed | KPMG | EIB and EU COM | Reflects tasks 1 and 2 in the original proposal. | ● |
| 2.2 Estimating the funding and market gaps per category of final beneficiaries [NOTE non-distortion moved to section 6] | KPMG | EU COM and EIB | Reflected in tasks 2 and 3 of the original proposal. | ● |
| 2.4 Public policy and instruments that currently support NC project | EU COM | KPMG and EIB | Comments based on case study research. | ● |
| 3. Justification for actions and European added value | EU COM | | No comment. | ● |
| 4. Objectives | EU COM | | No comment. | ● |
| 5.1 Grants only | EU COM | | No comment. | ● |
| 5.2 Broader FI | EU COM | EIB and KPMG | KPMG to provide a summary of financial mechanisms seen within the case study database. | ● |
| 5.3 NCFF | KPMG | COM and EIB | Build on the detail in section 2 i.e. How should barriers be overcome, why this facility should be used. | ● |
| 5.4 Preferred option | EU COM | | No comment. | ● |
| 6.1 Delivery mode | EU COM | | No comment. | ● |
| 6.2 Governance structure | EU COM | | No comment. | ● |
| 6.3 Delivery entity | EU COM | | No comment. | ● |
| 6.4 Selection criteria | EU COM | | No comment. | ● |

| Section | Responsibility | Support | Comment | In scope |
|---|---|---|---|---|
| 6.5 Contribution, expected leverage, size of effectiveness | EU COM | | Assumed to build on task 3 in the original proposal. | ● |
| 6.6 Alignment of interests | EU COM | | No comment. | ● |
| 6.7 Non-distortions | | | No comment. | ● |
| 7.1 Awareness raising, marketing and scheme promotion | ALL | | Paragraph on awareness raising (limit 0.5 page). | ● |
| 7.2 Performance indicators | KPMG | EIB and EU COM | Paragraph on fund evaluation (limit 0.5 page), KPMG happy to provide comment. | ● |
| 7.3 Monitoring and evaluation | EU COM | EIB and KPMG | Paragraph on monitoring and evaluation of the fund (limit 0.5 page). KPMG happy to provide comment on this. | ● |

Key:

- ● In scope
- ● Comment or summary paragraph(s) generated from overall research findings
- ● Out of scope

# Chapter 3 Method

## 3.1 Project boundaries

The following boundary criteria for the identification of projects were established by the European Commission:

- the project had to occur within the EU28; and
- only projects with a mechanism for revenue generation or cost savings, either actual or potential, were included.

## 3.2 Typology mapping and introduction of the macro-categories

In coordination with discussions with the EC, we used four macro categories for analysis in this study, as defined below:

- **Payments for ecosystem Services (PES):** *"PES takes the form of payments for the flows of benefits resulting from natural capital and can be applied at a local, smaller scale. PES projects are usually a voluntary bilateral transaction with a well identified buyer and seller of an ecosystem service."* [1]
- **Green Infrastructure (GI):** *"A strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings"*[2].

  There are similarities between GI and PES however for this study the project types are distinguished in terms of scale, with GI being larger than PES projects and the explicit presence of a network i.e. a large interconnected area(s) or habitat[3].
- **Offsets (including land and habitat banks):** Biodiversity offsets are conservation activities intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects[4].
- **Small innovative pro biodiversity businesses:** Suppliers of goods and services aiming to protect biodiversity or increase the resilience of communities and other business sectors – e.g. ecotourism, non-timber forest products (NTFPs), organic agriculture and aquaculture, bio-pharmaceuticals and bio-cosmetics, certified products from Natura 2000 areas.

The macro categories are related to a number of more specific descriptive categories provided by the EC, which are shown in Figure 1.

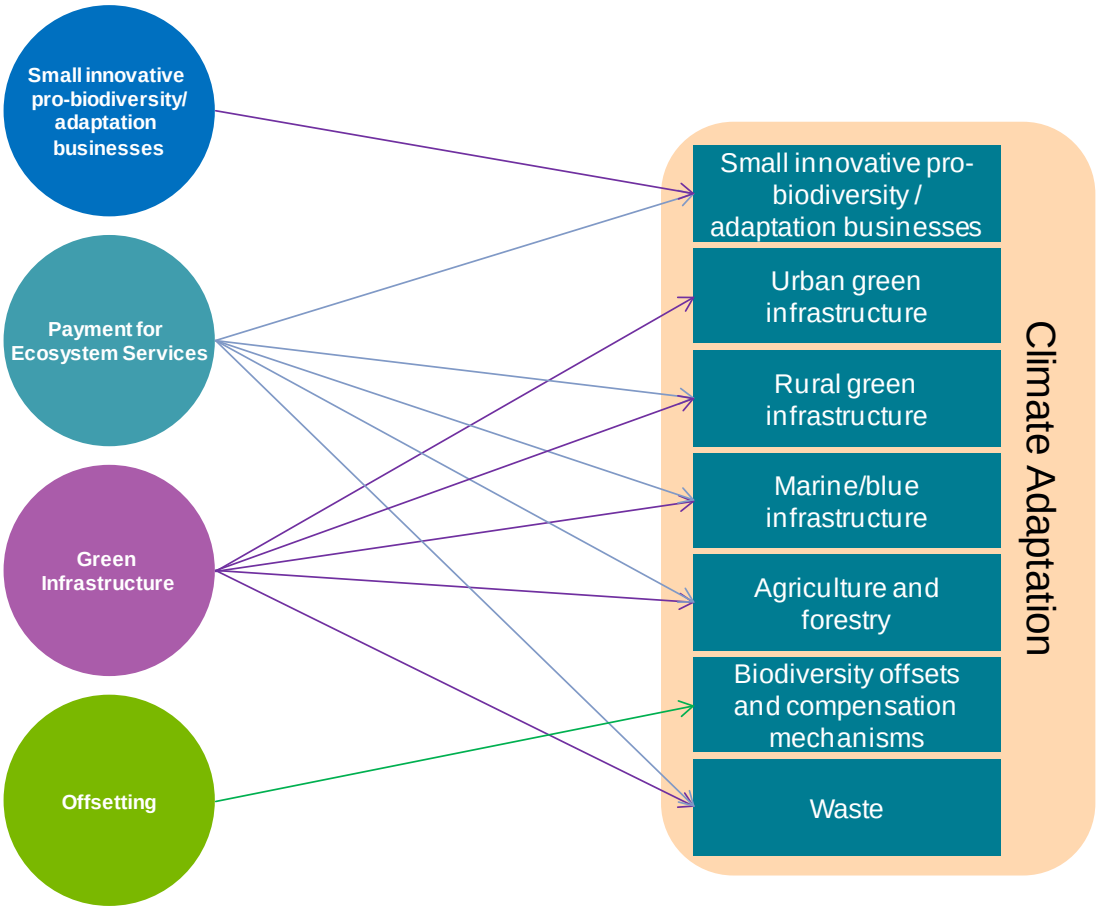
[1] Eftec (2012), Innovative Use Of Financial Instruments And Approaches To Enhance Private Sector Finance Of Biodiversity. Eftec, London.

[2] 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. European Commission, Brussels.

[3] eftec (2012). Innovative Use Of Financial Instruments And Approaches To Enhance Private Sector Finance Of Biodiversity. Eftec, London.

[4] BBOP (2009). BBOP Biodiversity Offset Design Handbook. BBOP, Washington D.C.

Figure 1: The link between macro-categories and European Commission descriptive categories. Climate adaptation is a cross cutting issue.




## 3.3 Research approach

We carried out the research between 10 October and 6 November 2013, using the following methodologies:

### 3.3.1 Desk top review of publically available information (see below for sources)

We compiled a database of NC case study projects and businesses. A systematic approach to the desk-top review was followed (see a description of the searches conducted in annex 1) and the resulting projects grouped within the macro-categories defined above.

For each of the project case studies we gathered information on the following:

- name;
- brief description;
- EC sector;
- country;
- beneficiary;
- drivers;
- barriers;
- revenues, actual and potential; and
- financial mechanisms; and

- the sources of information used.

Our desk based research found 163 projects, across all of the EU28. These are summarised in the tables/charts in the following chapters and in annex 4.

### 3.3.2 Stakeholder engagement through consultation with relevant experts

We undertook a series of stakeholder interviews with experts in the fields of: NC project implementation; project financing; biodiversity and NC policy; and NC project evaluation to gather detailed insight into the market participants, barriers and drivers of NC projects. Interviews were undertaken with contacts identified from KPMG's network of experts, as well as from the EC and EIB. Interviewees represented: the public sector; the private sector; and NGOs.

Topics covered in the stakeholder interviews included the size and structure of the current and potential market for NC projects; drivers and barriers of successful projects and businesses; and questions relating to specific project and business examples.

Of the 19 stakeholder interviews we undertook; nine interviews captured detailed information about the market, and general drivers and barriers; and ten interviews gathered in depth details of specific NC projects in the EU28 (see Table 2 for the list of stakeholders interviewed).

Table 2: Stakeholders interviewed as part of this study

| Stakeholder | Organisation | Country | Stakeholder group |
|---|---|---|---|
| Abyd Karmali | Bank of America Merrill Lynch | UK | Financier |
| Andrew Heald | UPM | UK | Private company |
| Ard Hordijk | Synnervate | Netherlands | Consultancy |
| Bruno Farber | Ginkgo Fund | Luxembourg | Financier |
| Carolin Bossmeyer | Biodiversity in Good Company | Germany | CSO |
| Chris Gerrard | Anglian Water | UK | Private company |
| David Hill | Environment Bank | UK | Private company |
| Dorthe Rømø | Municipality of Copenhagen | Denmark | Public sector |
| Emily McKenzie | WWF UK | UK | CSO |
| Fabien Quétier | Biotope | France | Consultancy |
| Gerald Plattner | Österreichische Bundesforste AG | Austria | Private company |
| Helen Dunn | DEFRA | UK | Public sector |
| Ivo Mulder | UNEPFI | Switzerland | CSO |
| Jaime Munoz-Igualada | Spanish Environment Ministry | Spain | Public sector |
| James Griffiths | WBCSD | UK | CSO |
| James Vause | Defra | UK | Public sector |
| Jonathan Baker | Collingwood Environmental | UK | Public sector |

| Stakeholder | Organisation | Country | Stakeholder group |
|---|---|---|---|
| | Planning | | |
| Lukasz Wyra | ■ EIB/JASPERS | ■ Poland | ■ Financier |
| Marjolein van Wijngaarden | ■ EcoShape/Building with Nature | ■ Netherlands | ■ Consultancy |
| Mathieu Tolian | ■ Veolia Water | ■ France | ■ Private company |
| Paul Herbertson | ■ FFI | ■ UK | ■ CSO |
| Pierro Pelizzaro | ■ City of Bologna | ■ Italy | ■ Public sector |
| Simon Petley | ■ Enviromarket | ■ UK | ■ Consultancy |

### 3.3.3 Data analysis on project case studies

Our analysis of the project case studies aimed to identify trends in project details (e.g. market participants, barriers, drivers, revenue streams, etc.), and the impact of these on the ability to access private finance.

**Market participants** are defined as any group involved in the project; this includes those buying or directly benefiting from an ecosystem service; those selling an ecosystem service and financially benefitting, and a project developer or broker. For each case study we attributed a main market participant.

We then classified the participants based on the appropriate **sector group** to which they correspond:

- private sector;
- public sector;
- land owners; and
- civil society organisations.

Since our study focused on the involvement of the private sector, we then categorised all identified private sector market participants based on the **role** they played in NC projects:

- Financiers – those who provide the financial backing for a NC project i.e. provision of capital;
- Ecosystem service users – those who use the outputs of a NC project e.g. an ecosystem service output such as improved water quality, or timber;
- Project developers – those developing the NC based projects for a profit; and
- Project operators – those managing NC projects following their initial NC project set up e.g. those providing monitoring and management services.

For the **revenue stream** information gathered for each case study this was categorised as currently generating, potentially generating and low revenue generation[5].

We defined **drivers** as the factors which caused each NC project to happen or be developed. For each of the project case studies the main drivers were categorised as:

- generation of revenues;
- cost reduction;

[5] The Economics of Ecosystems and Biodiversity (TEEB) (2013). Ecosystem Services. Available from http://www.teebweb.org/resources/ecosystem-services/ [Accessed 02/11/2013]

- regulatory compliance e.g. offsetting environmental impacts; and
- reputational benefits.

We define **barriers** as issues that reduce the probability of private sector investment in a NC project. We focused on those barriers preventing private investment in NC projects according to the project life cycle stage in which they occur (see value chain analysis methodology below).

Due to data constraints the barriers we identified during this assessment have been obtained through the stakeholder interview process and inferred with respect to the project case studies. This is due to barriers to NC projects being largely unreported.

**Value chain analysis and project life cycle**

We analysed the typical value chain and project life cycle for each macro-category (i.e. PES; offsetting; GI; and small innovative probiodiversity businesses) to identify whether there are specific barriers to each macro-category. The barriers were categorised into three project life cycle stages: origination; operation; and scaling-up.

### 3.3.4 Evaluation of the market

In order to define the NC market we analysed the project case studies to understand project coverage; the main market participants; the drivers for projects; and the barriers to financial investment in NC projects. The following factors were used:

- The geographical coverage (projects were categorised by their location); and
- The current growth of the market (based on cost data).

This information was used to extrapolate market size to 2020 based on three scenarios. Further information on the methodology for market evaluation is provided in section 3.3.4 and 3.5.

## 3.4 Data sources

We have developed this report through the review of pertinent public information. In order to ensure that suitable projects are input into the project database set sources of information have been used.

- Websites:
  - European Union official websites;
  - Development organisations and NGOs with European reach and projects within the EU;
  - Industry associations;
  - Specialist environmental, market and business intelligence databases;
  - Selected research websites;
  - Member state Environmental Agency/government Ministry websites; and
  - A review of the sustainability web sites of the top 20 revenue producing companies in the EU-28.
- Studies commissioned by the Commission on Natural Capital (ENV and CLIMA);
- Selected background reports.

More information is available in Sources of evidence.

## 3.5 Limitations of research approach

The market and political drivers for NC projects are more developed in some member states compared to others.

In order to ensure adequate coverage of projects occurring within the EU 28 we checked initial results with the European Commission steering group and performed further ad hoc searches to ensure that any projects perceived as missing were identified (see Annex 1 for search criteria).

The number of projects identified with a start date of 2011 or later was considerably less per year than in the preceding five-year period. We believe this result is due to a time lag between the implementation and reporting of projects in the public domain.

Few projects were identified that were reported to have failed. The overall failure rate for identified case studies within the research parameters was 1.25%. We believe that this is a non-representative failure rate, and is most likely due to a reporting bias whereby projects with positive outcomes are more likely to be reported than unsuccessful projects. There is a tendency for case study literate to concentrate on the positive aspects of projects and not communicate barriers, failures or improvement points.

Project barriers and failures were largely unreported. To address this stakeholder interviews were carried out to gather this information.

# Chapter 4 Market assessment and analysis

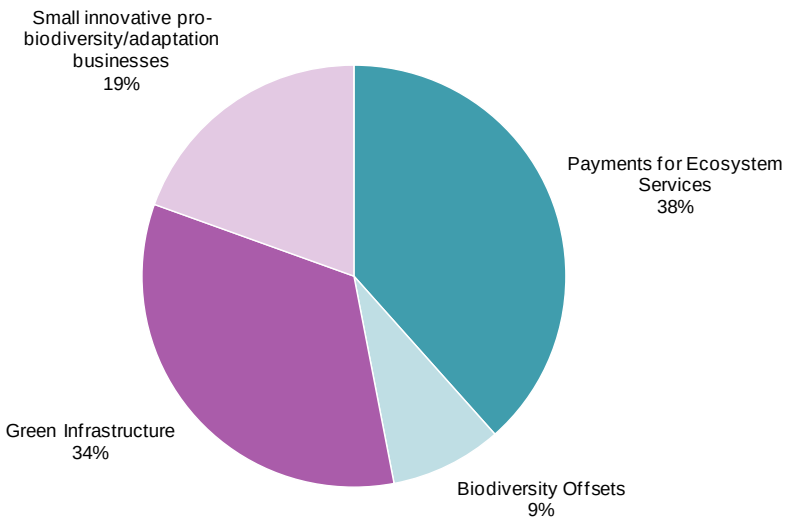
## 4.1 Problem analysis and needs assessment

In this section we look at the market for NC projects and the failures and sub-optimal investment situations that prevent capital from flowing into them. We have taken the identified database of NC projects (163 projects) and used these to analyse:

- the main public and private sector participants involved in projects;
- what drives the involvement of participants;
- the overall barriers to projects as identified by different stakeholder groups during interviews; and
- the value chains associated with each project macro-category.

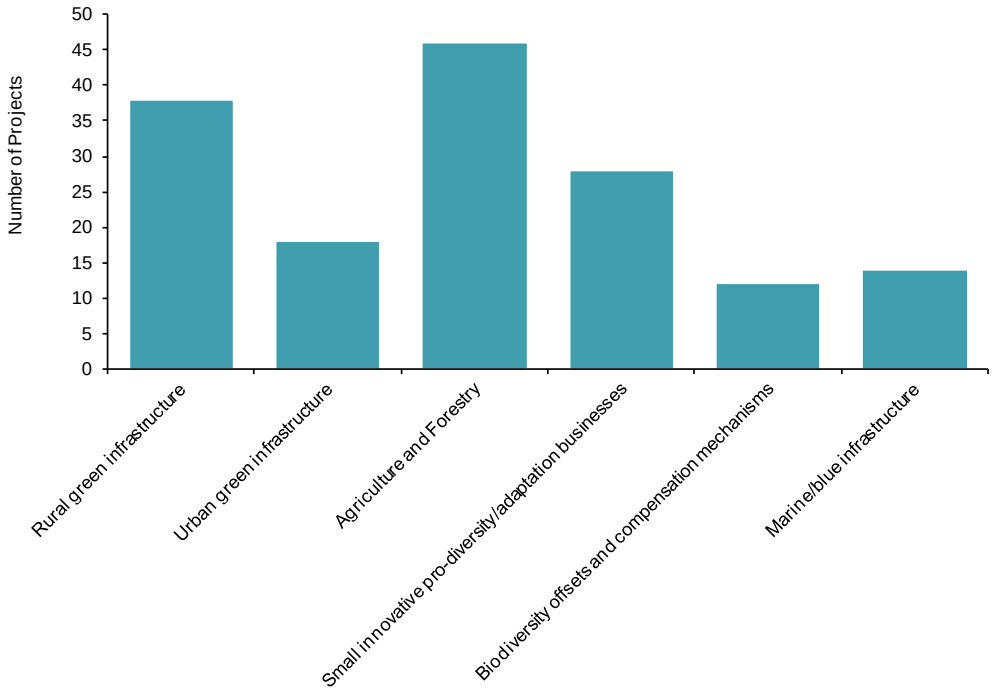
A breakdown of the percentage of projects identified in the project database in each of the four project macro-categories is shown in Figure 2.

Figure 2: Natural capital projects per macro-category




Information collected on projects within the EU related to natural capital can then be further categorised into more specific categories, for example the descriptive categories provided by the European Commission at the start of the project. The number of project case studies in each of the descriptive categories is shown in Figure 3.

Figure 3: Natural capital projects per specific, European Commission descriptive category.




## 4.2 Market evaluation

### 4.2.1 Geography – NC projects that have taken place or are underway in the EU28

We collated case studies for NC projects from 25 of the EU28 member states, demonstrating a broad spread geographically. The variation in the number of projects obtained per member state in the desktop review is shown in Figure 4 and Table 3. The highest numbers of project case studies were found in member states with more developed NC markets.

Figure 4: EU28 member state coverage of natural capital project case studies

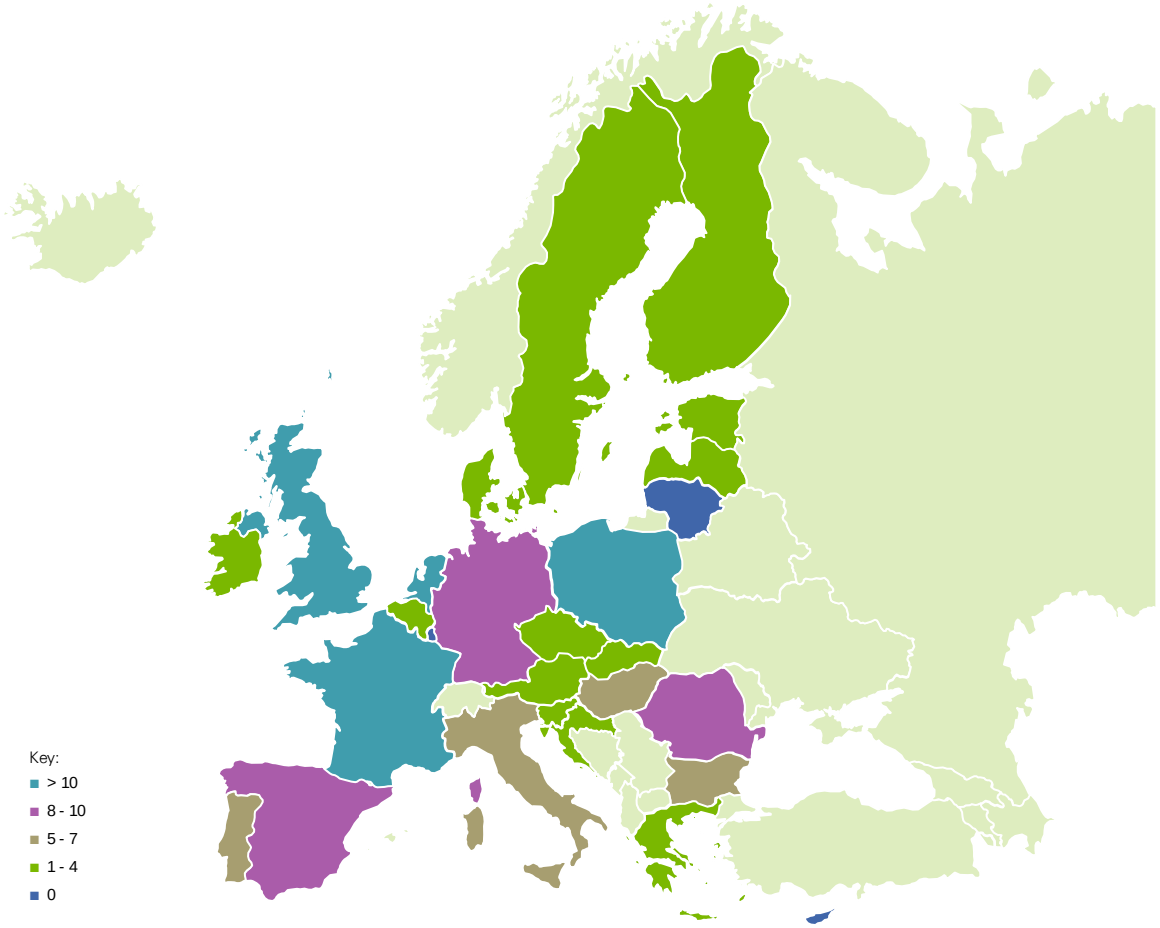



Table 1 provides the exact number of projects identified for each member state.

There are 154 projects that took place in a single country in the EU. Where a project spanned two separate states, the project has been counted against each state, there are four projects that involved two EU countries (each country has been marked in the following table i.e. eight entries). Finally the EU wide category shows the number of natural capital projects that involved all countries of the EU (five) – these are not marked separately.

Table 3: Number of NC projects per member state

| Country | Number of NC projects |
|---|---|
| Austria | 4 |
| Belgium | 4 |
| Bulgaria | 6 |
| Croatia | 2 |
| Cyprus | 0 |
| Czech Republic | 4 |
| Denmark | 2 |
| Estonia | 1 |
| Finland | 3 |
| France | 11 |
| Germany | 10 |
| Greece | 3 |
| Hungary | 6 |
| Ireland | 2 |
| Italy | 6 |
| Latvia | 2 |
| Lithuania | 0 |
| Luxembourg | 0 |
| Malta | 2 |
| Netherlands | 21 |
| Poland | 14 |
| Portugal | 5 |
| Romania | 8 |
| Slovakia | 2 |
| Slovenia | 1 |
| Spain | 9 |
| Sweden | 4 |
| UK | 30 |
| EU Wide | 5 |

### 4.2.2 Project roles and main market participants

The main roles market participants play in NC projects are:

- Financiers – those who provide the financial backing for a project.
- Ecosystem users – those who use an ecosystem service or ecosystem service outputs. These outputs can be provided for free or bought through payments or inferred payments via cost savings. In this study we only consider projects in which there is either an actual or potential to generate revenues/save money when directly benefiting from a particular ecosystem service.

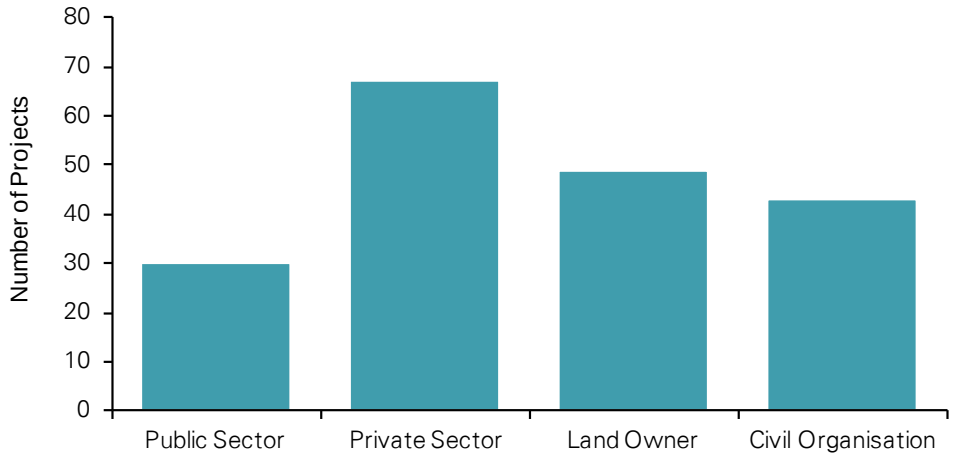
- Project developers – those developing the ecosystem based project for a profit.
- Project operators – those managing following the setting up of an ecosystem based project, e.g. those providing monitoring and management services.

