



## BENEFITING FROM ECOSYSTEM SERVICES: TOWARDS A SHARED UNDERSTANDING

### New ways of thinking about nature and the environment

The need to protect and manage 'natural capital' has been increasingly acknowledged alongside the other 'capitals' on which society depends. For example, the importance of investing in green and blue infrastructure<sup>1</sup> is now recognised for its contribution to people's health, and the reduced risks and costs of flooding. Initiatives such as biodiversity offsetting<sup>2</sup> offer the opportunity of finding efficient ways of protecting and reinvesting in nature and of developing the 'green economy'. Our success to mitigate the effects of

climate change will also depend on the ability of ecosystem management to increase the amount of carbon sequestered by the ecosystems.

The many ways that nature can contribute to our well-being is now covered by the concept of ecosystem services. To use this new concept effectively we need novel approaches that help us measure and classify these services. We need the capacity to think creatively about how different policy areas can benefit from taking ecosystem services into account. In particular we need agreed standards for defining and measuring ecosystem services in order to share data, value the services, and monitor how policies are impacting on the ability of nature to contribute to human well-being.

### Key messages

A key challenge in applying the concept of ecosystem services lies in developing a standard classification for identifying, measuring and mapping the benefits that people derive from ecosystems.

The Common International Classification of Ecosystem Services (CICES) provides a standard typology of ecosystem services, underpinned by a sound conceptual framework. This comprehensive classification can either be used directly or used as a reference system so that information can be transferred between other systems.

The cascade model provides a simple way of visualising and communicating the idea of ecosystem services and their relationships between underlying ecological processes and the benefits that ecosystems provide to people.

Creating a joint understanding in participatory and context sensitive manner is the key issue for utilising the concept of ecosystem services. OpenNESS has undertaken such **consultation process** and further information can be found at: <http://www.openness-project.eu/library/reference-book>.

### The need for standards and shared understandings

The field of ecosystem services has developed rapidly as a result of major international initiatives such as the *Millennium Ecosystem Assessment*<sup>3</sup> and *The Economics of Ecosystems and Biodiversity*<sup>4</sup>. The newly established

### Key concepts

**Ecosystem services** are the direct contributions that ecosystems (whether natural or semi-natural) make to human well-being; their fundamental characteristic is that they retain a clear link to underlying ecosystem functions, processes and structures.

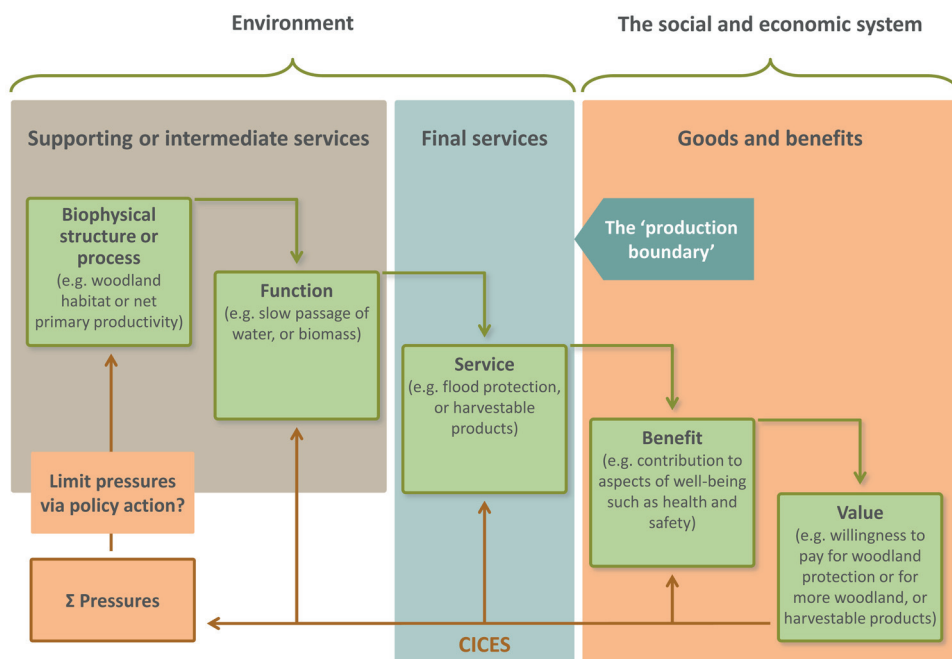
**Ecosystem goods or benefits** are the direct and indirect outputs from ecosystems that have been turned into material products or experiences that are no longer 'functionally connected' to the systems from which they were derived.

<sup>1</sup> <http://ec.europa.eu/environment/nature/ecosystems/studies.htm>

<sup>2</sup> <http://ec.europa.eu/environment/enveco/biodiversity/>

<sup>3</sup> <http://www.maweb.org/en/index.aspx>

<sup>4</sup> [www.teebweb.org](http://www.teebweb.org), e.g. chapter on conceptual framework, De Groot et al. (2010)



## The Cascade Model

This figure clarifies the terminology that is used in relation to the ecosystem service concept. CICES provides a typology of so-called 'final services' that contribute directly to material goods or non-material benefits. The latter sit on the other side of the 'production boundary' in the sense that the outputs are no longer closely connected to ecosystem structure and processes, but form products or conditions that are of value to people in some way. The ecological structures and functions that underpin the delivery of these final services are sometimes referred to as 'intermediate' or 'supporting services'.

The figure has been modified from Potschin & Haines-Young (2011) *Progr. Phys. Geog.* 35(5), 575–594.

Intergovernmental Platform on Biodiversity and Ecosystem Services<sup>5</sup> will be important in continuing this work. Despite the progress that has been made, however, there is still a lack of an agreed terminology. Different conceptions sometimes lead to confusion.

It is especially important to distinguish between the services that ecosystems provide and the way they benefit people. This is necessary so that we can account for services in an accurate way and properly value the contributions they make. To help with these kinds of problems, OpenNESS is further developing and testing the *Common International Classification of Ecosystem Services*<sup>6</sup> (CICES) that is one of the key standards. CICES has been adopted as the basis for the mapping of ecosystem services under the EU *Biodiversity Strategy to 2020*<sup>7</sup>. OpenNESS will contribute to this work by developing standardised approaches and applying CICES at different scales.

CICES is not intended to replace other ways of classifying ecosystem services, but rather to provide a common framework and *reference system* that can enable standardised and systematic comparisons. This will be especially important when techniques such as 'benefit transfer' are used to estimate the value of ecosystem

services at one place from work done elsewhere. OpenNESS has already created a web-based tool for policy advisers and managers to help them navigate between different classification systems<sup>8</sup>. This tool will be extended during the lifetime of the project.

In addition to the development of standards, OpenNESS will provide ways of helping people to visualise the idea of ecosystem services so that they can apply it more easily in their work. An example of this is the *cascade model* (see figure). It shows how ecosystem services relate to the ecological structures and processes that underpin them, and how services link to benefits and values. The challenge is to develop conceptual models that clearly show people what the various definitions mean in practice and how they relate to each other. •

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5 <http://www.ipbes.net/> e.g. consultation on conceptual framework

6 Download at [www.cices.eu](http://www.cices.eu) and spread sheet

7 <http://biodiversity.europa.eu/ecosystem-assessments/european-level>

8 <http://openness.hugin.com/example/cices>