The Economics of Ecosystems and Biodiversity (TEEB)

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Abstract

TEEB is a recent initiative that draws attention to the economic benefits of biodiversity globally. Its objective is to highlight the cost of the loss and degradation of biodiversity, including species and ecosystems. The initiative provides information that can help decision-makers recognize and demonstrate the values of biodiversity and support procedures to incorporate these values into decision-making. A report on water and wetlands identified gaps and inconsistencies in knowledge about the economics of water and wetlands as a base for further investigations.

Keywords

Ecosystem services · Economics · Ecosystems

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History of TEEB

TEEB is a recent initiative that drew attention to the economic benefits of biodiversity globally. Its objective is to highlight the cost of the loss and degradation of biodiversity, including species and ecosystems. The initiative provides information that can help decision-makers recognize and demonstrate the values of biodiversity and support procedures to incorporate these values into decision-making. The information that follows is largely drawn from the TEEB webpage (http://www.teebweb.org accessed 27 August 2016).

TEEB was developed after a meeting of environment ministers from the G8 + 5 countries in Potsdam, Germany, in March 2007. They agreed to initiate an analysis of the global economic benefit of biological diversity, the costs of the loss of biodiversity, and the failure to take protective measures versus the costs of effective conservation. The German Federal Ministry for the Environment and the European Commission (EC) initiated a global study with the support of an Advisory Board and presented an interim report to the Ninth Conference of the Parties to the Convention on Biological Diversity (CBD COP-9) in Bonn, Germany, in May 2008.

The interim report entitled *The Economics of Ecosystems and Biodiversity* (European Commission 2008) collated evidence and examples of economic valuation, identified elements of a bio diversity valuation framework, and emphasized the importance of issues such as ethics in making choices regarding future values. This report stimulated further interest and the production of a series of reports for specific stakeholders (see below).

The momentum for TEEB has shifted to implementation at the country level in response to requests from governments to build national, regional, and local capacity to produce tailored economic assessments of ecosystems and biodiversity and support to mainstream this information into policy-making. The support provided includes:

- Developing guidance material on how to mainstream the value of ecosystems and biodiversity into decision-making at the country level
- Organizing workshops to build the capacity of national, regional, and local stakeholders to produce tailored economic assessments of ecosystems and biodiversity
- Providing technical expertise to five pilot countries to undertake assessments of their ecosystems and biodiversity and mainstream this information into policy

TEEB comprises a tiered approach for analyzing and structuring valuation through three core principles, namely, that:

- Recognizing value in ecosystems, landscapes, species, and other aspects of biodiversity is a feature of all human societies and communities and is sometimes sufficient to ensure conservation and sustainable use.
- Demonstrating value in economic terms is often useful for policy makers and others to reach decisions that consider the full costs and benefits of an ecosystem

rather than just those costs or values that enter the markets in the form of private goods.
- Capturing value involves the introduction of mechanisms that incorporate the values of ecosystems into decision-making through incentives and price signals.

Major Activities

The TEEB initiative has now presented an impressive number of reports. These include the following reports presented at the Convention on Biological Diversity conference of parties in Japan in October 2010, as listed below:

- TEEB Ecological and Economic Foundations (2010) – the fundamental concepts and state-of-the-art methods for economic valuation of biodiversity and ecosystem services
- TEEB in National and International Policy Making (2010) – an analysis and guidance on how to value and internalize biodiversity and ecosystem values in policy decisions
- TEEB in Local and Regional Policy (2010) – an analysis and guidance for mainstreaming biodiversity and ecosystem values at regional and local levels, with case study examples;
- TEEB in Business and Enterprise (2010) – an analysis and guidance on how business and enterprise can identify and manage their biodiversity and ecosystem risks and opportunities.
- TEEB Synthesis Report (2010) – an introduction to the approaches used and recommendations on how to mainstream the economics of nature into decision-making.

Building on the impetus generated by the initial report, a number of additional studies have been undertaken. These include the following:

- TEEB Manual for Cities (2012) – focuses on how ecosystem services and their valuation can create direct benefits for cities and provides a stepwise guidance on how to do this, with in-depth case studies.
- TEEB Climate Issues Update (2009) – shows how climate change and biodiversity are inextricably linked and how investments in the restoration and conservation of ecosystems can play a major role in combating climate change.
- TEEB Oceans discussion paper (2012) – was presented at the World Oceans Summit, February 2012, and provides guidance on improving ocean management and investing in the economic benefits of marine conservation.
- Nature and its Role in the Green Economy (2012) – a discussion paper prepared for the United Nations Conference on Sustainable Development (Rio + 20) looking at how nature and natural capital contribute to a green economy.

TEEB for Water and Wetlands

This report was initiated by the Ramsar Convention Secretariat with support from the Norwegian, Swiss, and Finnish Governments, and underlines the fundamental importance of wetlands in the water cycle, and presents insights on critical water-related ecosystem services in order to encourage additional policy momentum, business commitment, and investment in the conservation, restoration, and wise use of wetlands (Russi et al. 2013). It uses the TEEB approach to generate a better understanding of the ecosystem service values of water and wetlands and encourages improved decision-making and business commitment for their conservation, investment, and wise use. The main purpose of the report was to identify major gaps and inconsistencies in current knowledge of the economics of water and wetlands, so as to inform agenda-setting for further work on the economics of water and wetlands. The report is accessible from http://www.teebweb.org/wp-content/uploads/2013/04/TEEB_WaterWetlands_Report_2013.pdf (accessed 27 August 2016).

The key messages from the report by Russi et al. (2013) are reproduced below:

1. The "nexus" between water, food, and energy is one of the most fundamental relationships – and increasing challenges – for society.
2. Water security is a major and increasing concern in many parts of the world, including both the availability (including extreme events) and quality of water.
3. Global and local water cycles are strongly dependent on wetlands.
4. Without wetlands, the water cycle, carbon cycle and nutrient cycle would be significantly altered, mostly detrimentally. Yet policies and decisions do not sufficiently take into account these interconnections and interdependencies.
5. Wetlands are solutions to water security because they provide multiple ecosystem services supporting water security as well as offering many other benefits and values to society and the economy.
6. Values of both coastal and inland wetland ecosystem services are typically higher than for other ecosystem types.
7. Wetlands provide natural infrastructure that can help meet a range of policy objectives. Beyond water availability and quality, they are invaluable in supporting climate change mitigation and adaption and support health as well as livelihoods, local development, and poverty eradication.
8. Maintaining and restoring wetlands in many cases also lead to cost savings when compared to manmade infrastructure solutions.
9. Despite their values and despite the potential policy synergies, wetlands have been, and continue to be, lost or degraded. This leads to biodiversity loss – as wetlands are some of the most biodiverse areas in the world, providing essential habitats for many species – and a loss of ecosystem services.
10. Wetland loss can lead to significant losses of human wellbeing and have negative economic impacts on communities, countries, and business, for example, through exacerbating water security problems.

11. Wetlands and water-related ecosystem services need to become an integral part of water management in order to make the transition to a resource efficient, sustainable economy.
12. Action at all levels and by all stakeholders is needed if the opportunities and benefits of working with water and wetlands are to be fully realized and the consequences of continuing wetland loss appreciated and acted upon.

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