Currently it is common for market participants in a project to play multiple roles. Market participants include:

- the private sector;
- the public sector;
- the land owner; and
- civil society organisations.

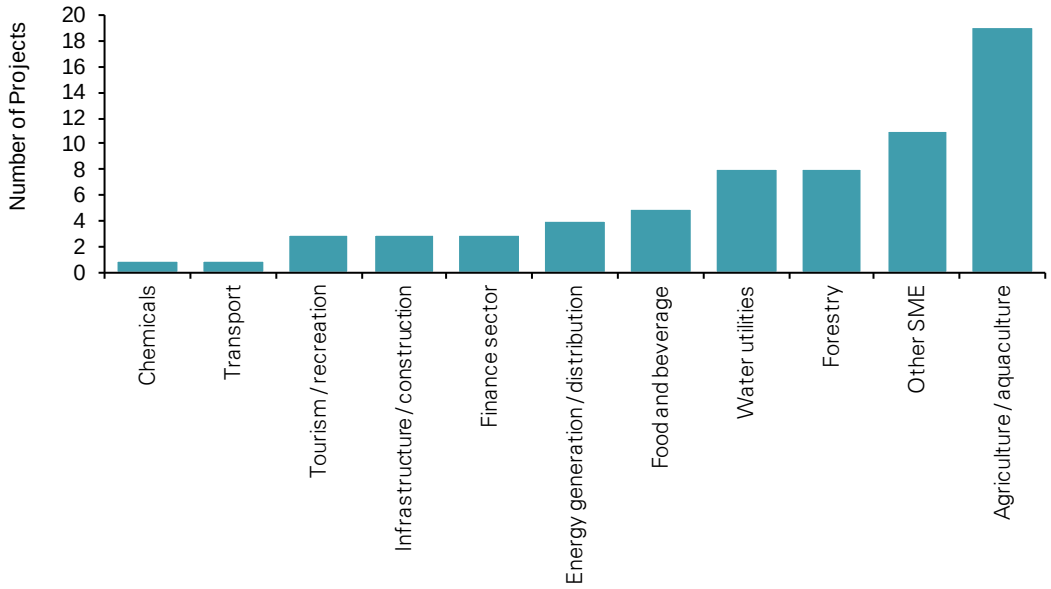
The main market participants involved in the NC project case studies are shown in Figure 5, with private sector participants being the most common.

Figure 5: Number of market participants in natural capital projects by participant type



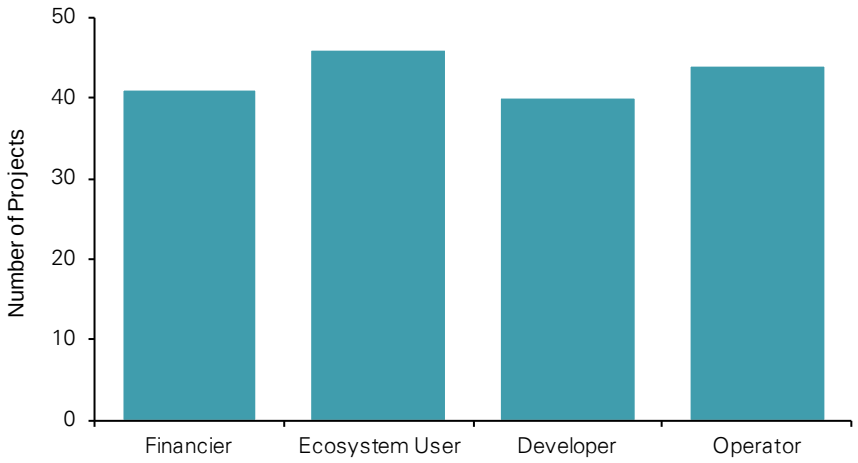

Where a private sector company was identified as a market participant in a project case study, we identified the sector in which the company operates. The sector with the highest number of project case studies was Agriculture and Aquaculture (see Figure 6).

Figure 6: Sectors of private sector company participants involved in natural capital projects




163 project case studies were identified through desk top review and stakeholder interviews. Private companies were identified as participating in 67 of those case studies. Private sector participants undertook all roles relatively equally across project case studies, see Figure 7.

Figure 7: Roles of private sector company participants involved in natural capital projects




In 49 of the 67 project case studies with private sector involvement, the company involved also owned the land/resource delivering the ecosystem service(s) of interest.

### 4.2.3 Project drivers

For each of the project case studies we collected information about the drivers that led to the project development. The drivers were categorised as:

- generation of revenues;

- cost reduction;
- regulatory compliance; and
- reputational benefits.

Generation of revenue was the main driver for the participation in projects. Other drivers were less prevalent, with cost reduction; regulatory compliance and reputational benefits seen as drivers in less than 27 case studies each (see Figure 8).

Figure 8: Drivers for involvement in projects

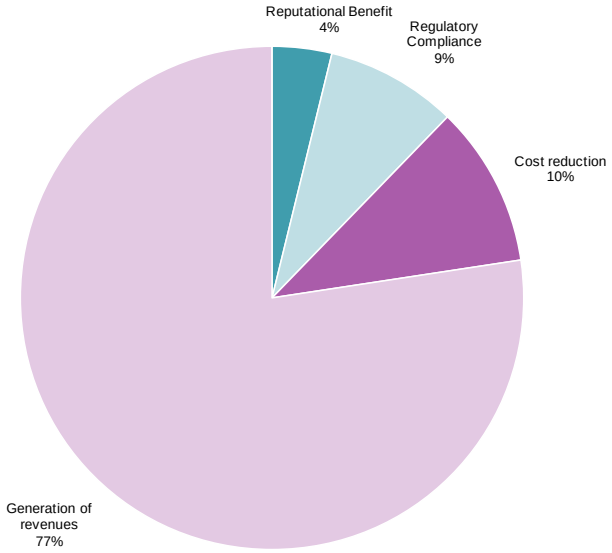



Table 4 shows the main drivers for involvement in projects for private sector participants and the sectors across which they are represented.

Table 4: Main drivers across sector

| Main drivers | Company sector |
|---|---|
| Generation of revenues | Agriculture/aquaculture; Finance sector; Food and beverage; Forestry; Infrastructure; Other SME; Tourism; Utilities; Transport. |
| Cost reduction | Food and beverage; Utilities; Transport |
| Regulatory compliance | Food and beverage; Infra-structure/construction; Forestry |
| Reputational benefits | Infrastructure/construction |

## 4.3 Analysis of revenue generation

In our analysis of case studies, we classified projects based on whether they generated revenue or had the potential to generate revenue. Actual and potential revenue streams were then classified based on the type of ecosystem service that was generating the benefit. The list of ecosystem services was based on those described on the TEEB website[6] (see Table 5).

[6] http://www.TEEBweb.org

Table 5: Ecosystem services considered as possible revenue-generators

| Ecosystem service | Explanation |
|---|---|
| **Air/climate regulation** | Control of air temperature or reduction of air pollution. |
| **Carbon management** | Removal of carbon from the atmosphere or other carbon savings. |
| **Chemicals regulation** | Control of chemicals levels in water, soil, air or other. |
| **Disaster moderation/adaptation** | Protection against the physical effects of climate change and natural disasters. |
| **Erosion control/soil management** | Enhancement of soil quality and/or reduction of erosion risks. |
| **Food provision** | Harvesting of raw materials for human/animal consumption. |
| **Health/spiritual benefits** | Enhanced physical or mental health as a result of exposure to the cultural/spiritual values of nature. |
| **Maintenance of habitats/ biological diversity** | Enhancement of biodiversity in order to enhance strength of habitats/ ecosystems. |
| **Medicinal resources** | Use of natural products for the development of pharmaceutical products/ services. |
| **Pollination** | The pollination services provided by nature, e.g. bees and other insects. |
| **Raw materials** | Extraction of raw materials, excluding food/water. |
| **Tourism/recreation/education** | Generation of tourism or the creation of recreation areas and education opportunities. |
| **Water management** | Treatment of water resources by natural systems and/or management of water systems. |

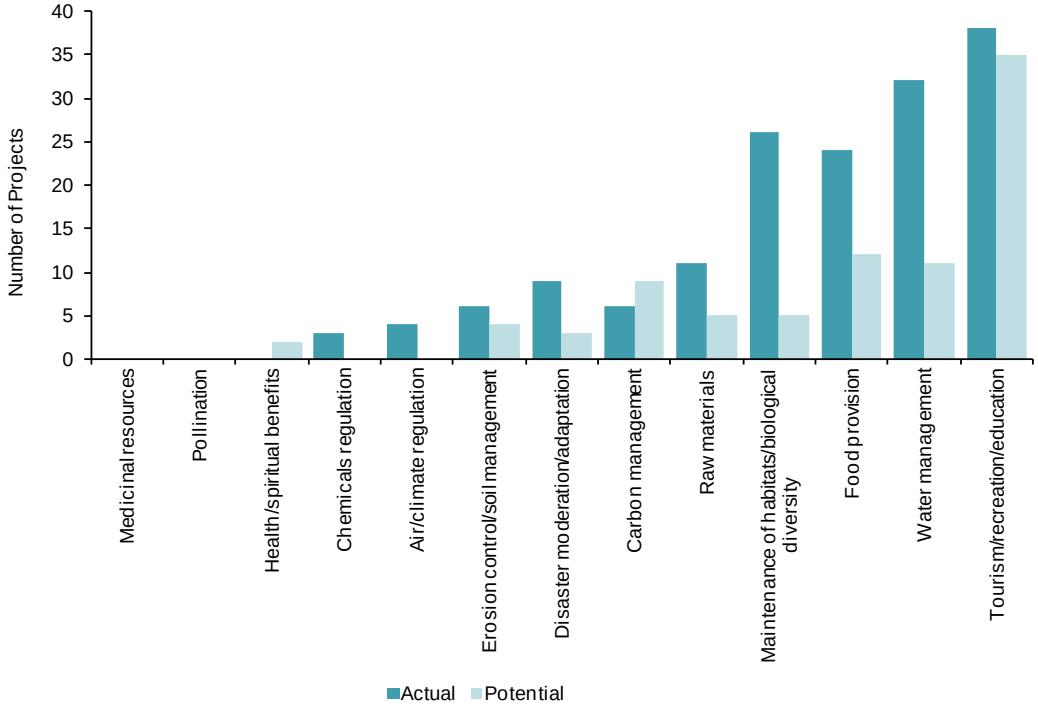
The classification of actual versus potential revenue streams was performed based on publicly available case study information. Where no information on actual or potential revenues was explicitly described, we assessed whether there was a potential revenue stream from the project.

Where projects had more than one ecosystem service generating actual/potential revenues, we captured both primary and secondary revenue streams. Therefore the total number of identified revenue streams is higher than the total number of projects.

- **Actual revenue-generating:** Projects that resulted in an income or cost saving (other than that from direct grants/subsidies) for at least one of the project participants.
- **Potential revenue-generating:** Projects that had the potential to generate income or cost saving (other than that from direct grants/subsidies) for at least one of the project participants.

In total, 159 actual revenue streams were identified and a further 86 potential revenue streams. Out of the total163 project case studies, 121 projects had at least one potential revenue stream. Figure 9 shows the breakdown of these revenue streams by ecosystem service type.

Figure 9: No. of actual or potential revenue streams in each ecosystem service category[7]




## Summary of actual/potential revenue generating projects:

- The largest actual/potential revenue-generating service in terms of number of projects was tourism/recreation/education, with over 35 actual revenue streams identified and nearly as many potential revenue streams. However, revenues from tourism/recreation/education were often low (where quantified) and involved mostly small/medium-sized enterprises (SMEs) rather than larger private companies.
- Water management was also found to be gaining traction as a recognised benefit from the introduction of ecosystem-based approaches, e.g. in water catchment areas, with several PES projects established between utility companies and land owners.
- The number of projects generating revenue from food provision services was also high. Agriculture/aquaculture businesses are generating revenues from the sale of sustainable/organic products and, in several cases, food is produced as a by-product of wider NC projects (i.e. as a secondary revenue stream).
- Over 30 projects were identified where the maintenance of habitats/biological diversity was an actual or potential revenue generation mechanism. In several cases this involved the increase of land/forest value by the introduction of ecosystem-based approaches with revenue generation including tourism, harvest/fishing permits and donations. Biodiversity offsetting projects also fall within this category, though few actual revenue-generating offsetting projects were identified.
- A total of 12 disaster moderation/adaptation projects were identified. Revenues generated included those from flood protection, recreation, and payment for water management. It should be noted however that this is not an indication of the total number of adaptation projects taking place in the EU, but rather those where a specific ecosystem-based approach was employed and that had either an actual or potential revenue stream. Such projects comprised approximately 6% of total projects; however the number of projects that indirectly contribute to adaptation/disaster

[7] Data range includes project case studies from all years. Number of actual or potential revenue streams exceeds total number of projects as some projects had several actual or potential revenue streams.

moderation is likely to be higher. Table 6 provides indicative examples of actual and potential revenue generating projects.

Table 6: Examples of actual and potential revenue-generating projects

| Project | Country | Ecosystem service | Description of revenue generation |
|---|---|---|---|
| West Country Rivers Trust anglers' passport project | UK | Tourism/recreation/education | Landowners improve fishing beats and access to beats is sold to anglers via token scheme. |
| Plaine de Crau pilot habitat banking project (CDC Biodiversité) | France | Maintenance of habitats/biological diversity | Project developers raise revenue through the sale of offset credits. |
| Lysekil pilot nutrient trading project | Italy | Water management | Payments made to farmers to encourage the cultivation of Blue Mussels to filter nutrients and reduce eutrophication. |
| Riahovo – freshwater fisheries in the Kalimok-Brushlen protected area | Romania | Food Provision | Micro-enterprise active in fish breeding as well as ecotourism service management. |
| Scheldt estuary flood management and nature restoration plan | Belgium | Disaster moderation/adaptation | Long-term cost savings through reduction of exposure to flood risk. |

## 4.4 Size of the market

### 4.4.1 Previous market size estimates

The annual EU budget for Natura 2000 projects is estimated at around €550–1,150 million[8]. A previous study in 2010 estimated the cost of implementing the Natura 2000 network in the EU-27 to range between €5.5 billion and €5.8 billion per annum. This figure is likely to be an underestimate as it is based on historic and/or budgeted expenditures and not future needs[9]. Natura 2000 also does not distinguish between projects that can and cannot generate revenues or different categories of projects. Therefore the figure may not be representative of the market in which the NCFF could operate; in addition some Natura 2000 projects may not meet the application criteria for potential NCFF support, and the NCFF would also operate beyond Natura 2000.

It is understood that the financial costs estimated for Target 2 of the EU 2020 Biodiversity Strategy (maintain and restore ecosystems and their services) are estimated to range from €0.5 to 11 billion per annum up to 2020 at the EU level dependent upon the implementation scenario[10].

The global annual market size for biodiversity offsets was estimated in 2010 to be at least $1.8 – 2.9 billion, which again is likely to be an underestimate as 80% of programmes researched for the study were not transparent enough to estimate actual costs[11]. An update to the study in 2011 revised this figure to be as high as $4.0 billion.

[8] Kettunen, M., Baldock, D., Gantioler, S., Carter, O., Torkler, P., Arroyo Schnell, A., Baumueller, A., Gerritsen, E., Rayment, M., Daly, E., Pieterse, M., 2011. Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument. A Project for the European Commission – Final Report, Institute for European Environmental Policy (IEEP), Brussels, Belgium.

[9] IEEP (2010) Costs and Socio-Economic Benefits associated with the Natura 2000 Network. Output of the EC project preparatory actions for NATURA 2000. IEEP, London, UK.

[10] Unpublished study, information provided by the EC.

[11] Madsen, B.; Carroll, N.; Moore Brands, K.; (2010). State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide. Available at: http://www.ecosystemmarketplace. com/documents/acrobat/sbdmr.pdf [Accessed 11/11/2013]

For the purpose of calculating the market size for NC projects in the EU28, we have estimated the market size based on the total cost of a sample of projects.

To identify the current market size we used the number and total cost of projects (in 2012 EUR) between 1994 and 2010. Only projects currently generating revenue or with the potential to generate revenue were included, or costs saving projects.

### 4.4.2 Calculation of annual market value from 1994-2010

We used the following formula to calculate the annual market value, where *n* is the number of projects that occurred within the year:

$$\sum_{1}^{n} annual\ project\ cost$$

- Projects where cost data was unavailable were assigned the average project cost over the entire period (€2.96 million).
- Two outliers were removed from the dataset as they were deemed to cause an unrepresentative skew in the market calculation.
- Project case studies from the 2011–2013 period were not included in the market size calculation due to a lack of information on projects starting during this time period. The lack of project information over the period 2011–2013 could be explained by delays in reporting project outcomes.
- Because a strong trend of positive reporting was observed, i.e. very few failed projects were identified (1.25%), we have taken into account that there may be a reporting bias towards only successful projects. We have therefore carried out market estimates assuming a higher failure rate than observed (50%, see limitations on p. 21). The latter estimate, based on a higher failure rate, is larger than the former as it takes into account that the case study data may not be capturing failed projects.

### 4.4.3 Results

Project cost (in 2012 EUR) over all years (1994 – 2013), ranged from €0.15 million to €50.9 million, and averaged €5.12 million per project.

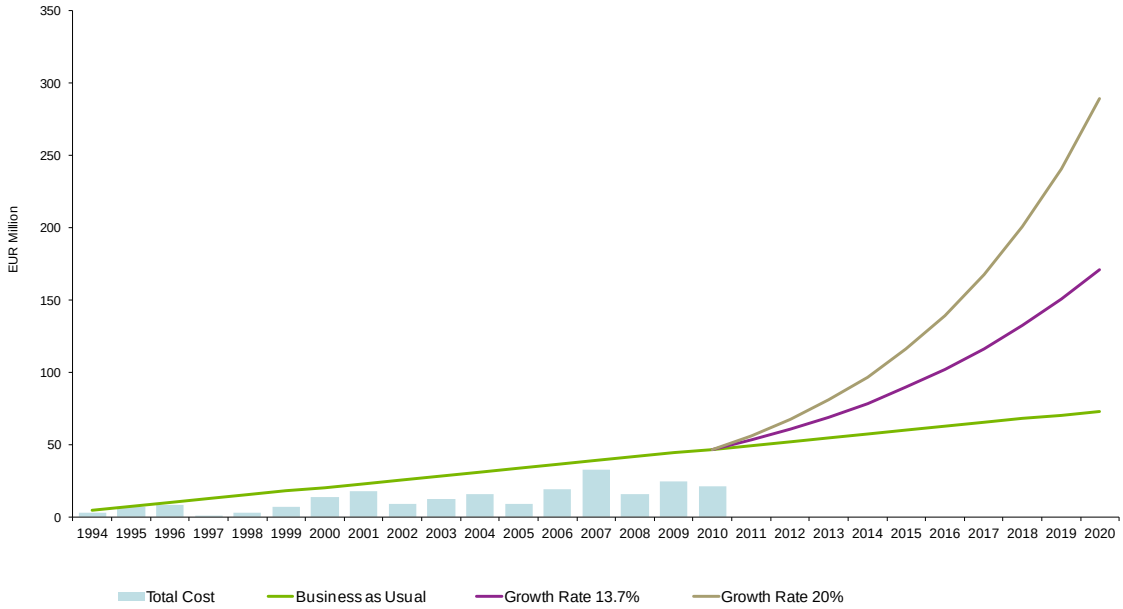
Project costs over the period used for the market size calculation (1994 – 2010), with two outliers removed, ranged from €0.15 million to €10.47 million, and averaged €2.96 million. The minimum total annual cost of projects occurred in the years 1994 and 1998, both with one project and a total cost of €2.96 million. The year with the highest total number and cost of projects was 2007, with 11 projects and a total cost of €32.56 million.

Figure 10 shows the result of the market calculation, with a projected growth rate to 2020 based on 1994 to 2010 data. Three projections have been made covering the period 2010 to 2020, and the information to develop these different scenarios are based on the following assumptions:

- **Business as usual:** Assumes linear growth from 2010 to 2020 and is based upon the growth in projects and total value in the 1994–2010 period. This assumes a 50% project failure rate, which is not captured in the project case studies identified for this study.
- **Market matures (growth rate of 13.7%):** Assumes that the market for natural capital projects moves into a maturity stage, with increased amounts of information available about projects and implementation methods. This scenario assumes increased understanding and awareness of business toward natural capital projects. The rate of increase is based on that seen between 1994 and 2010.
- **Introduction of positive policies (growth rate of 20%):** Based on an estimated growth rate, which assumes that policies are implemented which have a positive effect on the market for natural capital projects in the EU28. Such positive policies are likely to be related to the EU green

infrastructure strategy, or the forthcoming EU initiative related to No Net Loss of ecosystems and their services. Example policies in Member States identified as part of this study are included in Chapter 6.

Figure 10: Market size projection to 2020 based on project case study data for 1994–2010




Market size estimates, based on the assumptions and limitations detailed below, are shown in Table 7. The market size estimates for 2020 range from € 73 million to € 288 million, depending on the application of the market growth rate assumption. We believe this may be the first study to use cost data to produce an estimate of the NC market in the EU28[12].

Table 7: Estimates of natural capital project market size in EU28

| | Business as usual (€m) | Market matures (€m) | Introduction of positive policies (€m) |
|---|---|---|---|
| Current market size | 54.55 | 68.89 | 80.61 |
| Forecast market size | 73.00 | 171.07 | 288.84 |

*Assumptions*

- The market estimation is based on a sample of 75 projects from the EU28 in the period 1994 – 2010. The sample did not include projects where no cost or year information was available.
- Market growth is linear (market as usual scenarios), or exponential/compounded (market matures, and introduction of positive policies scenarios).
- The introduction of the NCFF is not included in any of the scenarios of the market size estimation.
- Project failure rate of 50%.
- No events that materially impact implementation of NC projects.
- Earliest reported year in case study used as project starting year.

[12] For another market size estimation example, see ICF GHK Consulting (2013) Exploring potential demand for and supply of habitat banking in the EU and appropriate design elements for a habitat banking scheme. Final Report submitted to DG Environment. ICF GHK, London UK.

- All reported cost data has been assigned to project starting year.
- All reported cost data has been converted to € 2012.

*Limitations of the data*

- Only 93 of all the projects (1925 – 2013) included a start date and of these only 46% had annual cost data available.
- The market size calculation is based on publicly available (unverified) cost data extracted from the project case study database.
- Project failure rate assumption is an estimate only, and is based on EC estimated failure rate for SMEs in the EU28.
- Market growth rate is an estimation, and is based on observed compounded growth (market matures), or estimated compounded growth with positive policy intervention (introduction of positive policies).

### 4.4.4 Project costs

As described in 4.4.2 above, the market size calculation was estimated using project cost data. The total number of projects that had cost data (across 1925 – 2013) was 43, with a mean average cost of €7.4 million. The maximum observed project cost was €66.5 million, whilst the minimum observed project cost was €0.1 million. The breakdown of average and maximum/minimum project costs per project category are summarised in Table 8[13].

Table 8: Project costs per category

| Project type | No. of projects with cost data | Min cost (€m) | Mean cost (€m) | Median cost (€m) | Max cost (€m) |
|---|---|---|---|---|---|
| PES | 12 | 0.1 | 4.0 | 1.7 | 17.2 |
| GI | 28 | 0.6 | 8.5 | 2.1 | 66.5 |
| Offsets | 2 | 14.2 | 15.9 | 15.9 | 17.6 |
| SIPB | 1 | 0.3 | 0.3 | 0.3 | 0.3 |
| Total | 43 | 0.1 | 7.4 | 2.0 | 66.5 |

[13] Due to only one SIPB project having cost data available, the max, min and average costs are identical. We have therefore excluded SIPB projects from Figure 11. Furthermore, due to only two offset projects having cost data available, the mean and median average costs are identical.

# Chapter 5 The need for a Natural Capital Finance Facility

## 5.1 Overview

The following key points emerged (through a review of case studies and stakeholder interviews) that indicate the need for a finance facility for NC projects:

- To date, the main financial mechanisms available to support NC projects are grants.
- Barriers exist that prevent private sector investment in NC projects.
- There needs to be innovative approaches to complement the use of grants (e.g. LIFE+, philanthropy, local authority spending) to overcome these barriers and create a sustainable market for NC projects.
- Interviewees from every stakeholder group made it clear that financial mechanisms beyond grants are necessary to unlock private sector investment.

In the following section we:

a. outline the key barriers to investment that were identified and explain how these are limiting private investment;

b. introduce financial mechanisms the NCFF could employ to address these barriers; and

c. provide a value chain analysis for each project type to explain how the NCFF could intervene in such projects and promote private sector investment.

## 5.2 Barriers to investment

For the purpose of this study, we define 'barriers' as issues that reduce the probability of private sector investment. Therefore, we have not focused our analysis on project implementation/operation issues, e.g. technical environmental management challenges or policy/regulatory issues, unless they relate directly to the financing of such projects.

Table 9 outlines the main financial barriers that were identified during stakeholder interviews and details of the stakeholder group(s) that identified that barrier and the project category/categories to which that barrier most directly applies. Each barrier is then described in more detail to explain how it is limiting private investment in these projects.

Table 9: Financial barriers identified during stakeholder interviews

| Barrier | Stakeholder group(s)[14] | Most applicable project category |
|---|---|---|
| **Lack of track record for asset class** | ■ Consultancy<br>■ CSO<br>■ Financier<br>■ Private company<br>■ Public sector | ■ Payment for ecosystem services<br>■ Green infrastructure |
| **Long project payback periods** | ■ Consultancy<br>■ CSO<br>■ Financier | ■ Payment for ecosystem services<br>■ Green infrastructure |
| **Policy uncertainty** | ■ CSO<br>■ Financier<br>■ Private company | ■ Biodiversity offsetting |
| **Lack of finance for small businesses** | ■ CSO<br>■ Public sector | ■ Small innovative pro-biodiversity businesses |

### 5.2.1 Lack of track record for asset class

Banks and other institutional investors do not generally have experience valuing and assessing the risk of NC projects. Despite the economic benefits of NC projects, particularly PES and GI projects, there are few successful examples of private sector investors generating high returns from investment in NC assets or projects. As a result of this lack of experience, financiers often perceive these projects/assets as high risk and, in many instances, do not fully understand the potential returns.

