



GREEN economy

Briefing Paper

Valuing Nature

Overview

Economic activity and human well-being depend on the Earth's ecosystems and the services these ecosystems provide such as food, fresh water, climate and flood regulation, and recreational and aesthetic enjoyment. Forests store carbon, provide timber and other valuable products as well as habitat to a wide array of species. Wetlands purify water and offer protection against floods. Mangroves protect coasts and coastal populations from storms and tsunamis. Coral reefs provide breeding grounds for fish and attractions for tourists. The list of benefits provided by nature is vast. Yet, species are still being lost and ecosystems destroyed with nearly two thirds of ecosystem services now considered degraded.

Although the cost of these losses is felt on the ground, particularly by the poor who are highly dependent on natural capital, it often goes unnoticed at national and international levels because the true value of natural capital is not reflected in decisions, indicators, accounting systems and prices in the market.

Part of the challenge is that the sheer range of benefits from ecosystems is often poorly understood. The term "ecosystem services" – the benefits derived from nature – is a useful concept for making the value of nature more explicit and relevant to human well-being. The Millennium Ecosystem Assessment (MA), launched in 2005, distinguishes between "provisioning services" such as food, water or timber; "regulating services" such as flood and disease regulation; "cultural services" including recreational and spiritual services;

and "supporting services" such as soil formation and nutrient cycling.

In reality, most ecosystems deliver a variety of services and benefits to humans. These benefits can be direct or indirect and tangible or intangible (beautiful landscapes foster cultural identity and human well-being). They can be provided locally and at global scale (forests influence local rainfall but also sequester carbon and help regulate climate change). They can be scattered and in some cases are even more important to future generations – all of which makes measuring their value challenging – yet critical.

Indeed, the systematic under-valuation of ecosystem services and failure to capture their values is one of the main causes of today's biodiversity and ecosystem crisis.

The MA sets out the relationship between ecosystem services and human well-being. This was further elaborated in The Economics of Ecosystems and Biodiversity (TEEB) series of studies, highlighting the "structure-function-service-benefit" relationship between nature and human well-being (Figure 1).

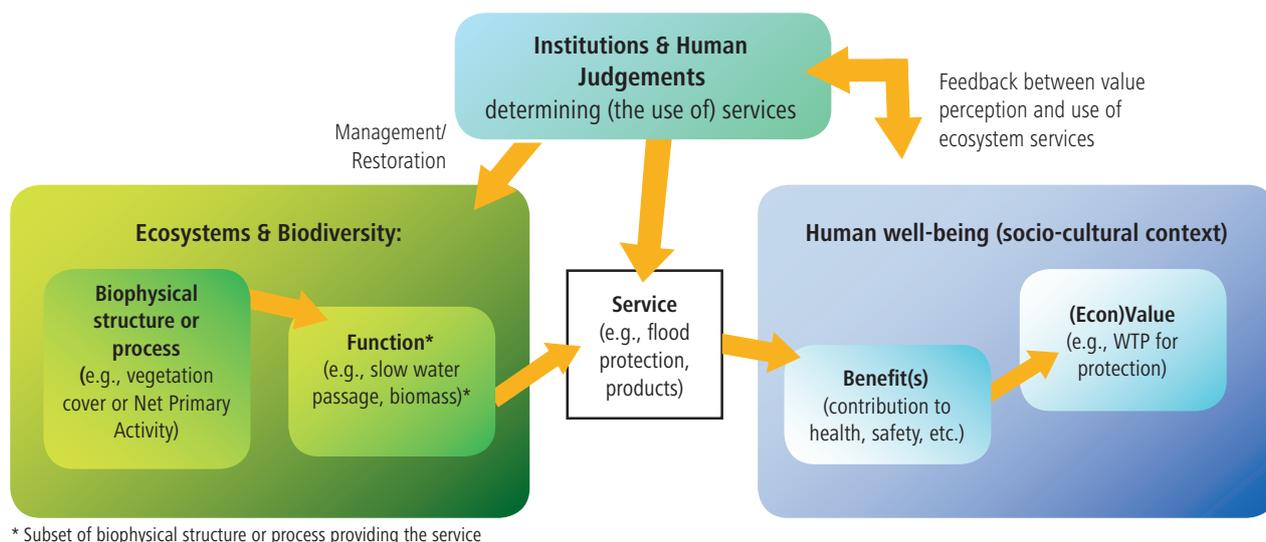
These ecosystem services, especially those supporting food, timber and fisheries production, contribute significantly to global employment and economic activity, particularly in developing countries.

For instance, it is estimated that more than one billion people are employed in the agriculture sector with another 30 million people deriving income from fishing and fishing related activities. Moreover, approximately 95 per cent of the employment in the fisheries sector is located in developing countries.

The loss of biodiversity and ecosystem services has direct economic repercussions that are systematically underestimated. Ensuring that the value of natural capital is visible to economies can help society pave the way for more targeted and cost-effective solutions. Valuing natural capital should not be equated with its sale on the open market, but rather as an indicator of its importance in sustaining human and economic prosperity.

*UNEP defines a **green economy** as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.*

Figure 1. The pathways from ecosystem structure and processes to human well-being



* Subset of biophysical structure or process providing the service

Source: Adapted from Hanes-Young & Potschin, 2010 and Maltby (ed.), 2009.

At a more fundamental level, healthy ecosystems represent the foundation of economic activity and a prerequisite for achieving a green economic transition. Given this, it is essential that the economic value of these services are recognized, demonstrated and captured in the accounts and decision-making of governments, the private sector and consumers.