Developers often encounter significant upfront costs in the project development/set-up stage due to a lack of standardised processes and lack of clarity over policy and legal frameworks. The financial assessment and due diligence process is also not standardised across the types of projects and can involve a number of different stakeholders, e.g. land owners, local authorities, as well as the project developers.

This barrier was identified through discussions with stakeholders in the consultancy, CSO, financier, private company and public sector stakeholder groups.

### 5.2.2 Long project payback periods

It can take significant time (+20 years in some instances) for ecosystem-based approaches to begin generating the expected ecosystem services/revenues and therefore the payback for such projects is often longer than those demanded from private investors. Private finance is therefore not an option in many instances, with most projects being paid solely through corporate budgets and/or public spending.

Another key aspect to consider is the capital and liquidity requirements of many investors. Investors are required to maintain a certain ratio of equity versus assets, and some have requirements for how easily they can convert assets to cash. Long-term assets do not provide this kind of flexibility to many

[14] The stakeholder groups include civil society organisations (CSOs), private companies, financiers, public companies, consultancies and public sector. This list is not to be confused with either market participants or project roles (see section 4.2.2).

investors and few are willing to accept such long payback periods for assets (i.e. NC projects) that are considered to be of relatively high risk.

This barrier was identified through discussions with stakeholders in the consultancy, CSO, financier and private company stakeholder groups.

### 5.2.3 Policy uncertainty

A major driver for investment in the area is the development of policies and schemes at both the national and EU level, for example those requiring developers to offset or compensate for impacts on natural habitats, or those driving investment in ecosystem based approaches to watershed management (e.g. Water Framework Directive). The introduction of market based mechanisms such as REDD+ are also helping to create the framework for investment in such areas.

However, there is uncertainty over the future of policies/regulations for investment in NC projects. The market for REDD+ and other offsetting mechanisms is also not well-established, and therefore investors do not have confidence over projected revenues/credit prices.

This barrier was identified through discussions with stakeholders in the CSO and financier stakeholder groups.

### 5.2.4 Lack of finance for small businesses

Small innovative pro-biodiversity businesses find it challenging to obtain affordable SME finance (i.e. finance designed for small and medium sized enterprises). Business models are often novel (i.e. generation of revenues from ecosystem services) and therefore considered to be higher risk.

Although the challenge of acquiring affordable SME finance is not unique to NC projects, businesses in this area are particularly affected by this barrier given that projected profit margins are often narrower than SMEs in more established sectors and require longer payback periods.

This barrier was identified through discussions with stakeholders in the CSO and public sector stakeholder groups.

## 5.3 Potential instruments the NCFF can employ

Finance facilities can employ instruments under four general categories: grants/technical assistance, de-risking instruments, direct financing (debt or equity) and funds/structured projects.

The following summaries describe how these instruments operate, what the current level of use for such is for such instruments with regard to NC projects, and what messages arose from stakeholder interviews with regard to the need for such instruments.

### 5.3.1 Grants/technical assistance

Grants and technical assistance are currently offered from a variety of projects at both the EU and national level, for example from LIFE+, corporate responsibility/philanthropic spending and NGO funding. Discussions with stakeholders indicated that a large proportion of the market for NC relies on the provision of grants or technical assistance at present, but that such assistance did not necessarily incentivise financial investment in such projects.

### 5.3.2 De-risking instruments

De-risking instruments in general help to reduce the risk rating of investments and improve the risk-adjusted return on investment. This can be done through a number of means, e.g. loan guarantees, policy/market insurance, credit-enhancement and other forms of risk-shouldering.

Stakeholders from several groups identified the need for such instruments in the long-term, but few expressed an immediate need for such market interventions because of a lack of investor's awareness and understanding of these instruments.

### 5.3.3 Direct financing (debt/equity)

Financing can take place via the provision of various kinds of debt (loans) or equity (direct investment), and facilities can potentially offer favourable investment terms (i.e. accepting lower interest/returns) to promote projects or businesses in a certain sector.

Our research indicates that such financing is currently rare for NC projects; an example includes a facility for funding natural capital projects in Bulgaria and Croatia (Chapter 6 Table 15 gives some further fund examples). Even larger projects with clear revenue streams tend to be paid for by developers/ecosystem users directly rather than seeking finance, with a resultant limit to the number of projects which can be financed.

### 5.3.4 Funds and structured products

There is a wide range of investments products that can be structured to reduce risk or increase return on investment in a particular area. Funds operate by spreading capital over several different investments and reducing overall risk. Another structured product is a bond, whereby an investor makes a debt investment and received a fixed-income based on credit quality and duration (normally seeking lower risk securities).

The market for funds and bonds related to NC and other environmental assets is developing in the EU (e.g. forest bonds and eco-funds) although stakeholder interviews indicated that this is happening at a lower rate than other in regions of the world.

## 5.4 Project value chains and potential NCFF interventions

We have analysed the value chain for each project macro-category in order to illustrate the different structures and capital flows and describe how potential NCFF interventions could potentially help unlock private investment. This does not prejudge the final structure of the NCFF.

For each project macro-category, we provide an overview of:

- the typical value chain, with a breakdown of market participants, roles and drivers;
- an example case study project to illustrate the typical value chain;
- the key barriers to investment and where they lie along the project lifecycle;
- potential NCFF interventions and how they might impact the project lifecycle; and
- final beneficiary, i.e. the participant that would be receiving the financial mechanism from the NCFF.

We assume there are three general stages in the project lifecycle for natural capital projects, and for each value chain analysis we indicate which of the identified investment barriers apply and where on the project value chain they occur.

The three project lifecycle stages are:

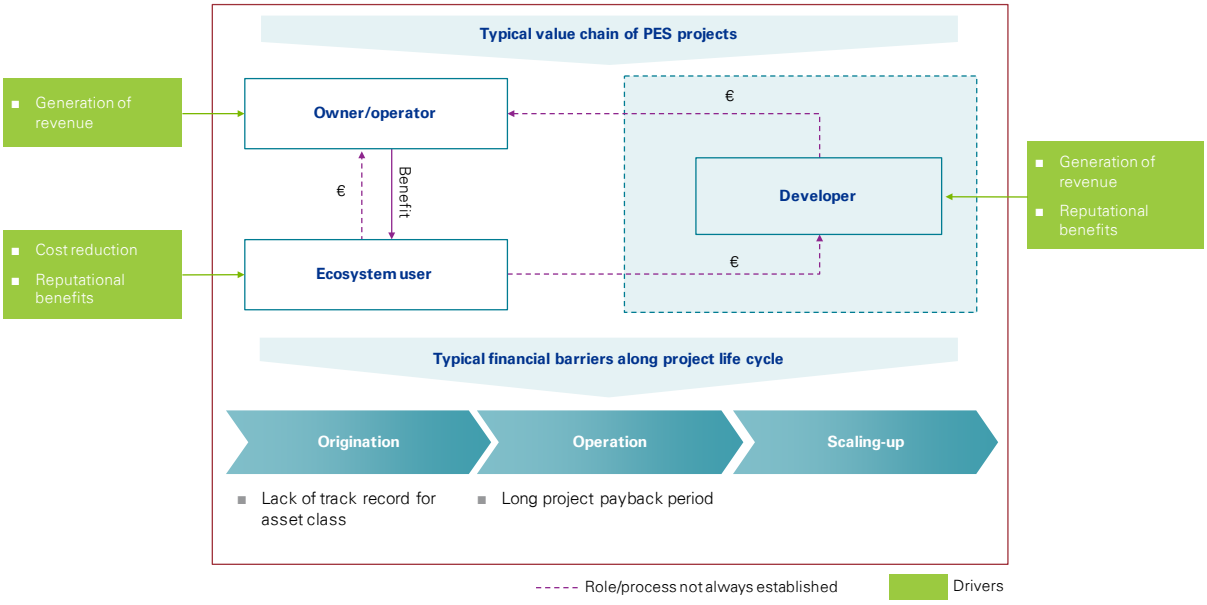
- **Origination:** project identification and appraisal, establishing business case and raising finance.
- **Operation:** project implementation, generation of benefits and the servicing of debt/equity.
- **Scaling-up:** expansion of the project and/or duplication of the project in other areas.

### 5.4.1 Payment for Ecosystem Services

The payments for ecosystem services (PES) model is based on consumers of an ecosystem services making financial payments to the provider of the service. The main driver behind the development of

PES projects is to generate revenue and/or achieve cost savings. Figure 11 illustrates the typical value chain for PES projects.

Figure 11: Typical value chain for PES projects (including drivers and barriers)




In PES projects, there is an owner/operator who generates the ecosystem services and an ecosystem user who enjoys the benefits of those services. In some cases, there is a separate project developer who manages overall process and facilitates payments, although this role can be filled by either the owner/operator or ecosystem user.

Although generation of revenue is the main driver for such projects, payments are not always made by those enjoying the benefits of the ecosystem services and, in some instances, the entire project is financed, developed and operated by a single individual.

Sixty-five PES project case studies were identified in total, and the participants in such projects included the private sector (27%), public sector (19%), land owners (33%) and civil society organisations (22%). Box 1 provides an example PES project and describes the different roles and market participants involved and how revenues were generated.

**Box 1: Example PES project (United Utilities' sustainable catchment programme)**

United Utilities pays farmers to practice sustainable catchment management (e.g. restoring moorland and livestock fencing) to improve the quality of the water on which the company relies. As a result of the change in farmer management practices, United Utilities was able to reduce its water management costs as it avoided the need to invest in additional water treatment works.

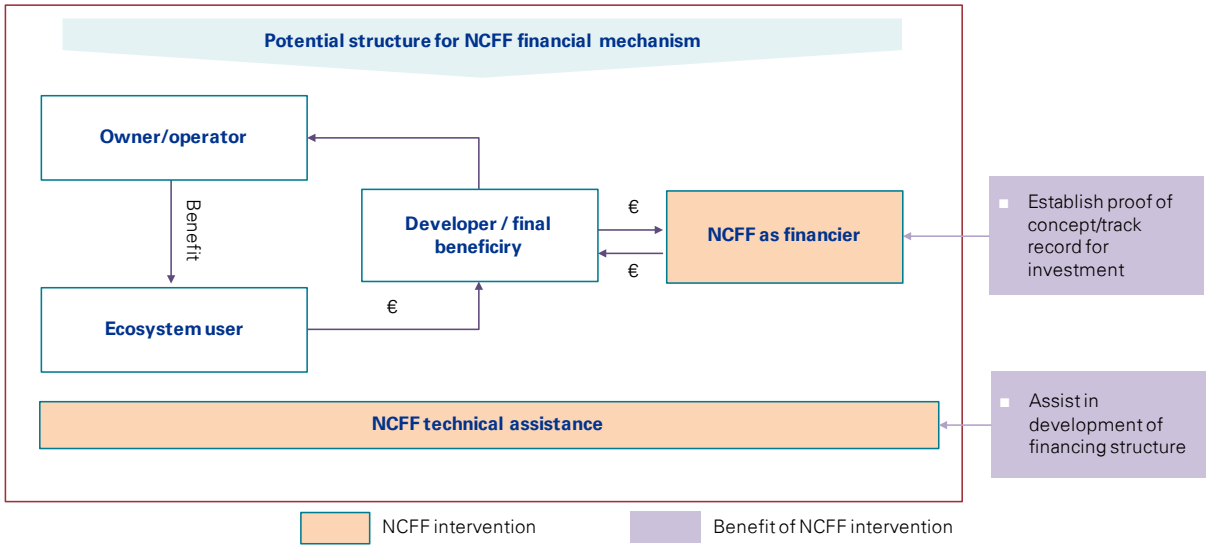
- **Owner/operator:** Land owners and private sector (farmers)
- **Ecosystem user:** Private sector (utility company)
- **Developer:** N/a
- **Revenue generation:** Improved water quality and reduced treatment costs for utility company
- **Payment mechanism:** Direct payment from utility company to farmers/land owners

### Potential NCFF intervention in PES projects

The main barriers to PES projects (as discussed in section 5.2 above) are the lack of a track record for the asset class/project type and the long payback periods of such projects.

In order to address these barriers, the instruments the NCFF could employ are direct finance (either debt or equity, depending on project type) and technical assistance. Providing finance for PES projects (at or near commercial rates) would help to create examples of successful projects and establish proof of concept, thereby encouraging other investors to explore the asset class more closely and reduce the perceived risk of such projects. Providing technical assistance at the project development stage could also assist with the development of deal/payment structures (e.g. purchase agreements and contractual arrangements) and help create standardised financial appraisal processes. Figure 12 shows how these potential NCFF instruments could modify the typical value chain for PES projects and promote private investment for such projects.

Figure 12: Potential structure of NCFF financial mechanism for PES projects




*Potential NCFF intervention scenario: Water filtration services*

A land owner is paid by an ecosystem user e.g. a brewery, to maintain a wetland and maintain water quality of a river on which the brewery relies.

### The potential market participants in this scenario are:

- The owner/operator i.e. the land owner (who also acts as the developer); and
- The ecosystem user i.e. the brewery.

### Potential revenue streams include:

- For the land owner: revenue for maintaining the wetland; and
- For the ecosystem user: cost saving on capital expenditure for water treatment facilities.

### Barrier to be addressed by the NCFF:

- Long payback period.

### Potential NCFF intervention and instruments:

The NCFF could intervene to help address this barrier in a number of ways (see the Table 10 for a summary of potential instruments). In this scenario, the NCFF could provide emergency cash via a liquidity facility, should investors require access to their capital during the investment term. This could potentially unlock finance for either the land owner or the brewery (i.e. allow them to access funds for maintaining the wetland), depending on who fulfils the role of project developer.

Table 10: Summary of potential interventions and instruments for PES projects to address different barriers

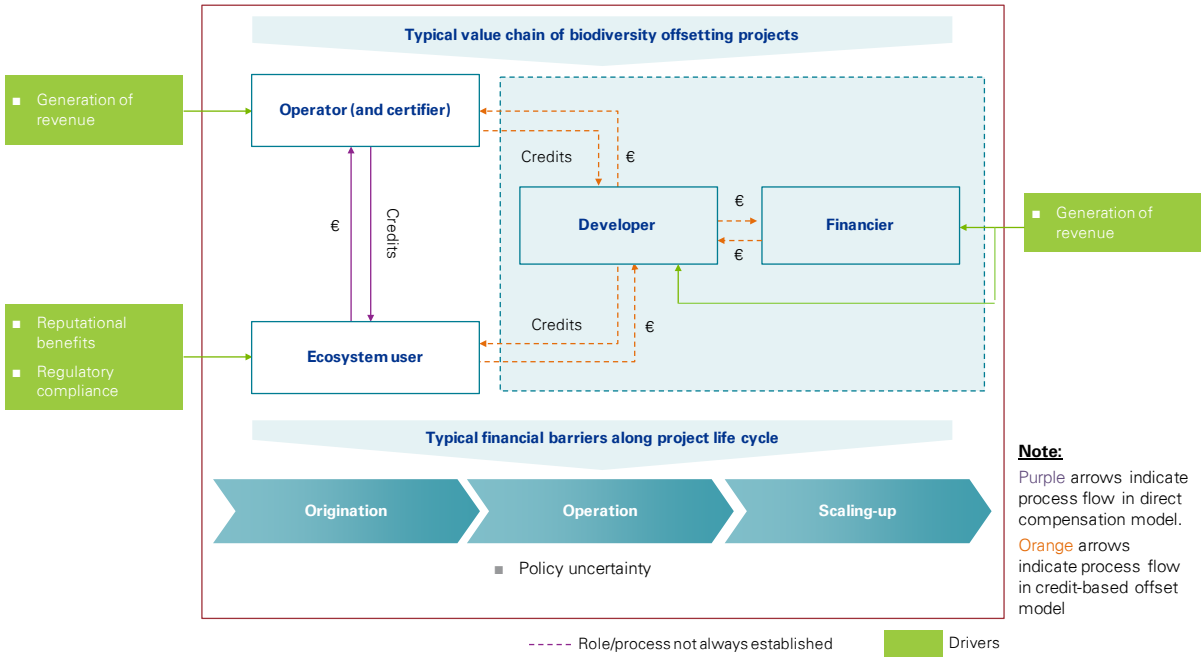
| Potential source of revenue | Potential market participants (actors) | Market failure/ barrier | Potential NCFF intervention area | Potential Instrument | Potential Result | Final beneficiary |
|---|---|---|---|---|---|---|
| Payments from those using ecosystem services, e.g. water filtration. | ■ Owner/ operator<br>■ Ecosystem user<br>■ Developer | Lack of a track record for the asset class/ project type | Technical assistance* | Smart grants | Potential for assistance in the project proposal stage to help develop projects from concept to demonstration stage. | Developer |
| | | | De-risking | Loan guarantees | Potential for reducing the risk for investors who are willing to explore new areas e.g. PES projects | Financier |
| | | Long payback periods | Direct investment (debt or equity)* | ■ Low-interest loans<br>■ Equity investment | Potential for affordable finance over investment period for projects with longer lag-time before generating revenue. | Developer |
| | | | De-risking | Emergency liquidity facility | Potential provision of liquidity to investors should they require access to their capital during the investment term. | Financier |

*These will be the options offered by the NCFF.

### 5.4.2 Biodiversity offsets

Biodiversity offsets are conservation activities intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects. In some instances, environment banks act as an intermediary, managing credits and facilitating payments. In most cases, however, at present, we identified that buyers were making direct compensation payments to land owners for conservation efforts. Figure 13 illustrates the typical value chain for biodiversity offset projects.

Figure 13: Value chain for biodiversity offset projects (including drivers and barriers)




Biodiversity offsetting projects can follow two different models, a direct compensation model and a credit-based model. In the direct compensation model, an ecosystem user that wishes to offset/ compensate for environmentally harmful activities makes direct payments to those undertaking conservation/restoration activities (owner/operator). In the credit-based model, ecosystem users (i.e. buyers) purchase offset credits from a habitat bank (the developer), who pays the owner/operator of the conserved/restored land. The credit-based model may also involve private investors in the bank, though this model is only just beginning to develop. In both models, an independent certifier may also be involved (we have not separated this role out in Figure 13).

Fourteen biodiversity offset project case studies were identified in total, and participants in such projects included the private sector (44%), public sector (13%), land owners (38%) and civil organisations (6%). Box 2 provides an example biodiversity offset project and describes the different roles and market participants involved and how revenues were generated.

**Box 2: Example biodiversity offsetting project (French Railway Network wetland offsetting)**

The development of a national high-speed railway by the French Railway Network (RFF) resulted in 125 ha of wetland loss. RFF bought an equivalent area of wetlands to conserve them and have also initiated other restoration projects.

- **Owner/operator:** Land owners
- **Ecosystem user:** French Railway Network
- **Developer:** N/a
- **Financier:** N/a
- **Revenue generation:** Compensation payments made to land owners for conservation activities
- **Payment mechanism:** Direct compensation to land owners (not credit-based)

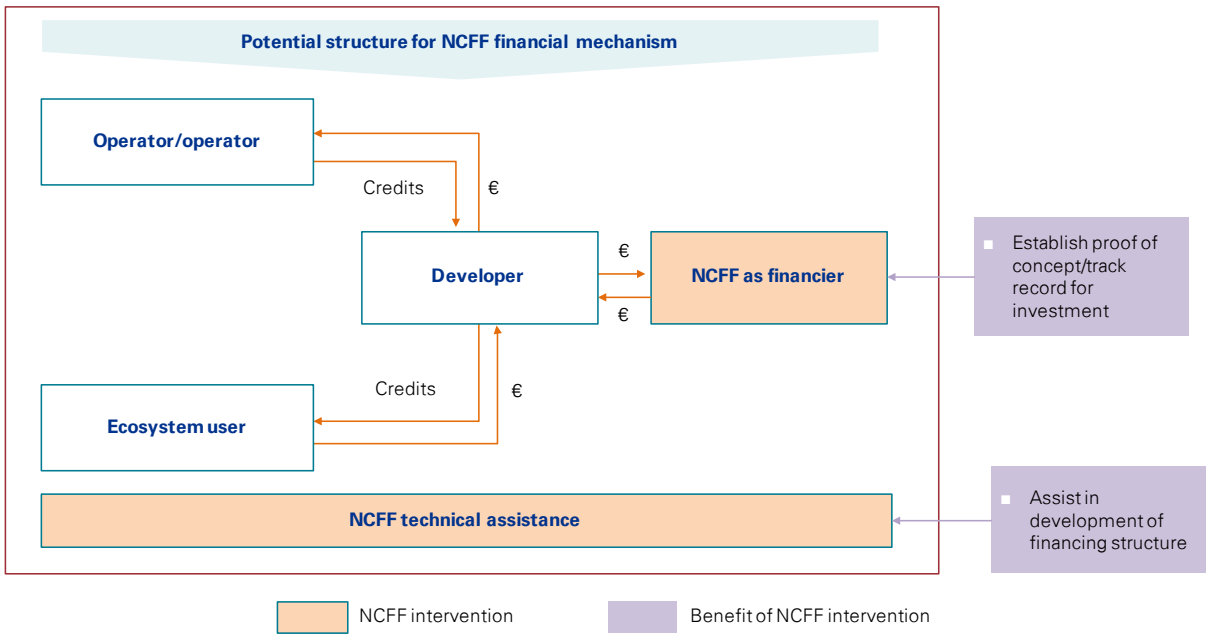
### NCFF intervention in biodiversity offset projects

The key barrier to private investment in biodiversity offsetting projects is the lack of development of the market for biodiversity credits, i.e. uncertainty over the market/regulatory environment. The maturity of REDD+ and other market-based initiatives has not been sufficient to incentivise

investment in offsetting projects. Most biodiversity offsetting in the EU takes place on a direct compensation basis, i.e. does not involve habitat banks or the trading of credits (as is the case in the US market).

Whilst it is not the role of the NCFF to influence the development of policy initiatives, it could provide support to the early-movers in the market and help develop the initial investment models for such projects. In order to do this, it could provide both financing and also technical assistance to project developers (i.e. habitat banks) in order to help create an investable model for the credit-based approach[15]. There are examples where finance facilities have used instruments to de-risk investments that are impacted by market/regulatory uncertainty, such as policy/market insurance and advanced market commitments. However, since the market is still in the early stages of development, it is not likely that these instruments would achieve significant leverage of private investment. Figure 14 shows how potential NCFF interventions could help develop the investment model for biodiversity offsetting projects.

Figure 14: Potential structure of NCFF financial mechanism for biodiversity offsetting projects




*Potential NCFF intervention scenario: Habitat banking services*

A land owner wishes to establish a habitat bank by restoring an area of grassland, thereby creating a revenue stream through the sale of credits to organisations who need to compensate (either voluntarily or to comply with regulations) damage caused to habitats elsewhere. To do this, the land owner needs access to finance in order to:

- set up the bank (administrative and legal costs);
- conduct restoration/conservation activities; and
- establish and certify the credits generated by the project.

**The potential market participants in this scenario are:**

- Owner/operator, i.e. the land owner, who also acts as the developer in this scenario;
- The financier; and

[15] It should be noted that there are a number of practical issues with regard to the credit-based offsetting model (e.g. in the measuring and certification of credits) that are being discussed at the member state level in the EU.

- The ecosystem user(s), i.e. those wishing to buy credits.

**Potential revenue streams include:**

- For the land owner/developer: revenue from selling credits.

**Barriers the NCFF can address:**

- Policy uncertainty: while some demand for the credits may exist from the voluntary market, uncertainty over local regulatory requirements regarding biodiversity offsetting may impact demand and investor confidence.

**Potential NCFF intervention and instruments:**

The NCFF could intervene to help address the barrier of policy/market uncertainty in a number of ways (see Table 11 for a summary of potential instruments). In this scenario, the NCFF could provide technical assistance to developers to help them establish business plans and financing strategies, and could also provide a range of de-risking instruments to reduce the exposure of developers and financiers to changes in the market and regulatory environment.

Table 11: Summary of potential interventions and instruments for biodiversity offsetting projects

| Potential source of revenue | Potential market participants (actors) | Market failure/barrier | Potential NCFF intervention area | Potential Instrument | Potential Result | Potential final beneficiary |
|---|---|---|---|---|---|---|
| Revenues from selling offset credits | ■ Owner/ operator<br>■ Financier<br>■ Ecosystem user(s)<br>■ Developer | Uncertainty over the market and regulatory environment | Technical assistance* | Smart grants | Access to finance | Developer |
| | | | De-risking ** | Advanced market commitments (AMCs) | Provides advanced payments for credits, thereby reducing exposure to market volatility. | Developer/ financier |
| | | | | Policy insurance/ guarantees | Provides financial insurance or guarantees in the event of changes in the regulatory environment | Developer/ financier |

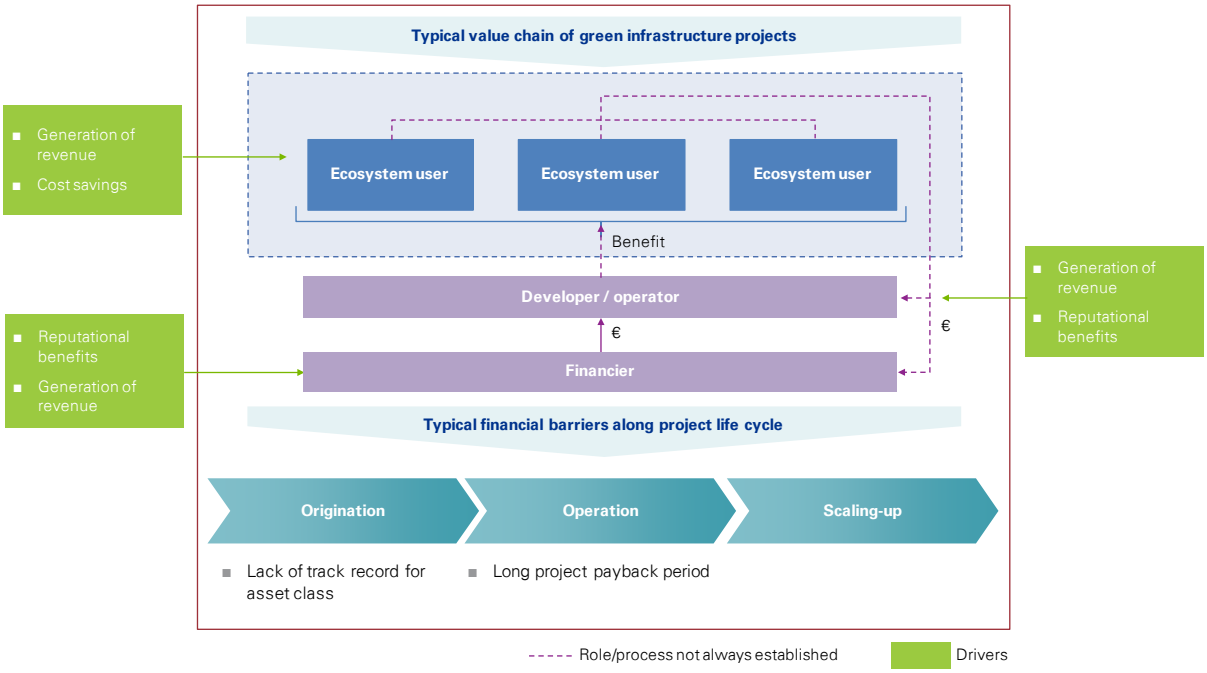
* These will be the options offered by the NCFF.

**The NCFF will not cover de-risking.

### 5.4.3 Green infrastructure

Green infrastructure projects are strategically planned networks of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. This usually involves larger conservation projects over a particular habitat type. Green infrastructure projects thereby provide the underlying infrastructure on which other NC projects can be developed. Figure 15 illustrates the typical value chain for green infrastructure projects.

Figure 15: Value chain for green infrastructure projects (including drivers and barriers)




There is potential for developers of green infrastructure projects to generate a revenue stream from their projects, whereby those who enjoy the benefits of the project can be charged a fee (as in PES projects), or those who establish separate PES projects based on the benefits of the green infrastructure project could pay a fee/commission to the project developer/owner. Due to the high cost of projects, a finance provider is usually involved, with the roles of project developer and operator normally fulfilled by a single party. A number of ecosystem users may also then be involved (i.e. those enjoying the benefits of the project).

Fifty-three green infrastructure case studies were identified in total, and the participants in such projects included the private sector (13%), public sector (33%), land owners (11%) and civil society organisations (44%). Box 3 provides an example green infrastructure project and describes the different roles and market participants involved and how revenues were generated.

**Box 3: Example green infrastructure project (Wallasea coastal wetland reserve)**

A collaboration between the Royal Society for the Protection of Birds (RSPB), a private sector company (Crossrail) and a local authority to re-establish the natural wetlands at Wallasea Island in the UK. The £12 million scheme aimed to break open the remaining sea walls and replace the island's remaining farmland with a wetland bird reserve. The project makes used of soil, excavated from two new 21km rail tunnels under London to transform intensive farmland of Wallasea Island into mudflats, saltmarshes and lagoons. The majority of funding came from RSPB, with Crossrail (a joint venture between Transport for London and the Department for Transport) providing the raw materials (waste soil from construction project) and the local authority doing much of the planning and engagement with land owners.

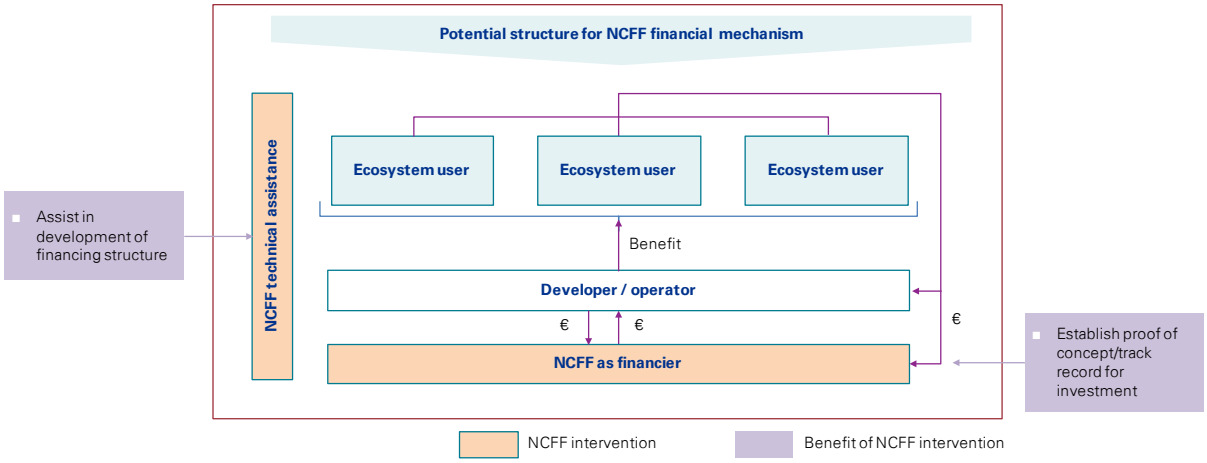
- **Owner/operator:** Public-private partnership (NGO, private company, local authority)
- **Ecosystem user:** Local authority, land owners
- **Developer:** Local authority, NGO
- **Revenue generation:** Cost savings for Crossrail project through management of construction waste; cost savings for local authority (reduced exposure to natural disasters/climate change)
- **Payment mechanism:** No direct payments – compensation to land owners. Payments made by RSPB. Crossrail paid for infrastructure to provide waste soil material.

## NCFF intervention in green infrastructure projects

The barriers to green infrastructure projects are similar to PES projects in that they have the potential to generate revenue but do not have an established track record. Projects can also take many years (+20) to start generating the projected ecosystem benefits, making payback periods long. The main impact of these barriers for green infrastructure projects in particular is that financing is normally provided in the form of government or NGO grants and/or corporate responsibility/philanthropic donations. Few examples exist of project developers receiving sufficient payments from ecosystem service users to make projects commercially viable.

The instruments that the NCFF could employ to promote private sector investment in green infrastructure projects is therefore similar to PES projects, whereby they could directly invest in projects to help develop a track record for such project, and provide technical assistance to contribute to the development of appropriate financial assessments and deal/payment structures. Figure 16 shows how potential NCFF instruments could help develop the investment model for green infrastructure projects.

Figure 16: Potential structure of NCFF financial mechanism for green infrastructure projects




### *Potential NCFF intervention scenario: Green infrastructure*

A land owner wishes to restore an area of parkland, the result of which will be to provide different ecosystem services to a wide range of users, e.g. through recreation, climate regulation, agricultural opportunities etc. The land owner must cover the upfront costs of restoring/conserving the land before ecosystem services (i.e. revenues) can be generated, which could take upwards of 20 years.

**The potential market participants in this scenario are:**

- Owner/operator, i.e. the land owner, who also acts as the developer in this scenario;
- The financier; and
- Future ecosystem user(s).

**Potential revenue stream:**

- For the land owner/developer: revenue from future ecosystem users, i.e. payments received from multiple PES projects i.e. a proportion of the payment of entry fees for recreation and/or rent of agricultural land, etc.)

**Barrier to be addressed by the NCFF:**

- Long payback period.
- Funding of planning and development costs.

- Planning legal costs and technical requirements.

**Potential NCFF intervention and instruments:**

The NCFF could intervene to help address the identified barriers in a number of ways (see Table 12 for a summary of potential instruments). In this scenario, the NCFF could provide direct equity investment in the project, which would help develop the track record for such projects. Owning a portion of the project would help move risk away from the developers, thus allowing the projects to reach completion and begin generating the expected ecosystem services.

Table 12: Summary of potential interventions and instruments for green infrastructure projects

| Potential source of revenue | Potential market participants (actors) | Market failure/barrier | Potential NCFF intervention area | Potential Instrument | Potential Result | Potential final beneficiary |
|---|---|---|---|---|---|---|
| Revenues from future ecosystem service provision | ■ Owner/ operator<br>■ Financier<br>■ Ecosystem user(s)<br>■ Developer | Lack of a track record for the asset class/ project type | Technical assistance* | Smart grants | Potential assistance in the project proposal stage to help develop projects from concept to demonstration stage. | Developer |
| | | | De-risking ** | Loan guarantees | Potential to reduce the risk for investors who are willing to explore new areas e.g. GI and future PES projects. | Financier |
| | | Long payback periods | Direct investment (debt or equity)* | ■ Low-interest loans<br>■ Equity investment | Potential for affordable finance over investment period for projects with longer lag-time before generating revenue. | Developer |
| | | | De-risking ** | Emergency liquidity facility | Potential provision of liquidity to investors should they require access to their capital during the investment term. | Financier |

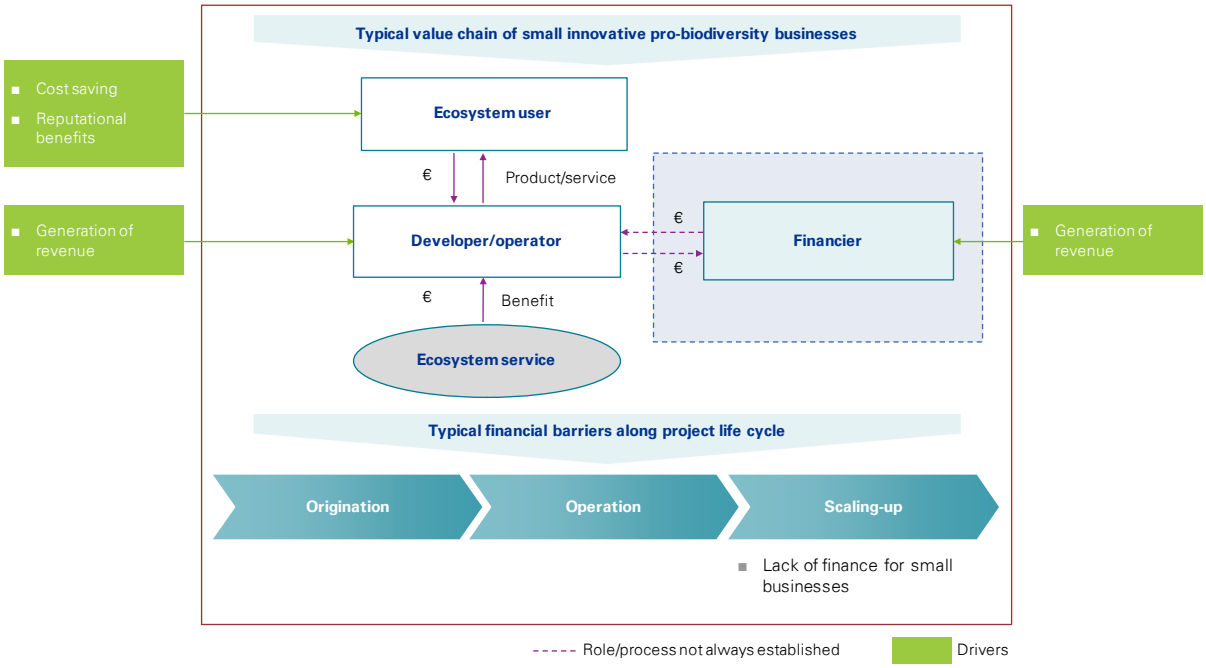
* These will be the options offered by the NCFF.

**De-risking will not be provided by the NCFF.

### 5.4.1 Small innovative pro-biodiversity businesses

Small innovative pro-biodiversity businesses are those that offer a product that is based on ecosystem services and thereby enhance or protect biodiversity. The business model is to create a structured system by which consumers can enjoy the benefits from ecosystem services and, in doing so, generate business revenue. Figure 17 illustrates the typical value chain for green infrastructure projects.

Figure 17: Value chain for small innovative pro-biodiversity businesses (including drivers and barriers)




In this model, the business is the developer (and normally operator). As a private business, financing is usually required for the business, however the details of financing for such businesses is rarely publically available. SME finance (i.e. finance for small to medium sized enterprises) normally takes the form of loans, but can, in some instances, involve direct equity investment.

Thirty-two small innovative pro-biodiversity business case studies were identified in total, and the participants in such projects included the private sector (71%), public sector (6%), land owners (15%) and civil organisations (9%). Box 4 provides an example small innovative pro-biodiversity business and describes the different roles and market participants involved and how revenues were generated.

**Box 4: Example of small innovative pro-biodiversity business**

An example of a successful small innovative pro-biodiversity business in the EU is the De Boerinn Family Farm and Activity Centre in the Netherlands, which attracts 25,000 visitors per year.

- **Owner/operator:** Farmer/land owner
- **Ecosystem user :** Visitors and customers (consumer markets/general public)
- **Developer:** N/a (same as owner/operator)
- **Revenue generation:** Eco-products/services (food and eco-tourism)
- **Payment mechanism:** Sale of agricultural produce to visitors

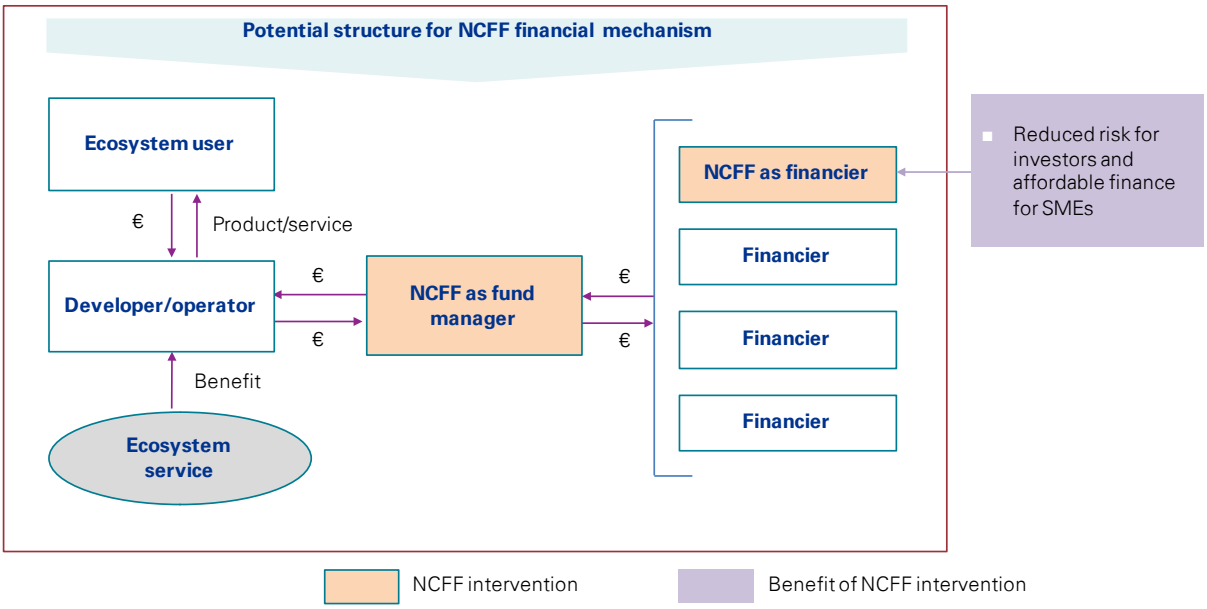
### NCFF intervention in small innovative pro-biodiversity businesses

As described in section 5.2.4, small innovative pro-biodiversity businesses find it challenging to obtain affordable SME finance. Business models are often considered to be higher risk. Although the challenge of acquiring affordable SME finance is not unique to NC projects, businesses in this area are particularly affected by this barrier given that projected profit margins are often narrower than SMEs in more established sectors and may therefore take longer to begin turning a profit.

In order to address this barrier, the NCFF could provide a combination of direct investment (debt/equity) with target funds whereby debt/equity in small businesses is pooled together and offered to investors (e.g. venture capitalists targeting small enterprises and impact investments).

As with the other project categories, providing direct finance may help develop the market for investment in such projects/businesses and create successful case studies. The development of a pooled fund or other structured product would help reduce risk for investors seeking to finance small innovative pro-diversity businesses, and therefore allow the facility to offer more affordable finance for such businesses. Figure 18 shows how potential NCFF instruments could help develop the investment model for small innovative pro-biodiversity projects.

Figure 18: Potential structure of NCFF instruments for small innovative pro-biodiversity businesses




*Potential NCFF intervention scenario: Small innovative pro-biodiversity business*

A family firm wishes to establish an eco-tourism business within a national park. The business will aim to cater for groups of bird watchers by conducting tours for a fee and providing them with a trained ecological guide for 3,000 visitors per year.

### The potential market participants in this scenario are:

- Developer/operator, i.e. the family business;
- The financier; and
- Ecosystem users.

### Potential revenue stream:

- The firm will charge for bird watching tours in the national park.

### Barrier to be addressed by the NCFF:

- Access to finance due to small size and narrow profit margins.

### Potential NCFF intervention and instruments:

The NCFF can intervene to help address this barrier by providing loans or equity. In particular, the facility may provide finance to the business directly, which could then look to pool the debt/equity investment into a fund that is then sold on to other investors. See Table 13 for a summary of the potential instruments the NCFF could employ.

Table 13: Summary of potential interventions and instruments for small innovative pro-biodiversity businesses

| Potential source of revenue | Potential actors | Market failure/ barrier | Potential NCFF intervention area | Potential Instrument | Potential result | Potential final beneficiary |
|---|---|---|---|---|---|---|
| Payment from customers | ■ Owner/ developer<br>■ Financier<br>■ Ecosystem user(s) | Lack of finance for small businesses | De-risking/ direct finance** | Pooled/ revolving fund | Potential to aggregate/ bundling of projects into funds (sold to investors as a fund of funds) reduces overall risk. This will help unlock investment from venture capital/ equity investors. | Financier |
| | | | Direct investment (debt or equity)* | ■ Low-interest loans<br>■ Equity investment | Potential provision of affordable finance over investment period for projects with longer lag-time before generating revenue. | Developer |

* These will be the options offered by the NCFF.
**De-risking will not be provided by the NCFF.

## 5.5 Conclusion

There is currently a lack of private investment in NC projects in the EU and there are few financial mechanisms in existence to help leverage private finance. Potential therefore exists for an NCFF to intervene in the market and help leverage private sector investment in NC projects/businesses.

The key barriers to investment are the lack of a track record for NC projects and little understanding of the potential revenues and deal structures on which to base return on investment. Whilst policy initiatives and market-based mechanisms are in development to help address this barrier, project developers/business owners still face a significant challenge in acquiring affordable financing.

Given these barriers, it is likely that the most beneficial instruments the facility could employ in the short term are direct investment (debt/equity) and the provision of technical assistance in order to help develop a catalogue of profitable projects/companies to which developers can refer and a set of standardised processes for financial assessment/appraisals. The facility may also want to consider funds and other structured products to pool together similar investments and reduce risk for other investors and improve affordability of finance for SMEs. A number of other financial mechanisms were also highlighted by stakeholders as potentially being helpful to leverage private finance, such as de-risking instruments, but these may be more useful in the long term as the market develops further.

The deployment of instruments will involve engagement with a mixture of project developers and financiers, and therefore a wide range of stakeholders is likely to need to be engaged in the roll-out of the facility and its services. Table 14 summarises the instruments the NCFF could employ and maps the instruments to the relevant beneficiaries, barriers and project types.

Table 14: Summary of potential financial mechanisms to address current barriers to finance[16]

| Potential instrument | Potential final beneficiaries | Barrier(s) addressed | Relevant project type(s) |
|---|---|---|---|
| **Equity investment*** <br> **Debt (loans)*** | ■ Project developers | ■ Long project payback periods <br> ■ Lack of finance for small businesses | ■ PES <br> ■ GI <br> ■ Small innovative pro-biodiversity businesses |
| **Technical assistance*** | ■ Project developers | ■ Lack of track record <br> ■ Policy uncertainty | ■ All |
| **De-risking (includes pooled funds)**** | ■ Financier <br> ■ Project developers | ■ Lack of track record <br> ■ Long project payback periods <br> ■ Policy uncertainty <br> ■ Lack of finance for small businesses | ■ All |

* These will be the options offered by the NCFF.
**De-risking will not be provided by the NCFF.

[16] Examples from: "New approaches to mobilise climate finance: a discussion paper", by Abyd Karmali (BofAML) 29 March 2013; and "Public Financing Instruments to Leverage Private Capital for Climate-Related Investment: Focus On Multilateral Agencies", WRI (working paper) 2012.

# Chapter 6 Further commentary

## 6.1 Comments on policy commitments, programme proposals and instruments that currently support NC projects

During our case study research we found 12 projects were taking place as a result of specific member state environmental protection policies, these included:

- Planning and development legislation;
- Environmental quality legislation (e.g. Water Quality);
- Forest protection/access legislation;
- Product quality policy (e.g. bottled water policy); and
- Requirements for ecological compensation under the Birds and Habitats Directives, related to the Natura 2000 network.

In addition to these findings a number of legislative activities were mentioned during stakeholder interviews, i.e. current policy initiatives and pilots including:

- UK:
  - Defra biodiversity offset pilots (6 pilots around England and Wales) due to report on findings in early 2014.
  - Defra Green paper on biodiversity offsetting currently released for consultation.
  - Defra PES pilots (10 across England and Wales). Some of these projects were completed in early 2013. Others are ongoing and are due to conclude in autumn 2013.
- Spain:
  - The Spanish government are currently developing a policy framework on biodiversity offsetting and establishing the habitat banking model as demonstrated in the USA wetland banking model.
- Denmark:
  - Green roof considerations being added to new build policies.
- France:
  - Mandatory biodiversity offsetting.
- General:
  - Most of the EU28 are listed as supporters of the Wealth Accounting Values and Ecosystem Services (WAVES) initiative with the exception of Croatia[17]. In addition, a number of The Economics of Ecosystems and Biodiversity (TEEB) assessments are also taking place at a member state level.

The list above is not exhaustive but indicative of the main areas of policy that were identified by stakeholders during our research.

## 6.2 Comments on broader financial mechanisms currently in use

Our research and stakeholder interviews identified grant funding as one of the few financial mechanisms for NC projects. We found 43 projects in our database that received grant funding, with the LIFE programme mentioned most frequently.

[17] Wealth Accounting and the Valuation of Ecosystem Services (2013) Natural Capital Accounting—List of Supporters (4 September 2013). Website available from http://www.wavespartnership.org/waves/sites/waves/files/documents/List-NCA-supporters-9-4-13.pdf [Accessed 05/11/2013]

In addition, three broad funding mechanisms were identified during our literature review or during stakeholder interviews, as with other comment sections this list is not considered to be exhaustive but indicative of the current financial mechanisms in use.

Five financial mechanisms were identified as supporting European NC projects (see Table 15). A number of other funds providing help to NC projects were excluded as their focus was exclusively on developing countries and therefore did not meet the criteria set out for this study.

Table 15: Summary of financial mechanisms identified during project research

| Financial mechanism | Website/further information | Summary |
|---|---|---|
| FFI financial fund for small projects | ■ No public information available | ■ Fauna & Flora International are developing a small fund to provide loans to small projects.<br>■ These loans will have more favourable terms for the projects by use of different assessment criteria than commercial loans e.g. social or environmental. |
| Netherlands bank support | ■ Website not available | ■ The Netherlands government allowed savers to deposit money into a forest/ sustainable bank account. Savers got tax incentive for depositing money in such accounts.<br>■ As a result of the scheme banks were able to lend on favourable terms to green projects. |
| Developing Pro-Biodiversity Business Opportunities | ■ www.ecnc.org/projects/business-and-biodiversity/developing-pro-biodiversity-business-opportunities/ | ■ Worked with SMEs and local financial institutions to create financing opportunities to benefit from financial gains of working on biodiversity conservation and sustainable use of natural resources.<br>■ Outputs were the design of an environmental micro-credit facility and outline design of a finance facility that would be able to work in countries such as Croatia and Bulgaria.<br>■ The aim was for the model to be used by both national and international financial support sources, not only in the target countries but elsewhere in the region. |
| EcoEnterprises Fund | ■ www.ecoenterprisesfund.com | ■ A venture capital fund, founded in 1998, that directs capital to community-based sustainable businesses to promote innovative market solutions that benefit the rural poor and preserve critical ecosystems.<br>■ Aims to addresses issues accessing finance for companies which are often too small, or in unconventional sectors eschewed by traditional financiers.<br>■ EcoEnterprises first fund, launched in 2000 invested $6.3 million in 23 sustainable companies.<br>■ The second fund, EcoEnterprises Partners II (EcoE II), builds on the first phase and targets companies at the next stage of business growth, providing expansion capital to bring impact results to scale. |
| Ginko Fund | ■ www.ginkgofund.com | ■ Aims to build a diversified portfolio of contaminated sites and to remediate them, before reselling them at a premium to third parties.<br>■ In certain cases, after remediation the Fund will seek to maximise value through the development of green real estate projects.<br>■ The geographical focus is Belgium and France.<br>■ Total approximate cost is estimated to be Euro 200 million[18]. |

## 6.3 Comments on awareness raising and scheme promotion

We identified a number of established frameworks for those undertaking NC related projects within the EU28 through which any NCFF could be promoted including:

- membership organisations e.g. the World Business Council for Sustainable Development (WBCSD); and Business Councils for Development (BSCDs) at a member state level;

[18] EIB (2008) Project Pipeline. Available from http://www.eib.org/projects/pipeline/2008/20080189.htm. EIB, Luxembourg. Accessed 11/11/2013.

- national environmental ministry websites across all EU28 member states;
- trade organisations relating to those sectors currently engaging in NC projects e.g. Bier; Consumer Goods Forum (CGF), etc.; and
- academic networks.

The European Commission may also consider launching the NCFF though its own website and publication channels or holding events/webinars to answer questions as to what the NCFF can provide and who the target users are.

## 6.4 Monitoring and evaluation

Through our research, from project case studies and stakeholder interviews, it is apparent that the amount of financial performance monitoring performed on projects was low. Only one case study project was identified in our research that had the allocation of project funding based on a scoring matrix for potential to meet sustainable forest management objectives and attract additional funding from third parties.

# Annex 1: Sources of evidence

The search terms used in this study were as follows.

### Search 1:

Macro-categories of project types:

- Biodiversity offsets
- Green infrastructure
- Payment for Ecosystem Services
- Small innovative pro biodiversity businesses

### Search 2:

- Small innovative pro-diversity/adaptation businesses
- Urban green infrastructure
- Rural green infrastructure
- Marine/blue infrastructure
- Agriculture and Forestry
- Biodiversity offsets and compensation mechanisms
- Waste

### Search 3:

- Additional searches on specific topics to address and confirm low numbers of projects for some member states and types of projects.