Recognizing, demonstrating and capturing value

Understanding the full range and value of ecosystem services can help governments and businesses make the most efficient, cost-effective, and responsible decisions. For instance, it can reveal opportunities for cost savings through timely or targeted action, such as where ecosystem services could be provided at lower cost than man-made alternatives (e.g., for water purification/ provision, carbon storage or flood control). A pragmatic, tiered approach to valuation in analyzing problems and developing policy responses is recommended.

In some cases, it may be sufficient to simply recognize the value of ecosystems and biodiversity to ensure their sustainability. These values can often be described in qualitative terms and reflect the intrinsic, spiritual

or social value of nature. For instance, protected areas such as national parks have historically been established in response to a collective heritage or patrimony without the need to place a monetary value on the services provided. In such cases, economic valuation may even be counterproductive if it is inconsistent with cultural norms or fails to reflect the full range of values.

In other cases, it may be necessary to “demonstrate” the value of ecosystems and biodiversity in economic terms to ensure balanced and informed decision-making. This is particularly true when policy-makers and businesses make decisions impacting ecosystems based on a cost and benefit calculation. A failure to demonstrate ecosystem values in such cases can easily lead to perverse policy and business decisions. For instance, when considering the conversion of wetlands for agricultural or industrial use, a policy-maker would not have the full picture if the value of the wetland in terms of water filtration and flood control services is ignored (see Box 1).

In addition to assisting in cost-benefit analyses, the demonstration of economic value can be an important tool for achieving more efficient use of natural resources, highlighting the costs of achieving environmental targets, and identifying more efficient

UNEP launched its Green Economy Initiative in 2008, and is currently supporting over 20 countries around the world in their transition towards a green economy.

Box 1. Nakivubo Swamp

The results of a valuation exercise for the city of Kampala, Uganda, showed that the nearby Nakivubo Swamp provided an economic value of between USD 1 million and USD 1.75 million a year in wastewater purification and nutrient retention services. Researchers concluded that the services provided by the Nakivubo Swamp created a much cheaper means of treating Kampala's wastewater than the expansion and maintenance of new wastewater facilities. Moreover, public funds were simply not available to replicate the natural ecosystem services provided by the swamp. Despite these findings, policy makers have been slow to protect the area and the wetland's ability to remove nutrients and pollutants has been greatly reduced over the past decade. However, in 2008, the Kampala Sanitation Programme proposed a new plan to reduce the pollutant load by expanding existing sewage treatment facilities in Kampala and rehabilitating and increasing the Nakivubo wetland area in order to re-establish its original ecosystem services.

means of delivering ecosystem services. As such, valuation can assist policymakers in addressing trade-offs in a rational manner.

Once values have been demonstrated, it is sometimes useful to "capture" these values through various policy instruments, such as Payments for Ecosystem Services (PES), which provide financial incentives for the responsible stewardship of the services. The structure of PES schemes can vary widely and involve a number of different stakeholders. However, the use of PES schemes should be limited to those instances where appropriate safeguards have been put in place to avoid abuse.

Moreover, it should be noted that demonstrating the economic value of nature should not, and does not, always lead to the *marketization* of nature. This is a separate societal and policy choice which can only be made after careful consideration of the potential impact this will have on the ecosystems and the communities dependent on these ecosystems. Placing blind faith in the ability of markets to optimize social welfare, by privatizing the ecological commons and letting markets discover prices for them, is not the answer.

What UNEP is doing

Given the key role of natural capital in a green economy transition and poverty alleviation, UNEP is engaged in a number of projects focused on recognizing, demonstrating and capturing the value of natural capital in decision-making. For example:

The Project for Ecosystem Services (ProEcoServ):

ProEcoServ, funded by the Global Environment Facility, consists of three components each adapted to the particularities of participating countries: the development of valuation tools to support decision-making, assistance in the application of ecosystem management approaches and strengthening of science-policy interface. Its overall goal is to better integrate the assessment and valuation of ecosystem services into resource management and sustainable development planning.

For more information: www.proecoserv.org

The Economics of Ecosystems and Biodiversity (TEEB):

TEEB is an international initiative hosted by UNEP to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to

The Green Economy Report, published by UNEP in 2011, makes a compelling economic and social case for investing two per cent of global GDP in greening 10 central sectors of the economy.

draw together expertise from the fields of science, economics and policy to enable practical actions moving forward. TEEB has produced four principal reports aimed at various stakeholders, including national decision-makers, local and regional policy-makers and businesses.

For more information: www.teebweb.org

The Sub-Global Assessment Network (SGA Network):

The SGA Network, developed as an institutional response to the growing number of MA follow-up studies and hosted by UNEP-WCMC, aims to create a common platform for practitioners, both individuals and organizations, involved in ecosystem assessment at the regional, national and sub-national levels.

For more information: www.ecosystemassessments.net

The International Ecosystem Management Partnership (IEMP):

IEMP is a joint programme between UNEP and China's Academy of Sciences to promote South-South cooperation on ecosystem management recognizing the importance of ecosystem services for human well-being and poverty eradication.

United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD):

As one of the coordinating agencies for the UN-REDD programme, UNEP leads on efforts to evaluate and highlight the benefits and ecosystem services of REDD beyond carbon sequestration, such as water, forest and biodiversity-based products, tourism and community development.

For more information: www.un-redd.org

Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES):

UNEP supports the newly established IPBES, an internationally recognized organization contributing to the interface between the scientific community and policy-makers that aims to build capacity for and strengthen the use of science in policy-making.

For more information: www.ipbes.net

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