### For each category, searches were undertaken of the sources below.

- Websites
  - EU Websites
  - European NGOs
  - Industry Associations
  - Consultancies offering NC services
  - Country specific environment agency/ministry websites
- CSR reports of the top 20 EU companies by revenue for case study conservations based work based in the EU
- Industry, market and subject databases
- Studies commissioned by the Commission
- Other Background reports

### Websites:

| Source | Address/Information |
|---|---|
| **EU Websites** | |
| EC Website | ec.europa.eu/ |
| EUROSTAT | epp.eurostat.ec.europa.eu |
| European Environment Agency | www.eea.europa.eu/ |

| Source | Address/Information |
|---|---|
| **European NGOs with European reach and projects within the EU, and industry associations e.g.** | |
| WWF | www.wwf.eu/ |
| Earthwatch | eu.earthwatch.org/ |
| Environmental Investigation Agency | www.eia-international.org/ |
| European Environmental Bureau | www.eeb.org/ |
| World Business Council for Sustainable Development | www.wbcsd.org |
| International Emissions Trading Association | www.ieta.org |
| International Council on Mining and Metals | www.icmm.com/ |
| International Petroleum Industry Environmental Conservation Association | www.ipieca.org |
| Consumer Goods Forum | www.theconsumergoodsforum.com/ |
| United Nations Environment Programme | www.unep.org/ |
| International Finance Corporation | www.ifc.org/ |
| World Bank | www.worldbank.org |
| | |
| CSR reports of the top 20 EU companies by revenue for case study conservations based work based in the EU.<br><br>*Source FT500 2013 | Shell<br>BP<br>Volkswagen<br>Total<br>Glencore<br>E On<br>ENI<br>Daimler<br>GDF Suez<br>Enel<br>BASF<br>Tesco<br>BMW<br>Siemens<br>EDF<br>ArcelorMittal<br>Telefonica<br>Repsol<br>Vodafone Group<br>Deutsche Post |
| **General EU focused searches of the following databases** | |
| Environmental valuation reference inventory (EVRI) | www.evri.ca/Global/Splash.aspx |
| FACTIVA | www.dowjones.com/factiva/index.asp |
| Economist Intelligence Unit | www.eiu.com |
| The ENDS report | www.ends.co.uk |
| ENDS Europe | www.endseurope.com |
| **Consultancies** | |
| URS | www.ursglobal.com/<br>www.ursglobal.com/local/index.php?co=uk |
| EFTEC | www.eftec.co.uk/ |
| IEEP | www.ieep.eu/ |

| Source | Address/Information |
|---|---|
| **Country Environmental Agency/Ministry Websites** | |
| Austria | www.umweltbundesamt.at/en/ |
| Belgium | en.vmm.be |
| Bulgaria | eea.government.bg/en |
| Croatia | www.azo.hr |
| Cyprus | www.moa.gov.cy/moa/environment |
| Czech Republic | www.mzp.cz |
| Denmark | www.mst.dk/ |
| Estonia | www.envir.ee/ |
| Finland | www.valtioneuvosto.fi |
| France | www.ademe.fr/ |
| Germany | www.bmu.de |
| Greece | www.ypeka.gr |
| Hungary | www.kvvm.hu |
| Ireland | www.epa.ie |
| Italy | www.apat.gov.it/ |
| Latvia | www.meteo.lv/ |
| Lithuania | gamta.lt |
| Luxembourg | www.environnement.public.lu |
| Malta | msdec.gov.mt |
| Netherlands | www.government.nl/ministries/ienm |
| Poland | www.mos.gov.pl |
| Portugal | www.apambiente.pt |
| Romania | www.anpm.ro/ |
| Slovakia | www.sazp.sk/ |
| Slovenia | www.arso.gov.si |
| Spain | www.marm.es/ |
| Sweden | www.swedishepa.se |
| United Kingdom | www.environmentagency.gov.uk |

### Studies commissioned by the Commission (ENV and CLIMA)

Ecologic Institute and Environmental Change Institute (ECI), Oxford University (2011). Assessment of the Potential of Ecosystem-Based Approaches to Climate Change Adaptation and Mitigation in Europe. Report to European Commission.

EFTEC, IEEP and Environmental Finance (2012). Innovative Use of Financial mechanisms and Approaches to Enhance Private Sector Finance of Biodiversity. Final Summary Report to European Commission Directorate-General Environment.

IEEP (2013). Optimal Use of the EU Grant and Financial Instruments in the Next Multiannual Financial Framework to Address the Climate Objective. Final Report to European Commission Directorate – General CLIMA.

Institute for European Environmental Policy (IEEP), ICF GHK, and PBL Netherlands Environmental Assessment Agency (2013). Innovative Instruments for Financing Resource Efficiency. Final report for the European Commission – DG Environment. Institute for European Environmental Policy, London/Brussels.

## Background reports

Centre for European Policy Studies and IEEP (2012). The Implications For The EU And National Budgets Of The Use Of Innovative Financial Instruments For The Financing Of EU Policies And Objectives. Report to European Parliament Policy Department D: Budgetary Affairs.

Challenges and opportunities for cities together with supportive national and European policies. EEA. Luxemburg.

EEA (2012). Urban adaptation to climate change in Europe

EEA (2013). Adaptation in Europe Addressing risks and opportunities from climate change in the context of socio-economic developments. EEA. Luxembourg.

OECD (2010). Paying for Biodiversity enhancing the cost-effectiveness of payments for ecosystem services. OECD Publishing.

OECD (2013). Payments for ecosystem services, in Scaling-up Finance Mechanisms for Biodiversity, OECD Publishing.

Perspectives GmbH (2011). Application of Economic Instruments for Adaptation to Climate Change. Report to European Commission.

# Annex 2: Stakeholder interviews

### Stakeholders interviewed as part of this study

| Interviewee | Organisation | Stakeholder Group | Public Sector/ Private Sector | General or Specific questions |
|---|---|---|---|---|
| Helen Dunn | DEFRA | Public Sector | Public Sector | General questions |
| Dorthe Rømø | Municipality of Copenhagen | Public Sector | Public Sector | Specific questions |
| Bruno Barber | Ginkgo Fund | Financier | Private Sector | General and Specific Questions |
| Lukasz Wyra | EIB/JASPERS | Financier | Public Sector | General and Specific Questions |
| Ard Hordijk | Synnervate | Consultancy | Private Sector | General questions |
| Simon Petley | Enviromarket | Consultancy | Private Sector | Specific questions |
| Carolin Bossmeyer | Biodiversity in Good Company | CSO | Private Sector | General questions |
| Jaime Munoz-Igualada | Spanish Environment Ministry | Public Sector | Public Sector | General questions |
| Gerald Plattner | Österreichische Bundesforste AG | Private Company | Private Sector | Specific questions |
| Marjolein van Wijingaarden | EcoShape/Building with Nature | Consultancy | Private Sector | General and Specific Questions |
| Abyd Karmali | Bank of America Merrill Lynch | Financier | Private Sector | General questions |
| James Griffiths | WBCSD | CSO | Public Sector | General and Specific Questions |
| David Hill | Environment Bank | Private Company | Private Sector | General and Specific Questions |
| Paul Herbertson | FFI | CSO | Public Sector | General and Specific Questions |
| Emily McKenzie | WWF UK | CSO | Public Sector | General questions |
| Pierro Pelizzaro | City of Bologna/Kyoto Club | Public Sector | Public Sector | General and Specific Questions |
| Andrew Heald | UPM | Private Company | Private Sector | General and Specific Questions |
| Jonathan Baker | Collingwood Environmental Planning | Public Sector | Public Sector | General and Specific Questions |
| Ivo Mulder | UN EPFI | CSO | Public Sector | General and Specific Questions |
| Fabien Quétier | Biotope | Consultancy | Private Sector | General and Specific Questions |
| Chris Gerrard | Anglian Water | Private Company | Private Sector | General Questions |
| James Vause | DEFRA | Public Sector | Public Sector | General Questions |
| Mathieu Tolian | Veolia Water | Private company | Private Sector | General Questions |

## Stakeholder interview questions

### Generic questions (From those with high-level information on projects)

1. What is the size and structure of the market (general or specific typology depending on interviewee) and what are the realistic scenarios for the markets' short-term and long-term growth rates?
2. Which existing types of investment/private companies are servicing this market (general or specific typology depending on interviewee)?
3. Who are the relevant public sector stakeholders involved? What are the existing public financial incentives for these types of projects (e.g. subsidies/grants etc in the EU/national/regional/local levels)?
4. What are the motivations of the private sector to invest in such (general or specific typology depending on interviewee) Natural Capital (NC) projects? (e.g. business opportunities, business risk, reputational risk, integrated risk mitigation efforts, part of CSR schemes?)
5. Can you give examples of existing projects that generate revenues, save costs, and/or have private sector involvement (general or specific typology depending on interviewee) in this area?
6. Can you give us further contact details, information about these?
7. What are the main barriers that prevent private sector investments in NC projects to be developed? (e.g. high investment costs, low returns, uncertainty on potential benefits, lack of capacity, low information, lack of regulation etc.)
8. What type and form of investment instruments are currently available to companies active in this area?
9. Are existing instruments appropriate to finance NC projects? If not, what makes it more difficult to finance NC projects than other projects in those sectors?
10. What regulatory, economic, demographic, socio-cultural, technological or natural trends can be identified that affect the market growth?
11. How all the above will influence the prospects of an effort to set up a specialised financing vehicle founded on public funding while catalysing participations from private companies/investors?

### Case study specific questions (for project leaders/for identified case studies)

1. Project description (upfront if possible and check)
2. Size of project cost (Euros)
3. Who provides funding for the project?
4. Who delivers the project?
5. Who are the beneficiaries of the project? (i.e. what is the underlying value chain of the project?)
6. What are the drivers? (e.g. voluntary or legal obligation)
7. What are the barriers/market failures (what prevents capital flowing into this type of projects)?
8. How is revenue generated (are there any financial returns and/or cost savings)? Is there the potential for mitigating revenue generation risk/enhancing revenue?
9. Are any financial instruments used?
10. What types?
11. Are there any preferable options?
12. What would you need to scale up the project i.e. the right conditions?
13. How does monitoring and evaluation currently take place?
14. Are there any performance indicators in place?
15. Are there any specific success criteria?
16. Can/is the project be supported by any other existing instruments? (e.g. European Structural and Investment (ESI) funds)

## Summary of stakeholder interviews – General questions

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 4 | Private company | **Drivers**<br>■ Income generation.<br>■ Proof of concept for privatisation of natural capital assets i.e. projects to understand potential values of ecosystem services, business opportunities and the argument for market-based mechanisms.<br>■ Reputational benefits and/or differentiation.<br>■ Legal obligations (Austrian environmental laws and EU directives) and regulations e.g. water, nature conservation.<br>■ Communication and increasing awareness. |
| | | **Barriers**<br>■ Lack of regulation.<br>■ Lack of project track record/uncertainty of end result.<br>■ Lack of appropriate metrics (financial and ecological), appraisal quantification is uncertain.<br>■ Constraints on scaling up and funding structures.<br>■ Planning permission restrictions i.e. lack of knowledge in planning departments.<br>■ Customers are unwilling to pay more for more nature based products.<br>■ Time taken to find the right partnerships. |
| | | **Financial mechanisms (current)**<br>■ Grants, possible revenue generation from commission, management fees and consulting.<br>■ Partnerships (local charity to national organisations).<br>■ Self funded, funded by customer. |
| | | **Other comments**<br>■ The ecosystem projects that work well are already working successfully – difficult to make remaining work.<br>■ Getting land owners onboard with voluntary actions (from an offsetting context).<br>■ Markets are at an early stage. |

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 5 | CSO | **Drivers**<br>■ Pilot studies work based on environmental economic valuations.<br>■ Growth in the market (seen by increased interest in training).<br>■ The involvement of government at EU and national levels.<br>■ Security of supply issues.<br>■ A change in overall approach. Management of impacts and dependencies.<br>■ Regulation. |
| | | **Barriers**<br>■ Lack of regulatory drivers in many member states.<br>■ Investment for SMEs and small projects is picking up but projects generally have low returns and cannot compete with traditional businesses.<br>■ Projects are failing due to lack of market structure to generate revenues.<br>■ Lack of knowledge – looking at non-traditional opportunities, and people associated these with higher risk. This puts people off especially during recession.<br>■ A lot of the smaller businesses are developed by people who are entrepreneurial but do not have the experience/skills to put together financial plans that are investable by private sector.<br>■ Ecosystems are different and with different services, some of which are fungible and some of which are not. |
| | | **Financial mechanisms**<br>***Current***<br>■ Grants, government and academic. Membership fees etc.<br>■ Financing for offsetting/forest finance is developing, though more from a corporate operations finance perspective.<br>■ Bond market being developed by REDD+ and other initiatives.<br>■ Most initiatives are philanthropic or compensatory at present.<br>■ Offsetting and SMEs market is growing but less so for PES.<br>***Potential***<br>■ Increasing interest in financial mechanisms, e.g. grants, concessionary loans, and development of debt and even equity.<br>■ Finance facility where funding is being used to de-risk private investment in natural capital projects would be an interesting thing to explore and may help develop the market for ES projects.<br>■ PES is an increasingly innovative area – water payments, watershed management. These schemes should be localised, including generators and beneficiaries i.e. ecosystem service users, to create local markets, work could be done to establish the right mechanisms.<br>■ Another relatively recent area is the green infrastructure area, e.g. larger water filtration systems – these could include investment. |
| | | **Other comments**<br>■ The sense of urgency could drive a trend in the market. Social capital valuation is becoming something companies talk about more. More companies also talking about natural capital (globally).<br>■ Few incentives for companies to internalise the costs of impacts/dependencies.<br>■ There is a need to undertake quantification/financial packaging exercises for green infrastructure projects such as adaptation measures.<br>■ Governments need to bring in natural accounting, so the banks can invest in the PES market creation, invest in offsetting and NP projects, green infrastructure as opposed to brown or black. Initial subsidy reform also important.<br>■ Primary sector companies or those with very clear impacts and dependencies are the ones that will continue to be the first movers.<br>■ There is an opportunity for revenue generation with regard to offset projects, but there are few examples in the EU of the habitat banking model with the use of credits.<br>■ The buying and selling of nature is still a controversial topic amongst environmental NGOs.<br>■ Offsetting is important as we can't stop developers from their residual impacts. Trying to create the Net Positive impact could be interesting – making offsets more additional. |

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 4 | Financier | **Drivers**<br>■ Revenue generation. Market for new products (e.g. Green roofs).<br>■ Publicity/philanthropy.<br>■ Cost savings e.g. for barriers to storms etc.<br>■ Helping to ease the development process. |
| | | **Barriers:**<br>■ Lack of established market for products. Lack of income/defined revenue stream – main reason why private sector not involved.<br>■ Lack of information/track record that increases the perceived risk e.g. difficulty securing investors – significant concern over being able to monetise these types of projects.<br>■ Investor decisions are based on the rate of return.<br>■ Time taken to develop and set up projects and appropriate investments (time for pay back). Investment projects must be highly liquid. These types of products tend not to be.<br>■ Project finance is difficult where banks need to evaluate returns – they will be reluctant to lend.<br>■ Lack of regulation/reliance on policy i.e. where investment plans are based on policy there is reluctance as policy can change.<br>■ Lack of measurement methodology to measure benefits, to measure biodiversity. |
| | | **Financial mechanisms:**<br>■ Mixture of grants for enabling works/development.<br>■ Private sector investment for infrastructure development.<br>■ Support for pro-biodiversity businesses and project developers, then funds and other financiers will step in and provide capital.<br>■ Long term loans and development of 'special type of bank'.<br>■ NCFF funding could help them lower the rate of return needed.<br>■ In absence of the means of delivering returns – will remain philanthropic unless returns can be shown.<br>■ Limitations of nature – therefore this type of investment is driving bond market/institutional investors. |
| | | **Other comments**<br>■ Challenge is bringing projects into Europe; there are initiatives to finance PES – but not EU. |

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 4 | Consultancy | **Drivers**<br>■ Focus in Europe: very small scale biodiversity businesses (sustainable agriculture, eco-tourism).<br>■ Cost savings are always the main driver. Revenue generation is not really feasible currently.<br>■ Financial indicators are in legal agreements rather than proper financial metrics, etc.<br>■ Companies – utilities and brokers and consultancy interest.<br>■ Regulation e.g. offsets are mandatory in France. Typically in France this is part of the project financing and does not take special financing. The market mostly takes the form of direct compensation (i.e. Payments to NGOs), rather than use of brokers.<br>■ The main driver behind a lot of PES is effective risk management.<br>■ To speed up planning process. |
| | | **Barriers**<br>■ There is a lack of track record/knowledge from financiers in the area of PES and offsetting.<br>■ A lot of the investment is driven by water companies and governments – investors may or may not understand the financial business case but most financing happens on balance sheet, i.e. not project finance.<br>■ The scale of what is to be financed is a key question. Size of projects and scaling them up.<br>■ There are people looking at values of ecosystem services, but few mechanisms are set up whereby companies pay, because a lot of them are not willing to (due either to lack of knowledge or lack of regulation). It is difficult to monetise and model the values from ecosystem services.<br>■ Knowledge, Governance side, political situation.<br>■ Calculation of Cost/benefit – need to look at whole cycle on environmental time scales. Life cycle thinking.<br>■ Uncertainty of new solutions, always need a pilot. Need political champions – willing to prove on a small scale.<br>■ Lack of long term revenue generation, determined revenue streams.<br>■ There is not much monitoring of current projects. Some developers take a risk and do not comply.<br>■ Lack of a market in EU – no project developers exists.<br>■ Liquidity problem because these investments are long term investors require money at shorter timeframe.<br>■ No lenders possibility to take off the price for offsetting on the land cost (cheaper for offset).<br>■ Investment in projects is low as they are seen as public works.<br>■ Rating agencies are at an early stake of incorporating these kinds of corporate-level risks, but progress being made. |
| | | **Financial mechanisms: *Current***<br>■ No financial instruments money is taken from current pot for putting in place planning conditions.<br>■ The bond market is developing but is still at an early stage. Possibility to mandate institutional fund managers to incorporate these aspects. It's still niche, investors see them as interesting but not conventional asset classes.<br>■ Much of the investment at present is from impact investors. |
| | | **Other comments**<br>■ Developers sell a solution or concept, as a one-time process with no logical return of money over time.<br>■ The projects are mostly paid for by public sector. Developers do invest in pilot studies with the public sector in an effort to develop the technology so that full costs can be charged in the future. |

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 3 | Public | **Drivers**<br>■ Planning policy.<br>■ Projects are driven by cost reduction, wider environmental benefits, costumer demand, co funding – match funding.<br>■ Local enterprise partnership/local nature partnership (UK). |
| | | **Barriers**<br>■ Lack of knowledge, understanding of who is benefiting, lack of metrics to demonstrate the financial returns and environmental benefits.<br>■ Small size of projects – for the NCFF it will need to consider the size of the projects.<br>■ There is no direct financial support.<br>■ Lack of track record.<br>■ High cost of projects.<br>■ Technical matters (both environmental and financial). Complexity in project development phase (due to involvement of multiple stakeholders and contractual arrangements, e.g. leasing agreements with land owners). |
| | | **Financial mechanisms (general comments)**<br>■ Potential for schemes to possibly bring in either subsidy or tax break, or potentially fast track permitting or other permit enhancements.<br>■ There is potential for a fund (offsetting context) to be established to help develop the banks, which could involve private sector/commercial banks, but there is still a need for a clear regulatory framework for this to happen.<br>■ The project should be able to exist without incentive scheme, though incentive helpful to give initial market boost. |
| | | **Other comments**<br>■ In Germany, France and the UK there is some progress on offsetting but to date there are few habitat-banking style projects. |

The number of interviewees does not add up to the total as some participants only answered project specific questions (see following summary table).

## Summary of stakeholder interviews – Specific project questions

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 5 | Public Sector | **Project Examples and Size**<br>■ Green roofs in municipality of Copenhagen – cost of project DKR600/$m^2$<br>■ Forest flood protection projects in Poland – €49 million<br>■ Recovering habitats for endangered species – Not available<br>■ Protection of cork forest (Portugal) – USD20 – 30,000<br>■ Adaptation plan for Bologna – €958,000 over three years<br>■ Biodiversity offset pilots (UK)<br>■ Watershed partnership (France)<br>**Funding Source**<br>■ Private sector companies<br>■ EU funding<br>■ Government funding<br>■ NGO funding<br>■ Agricultural industry<br>■ Research funding<br>■ Utility company<br>**Drivers**<br>■ Availability of grants<br>■ Policy drivers<br>■ Cost savings<br>■ Planning process efficiency<br>**Barriers**<br>■ Lack of knowledge of technology<br>■ Lack of funding mechanisms for conservation<br>■ Perceived high risk of projects<br>■ Experience/skills to put together financial models/business plans<br>**Revenue generating mechanism**<br>■ Market for new products<br>■ Cost savings<br>■ Commission on transaction<br>■ Fees for use of ecosystem service (e.g. Clean water)<br>**Financial mechanism**<br>■ Grants |

| No. of int. | Stake-holder Category | Interview summary (barriers/driver/financial mechanisms) |
|---|---|---|
| 9 | Private Sector | **Project Examples and Size**<br>■ Infrastructure fund for brownfield site remediation and subsequent construction of energy efficient buildings – €81million<br>■ Consultancy – advice and technical support on market-based financing solutions for ecosystem restoration and sustainable management<br>■ Private company operating in forestry management, educational and awareness projects, implementation of compensation measures (notably for infrastructure projects) and ecosponsoring – €6 million over six years<br>■ Sand engine – coastal erosion project on Dutch coast<br>■ Biodiversity offsetting market UK – £500,000/year<br>■ Forest planting scheme for conservation of golden eagles in Argyle (Scotland)<br>**Funding Source**<br>■ Public bodies<br>■ Institutional investors<br>■ Land Owners<br>■ Own funding<br>■ Consultancy services<br>■ Private foundation<br>**Drivers**<br>■ Returns<br>■ Real estate prices<br>■ Risk management<br>■ Legal obligations<br>■ Communication and awareness<br>■ Cost savings<br>■ Reputational benefits<br>**Barriers**<br>■ The required rates of return<br>■ Difficult to monetise benefit<br>■ Calculation of Cost/benefit<br>■ The Value of natural capital is not being recognised<br>■ Lack of legal requirement<br>■ Project site access<br>**Revenue generating mechanism**<br>■ Sale of land<br>■ Eco-sponsoring and communication activities<br>■ Water payments/watershed management<br>■ Commission for biodiversity offset credit sales<br>**Financial mechanism**<br>■ Equity investment<br>■ Grant funding |

# Annex 3: References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# Annex 4: Deliverable database

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Reservwet<br>Mediterranean reservoirs and wetlands. A demonstration of multiple objective management in the island of Crete. | Rural green infrastructure | | | X | | 1.70 | 400 Wetlands (>1ha) | Research institute | Generation of revenues | - | Tourism/ recreation/education | Greece | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1866 |
| 2 | GALLECS<br>Demonstration project on land use and environmental management of the physical planning in Gallecs as a biological and stable connector in the fringe space of Barcelona metropolitan area. | Urban green infrastructure | | | X | | 1.50 | - | Civil society organisations | Generation of revenues | - | Water management | Spain | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2094 |
| 4 | Donauufer<br>Restoration of Danube river banks. Removal of artificial banking elements strengthening the banks of river so that erosion and accretion could re-build natural river bank structures. | Rural green infrastructure | | | X | | 1.77 | 30 km stretch of river | Local authority<br>Local community | Generation of revenues | - | - | Austria | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1967 |
| 5 | Vittel<br>PES programme developed and implemented by Vittel to address problems relating to the aquifer from which Vittel's bottled water is drawn, principally rising nitrate concentrations from agricultural intensification in the area. | Agriculture and Forestry | X | | | | 1.46 | 5,100 ha | Private sector company<br>Land owners | Regulatory compliance | - | Water management | France | - | http://pubs.iied.org/pdfs/G00388.pdf |
| 6 | Romagna Acque S.p.a.<br>Part of the revenues derived from the water tariff payments (1-3%) has been used to compensate landowners in the catchment | Agriculture and Forestry | X | | | | - | 5,200 Ha | Private sector company<br>Land owners | Cost reduction | - | Water management | Italy | - | http://www.sisef.it/iforest/contents/?id=ifor0626-005 |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | areas, helping them to cover the costs related with management practices changes. | | | | | | | | | | | | | | |
| 7 | Mature Forest Reserves Conservation of mature forest stands (>80-100 y.o.) To overcome scarcity of mature forest stands, in view of conserving the biodiversity they host. A public administrator launches an annual call addressed to owners of forest parcels, offering them a reward for their commitment to leave the stands in natural evolution during thirty years more. | Agriculture and Forestry | X | | | | 0.50 | 700 ha | Local authority Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | Spain | Grant | http://www.thinkforest.efi.int/files/attachments/events/2012/mavsar_thinkforest_27112012.pdf http://www.sylvamed.eu/docs/12Art%20_8_NEsp1_VII_SJRD.pdf |
| 8 | Land Stewardship Starting in the 1980s, civil organizations got engaged in forest activities aimed at enhancing biodiversity and recreation, by means of land purchase or more or less formal agreements with forest owners. In 2000 these initiatives were formalized under the umbrella of the land stewardship network, these organizations constitute an intermediary between their members and donor enterprises and the landowner. | Agriculture and Forestry | X | | | | 1.16 | > 60,000 ha | Civil society organisations Land owners | Generation of revenues | Shortage in continuous funding. Need for 'seed' prog-rammes, Land owner's non acceptance for their land use. | Maintenance of habitats/ biological diversity | Spain | - | http://www.thinkforest.efi.int/files/attachments/events/2012/mavsar_thinkforest_27112012.pdf http://www.sylvamed.eu/docs/12Art%20_8_NEsp1_VII_SJRD.pdf |
| 9 | Compensation for water purification service (Italy) Part of the water tariff re-invested for forest improvements within the catchment area. | Agriculture and Forestry | X | | | | - | - | Private sector company Civil society organisations Land owners | Generation of revenues | - | Water management | Italy | - | http://www.sisef.it/iforest/contents/?id=ifor0504-002 |
| 10 | Payments for forest fire prevention and water protection. Water provider pays for | Agriculture and Forestry | X | | | | - | 2,000 ha | Land owners Private sector company | Generation of revenues | - | Disaster moderation/ adaptation | France | - | http://www.thinkforest.efi.int/files/attachments/events/ |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | maintaining fuel break network, limiting the risk of wildfires, which can have negative impact on dam siltation and water quality. | | | | | | | | | | | | | | 2012/mavsar_thinkforest_27112012.pdf http://www.sylvamed.eu/docs/PES_foret_eau_protection_maures_eng.pdf |
| 11 | Mushrooms and truffle picking permits Wild-mushroom picking is regulated by law, mainly with the purpose of ensuring that mushroom harvesting activities are sustainable and do not have a too strong negative impact on other components of the forest ecosystem. Forest landowners are free to collect as many mushrooms as they want or need from their land with no restrictions, while all the other pickers are subjected to the purchase of daily, weekly or monthly permits and to daily caps. | Agriculture and Forestry | X | | | | - | 20 Ha | Land owners | Generation of revenues | - | Food provision | Italy | - | http://www.thinkforest.efi.int/files/attachments/events/2012/pettenella_thinkforest_27112012.pdf |
| 12 | The Green Heart of Cork Project Forest landowners committed to maintain good forest management practices within the 16.000 ha FSC certified areas. FSC certification places a strong focus in criteria related to biodiversity conservation and watershed protection. Approximately 600 hectares (ha) were considered to be of critical importance for biodiversity and water recharge of the aquifer T3 and therefore were considered High Conservation Value Areas. | Agriculture and Forestry | X | | | | - | 16,000 | Private sector company Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | Portugal | - | http://www.thinkforest.efi.int/files/attachments/events/2012/pes_event_bugalhomnthinkforestseminar27thnov.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | Adventure Parks<br>A series of acrobatic trails built on high tree trunks, with ropes and wires attached to different trees. | Small innovative pro-diversity/adaptation businesses | | | | X | 0.25 | - | Local authority<br>Land owners | Generation of revenues | - | Tourism/ recreation/ education | Italy | - | http://www.sisef.it/iforest/contents/?id=ifor0504-002 |
| 14 | NLF and Oldenburg-Ostfrisischer-water-association (OOWV)<br>Afforestation of farm land to reduce water treatment costs. In 1989 the NLF and Oldenburg-Ostfrisischer-water-association (OOWV), one of the largest drinking water suppliers in Lower Saxony, signed an agreement to secure higher water quality in the sparsely wooded Weser-Ems region.<br>In this region, intensive agricultural use has lead to an increasing input of nitrates creating higher drinking water treatment costs. | Agriculture and Forestry | X | | | | - | 1,800 ha | Land owners<br>Private sector company | Cost reduction | - | Water management | Germany | - | http://www.eustafor.eu/failid/File/Publications/Eustafor_ecosystem_report_2011.pdf |
| 15 | Sveaskog forest management<br>Forest management is directed towards maximising carbon uptake on the basis that improving the forest's capacity to grow enhances photosynthesis to develop extra biomass and so store additional atmospheric carbon. | Agriculture and Forestry | | X | | | - | 40,000 | Land owners<br>Private sector company | Regulatory compliance | - | Carbon management | Sweden | - | http://www.eustafor.eu/failid/File/Publications/Eustafor_ecosystem_report_2011.pdf |
| 16 | Approaching Protection Forests Management<br>Österreichische Bundesforste AG (ÖBf AG) manages 146,400 hectares of protective forest (i.e. 28% of the forest holding) to secure the protective function of those forests in the long term. | Agriculture and Forestry | X | | | | - | 146,400 | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | Austria | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | This service meets a fundamental principle of the company, which is to protect and improve the natural resources and biodiversity entrusted to ÖBf AG. | | | | | | | | | | | | | | |
| 17 | Conservation of rare and endangered forest species<br>The conservation and care of rare and endangered species of forest trees and shrubs has been implemented since 2000 and is one of the provisions in the Sustainable Forest Management (SFM) Programme of the Czech State Forest Enterprise (LČR s.p.). This programme continues to support increasing populations of rare and endangered tree species, such as yew, wild service, bird cherry etc. and indirectly supports the wildlife and other organisms that depend on these tree species. | Agriculture and Forestry | X | | | | 2.60 | - | NGO<br>Local authority<br>Private sector company | Reputat-ional benefits | - | Raw materials | Czech Republic | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |
| 18 | Water quantity, soil formation – Forest watershed management<br>A programme of sustainable forest management – to create optimal relations between all forest functions and the market environment and at the same time to ensure permanent production of quality timber while respecting and developing the environmental functions of the forest. | Agriculture and Forestry | X | | | | - | 30,000 km of watershed | Private sector company | Generation of revenues | - | Water management | Czech Republic | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |
| 19 | Wetland restoration & Royal fern (Osmunda regalis L.)<br>This project is part of a compensation plan related to the building of a national high speed | Biodiversity offsets and compensation mechanisms | | X | | | - | 125 Ha | Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | France | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studie |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | railway (LGV Rhine-Rhone) by the French Railway Network organisation, RFF. In constructing the railway, 125 ha of wetland were destroyed and RFF bought an equivalent area of wetlands to conserve them and they have also initiated other restoration projects including this one. | | | | | | | | | | | | | | s.pdf |
| 20 | Krickmeere: Nature compensation area<br>The Lower Saxony state forests (NLF) manage 340,000 ha forests in Northern Germany. In this region, large infrastructure projects such as the new harbour of Wilhemshaven and highland railways created a need for nature compensation. | Biodiversity offsets and compensation mechanisms | | X | | | 11.25 | 18 ha | Land owners | Generation of revenues | - | Maintenance of habitats/biological diversity | Germany | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |
| 21 | Angler services<br>Water bodies also became highly regarded by local people for their attractiveness and good potential for recreational fishing, for which people were willing to pay. Forest Districts started working with local angling associations and stocking the water bodies with fish. The market is now growing steadily and there is a need to regulate the numbers of anglers to ensure the natural values of the water features are not compromised. | Rural green infrastructure | X | | | | - | - | Local authority<br>Land owners | Generation of revenues | - | Tourism/ recreation/ education | Poland | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |
| 22 | Nature Reserves<br>Nature Reserves are valuable assets protecting the habitats of many rare species of flora and fauna. The State Forest Holding looks after 1,229 nature reserves | Rural green infrastructure | X | | | | - | 121,277 | Local authority<br>Land owners | Generation of revenues | - | - | Poland | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | covering 121,277 hectares, which is about 80% of all Nature Reserves in the country. 66 of these sites (3,000 ha) are 'strict reserves' where management intervention is very limited. In recent years, there has been an increase in tourism interest in visiting Nature Reserves. | | | | | | | | | | | | | | |
| 23 | Freshwater Distribution Within the National Forest Holding, 1,414,000 ha of the forest land (20%) provide protective land cover for watersheds. These forests have modified management regimes. Because the managed forests are able to regulate the water flow through this natural process, areas where fresh water springs occur can be leased to private businesses to extract and market the clean water for beverages and drink production. | Agriculture and Forestry | X | | | | - | 1,414,000 | Private sector company | Generation of revenues | - | Water management | Poland | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |
| 24 | Scottish Forest Alliance [FLAG] The SFA is a woodland conservation project that brings together a global private sector company (BP), a state forest service (Forestry Commission Scotland (FCS)) and two non-governmental organisations; the Woodland Trust Scotland (WTS) and the Royal Society for the Protection of Birds (RSPB). The aim is to create 10,000 hectares of new woodland in 14 sites across Scotland to enhance biodiversity, encourage community involvement with woodlands and forests and further | Agriculture and Forestry | | X | | | 17.40 | 8,414 ha | Land owners | Generation of revenues | - | Carbon management | UK | - | http://www.eustafor.eu/failid/File/Publications/Ecosystems%20Services%20Case%20Studies.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | research into carbon sequestration. | | | | | | | | | | | | | | |
| 25 | SCaMP 1&2<br>SCaMP (Sustainable Catchment Management Programme) aims to develop an integrated approach to catchment management in the North West, England. The SCaMP project is being undertaken by United Utilities in partnership with the RSPB and is a good example of a partnership approach with private, public and non-governmental organisations managing the land for a wider range of ecosystem services and benefits. | Agriculture and Forestry | X | | | | 15.49 | 56,385 ha | Land owners | Regulatory compliance | - | Water management | UK | - | http://corporate.unitedutilities.com/The%20SCaMP%20solution.aspx |
| 27 | South West Water<br>PES scheme co-developed between South West Water (buyer) and the Westcountry Rivers Trust (broker), who had a knowledge of the catchment wide actions that could be sold to farmers which would lead to improved water quality. | Agriculture and Forestry | X | | | | 10.21 | 2,000 ha | Land owners | Generation of revenues | - | Water management | UK | - | http://upstreamthinking.org/index.cfm?articleid=8692 |
| 28 | WWF Danube-Carpathian Programme – Ciocanesti fish ponds<br>Ciocanesti pilot site is located on the Romanian Lower Danube, within the former Danube floodplain in Calarasi County. Much of the former mosaics of wetlands and natural channels, reed beds and patches of natural floodplain forest have been lost, but some remain, especially around the highly productive fish ponds, These ponds contribute | Rural green infrastructure | X | | | | - | 255 ha | Private sector company<br>Land owners | Generation of revenues | - | Food provision | Romania | - | http://www.icpdr.org/main/publications/promoting-payments-ecosystem-services-danube-basin |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | considerably to the local economy but at the same time also to biodiversity conservation. | | | | | | | | | | | | | | |
| 29 | WWF Danube-Carpathian Programme – Lezer fish ponds Lezer pilot site is located on the Romanian Lower Danube, within the former Danube floodplain in Calarasi County. | Rural green infrastructure | X | | | | - | 530 ha | Land owners | Generation of revenues | - | Food provision | Romania | Grant | http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/our_solutions/green_public_funds/pes/the_danube_pes_project/pilot_activities_/iezer_pilot_site/ |
| 30 | WWF Danube-Carpathian Programme -Maramures pilot site The Maramures Heritage Trail links seven villages, seven protected areas, and two NATURA 2000 sites on the 45,000 ha large pilot site. A Biodiversity Conservation Fund managed by a local association and set up under the Danube PES project will collect revenues from tourism generated by this Maramures Heritage Trail and invest them into biodiversity conservation measures in the area. | Rural green infrastructure | X | | | | - | 45,000 ha | Land owners | Generation of revenues | - | Carbon management | Romania | - | http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/our_solutions/green_public_funds/pes/the_danube_pes_project/pilot_activities_/maramures_pilot_site/ |
| 31 | WWF Danube-Carpathian Programme -Rusenski Lom pilot site WWF activities focus on maintaining and enhancing these biodiversity values by mobilising financial support for nature friendly agriculture, marketing locally produced food and food products from the High Nature Value grasslands and | Rural green infrastructure | X | | | | - | 3,408 ha | - | Generation of revenues | - | Food provision | Bulgaria | - | http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/our_solutions/green_public_funds/pes/the_danube_pes_project/pilot_activities_/rusenski_lom_pilot_site/ |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | implementing sustainable forestry management in the park forests. The tourism branch has become a partner for these activities. The WWF team plans to set up a local Conservation Fund to supply the Park Administration with additional resources for managing visitor streams and supporting conservation activities for e.g. Egyptian vulture, Black stork, the European ground squirrel, or Crex crex. | | | | | | | | | | | | | | |
| 32 | WWF Danube-Carpathian Programme -Persina pilot site Persina Nature Park, one of 11 Bulgarian Nature Parks, is an area of high conservation value. | Rural green infrastructure | X | | | | - | 21,762 ha | Local community | Generation of revenues | - | Carbon management | Bulgaria | - | http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/our_solutions/green_public_funds/pes/the_danube_pes_project/pilot_activities_/rusenski_lom_pilot_site/ |
| 33 | West Country Rivers Trust Anglers' Passport Landowners improve fishing beats through capital investment in infrastructure such as fencing and coppicing. Access to fishing beats is sold to anglers as tokens via the Westcountry Rivers Trust. Anglers deposit the tokens at fishing beats used; landowners then redeem the value of the tokens from the Trust. | Rural green infrastructure | X | | | | - | 95,000 ha | Land owners | Generation of revenues | - | Tourism/ recreation/ education | UK | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 35 | Environmental Stewardship – ELS and HLS Agri-environment scheme run by Natural England since 2005. | Agriculture and Forestry | X | | | | - | - | Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | UK | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Agricultural landowners and managers across England are paid for on-going management practices that provide ecosystem services. | | | | | | | | | | | | | | /file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 36 | Lysekil Nutrient Trading Scheme Trial scheme whereby payments were made to mussel farmers to encourage the cultivation of Blue Mussels which filter excess nutrients and reduce eutrophication, thereby improving water quality. However, a lack of demand for the mussels meant that revenue could not be guaranteed and the trial scheme was unsuccessful. | Urban green infrastructure/ Marine/ Blue infrastructure | X | | | | 0.16 | - | Land owners | Cost reduction | - | Water management | Sweden | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 38 | Nurture Lakeland Visitor Payback Scheme supporting the ecosystem services pilot in Bassenthwaite Catchment. Visitors donate money to promote landscape management via participating local businesses, providing a mechanism for tourists who benefit from the natural environment to directly support it. | Rural green infrastructure | X | | | | - | - | Civil society organisations NGO | Generation of revenues | - | Water management | UK | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 39 | Pumlumon Project Scheme taking an economic-based approach to ecosystem management with landowners in the Cambrian Mountain range and addressing multiple ecosystem services. Scientifically validated monitoring ensures improvements to ecosystem service delivery are demonstrated to funders. Beneficiaries include residents downstream (water | Agriculture and Forestry | X | | | | - | 40,000 ha | Land owners | Generation of revenues | - | Water management | UK | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf http://media.wix.com/ugd/111722_8601bbdd48f30d12 |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | quality and supply), tourists and visitors, and the general public (carbon storage and sequestration). | | | | | | | | | | | | | | 8c555366eddbc046.pdf |
| 40 | Slowing the flow at Pickering<br>A scheme investigating whether better land management can enhance flood protection for Pickering and deliver co-benefits for water quality, wildlife and soil protection.<br>The scheme aims to achieve protection for 1 in 25 year flooding events through a mixture of land management measures and woodland creation. Multiple funding sources support the project on the behalf of beneficiaries such as local residents and businesses (flood protection). | Agriculture and Forestry | X | | | | 0.28 | - | Land owners | Generation of revenues | - | Disaster moderation/ adaptation | UK | Grant | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 41 | Wessex Water's catchment management programme<br>Wessex Water invests in catchment management for the benefit of improved water quality in catchments service Wessex Water abstraction points and to mitigate the impacts of low flows in rivers. Payments are made to farmers to implement improvements to farming operations which can contribute to improved water quality by reducing nitrates, phosphates, agrochemicals and sediment in surface run-off. | Agriculture and Forestry | X | | | | - | - | Land owners | Cost reduction | - | Water management | UK | - | https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 42 | Woodland Carbon Code – Warcop Training Area pilot<br>The Forestry Commission's | Agriculture and Forestry | | X | | | - | 9,550 ha | Land owners | Generation of revenues | - | Carbon management | UK | - | https://www.gov.uk/government/uploads/system/upload |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Woodland Carbon Code provides standards for woodland creation for carbon storage. This pilot was developed between the MOD and the Woodland Trust to develop new woodlands on MOD training areas at Warcop. Funding comes from retail companies wanting to mitigate carbon emissions and also from the North Pennines AONB. | | | | | | | | | | | | | | s/attachment_data/file/200901/pb13932a-pes-bestpractice-annexa-20130522.pdf |
| 43 | Environmental Sensitive Area and Countryside Stewardship Scheme Countryside Stewardship was introduced as a pilot scheme in England in 1991 and operates outside the Environmentally Sensitive Areas. Payments are made to farmers and other land managers to enhance and conserve English landscapes, their wildlife and history and to help people to enjoy them. | Agriculture and Forestry | X | | | | - | - | Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | UK | - | http://www.naturalengland.org.uk/ourwork/farming/funding/closedschemes/css/default.aspx |
| 46 | Karelian Mires – Karelian mires and virgin forests Protection of boreal forests and their species in northern Karelia and restoration of habitats to their natural state is the main objective. Local communities would be encouraged to develop small-scale tourism initiatives around these forests and mires, which in turn would help to diversify the local economy. | Agriculture and Forestry | | | X | | 1.46 | 373.5 ha | Local authority | Generation of revenues | - | Tourism/ recreation/ education | Finland | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2495 |
| 47 | BurrenLIFE – Farming for conservation in the Burren A new model for the sustainable agricultural management of the priority habitats of the Burren. | Agriculture and Forestry | | | X | | 2.23 | 2,000 ha | Local authority Local authority NGO | Generation of revenues | - | Maintenance of habitats/ biological diversity | Ireland | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage& |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | | | | | | | | | | | | | | | n_proj_id=2661 |
| 48 | Wallasea Island Wild Coast (UK) A £12 million scheme to break open Wallasea's remaining sea walls and turn the rest of the island's farmland into a wetland bird reserve. | Rural green infrastructure | | | X | | 12.00 | - | Land owners Private sector company NGO | Generation of revenues | - | Erosion control/soil management | UK | - | EBA_EBM_CC_Final Report |
| 49 | Augustenborg, Malmö Augustenborg (Malmö, Sweden) has experienced periods of socio-economic decline in recent decades, and frequently suffered from floods caused by overflowing drainage systems. Ekostaden Augustenborg is a program to make Augustenborg into a more socially, economically and environmentally sustainable neighbourhood. | Urban green infrastructure | | | X | | 22.00 | - | Local community | Generation of revenues | - | - | Sweden | - | EBA_EBM_CC_Final Report |
| 50 | De Doorbraak This new stream with a length of 13 kilometres is being constructed for several reasons – additional pumping for water, rainwater harvesting; better quality of water (relatively clean water to a rural area in the Regge drainage, making restoration and conservation of nature and landscape possible and providing clean water for agricultural activities); for benefits of plant and animal species the project is an ecological connection created between Twente and Salland. | Rural green infrastructure | | | X | | 60.00 | - | Local authority | Generation of revenues | - | Water management | Nether-lands | Grant | EBA_EBM_CC_Final Report |
| 51 | Connecting wildlife between the alps and the Carpathians The Austrian Federal Ministry for Traffic, Innovation and | Rural green infrastructure | | | X | | 0.82 | - | Local authority | Generation of revenues | - | - | Austria | Grant | http://www.eeb.org/publication/documents/EEB_GreenInfra_FINAL.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Technology, in broad partnership of organisations including environmental NGOs and hunters, supported by the Austrian and Slovakian road authorities, have joined forces to construct and preserve a coherent corridor from the Alps to the Carpathians. Cornerstones of this project are improvements in the traffic network by building 'green bridges' over highways at key points/bottlenecks as well the creation of suitable habitat patches or stepping stones, which will serve as a sort of roadside restaurant or resting place for migrating animals. | | | | | | | | | | | | | | |
| 53 | Multi-Functional Climate Buffers And 'Ecological Hubs' In The Netherlands<br>The project is a joint initiative, a number of Dutch conservation organisations and the state forest board are proposing the development of multi-functional natural climate buffers, which should increase the amount of space available in this densely populated country to deal with more water while at the same time providing opportunities for recreation and innovations in housing such as floating houses. | Rural green infrastructure | | | X | | - | 100,000 ha | Local authority | Generation of revenues | - | - | Netherlands | - | http://www.eeb.org/publication/documents/EEB_GreenInfra_FINAL.pdf |
| 54 | Bialowieza Forest – Ecological Network Pilot Project. | Agriculture and Forestry | | | X | | - | - | Local authority | Generation of revenues | - | - | Poland | - | pdf provided by UK team – EEB GreenInfra_Final |
| 56 | Integrated management of agriculture in the surroundings of community importance wetlands | Agriculture and Forestry | | | X | | 1.08 | - | Civil society organisations | Generation of revenues | - | - | Spain | Grant | http://ec.europa.eu/environment/life/project/Projects/ind |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | (sustainable wetlands)<br>A study of ecological farming in Spain and defined field practices and techniques together with local farmers, mainly based on the concept of conservation and integrated agriculture. This 'Sustainable Wetlands' project proposed agricultural practices which conserve the natural resources using demonstration plots supplied by farmers in the catchment basins of wetlands and applying a 'bottom-up' approach of the concept of integrated land management. | | | | | | | | | | | | | | ex.cfm?fuseaction=home.createPage&s_ref=LIFE04%20ENV/ES/000269 |
| 59 | National Ecological Network<br>National Ecological Network is a joint network resource defined by Ministry of Agriculture, Nature, Food Quality, to provide an area that is suitable for important animals in the ecosystem to live in. The area is divided into three districts: Core area, Nature Development areas and Ecological Corridor to make up the NEN. It is one of the most important parts of the project. And the Natural Policy Plan helps to paint the picture and summarized the outline of the natural resource and landscape policy for Dutch government. | Rural green infrastructure | | | X | | 12.40 | 728,500 ha of land and 6,300,000 ha of freshwater and marine areas. 275,000 ha of the terrestrial total can be regarded as 'new nature' | - | Generation of revenues | - | Tourism/ recreation/ education | Nether-lands | Grant | GI Case analyses pdf |
| 60 | The Ecological Continuum Initiative and ECONNECT project<br>The project's main aim is to maintain or restore ecological connectivity between important areas for nature conservation in the Alps. Implementing an | Rural green infrastructure | | | X | | - | - | - | Generation of revenues | - | - | France | Grant | GI Case analyses pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ecological network for the Alpine region, based on the requirements on ecological networks of the protocol on the conservation of nature and the countryside of the Alpine Convention. The project's main aim is to maintain or restore ecological connectivity between important areas for nature conservation in the Alps. | | | | | | | | | | | | | | |
| 62 | The Pumlumon Project To create "a connected, functioning, sustainable landscape for wildlife and people." This is to be achieved through halting biodiversity decline, inspiring people to value the natural world and the promotion of sustainable use of ecosystem services. The work on the project to achieve this goal is expected to be ongoing for the period of approximately 30 years. It contains a multitude of sub-projects specifically aimed at protecting endangered species, restoring threatened habitats and promoting specific services such as carbon sequestration and water management. Work carried out to date includes the blocking of drains to restore heath land, replanting of woodland and changes of agricultural practices to ensure sympathetic grazing. | Rural green infrastructure | | | X | | 0.53 | 40,000 ha | - | Generation of revenues | - | Tourism/ recreation/ education | UK | - | GI Case analyses pdf |
| 63 | The LIFE project: Protection and Management of Coastal Habitats To ensure the conservation, restoration and sustainable management of coastal habitats | Marine/blue infrastructure | | | X | | 1.66 | 500 km of length and 300 m of width, beginning | - | Generation of revenues | - | Tourism/ recreation/ education | Latvia | Grant | GI Case analyses pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | and species of Community importance. It did so by mapping and evaluating coastal habitats of Community importance, planning the appropriate protection and management measures in protected nature areas. | | | | | | | from the waterline on the terrestrial side. The total surface area of the project was 32,000 ha (including approx. 19,000 ha of habitats of Community importance). | | | | | | | |
| 64 | Strategy for Integrated Coastal Zone in Spain<br>An initiative to integrate the management of the Spanish coast into cross-sectoral and long-term activities and the planning of the area. It is particularly interesting for the assessment of the costs associated with land purchase. The third example, BaltCICA, presents an approach to managing the coast in such a way as to improve adaptation and mitigation to climate change. | Marine/blue infrastructure | | | X | | 6.42 | - | - | Generation of revenues | - | - | Spain | Grant | GI Case analyses pdf |
| 65 | BaltCICA Project<br>The BaltCICA Project is designed to focus on the most imminent problems that climate change is likely to cause in the Baltic Sea Region. The aim of the BaltCICA project is to achieve a better capability to deal with the impacts of climate change.<br>Special emphasis is on adaptation to sea-level rise and the changing | Marine/blue infrastructure | | | X | | 5.27 | - | - | Cost reduction | - | - | Finland | Grant | GI Case analyses pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | frequency and magnitude of floods for the cities and regions located on the Baltic coast. | | | | | | | | | | | | | | |
| 66 | Hélianthème – Dry calcareous and rupicolous grasslands of lower and middle valleys of the Meuse basin<br>The project aims to restore dry grasslands to a favourable conservation status and raising awareness among the local population about the invaluable natural resources, and providing visitor and interpretation facilities at the sites | Rural green infrastructure | | | X | | 4.82 | 150 ha of dry grasslands | Local authority<br>Local community | Generation of revenues | - | - | Belgium | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.createPage&s_ref=LIFE07%20NAT/B/000043 |
| 67 | Using local labour to restore active blanket bog in the Berwyn and Migneint SACs in Wales<br>The purpose of the project was to bring about a significant and sustained improvement in the condition of blanket bog in key parts of two SACs in Wales, providing considerable employment and economic benefits to the area. | Rural green infrastructure | | | X | | 3.76 | Restoration and conservation over 5,039 ha of the Berwyn and South Clwyd Mountains SAC | NGO | Generation of revenues | - | Tourism/ recreation/ education | UK | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.createPage&s_ref=LIFE06%20NAT/UK/000134&area=1&yr=2006&n_proj_id=3152&cfid=485795&cftoken=4fee30cd539f47cc-4D3959B5-A834-B2E2-68BCD9CBEDEE5A8E&mode=print&menu=false |
| 69 | Sigma Plan, Scheldt Estuary<br>A long-term strategy and list of projects to manage flood protection and nature restoration of the Scheldt estuary in Belgium. It includes a series of projects in the short and longer term (2006–2030) to restore flood plains, estuarine nature and | Urban green infrastructure | | | X | | - | 50 projects covering over 5,000 ha of nature restoration measures over the full length of the Zeeschelde | - | Generation of revenues | - | Disaster moderation/ adaptation | Belgium | - | GI Case analyses pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | wetlands along the Scheldt and its tributaries. | | | | | | | and its tributaries. Total areas with GI element 5,246 ha | | | | | | | |
| 70 | Lower Danube Green Corridor The Lower Danube Green Corridor is a large-scale initiative which aims to coordinate biodiversity conservation and water management efforts between several countries along the Lower Danube river basin, including Bulgaria and Romania. It particularly aims to ensure the conservation of wetlands and the management of flood plains through a system of protected areas. | Urban green infrastructure | | | X | | - | Protection for 1 million ha of existing and new protected areas: 773,166 ha of existing protected areas + 160,626 ha of proposed new protected areas; Restoration of 224,000 ha of natural flood plain | - | Generation of revenues | - | Tourism/ recreation/ education | Various | - | GI Case analyses pdf |
| 71 | Measures for enhanced/continued ecosystem service delivery from freshwater ecosystems The projects refer to the implementation of the Grenelle II law that establishes a multiannual programme for the restoration of the ecological continuity of water bodies and the conditions for the purchase and sustainable management of wetlands by public authorities. This initiative focuses on the importance of Green Infrastructure and ecological continuity to achieve | Rural green infrastructure | | | X | | - | 20,000 ha | - | Generation of revenues | - | - | France | - | GI Case analyses pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | good ecological status of surface waters and illustrates additional benefits related to reduced drought risks and angling. | | | | | | | | | | | | | | |
| 76 | Forest Rehabilitation projects at the Krkonose and Sumava National Parks<br>Infrastructure investments and research and reforestation activities. | Agriculture and Forestry | | | X | | 1.50 | - | - | Generation of revenues | - | Erosion control/soil management | Czech Republic | - | http://ec.europa.eu/environment/nature/climatechange/pdf/EbA_EBM_CC_FinalReport.pdf |
| 79 | Ecological restoration of Comana Wetland in Giurgiu County<br>The Natura 2000 site Comana Wetland is situated in Giurgiu County, Romania. It is one of the most important natural areas in Southern Romania and even in the Danube region. Comana is also part of the Lower Danube Green Corridor, which is a network of protected Natura 2000 sites linking four countries: Romania, Bulgaria, The Republic of Moldova and Ukraine. | Rural green infrastructure | | | X | | - | 1,180 ha | Land owners | Generation of revenues | - | - | Romania | Grant | Thematic booklet Green Infrastructure (pdf) |
| 80 | Flora Sierra Nevada – Recovery of areas of threatened flora in Sierra Nevada<br>The Sierra Nevada Natural Park around Granada covers Europe's second highest, and most southerly, mountain range, which, because of this wide range of altitudes, has the greatest variety of plants in the western Mediterranean. In all, 2,100 species occur, many of them endemics, but 115 of these, including 35 endemics, are threatened with extinction. Most of them, as well as the majority of | Rural green infrastructure | | | X | | 0.83 | - | Local authority | Generation of revenues | - | Tourism/ recreation/ education | Spain | Grant | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=543#Top |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | their habitats, are protected by the Habitats Directive. | | | | | | | | | | | | | | |
| 81 | Skyros Life Programme Demonstration of the Biodiversity Action Planning approach, to benefit local biodiversity on an Aegean island, Skyros'. | Rural green infrastructure | | | X | | 1.40 | - | Local community | Generation of revenues | - | - | Greece | Grant | http://www.skyroslife.gr/Content.php?ID=13, http://www.skyroslife.gr/PRImages/EditorImages/PDF/Action_Plans_Executive_summaries.pdf |
| 82 | Danube birds conservation – Conservation of Endangered Bird Species Populations in Natural Habitats of the Danube Inland Delta<br>The general objective is to improve the conservation status of the floodplain bird species that are protected in the Natura 2000 sites SPA Dunajské luhy (Slovakia) and SPA Szigetkoz (Hungary). | Rural green infrastructure | | | X | | 4.57 | - | NGO | Generation of revenues | - | - | Slovakia | - | http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3355#Top |
| 86 | Tisza Floodplains<br>WWF 'One Europe, More Nature' (OEMN) has initiated an innovative pilot project in Tiszatarján village, next to the Tisza River in north-eastern Hungary. Its goal is to restore and diversify the area's natural floodplains and produce local renewable energy while increasing and diversifying local income streams. | Rural green infrastructure | X | | | | - | 3,500 ha | Local authority Land owners | Generation of revenues | - | Raw materials | Hungary | - | http://wwf.panda.org/what_we_do/where_we_work/project/projects_in_depth/one_europe_more_nature/sites/tisza_floodplains_hungary/ |
| 89 | Gelderse Poort<br>WWF 'One Europe, More Nature' (OEMN) has supported an innovative pilot project at the Gelderse Poort in the Rhine River | Rural green infrastructure | X | | | | - | 1,500 ha | Land owners | Generation of revenues | - | Raw materials | Nether-lands | - | http://wwf.panda.org/what_we_do/where_we_work/project/projects_in_depth/one_europe_m |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | delta of the Netherlands. Its goal is to improve nature conservation and flood protection while enhancing nature-based businesses and alternative incomes for locals. | | | | | | | | | | | | | | ore_nature/sites/gelderse_poort_netherlands/ |
| 90 | Sinca Noua<br>Noua is a small Romanian village in southern Transylvania and is the location for implementing a jointly-led community and business approach towards a green future for its people and landscapes. The ecologically-appropriate 'Equus Silvania' horse-riding and eco-tourist venture now employs more than eight full-time people, but its impact has been wider. | Small innovative pro-diversity/adaptation businesses | | | | X | - | - | Land owners | Generation of revenues | - | Food provision | Romania | - | http://wwf.panda.org/what_we_do/where_we_work/project/projects_in_depth/one_europe_more_nature/sites/sinca_noua_romania/ |
| 91 | Väinameri<br>WWF-Sweden, in partnership with the local NGO Arhipelaag and others, initiated an innovative pilot project in the Baltic coastal area of Väinameri in West Estonia. Its main goal is to restore and manage semi-natural coastal grasslands to maintain a higher level of biodiversity of coastal flora and bird fauna. At the same time, the project ensures that the wider rural community makes income through diverse economic activities that are based on the sustainable use of natural resources. | Rural green infrastructure/ Small innovative pro-diversity/adaptation businesses | X | | | | 0.66 | - | Local community Land owners | Generation of revenues | - | - | Estonia | - | http://wwf.panda.org/what_we_do/where_we_work/project/projects_in_depth/one_europe_more_nature/sites/vainameri_estonia/ |
| 93 | National Forest Creation<br>The National Forest idea was conceived in the Government policy document 'Forestry in the | Agriculture and Forestry | | | X | | - | 19,000 ha | Local authority Private sector company | Generation of revenues | - | Tourism/ recreation/ education | UK | - | GI_DCIE_Final Report |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Countryside' published in 1987. The concept was to create a vast, new forest for the nation in lowland Britain that demonstrated the principles of multi-purpose forestry and improved an area badly scarred by past mineral workings. Further, the aim was to demonstrate in lowland Britain that a large scale, attractive forest could be created, blending commercial forestry with ecological, landscape and public benefit. | | | | | | | | | | | | | | |
| 94 | Plaine de Crau<br>The habitat banking experimentation in the Plaine de Crau aims to primarily convert arboriculture land into sustainable grazing areas for ewe herds as well as suitable habitats for the many endangered bird species found in the area. To do so, a 357 ha piece of land (882 acres) has been identified next to the National Nature Reserve in the steppe part of the Plaine de Crau. Previously an arboriculture domain (the 'Cossure' domain), it fell into bankruptcy two years ago and exploitation stopped. CDC Biodiversité has been able to secure this land in Plaine de Crau by purchasing it and acquiring property rights for 30 years. It has been bought through the SAFER, society entitle to pre-empt land on sale to make it available for sustainable development projects in rural areas (e.g. support local economy, installation of young | Biodiversity offsets and compensation mechanisms | | X | | | - | 357 ha | Private sector company | Regulatory compliance | - | Maintenance of habitats/ biological diversity | France | - | http://ec.europa.eu/environment/enveco/pdf/eftec_habitat_case_study.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | farmers or natural resources conservation). | | | | | | | | | | | | | | |
| 95 | East Scotland Grassland Management Scheme<br>The Scheme offers help with the management and care of 83 lowland grassland and fen Sites of Special Scientific Interest (SSSI). These contain just under half of the semi-natural lowland grasslands in Scotland. The aim of the Scheme is to support and reward land managers for managing SSSIs in a way which will maintain or restore the special grassland and fen habitats. These habitats need ongoing management in the form of either grazing or cutting, and annual payments are available to support this. Additional financial support is also available for fencing and water troughs, and for work to prevent any loss of habitat, for example, scrub control. Management agreements last 5 years. | Rural green infrastructure | X | | | | - | - | Land owners | Generation of revenues | - | - | UK | - | http://www.snh.org.uk/pdfs/natcare/grasslandscheme.pdf |
| 96 | Dartmoor Mires Project<br>The Dartmoor Mires Project has been established to investigate the feasibility and effects of restoration of Dartmoor's blanket bog in order to conserve and enhance this crucial habitat for upland wildlife; to improve water supply; and to increase the potential of blanket bog to store carbon and mitigate the impacts of climate change. | Rural green infrastructure | | | X | | - | - | - | Generation of revenues | - | - | UK | - | Source:http://www.dartmoor-npa.gov.uk/lookingafter/laf-naturalenv/dartmoormiresproject |
| 97 | Working Wetlands | Rural green | X | | | | - | - | Land owners | Generation | - | - | UK | - | Source:http://ww |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Working Wetlands is a long-term project working alongside landowners to recreate a Living Landscape in the Culm area of Devon. The project works across three target areas. | infrastructure | | | | | | | Private sector company | of revenues | | | | | w.devonwildlifetrust.org/working-wetlands/ |
| 98 | Wild Penwith<br>Much of the Penwith peninsula is an Area of Outstanding Natural Beauty. Characterised by central granite moors, short, steep river valleys to the north, and gently sloping river-valleys supporting nationally significant wetlands and heath lands to the south. Penwith has a rich historical landscape with Bronze Age field systems and prehistoric ritual monuments alongside remnants of an industrial past. | Rural green infrastructure | X | | | | - | - | Land owners Private sector company | Generation of revenues | - | - | UK | - | Source: http://www.cornwallwildlifetrust.org.uk/conservation/Living_landscapes/wild_penwith |
| 103 | Riverside Park Industrial Estate, Middlesbrough<br>The project included restoring/improving a brownfield site to attract new investment in the local area and create an urban Development work included improved access, tree planting and landscaping, and specific courtyard improvements. Over 1,800 trees were planted and improvements made to Teessaurus Park, the picnic area and park that is part of the wider industrial estate. | Urban green infrastructure | | | X | | 4.82 | 7.5 hectares of brownfield land has been recycled | Private sector company | Generation of revenues | - | - | UK | Grant | The contribution of the local environment to the local economy, CLES (2007) http://www.markettownresources.co.uk/PiP/CLES%20Groundwork.pdf |
| 104 | Sunart Oakwoods Initiative<br>The Sunart Oakwoods Initiative (SOI) is a major and developing project, which aims to restore and expand the native woodlands of | Agriculture and Forestry | | | X | | 0.80 | - | Private sector company | Generation of revenues | - | Tourism/ recreation/ education | UK | - | The Sunart Oakwood Initiative http://www.sunartoakwoods.org.uk/soitech/soitech.htm |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | the wider Sunart area, to bring local conservation, economic and amenity benefits. It involves a number of partner agencies and the local communities. While this area is not extensively covered in native woodland the project aims to increase the range of woodland in this area, improve the conservation value of the area and ensure that the rural development benefits arising from the woodlands and other habitats are dispersed throughout | | | | | | | | | | | | | | |
| 105 | Dearne Valley Green Heart Project Combining economic, landscape and environmental regeneration, the environmental restoration of the Dearne Valley river corridor has breathed new life into one of South Yorkshire's former coal mining areas. The project aims to transform the landscape, environment and economy of the Dearne Valley region, resulting in economic benefits to this economically deprived area. | Rural green infrastructure | | | X | | 6.43 | - | Local community | Generation of revenues | - | - | UK | - | The environment, economic growth and competitiveness – the environment as an economic driver (2006) http://www.landuse.co.uk/files/EnvandeconomyJan06.pdf.pdf |
| 106 | Fishing Wales Fishing Wales is a sustainable fisheries programme which implements extensive restoration of river habitats, whilst encouraging appropriate tourism through a targeted marketing campaign. Since the project commenced in 2003, it has already achieved impressive ecological and economic benefits. | Rural green infrastructure | X | | | | 8.04 | - | Local community | Generation of revenues | - | Food provision | UK | - | http://www.fishing.visitwales.com/; The environment, economic growth and competitiveness – the environment as an economic driver (2006) http://www.landuse.co.uk/files/EnvandeconomyJan06.p |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | | | | | | | | | | | | | | | df.pdf |
| 107 | Mesnes Park<br>The rehabilitation of the park, located in a predominantly residential area popular with families and young couples, has seen an area previously associated with crime and drug abuse transformed into a renewed green space which includes new woodlands, a wildflower meadow and a range of sports facilities. | Urban green infrastructure | X | | | | 1.61 | - | Local community | Generation of revenues | - | - | UK | - | http://www.cabe.org.uk/files/does-money-grow-on-trees.pdf |
| 108 | Mile End Park<br>Mile End Park, which is a mile long but just 150m across, has been transformed from a derelict piece of land into a mixed use park, which includes an Ecology Park and Arts Park Pavilions and innovative Green Bridge designed by architect Piers Gough. | Urban green infrastructure | | | X | | 40.19 | - | Private sector company | Generation of revenues | - | - | UK | Grant | http://www.cabe.org.uk/files/does-money-grow-on-trees.pdf |
| 109 | Regional Park RheinMain<br>The regional park is an initiative to improve the recreational features of the landscape in the urban agglomeration around Frankfurt city. It further intends to improve the region's image. Measures include activities in habitat conservation, improvement of touristic/recreational infrastructure, artistic installations, and others. | Urban green infrastructure | | | X | | - | - | - | Generation of revenues | - | Tourism/ recreation/ education | Germany | Grant | http://www.regionalpark-rheinmain.de/de/der-regionalpark/startseite.aspx |
| 111 | Protection of Biodiversity of the Sava River Basin Floodplains<br>The overall objective is to protect and manage the unique landscape and biodiversity along the Sava | Rural green infrastructure | | | X | | 0.86 | - | Local community | Generation of revenues | - | - | Various | Grant | Project Website www.savariver.com |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | River through supporting Croatia and Bosnia-Herzegovina to: a) identify, protect and manage floodplain areas of importance for the landscape and biodiversity applying the criteria of the Birds and Habitats Directive, b) design a coherent transboundary ecological network of the core areas, bufferzones and corridors, c) identify floodplain areas capable of storing floods d) building capacities in the implementation of the Birds and Habitats Directive d) introducing land use practices that support the protection of the landscape and biodiversity e) support the development of rural tourism and f) raise awareness on the need to protect and manage the unique landscape and biodiversity along the Sava through transboundary co-operation. | | | | | | | | | | | | | | |
| 112 | Developing Pro-Biodiversity Business Opportunities<br>The project worked with SMEs and local financial institutions to create appropriate financing opportunities for companies so that they can benefit from the positive financial gains of working on biodiversity conservation and sustainable use of natural resources generally. The project was expected to design some form of environmental micro-credit facility as the most appropriate means to make capital investment available for local entrepreneurs (most likely to be | Finance Facility | X | | | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | Various | Grant | http://www.ecnc.org/projects/business-and-biodiversity/developing-pro-biodiversity-business-opportunities/ http://www.ecnc.org/uploads/documents/2008-probiobusiness.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | farmers, foresters, fish-pond owners, tourist service providers, or shopkeepers/craftsmen) engaging in biodiversity-related investment for the first time. The final output of the project was an outline design of a finance facility that would be able to work in countries such as Croatia and Bulgaria. | | | | | | | | | | | | | | |
| 113 | Aranyponty Zrt. (Golden Carp Close Company)<br>This fish farm is located in Fejér County, Hungary, in a Natura 2000 and Ramsar site. It currently employs 70 people. The principal business is the supply of live fish for stocking sport-fishing lakes. This accounts for 70% of its fishery production, with the balance going into the human food chain. The enterprise has been gradually diversifying into other areas, including organic production, tourism and ecotourism. | Small innovative pro-diversity/adaptation businesses | | | | X | - | 1400 | Private sector company | Generation of revenues | - | Food provision | Hungary | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_report.pdf https://www.efmd.org/images/stories/efmd/downloadables/smes_and_biodiversity.pdf http://prezi.com/z3g72axetdxo/aranyponty-multi-en/ http://books.google.co.uk/books?id=AtqDOR1jUFUC&pg=PA187&lpg=PA187&dq=Aranyponty+Ponds&source=bl&ots=D67PVTS5Nn&sig=RbBCqkvJCv30uzbIPrkXT814gmU&hl=en&sa=X&ei=hPNfUse3PKHy7Aa9IIGACw&ved=0CDYQ6AEwAQ#v=onepage&q=Aranyponty%20Ponds&f=false |
| 114 | Balázs Tibor egyéni vállalkozó (sole proprietor)<br>Arable farming in the Natura 2000, | Small innovative pro-diversity/ | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Hungary | - | http://ec.europa.eu/environment/nature/partnerships/doc |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | 'Hevesi Füves Puszták' landscape protection area; from 1 January 2009: Environmentally Sensitive Area (ESA) (Érzékeny Természeti Terület, ÉTT). | adaptation businesses | | | | | | | | | | | | | s/btau_report.pdf |
| 115 | Laposa Családi Pincészet (Laposa Family Winery)<br>Vine producing, on a smaller scale and catering (wine cellar). | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Hungary | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_report.pdf |
| 116 | Nagy István egyéni vállalkozó (sole proprietor)<br>Grazing, stock breeding, harvesting and selling locally grown herbs. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Hungary | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_report.pdf |
| 117 | Tolnai István egyéni vállalkozó (sole proprietor), ifj. (jr.) Tolnai István őstermelő (farmer)<br>Grazing, stock breeding, arable farming between the two Natura 2000 sites (Keszthely, Zala Hills and Lower Valley Special Areas of Conservation). | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Hungary | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_report.pdf |
| 118 | Integrated regional branded certification network in the Czech Republic<br>Three areas within Natura 2000 sites in the Czech Republic have introduced branding of local products such as food and farming produce, local handicrafts, mineral water and forest fruit, under a project coordinated by the Regional Environmental Centre Czech Republic. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Czech Republic | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_report.pdf<br>http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat24_en.pdf |
| 119 | Almaa Sintra Hostel: a biodiversity friendly hostel<br>Almáa Sintra Hostel is an Eco | Small innovative pro-diversity/ | | | | X | - | 3-5 ha | Private sector company | Generation of revenues | - | Tourism/recreation/education | Portugal | - | http://www.business-biodiversity.eu/def |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Retreat Centre and a hostel located in the heart of the Sintra Mountain Range in Portugal, classified by Unesco as a World Heritage Site. With 8.5 Acres of luxurious gardens they offer private and shared rooms in a heavenly environment. | adaptation businesses | | | | | | | | | | | | | ault.asp?Menue=134&Project=787 |
| 120 | Ecoland – linking agriculture and biodiversity conservation<br>The leading project idea is to enhance biodiversity beyond the mandatory requirements to maintain land in good agricultural and environmental condition (GAEC) in the Ecoland area and to introduce and disseminate innovative practices that better reconcile land use and development needs with conservation of biodiversity and maintenance of ecosystem services. | Rural green infrastructure | | | X | | 0.80 | 110 | NGO<br>Private sector company | Generation of revenues | - | - | Slovakia | - | http://www.business-biodiversity.eu/default.asp?Menue=88&Project=718 |
| 121 | Bird protection at windows<br>We are looking at ways to improve bird protection at windows. Birds are clashing into windows, if they can look through and do not perceive window glass as an obstacle. We have developed a foil which is invisible for the human eye. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | - | Various | - | http://www.business-biodiversity.eu/default.asp?Menue=88&Project=777 |
| 123 | The 280 enterprises and associations connected to Koli National Park<br>Koli was established in 1991 and is administered by the Finnish Forest Research Institute (Metla). Koli is approximately 3000 hectares in size and contains a | Small innovative pro-diversity/ adaptation businesses | | | | X | - | 3,000 | Private sector company | Generation of revenues | - | - | Finland | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | diverse complex of habitats, from Boreal forests, to meadows, lakes and bog woodlands. The park also has several Natura 2000 sites within its borders. The ancient forest is home to birds such as the capercaillie, the wren and the endangered three-toed woodpecker. It is also known as an ancient sacrifice place, as a stronghold of swidden cultivation (slash-and-burn agriculture), which was established in the area from the mid-18th century when the first permanent settlements were established here. | | | | | | | | | | | | | | |
| 124 | South Downs Marketing Ltd: conserving biodiversity through the marketing of a premium product<br>South Downs Marketing Ltd is a small enterprise that started up in 2004. It acts as a 'middleman' between farmers and butchers by selling South Downs lamb, veal and mutton from animals grazing the South Downs area, from farmers to butchers. The enterprise negotiates the price of the meat with 28 local farmers, they cut and deliver the meat, and they also regularly organize tasting panels. The farmers and butchers have succeeded by working together by producing a cluster of related products and services. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Land owners Private sector company | Generation of revenues | - | Food provision | UK | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |
| 125 | Extensive sheep farm in Ostoja Popradzka Natura 2000 site<br>The Sheep farm carries out extensive sheep grazing on | Small innovative pro-diversity/ adaptation | | | | X | - | - | Land owners | Generation of revenues | - | Raw materials | Poland | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.p |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | montane meadows. The micro-enterprise has its own herd but also lease (hire) sheep from a number of other farmers. They produce sheep milk, cheese, wool, mutton, hay and 'sheep farming services', to other farmers. According to information provided by authorities of the Popradzki Landscape Park, increasing the population of sheep (which almost completely disappeared between 1980 and the late 1990's) and bringing back sheep farming into the region is a critically important measure to maintain the open landscapes of the region. | businesses | | | | | | | | | | | | | df |
| 126 | 'Stoikite' – forestry cooperative Stoikite is a cooperative that owns 2000 hectares of forests in the Rhodope Mountains, near a number of protected areas. Business activities include the removal of trees, wood processing and timber trade. There are 60 full-time employees and another 30 seasonal workers. All the enterprise's forests are considered to have high nature conservation value. The raw materials used and the production processes are designed so that they do not have harmful effects on biodiversity. Stoikite is the only Bulgarian Forestry Co-operative that is certified by the Forest Stewardship Council. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | 2,000 hectares | Private sector company | Generation of revenues | - | Raw materials | Bulgaria | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |
| 127 | Sustainable seed collection and promotion: Semillas Silvestres SL | Small innovative | | | | X | - | - | Land owners | Generation | - | Food | Spain | - | http://ec.europa.eu/environment/natur |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | Semillas Silvestres began formally trading in 1990. It sells wild seeds from forest ecosystems, which are harvested and distributed from all over Iberia (Spain, Portugal, Andorra and Gibraltar). By doing so, the micro-enterprise benefits from and contributes towards biodiversity in the Iberian Flora. Semillas Silvestres currently employs the equivalent of seven full-time people throughout the year including a botanist, a forest engineer and a legal specialist. Sustainable harvesting of Non Timber Forest Products can be combined with running an economically viable enterprise and demonstrates the potential for potential certifications to communicate the value of biodiversity conservation. | pro-diversity/ adaptation businesses | | | | | | | | of revenues | | provision | | | e/partnerships/docs/btau_handbook.pdf |
| 129 | 'Riahovo' – freshwater fisheries in the Kalimok- Brushlen protected area<br>Riahovo is a micro-enterprise active in fish breeding, the provision of ecotourism services and water body management, in the Kalimok-Brushlen protected area in Bulgaria. It is managed through a partnership of three directors with locally recruited labour. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Bulgaria | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |
| 130 | New opportunities for small business development in the Lille Vildmose raised peat bog<br>The site is currently an important carbon store, given the volumes of peat, but this is under threat | Small innovative pro-diversity/ adaptation businesses | | | | X | - | 75km$^2$ | Private sector company | Generation of revenues | - | Tourism/ recreation/ education | Denmark | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | through peat extraction. It is also a valuable site for nature tourists, particularly bird watchers, given the spectacular number of Cormorants on the lakes. The Lille Vildmose site has been recognised as having significant potential for the development of activities based on the cultural and natural history of the site which could offer an alternative source of employment and enterprise to the unsustainable peat extraction industry. | | | | | | | | | | | | | | |
| 131 | Marine Coastal Fishing Boat in the Trzebiatowsko – Kołobrzeski Pas Nadmorski Natura 2000 site The micro-enterprise traditionally operated in coastal marine fishing, processing and sales. As this was increasingly seen as an unsustainable activity, the business has adapted its operations to focus on more sustainable activities in coastal tourism. BJ now runs boat and fishing trips and a small Bed and Breakfast. In the future, the enterprise plans to create facilities for processing and smoking fish. By replacing commercial fishing with recreational marine and coastal angling, the impacts on fish populations are rapidly decreased and a model of successful diversification is available to other small businesses in this area. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Tourism/ recreation/ education | Poland | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |
| 132 | Opportunities for biodiversity conservation: Heylen bvba Heylen bvba was established in | Small innovative pro-diversity/ | | | | X | - | - | Private sector company | Generation of revenues | - | Raw materials | Belgium | - | http://ec.europa.eu/environment/nature/partnerships/doc |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1995 and is a company focused on nature conservation and development, by mowing grasslands and wetlands and by enhancing plant biodiversity through a variety of landscaping techniques. The company currently belongs to one person, employs nine people, has a turnover of approximately €1.4 million, and a healthy net profit. Its unique selling point is that it is one of the few companies that can carry out all the work required in natural/protected areas. | adaptation businesses | | | | | | | | | | | | | s/btau_handbook.pdf |
| 133 | 'Wnukowo' ecotourism in the Puszcza Piska- (Pisz Forest) Natura 2000 site<br>Wnukowo is a micro-enterprise that offers a range of products in the tourism sector which all seek to minimise the impact of tourism on the Mazurian Landscape Park in the Puszcza Piska Natura 2000 site. The enterprise offers lakeside bed and breakfast accommodation, sells local agricultural products and foodstuffs, and charters out kayaks, canoes and motorized yachts. Camping facilities (2 hectares) are also provided at the shore of the Mazurian lake Beldan. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | - | Poland | - | http://ec.europa.eu/environment/nature/partnerships/docs/btau_handbook.pdf |
| 136 | De Boerinn Family Farm and Activity Centre<br>This is a family farm in the Netherlands that is diversifying. It is centrally located between Rotterdam, Amsterdam, The Hague and Utrecht. Originally a | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Nether-lands | - | https://www.efmd.org/images/stories/efmd/downloadables/smes_and_biodiversity.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | dairy farm, this side of the business is no longer profitable. The enterprise has diversified into a range of recreational activities and they currently have about 25,000 visitors per year. The enterprise employs seven full-time staff and fifty part-time staff. They are considering developing nature-based tourism activities. Planning and water management regulations are likely to have a big impact on the direction in which diversification goes. | | | | | | | | | | | | | | |
| 137 | Echinades Fish Farm<br>A small fish farm that is raising Sea Bass and Sea Bream. It is located close to Astakos on the west coast of Greece amongst the Echinades islands and borders a Natura 2000 site. It currently produces about 400 tonnes of fish per year. The farm purchases fish fry from a nearby hatchery and keeps these for about 18 months before selling to wholesalers. One of the biggest environmental impacts of fish farms is through the consumption of fish meal that may be sourced in other parts of the world. Echinades is involved in research on the effectiveness of plant based alternatives. The enterprise is currently exploring the opportunities for fish-based tourism. | Small innovative pro-diversity/adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | Greece | - | https://www.efmd.org/images/stories/efmd/downloadables/smes_and_biodiversity.pdf |
| 139 | Nordic Shell<br>Nordic Shell Holding AS was established in 2003. This is the holding company for two other firms that produce, or will produce | Small innovative pro-diversity/adaptation | | | | X | - | - | Private sector company | Generation of revenues | - | Water management | Sweden | - | https://www.efmd.org/index.php?option=com_content&view=article&id= |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | shellfish. Nordic Shell Production AB, which is the focus of this study, is located at Lysekil in Sweden. It produces Blue Mussels (Mytilus edulis). In addition to the directors, the enterprise currently has 10 employees and is producing over 3,000 tonnes of mussels per year. This is set to rise. The enterprise also derives income from the role the mussels play, through the consumption of algae, in reducing nitrate levels in the water. The local authority at Lysekil, which under the EU Urban Waste Water Treatment Directives has an obligation to reduce the nitrate levels, signed a contract with Nordic Shell to remove 39 tonnes of nitrogen as 3,300 tonnes of mussels. This is believed to be the first contract of its type. The income Nordic Shell derives from this agreement is less important than the role in played in winning permission to site their farm near Lysekil. | businesses | | | | | | | | | | | | | 167&Itemid=180 |
| 142 | Penn Ar Bed<br>This enterprise, based in Brittany, France harvests and processes sea weed. It has six employees and an annual turnover of €400,000. The enterprise has five main areas of activity: organic manures or fertilizers; environmental products (including an ecological solution to airborne dust pollution); cosmetics; human and animal dietetics; and homeopathic medicines. The | Small innovative pro-diversity/adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Food provision | France | - | https://www.efmd.org/images/stories/efmd/downloadables/smes_and_biodiversity.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | enterprise has a strong research base. It holds three patents and is in the process of developing two others. Penn Ar Bed has a strong commitment to the sustainable harvesting of the seaweed on which it relies. | | | | | | | | | | | | | | |
| 143 | Semillas Silvestres<br>This is a small forest consultancy enterprise run by a husband and wife team in the Black Forest, Baden Würtenburg, Germany. It is engaged in three main activities: the development of management plans for private forest owners; forest valuation; and the certification of timber in sawmills. While the enterprise is committed to promoting the sustainable management of forests, there is not a great emphasis on biodiversity conservation in the overall forest management system of which consultants like Thomas Schneider form a part. | Consultancy | | | | X | - | - | Private sector company | Generation of revenues | - | - | Germany | - | https://www.efmd.org/images/stories/efmd/downloadables/smes_and_biodiversity.pdf |
| 144 | Delta T. Bio Energy BV<br>An alternative source of income for the maintenance and reservation of characteristic landscape elements and creation of biomass for fuel. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Raw materials | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/behoud-houtwallen-door-co2-neutrale-energieopwekking |
| 145 | Tilburg Aware programme<br>Children grow vegetables across the city which are then sold locally. | Urban green infrastructure | | | X | | - | - | Local community | Generation of revenues | - | Food provision | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/de-h-eerlijke-eetbare-stad |
| 146 | Butterfly Gardens<br>A scheme to increase butterfly habitat and provide resource for hospitals, elderly care homes and | Urban green infrastructure | | | X | | - | - | Local community | Generation of revenues | - | Tourism/ recreation/ education | Nether-lands | Grant | http://en.biodiversiteit.nl/slag/voorbeelden/de-vlindertuinen |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | schools to use to treat and learn. | | | | | | | | | | | | | | |
| 147 | Amsterdam Green Map<br>A web and mobile based map system of the unexpected biodiversity in the city. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Private sector company | Generation of revenues | - | Tourism/ recreation/ education | Nether-lands | Grant | http://en.biodiversiteit.nl/slag/voorbeelden/groene-kaart |
| 148 | Rotterdam green roofs programme<br>A government programme to subsidise the implementation of green roofs. | Urban green infrastructure | | | X | | - | - | Local community | Generation of revenues | - | Disaster moderation/ adaptation | Nether-lands | Grant | http://en.biodiversiteit.nl/slag/voorbeelden/groene-daken |
| 149 | High Tech Campus in Eindhoven<br>A scheme to offset negative environmental impact and improve energy efficiency. | Urban green infrastructure | | X | | | - | - | Private sector company | Cost reduction | - | Carbon management | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/groene-maatregelen-op-de-high-tech-campus |
| 150 | Green track<br>Project to create an area of natural, recreational, child-friendly and climate-proof developments. | Urban green infrastructure | | | X | | - | - | Local community | Generation of revenues | - | Maintenance of habitats/ biological diversity | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/het-groene-spoor |
| 151 | The Landscape auction<br>The landscape auction offers citizens the opportunity to the management and maintenance of landscape elements such as hedges, graft, cutting an entire orchard or adopt a bospoel (Buy) 'through physical auctions in the country or through the website. | Agriculture and Forestry | | | X | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | Nether-lands | - | http://www.groenegoededoelen.nl/ |
| 152 | Streekrekening Green Forest<br>A savings fund that uses the money to promote biodiversity and sustainable money making solutions. | Agriculture and Forestry | X | | | | - | - | Local authority | Generation of revenues | - | Maintenance of habitats/ biological diversity | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/streekrekening-het-groene-woud |
| 153 | Weerribben and Naardermeer foundation | Agriculture and Forestry | X | | | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbee |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | A pilot to understand the feasibility of using reed beds to promote biodiversity and reduce costs. | | | | | | | | | | | biological diversity | | | lden/turven-van-rietplaggen |
| 154 | Aqualan Grou<br>The objective of Aqualan Grou is to show that on a practical scale this type of post-treatment works efficiently and contributes to biodiversity and a better surface quality. | Marine/blue infrastructure | X | | | | - | - | Private sector company | Generation of revenues | - | Water management | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/waterharmonica-aqualan-grou |
| 155 | The Waterpark Lankheet<br>Development of water treatment, temporary water storage, production of non-food biomass for energy, water depletion and increasing natural for recreation and biodiversity facilities. | Marine/blue infrastructure | X | | | | - | - | Private sector company | Generation of revenues | - | Raw materials | Nether-lands | - | http://en.biodiversiteit.nl/slag/voorbeelden/waterpark-het-lankheet |
| 156 | European Foundation for Restoring Ecosystems<br>Project to create creating robust nature through the use of large herbivores in protected areas. | Agriculture and Forestry | X | | | | - | - | Research institute | Generation of revenues | - | - | Nether-lands | Grant | http://en.biodiversiteit.nl/slag/voorbeelden/wildernisvlees |
| 157 | Seagardens<br>Project to create experimental 'seagardens' to building on fresh-salt transitions. In this seagardens visitors can get acquainted with plants as samphire and sea holly. | Marine/blue infrastructure | X | | | | - | - | Research institute | Generation of revenues | - | Water management | Netherlands | - | http://en.biodiversiteit.nl/slag/voorbeelden/zeetuinen |
| 158 | Climate buffer project Ooijpolder<br>To counter natural national threats, natural 'climate buffers' have been developed as part of a landscape management approach to climate change. | Marine/blue infrastructure | X | | | | - | - | Research institute | Generation of revenues | - | - | Nether-lands | - | http://www.birdlife.org/eubiodiversityreport2012/?page_id=1986 |
| 159 | Renaturisation of the Raba river in Małopolskie<br>The project aims to renature two | Marine/blue infrastructure | X | | | | - | - | Local authority | Regulatory compliance | - | - | Poland | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Pro |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | sections of the river between Lubień and Stroza and between Krczińowka and Trzebuńka. | | | | | | | | | | | | | | jects/Focus_on_projects/Biodiversity_project_in_Poland |
| 160 | Prevention and control of floods along the Tisza<br>Switzerland is funding two projects in Hungary which will ensure that the river Tisza does not burst its banks so frequently or, when it does, it will not have such severe consequences. | Marine/blue infrastructure | X | | | | - | - | Local authority | Regulatory compliance | - | Disaster moderation/ adaptation | Poland | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projects/Focus_on_projects/Flood_prevention_in_Hungary |
| 161 | Remediation of historically polluted sites<br>Switzerland is supporting a project aimed at improvement and partial restoration of soil, ground, ground water and surface water quality in the industrial port of Riga. | Marine/blue infrastructure | X | | | | - | - | Local authority | Regulatory compliance | - | Disaster moderation/ adaptation | Latvia | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projekte/Projekt_Detailansicht?projectinfoID=198613#form2 |
| 162 | Revitalization of Vistula River oxbows<br>The project aims at regenerating and protecting of 15 oxbows where intervention is most needed, thus making an important contribution to the conservation of the most valuable habitats in the Upper Vistula River valley. At the same time, it will lead to enhanced knowledge and awareness of the natural value and importance of oxbows among local communities, local public authorities as well as tourists, which will contribute to preserve existing oxbows in the long term. | Marine/blue infrastructure | | | X | | - | - | Local authority | Generation of revenues | - | Disaster moderation/ adaptation | Poland | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projekte/Projekt_Detailansicht?projectinfoID=208868#form2 |
| 163 | Migration corridors<br>The project aims at protecting the forest fauna of the Polish Carpathians and adjacent border | Agriculture and Forestry | | | X | | - | - | Local community | Generation of revenues | - | - | Poland | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projekte/Projekt_Detai |

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| | areas by identifying and promoting migration corridors. Information and awareness building activities shall contribute to improve the knowledge of the importance of migration corridors among the population and public authorities. | | | | | | | | | | | | | | lansicht?projectinfoID=203998#form2 |
| 164 | Upper Raba River Spawning Grounds<br>The purpose of the Project is to regain the original characteristics of the Raba River and its valley, particularly the restoration of natural, alluvial channels of the river and its tributaries, restoration and protection of floodplains in the context of channel retention and biological development. | Marine/blue infrastructure | | | X | | - | - | Local community | Generation of revenues | - | - | Poland | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projekte/Projekt_Detailansicht?projectinfoID=203997#form2 |
| 165 | Southwestern Carpathian Wilderness and Sustainable Development Initiatives<br>The project aims to contribute significantly to the preservation of the Southwestern Carpathians as Europe's premier wilderness area, demonstrating opportunities for conservation and management of wilderness areas including the implementation of EU legislation and support of local and regional development. | Agriculture and Forestry | | | X | | - | 1.4 million ha | Local community | Generation of revenues | - | - | Romania | Grant | http://www.erweiterungsbeitrag.admin.ch/en/Home/Projekte/Projekt_Detailansicht?projectinfoID=222831#form2 |
| 166 | Arche noah<br>For more than 20 years ARCHE NOAH and its 10,000 members have been preserving and cultivating endangered vegetable, fruit and grain diversity. | Small innovative pro-diversity/ adaptation businesses | | | | X | - | - | Local community | Generation of revenues | - | Maintenance of habitats/ biological diversity | Romania | - | http://www.arche-noah.at/etomite/index.php?id=258 |
| 167 | Social Ecological Institute (SIE) | Small | | | | X | - | - | Private sector | Generation | - | - | Poland | - | http://sie.org.pl/en |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | The Social Ecological Institute is a not for profit organization, registered in 1990, which leads and supports ecological initiatives in Poland. | innovative pro-diversity/adaptation businesses | | | | | | | company | of revenues | | | | | glish |
| 168 | Lafarge Offsetting programme | Biodiversity offsets and compensation mechanisms | | X | | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | Poland | - | http://www.lafarge.com/05182012-publication_sustainable_development-Sustainable_report_2011-biodiversity-uk.pdf |
| 169 | German species bank German species bank programme. | Biodiversity offsets and compensation mechanisms | | X | | | - | 19,880 | Local authority | Generation of revenues | - | Maintenance of habitats/ biological diversity | Germany | - | http://www.speciesbanking.com/program/impact_mitigation_regulations |
| 170 | Defray biodiversity offsetting six pilots in : Devon Doncaster Essex Greater Norwich Nottinghamshire Warwickshire, Coventry and Solihull | Biodiversity offsets and compensation mechanisms | | X | | | - | - | Local authority | Generation of revenues | - | Maintenance of habitats/ biological diversity | UK | Grant | https://www.gov.uk/biodiversity-offsetting |
| 171 | Ecoenterprises fund Ecoenterprises investment fund | Finance Facility | | | X | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | UK | Investment fund | http://www.ecoenterprisesfund.com/index.php/about-us |
| 173 | Environmental Station Madrevieja Man made freshwater lagoons with environmental education station. | Marine/blue infrastructure | | | X | | - | - | Local community | Generation of revenues | - | - | Spain | - | http://www.business-biodiversity.eu/default.asp?Menue=88&Project=786 |
| 174 | Species Protection Program Species protection of the Sand Martin in the sand pits and gravel | Agriculture and Forestry | X | | | | - | - | Local community | Generation of revenues | - | - | Germany | - | http://www.business-biodiversity.eu/default.asp?Menue=8 |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | pits of HeidelbergCement AG. | | | | | | | | | | | | | | 8&Project=782 |
| 175 | Greenroofs<br>Greenroofs programme in: UK – 31, France – 2, Sweden 6, Italy 2, Spain 4, Norway 4, Belgium 2, Poland 1, Germany 14, Netherlands 1, | Urban green infrastructure | | | | X | - | - | Local community | Generation of revenues | - | Air/climate regulation | Various | - | http://www.greenroofs.com/projects/plist.php |
| 177 | Slow Food<br>Slow food organisation supports natural food production. | Agriculture and Forestry | | | | X | - | - | Civil society organisations | Reputational benefits | - | Food provision | Various | Grant | http://www.slowfood.com/ |
| 178 | PANACEA project in Malta<br>The Promotion of Marine Protected Areas through Environmental Education Centre (PANACEA). | Rural green infrastructure | | | X | | - | - | Civil society organisations | Generation of revenues | - | Tourism/ recreation /education | Malta | Grant | http://www.di-ve.com/news/panacea-project-malta |
| 179 | Restoration Ecology<br>New project of Restoration Ecology which aims to renew an abandoned and degraded agricultural land through active human intervention. | Rural green infrastructure | X | | | | - | - | Civil society organisations | Regulatory compliance | - | Tourism/ recreation/ education | Italy | - | http://www.naucrates.org/?page_id=18 |
| 180 | SiiT<br>SiiT is a three-year project aimed at enhancing the knowledge of biodiversity in an area extending from the eastern Adriatic coasts (Italy) to Western Slovenia. | Agriculture and Forestry | X | | | | - | - | Civil society organisations | Generation of revenues | - | Tourism/ recreation/ education | Various | - | http://www.siit.eu/index.php/siit-project/the-project |
| 181 | Véolia Water<br>Preserving water quality in a sustainable manner for a site in France. | Marine/blue infrastructure | X | | | | - | 375 | Private sector company | Regulatory compliance | - | Water management | France | - | http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15094&NoSearchContextKey=true |
| 182 | Shell corrib<br>Shell needed new solutions to allow heavy equipment to cross the soft peat land without | Biodiversity offsets and compensation mechanisms | X | | | | - | - | Private sector company | Regulatory compliance | - | Water management | Ireland | - | http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=1 |

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| | compromising its hydrological functions. The solution is to excavate a wide trench (60 meters) in the peat and replace the excavated peat with a layer of stone, which will also function as a road during construction. | | | | | | | | | | | | | | 5051&NoSearchContextKey=true |
| 183 | EDP<br>Using power line management to control invasive species. | Biodiversity offsets and compensation mechanisms | X | | | | - | - | Private sector company | Regulatory compliance | - | Maintenance of habitats/ biological diversity | Portugal | - | http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15040&NoSearchContextKey=true |
| 184 | Syngenta<br>Syngenta is developing and disseminating Best Management Practices (BMPs) for land and water use that minimize soil erosion and sustain crop productivity. | Biodiversity offsets and compensation mechanisms | X | | | | - | - | Private sector company | Reputational benefits | - | Water management | Various | - | http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=15053&NoSearchContextKey=true |
| 185 | University of Malta<br>Nine PES, Offset or related research projects ongoing. | Biodiversity offsets and compensation mechanisms | X | X | | | - | - | Civil society organisations | Reputational benefits | - | Maintenance of habitats/ biological diversity | Malta | - | http://www.um.edu.mt/ioi-moc/projects |
| 186 | Rheinisch–Westfälische Wasserwerksgesellschaft (Rhineland–Westphalian Water Supply Service, RWW) Credits<br>In this case, credit points are used for the accounting of impacts and proposed measures. Under a standardised assessment method by the State Ministries of Economics and the Environment of North Rhine-Westphalia (see Ministerium für Wirtschaft und Ministerium für Umwelt NRW 1999), the assignment of credit points is calculated by multiplying | Biodiversity offsets and compensation mechanisms | | X | | | - | 850 sq.km | Private sector company<br>Land owners | Regulatory compliance | - | Water management | Germany | - | http://www.tandfonline.com/doi/pdf/10.3152/147154605781765652 |

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| | the standardised value of the habitat by the habitat's area. They operate a compensation pool and sell biodiversity offset credits to project applicants. | | | | | | | | | | | | | | |
| 187 | SPA PICO DA VARA/RIBEIRA DO GUILHERME<br>The Special Protection Area (SPA) Pico da Vara/Ribeira do Guilherme is a Natura 2000 protected area in São Miguel Island in the Azores archipelago, Portugal. | Rural Green Infrastructure | | | X | | - | 6,067.27 Ha | Local authority | Regulatory compliance | Financing Options | - | Portugal | Grant | http://ec.europa.eu/environment/nature/natura2000/financing/docs/azores_case_study.pdf |
| 188 | NATURAL PARK OF VALE DO GUADIANA (PORTUGAL)<br>The montado ecosystems offer a number of ecosystem services (i.e. provide different biodiversity resources and maintain valuable ecological processes) that are important to both local populations and that also benefit regional and international stakeholders. The main socio-economic activities in the area are extensive sheep and cattle herding and game hunting. The latter helps to generate important income in these otherwise marginal agricultural lands. The area is also of high importance for biodiversity and it hosts a number of rare species with touristic value (e.g. bird watching), including different raptors and mammals. | Agriculture and Forestry | X | | | | - | 70000 | Local community<br>Land owners<br>Private sector company | Generation of revenues | - | Food provision | Portugal | Grant | http://ec.europa.eu/environment/nature/natura2000/financing/docs/guadiana_case_study.pdf |
| 189 | Farming for Nature Pilot Programme<br>Based on the precept that in rural areas there are ways to unite agriculture, nature, and landscapes, farmers are | Agriculture and Forestry | X | | | | - | - | Land owners<br>Local community | Generation of revenues | - | Water management | Nether-lands | - | http://ec.europa.eu/clima/policies/adaptation/what/docs/economic_instruments_en.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
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| | compensated for managing their land for the benefit of ecosystem services and the natural landscape. One online document reported in October 2008 that water quality was noted as one of the objectives of the pilot project though it is not clear, if this programme will evolve into a fully functioning PWS programme. As of the publication of this report, there were two operational sites for consideration bringing together researchers, farmers, civil servants, local residents, and regional planning experts. | | | | | | | | | | | | | | |
| 191 | Barrier hedgerow programme in East Friesland (Wallheckenprogramm Ost-Friesland, Germany): The agricultural plots between the hedgerows are usually small. Maintenance of these plots requires relatively much work. A grant is paid to compensate for this is advantage for plots below 5 ha. | Agriculture and Forestry | X | | | | - | - | Land owners | Generation of revenues | - | Maintenance of habitats/ biological diversity | Germany | - | http://ec.europa.eu/clima/policies/adaptation/what/docs/economic_instruments_en.pdf |
| 192 | Coastal agriculture in Lübecker Bucht (Germany) Farmers receive a payment based on income foregone as a result of a.o. zero-input, high water levels and occasional flooding. | Agriculture and Forestry | X | | | | 0.13 | - | Land owners | Generation of revenues | - | Disaster moderation/ adaptation | Germany | Grant | http://ec.europa.eu/clima/policies/adaptation/what/docs/economic_instruments_en.pdf |
| 193 | BIOPLEX (Germany) Biodiversity and Spatial Complexity in Agricultural Landscapes under Global Change outcome-based reward system for ecological services, 'ecological goods' as result of services | Agriculture and Forestry | X | | | | - | - | Land owners | Generation of revenues | - | Food provision | Germany | - | http://ec.europa.eu/clima/policies/adaptation/what/docs/economic_instruments_en.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | provided by farmer (e.g. 'grassland'). | | | | | | | | | | | | | | |
| 194 | Green Roofs in Copenhagen<br>Green roofs not only increase the quality of life in the city but can also help to adapt urban areas to projected climate change. Copenhagen is working hard on making this vision a reality. | Urban green infrastructure | | | X | | - | - | Land owners<br>Private sector company | Cost reduction | - | Air/climate regulation | Denmark | - | http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=432&fileName=BOOK_150_dpi.pdf |
| 195 | Disconnecting storm water runoff from the sewer system<br>As part of the European project Future Cities citizens were mobilised to help disconnect storm water runoff from the sewer system and help adapt Kamen to future climate change. | Urban green infrastructure | | | X | | - | - | Local community<br>Private sector company | Cost reduction | - | Water management | Germany | - | http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=432&fileName=BOOK_150_dpi.pdf |
| 196 | Solar panels produce energy and protect crops from excess heat<br>The French National Institute for agronomical Studies (INRA) initiated a project where they designed so called agri-voltaic systems. These agri-voltaic systems provide shading for crops for food production while at the same time producing energy with photovoltaic (solar) panels at the same plot. | Agriculture and Forestry | | | X | | - | - | Private sector company | Cost reduction | - | Air/climate regulation | France | - | http://www.circle-era.eu/np4/%7B$clientServletPath%7D/?newsId=432&fileName=BOOK_150_dpi.pdf |
| 197 | Gaz de France: Partnering for Conservation<br>Gaz de France's subsidiary, GRTgaz, takes biodiversity into account in all of its activities. Specifically, the company is implementing biodiversity corridors above its underground pipes transporting natural gas, helping to connect and maintain | Urban green infrastructure | | | X | | - | - | Private sector company<br>Local community | Cost reduction | - | - | France | - | http://teebforbusiness.earthmind.net/files/Gaz_de_France-Partnering-for-Conservation.pdf |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | biodiversity areas in Ilede-France. Thanks to these efforts, GRTgaz and local authorities are consolidating the knowledge of biodiversity corridor implementation and adding environmental value to the land that is crossed by gas pipelines. Furthermore these actions help the laying of new pipes because the views and needs of stakeholders are integrated into project planning, reducing costs and shortening the implementation period. | | | | | | | | | | | | | | |
| 198 | Du Pont Tamón Valley<br>In 1990 DuPont started a greenfield project in Spain's Tamón Valley, an area with low biological diversity dominated by fields and eucalyptus plantations. The company built an industrial complex that manufactures fibres and crop protection products and hosts a financial centre, procurement services and other functions for the site as a whole and its 1,200 employees. The greenfield project includes habitat restoration, visual and noise impact reduction through biodiversity, cultural element preservation and restoration and livestock grazing, all of which enhance the company's license to operate and save the company money. | Biodiversity offsets and compensation mechanisms | | X | | | - | - | Private sector company | Cost reduction | - | - | Spain | - | http://teebforbusiness.earthmind.net/files/DuPont-Funding_Biodiversity.pdf |
| 198 | Ginko Fund<br>The Ginkgo Fund aims to build a diversified portfolio of | Finance Facility | | | | X | - | - | Private sector company | Generation of revenues | - | - | Various | - | http://tbauler.pbworks.com/f/Farber_ |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | contaminated sites and to remediate them, before reselling them at a premium to third parties. In certain cases, after remediation the Fund will seek to maximise value through the development of 'green' real estate projects. The geographical focus is Belgium and France. | | | | | | | | | | | | | | Ginko.pdf |
| 199 | BLUE AP<br>BLUE AP is a LIFE+ project for the implementation of an Adaptation Plan to Climate Change for the Municipality of Bologna, providing for some concrete local measures to test, in order to make the city more resilient and able to meet the climate change challenges. The BLUE AP planning and testing actions developed in the city of Bologna will lead to the creation of guidelines useful for the definition of similar adaptation plans, that can be adopted by other medium-size Italian cities. | Urban green infrastructure | | | X | | 0.96 | - | Local community<br>Local authority<br>Private sector company | Generation of revenues | - | Disaster moderation/ adaptation | Italy | - | http://www.blueap.eu/site/en/ |
| 199 | Österreichische Bundesforste AG<br>Österreichische Bundesforste AG is a private company operating in forestry management, educational and awareness projects, implementation of compensation measures (notably for infrastructure projects) and ecosponsoring. | Agriculture and Forestry | | X | | | - | - | Private sector company | Generation of revenues | - | Maintenance of habitats/ biological diversity | Austria | - | http://www.bundesforste.at/ |
| 200 | Defray PES pilot research projects<br>PES pilot research projects run by DEFRA in the following areas:<br>Hull<br>River Fowey | Rural green infrastructure/ Urban green infrastructure | X | | | | - | - | Land owners | Generation of revenues | - | Water management | UK | - | https://www.gov.uk/government/publications/payments-for-ecosystem-services-pes- |

| Ref. | Example project title + brief description | EC Category/ Sector | PES | O | GI | SIPB | Cost €m | Scale | Market Participant (s) | Drivers | Barriers | Revenue* | Country | Financial Mechanism | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Poole Harbour and the Frome and Piddle catchments<br>Developing a place-based PES in the English Uplands. | | | | | | | | | | | | | | action-plan |

**Contact us**


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